Deka

STIEGELMEYER

Clinic | Care | Homecare | Living

Instruction Manual

CE

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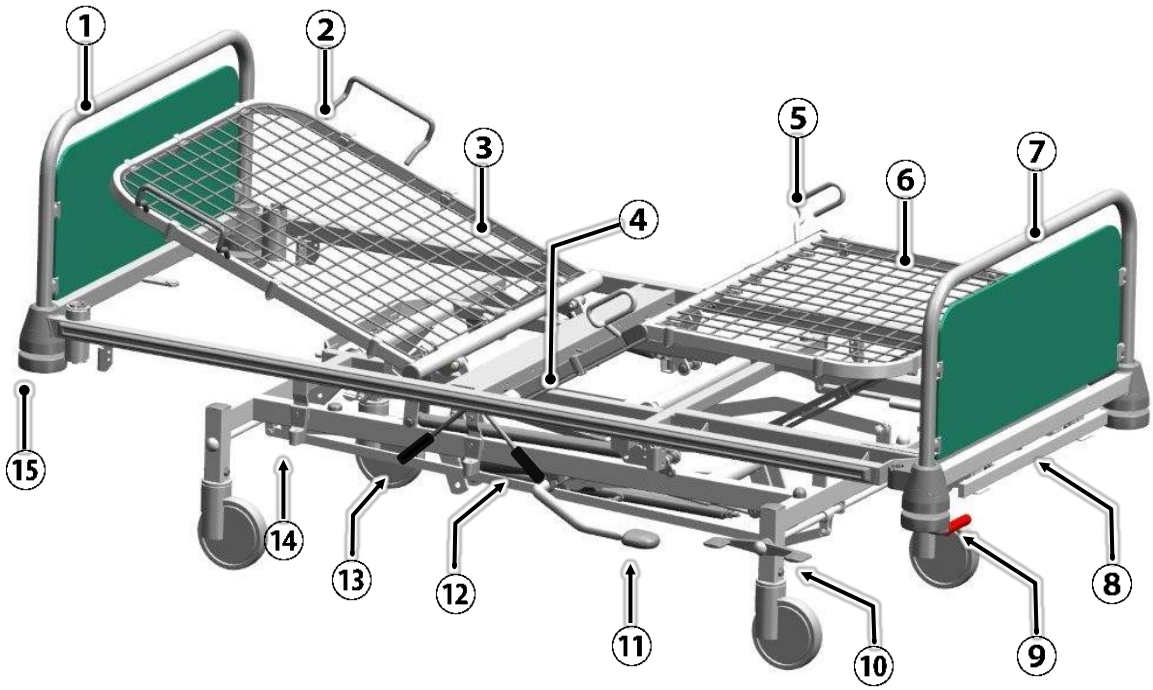
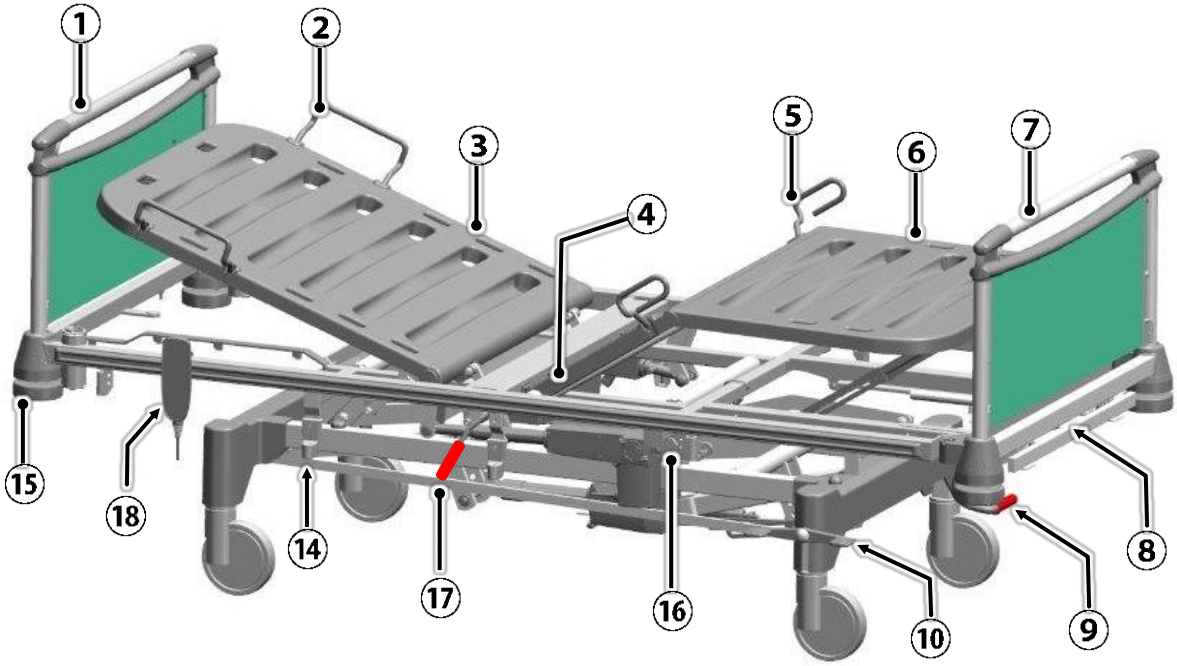
Deka - mechanical



Deka - electric



1	Headboard	2	Backrest handle
3	Backrest	4	Thigh rest
5	Thigh rest handle	6	Lower leg rest
7	Footboard	8	Linen holder, extensible, with gallery rail
9	Tilting lever	10	Brake pedal (both sides) for braking the bed
11	Height adjustment foot pedal	12	Thigh rest adjustment lever
13	Backrest adjustment lever	14	Universal holder, sliding, on both sides
15	Wall deflection rollers	16	Magnet (on both sides) to unlock control levels on handset
17	Lever (on both sides) for CPR release of backrest	18	Handset

Contents

1 Manufacturer's Address, Change History, Market Information

Manufacturer:

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Service centre:

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

Stiegelmeyer GmbH & Co. KG
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Customers outside Germany can contact our distribution companies in their respective 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 these hospital beds in these markets, including via 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 high-quality durable products. 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. It will help you to put the bed into service for the first time and to use it on a daily basis. The instruction manual contains all necessary information to ensure ease of operation and safe handling of 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 purchasing a bed, Stiegelmeyer is still on hand to help at any time. Our Assist business division can provide you with customised solutions in all matters relating to inspection and maintenance, repair and process optimisation. You can reach our service centre in Germany by phone at +49 (0) 5221 185 - 777. Customers outside Germany can contact our distribution companies in their respective 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

Important: This instruction manual was compiled for a complete range of hospital beds. Hospital beds in the Deka range can be supplied in a mechanical or electric version with a greater or lesser number of functions. Please note that functions or equipment that your bed does not incorporate may be described in this instruction manual.

3.1 Operator

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

3.2 Operator Responsibilities

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

Only allow this bed to be used by persons who have been instructed in its safe operation!

- **In Europe:** Ensure that users know where this instruction manual is kept, in accordance with the Medical Devices Directive 93/42 EEC!
- **In other countries**, the relevant national regulations must be complied with!
- Using this instruction manual, which is provided with this hospital bed, ensure that every user is instructed in the safe operation of this bed before using it for the first time!
- Draw every user's attention to the possible hazards that can arise if the hospital bed is improperly used. This applies in particular to the use of electrical actuators and safety sides!
- Make sure that substitute staff are also sufficiently well instructed in the safe operation of the hospital bed!

Check to ensure that the safety instructions are adhered to!

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

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

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

Consult the manufacturer of these devices, or Stiegelmeyer, if there are any uncertainties.

3.3 Users (Medical Staff)

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

3.4 Users (Technicians)

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

3.5 Qualification of Users

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

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

3.6 Duties of Users

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

In Europe: Before using a hospital bed, you, as the user, must check each time that the hospital bed is fully functional and in perfect working order, and must observe the instructions in the instruction manual - particularly the safety information - during operation and maintenance in accordance with the Medical Devices Directive 93/42 EEC. This is the only way to prevent operating errors and ensure correct handling in order to prevent from injuries and damage from occurring.

In other countries: In other countries, the relevant national regulations concerning the duties of the operator must be followed!

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

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

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

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

Consult the manufacturer of the equipment in question, or Stiegelmeyer, if there are any uncertainties.

⚠ CAUTION

Risk of Injury

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

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

3.7 Patient

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

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

4 Conventions of this Instruction Manual

4.1 Safety Information

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

DANGER

DANGER

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

WARNING

WARNING

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

CAUTION

CAUTION

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

IMPORTANT

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

4.2 Icon Information

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

General information, tips and helpful courses of action.

Cross-reference or active link: The double arrow separates the chapter title from the page number. Example: see Safety Information »14.

5 Safety Information

5.1 Safety Information for Bed Operation

- This hospital bed may only be operated by persons who have been instruction by the operator in its safe operation.
- Electrical adjustments are only possible when the hospital bed is properly connected to the mains power supply (exception: emergency operation using lead-acid batteries).
- If the load is too high, an electronic overload switch is activated and the control unit is automatically switched off. When the overload is removed, the actuator system resumes operation.
- If the hospital bed changes ownership, the instruction manual must be handed over with the bed.

5.1.1 Electrical Cabling and Connections

⚠ WARNING

Danger due to Electric Shock

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

- If a damaged mains cable continues to be used, this can lead to electric shock, fire and other hazards as well as malfunctions. A damaged mains cable must be replaced immediately!
- Connect the bed only to a mains electricity supply with an earth wire.
- Route the mains cable in such a way that it cannot be pulled, driven over 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.
- 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 cable regularly to ensure that the screws are tight and secure.
- Do not place multiple socket outlets under the bed. This could cause electrical hazards due to damaged mains cables or penetrating fluids.
- Do not continue to use the bed if you suspect that the mains cable could be damaged.

5.1.2 Length of Operation of Electric Actuators

IMPORTANT

Do not operate for more than two minutes at a time!

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

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

In this extremely rare case, the control unit must be replaced.

5.1.3 Handset

Please note: Not all illustrations show the model that you have purchased. The step-by-step instructions should still be carried out accordingly for your particular model.

When not in use, always use the hook provided to stow the handset in such a way that it cannot fall off onto the floor and become damaged (see illustrations). Avoid collisions with other objects or devices as this could inadvertently trigger adjustment functions and result in damage.

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

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

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

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

5.1.4 Bed Adjustment

⚠ CAUTION

Risk of Injury

Lock the operating functions for the patient on the handset if

- The patient is unable to operate the bed safely,
- The patient is unable to free himself/herself from potentially dangerous situations,
- The patient could be at risk from inadvertent adjustment of the electric actuators,
- Children are left unsupervised in the room with the bed.

Lock backrest and thigh rest adjustments on the handset even if the safety sides are raised. There is otherwise a risk of limbs being crushed or trapped when adjusting the backrest or thigh rests. The following label with information on this is located on the linen holder:

⚠ CAUTION

Risk of Crushing

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

IMPORTANT

Ensure that

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

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

5.2 Special Hazards

5.2.1 Risk of Fire

⚠ WARNING

Risk of Fire

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

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

5.2.2 Electromagnetic Interference

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

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

As with every electrical device, even if all the specified EMC limiting values are observed during operation, disruptions from and to other closely situated high-frequency communication devices cannot be completely ruled out (e.g. ‘crackling’ on a radio). In such rare cases, increase the distance between the devices or align them differently, and make sure that they do not use the same electrical outlet, or switch the disruptive/disrupted device off temporarily. Explain the necessary precautions to the patient as well.

5.3 Safety Information for Attachments and Additional Equipment

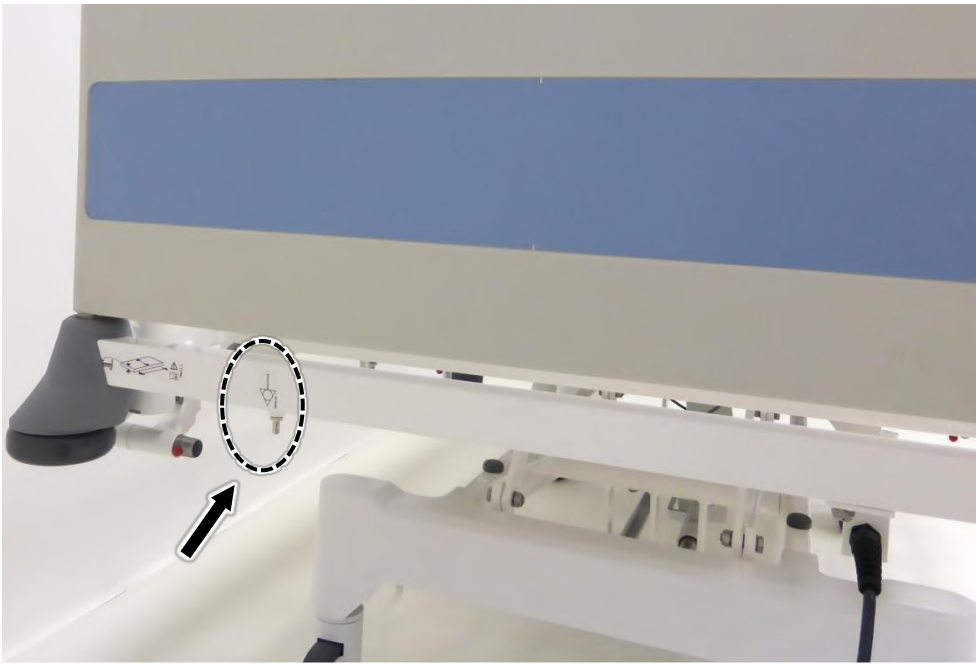
Efficient and safe operation combined with maximum protection of patients can only be guaranteed if original Stiegelmeyer accessories are used that are designed for the relevant model of bed! Make sure that the attachment of accessories does not produce any crush or shearing zones when the bed sections are adjusted. If this cannot be ensured, you must lock those particular adjustment controls! (Use the locking functions on the handset for this purpose).

5.3.1 Use of Additional Electromedical Equipment

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

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

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



Connection pin and potential equalisation symbol (head end)

In addition, observe the information given in:

- Chapter Safety Information Concerning the Place of Use **»** 36 and Chapter Electromagnetic Interference **»** 17.
- All the information given in the instruction manuals of the additional devices as well as the requirements stipulated in the relevant standard EN 60601-1, Chapter 16 (formerly EN 60601-1-1).

5.3.1.1 Use of ECG/EEG Equipment

It is not normally a problem to use ECG/EEG equipment for patient monitoring together with electric hospital beds. Should the bed's electrical equipment, contrary to expectation, have a marginal effect on the measurements, the ECG electrode conductors should be placed as parallel as possible to the patient's arms and legs. The bed should then be connected to the hospital's potential equalisation (PE) system using the connection pin at the head end of the bed. Many of these devices also feature a 50 Hertz line filter which can be turned on if necessary. Should this measure not be sufficient, unplug the bed from the mains supply. This effectively avoids any possible malfunctions.

5.3.1.2 Use of Defibrillators

- Electric beds in the Deka range are defibrillation proof even without a PE connection. Observe the information contained in the instruction manuals for the defibrillators as well.
- The use of HF surgical devices is not permitted on electrically adjustable beds.

5.3.2 Use of Patient Lifts

IMPORTANT

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

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

5.4 Safety Information for Accessories

⚠ CAUTION

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

5.5 Safety Instructions for Putting into Service

⚠ WARNING

Risk of Infection

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

⚠ CAUTION

Environmental Risk

Lead-acid batteries must not be disposed of as household waste. They can be returned to Stiegelmeyer or disposed of at local waste collection points in the same way as car batteries.

6 Product Description

Please note: Not all illustrations show the model that you have purchased. The step by step instructions should still be carried out accordingly for your particular model.

6.1 Intended Purpose

- **Essential Performance:** This bed is designed for positioning and transporting patients, as an aid to diagnosing, monitoring, treating, and alleviating illnesses or compensating for injuries or disabilities.
- The bed itself is not life sustaining or life supporting.
- The bed has no medical indication.

6.2 Designated Use

- The bed may only be used in hospitals and comparable medical facilities with qualified personnel within closed rooms.
- Qualified personnel must be skilled in handling the beds through being thoroughly conversant with the instruction manual.
- If the owner of the hospital bed changes, the instruction manual must be handed over with the bed.
- The bed with its stable, smooth-running castors is designed for being moved within the room as well as frequently in corridors and across thresholds with a height of up to 2 cm.
- This bed may be operated without restrictions and with a permanent maximum load of 225 kg (= safe operating load, consisting of occupant and accessories)

- The permitted weight of the patient depends on the total weight of the accessories attached at the same time (e.g. respirators, infusions,…)

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

Example:

Weight of Accessories (incl. Mattress)	Max. Permissible Weight of Patient
10 kg	215 kg
40 kg	185 kg

- This bed is designed for multiple re-use. When re-using the bed, observe the following requirements:
  - Cleaning and Disinfection (see Chapter 5)
  - Maintenance / Repeat Inspections (see Chapter 6).
- This bed may not be used in explosive environments caused, for example, by cleaning agents or anaesthetics.

- This bed may not be used in combination with high frequency surgical equipment.
- Take suitable measures to prevent pressure sores in long-stay patients.
- This bed is manufactured in three different mattress base sizes and accordingly adapted safety sides (accessory):

Designation	Mattress Base Size	Use for Patient Group
Deka	90 x 200 cm 80 x 200 cm	For patients measuring at least 146 cm in height
Deka Junior	80 x 180 cm	For measuring 120 cm to about 170 cm in height

- Before using the safety sides, assess and take into consideration the clinical condition and particular physical build of the patient:
  - For example, if the patient is extremely confused or very restless, avoid using safety sides as far as possible and make use of alternative safety measures such as posey belts, restraint sheets, etc.
  - In the case of particularly small, slightly built patients it may be necessary to use an additional form of protection to reduce the size of the gaps between the safety sides. In these cases, use protective covers (accessory), posey belts, etc.

6.3 Contraindications

This bed, with mattress base dimensions of 90 x 200 and 80 x 200 cm, if used with safety sides (optional), is only suitable for residents and patients who do not fall below the following minimum body size/weight:

- Height: 146 cm,
- weight: 40 kg
- Body Mass Index[1] 'BMI': 17

Owing to the smaller limbs of patients with lower body measurements/weight, there is an increased risk of entrapment between the open spaces of the safety sides when these safety sides are used. In this case, use the Deka junior version with the special safety sides available for this model with smaller bar spacing (Option) **» 105**.

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

6.4 Product Variants

Hospital beds in the Deka range can be manufactured in various sizes and variants. Depending on the customer's requirements, a hospital bed measuring

90x200 cm, 80x200 cm and 80x180 cm (Deka junior)

can be ordered in the following different variants:

- Fully mechanical (manual adjustment of backrest, thigh rest and lower leg rest, mattress base height and manual tilting of the head and foot end of the bed)
- Semi-mechanical - semi-electric (for example, electric backrest adjustment and manual mattress base adjustment)
- All-electric (all adjustable areas of the bed, except tilting the bed, can be carried out electrically).

6.5 Components of the Bed

6.5.1 Mattress Base in Four Sections

The mattress base is divided into a backrest, a seat section, a thigh rest and a lower leg rest. Depending on the bed variant (electric or mechanical), the mattress base height can be adjusted horizontally, and can be tilted into a Trendelenburg or reverse-Trendelenburg position. The backrest and thigh rest can be adjusted separately either electrically or mechanically, depending on the bed variant. In electric beds, the components for the electric actuator system are accommodated under the mattress base.

6.5.2 Two-Section Mattress Base

The mattress base is divided into a backrest and a seat section. The mattress base height can optionally be adjusted horizontally, and can be tilted into a Trendelenburg or reverse-Trendelenburg position. The backrest and thigh rest can be adjusted separately either electrically or mechanically, depending on the bed features available. The components for the electric actuator system are accommodated under the mattress base.

6.5.3 Bed Extensions (Optional)

Bed variants in the Deka range can optionally be fitted with a bed extension at the foot end. This enables the bed to be manually extended by either approximately 10 or 20 cm.

6.5.4 Chassis

The chassis is located under the mattress base. Depending upon the model of bed (electric/mechanical), the chassis contains the actuators or a hydraulic foot pump for raising and lowering the mattress base. The chassis has four castors that can be centrally locked, or locked per axle, using a foot pedal. One of the castors is equipped with a steering lock which enables the bed to be moved in a straight line. The chassis can be fitted with an optional fifth castor which takes over the function of the steering lock.

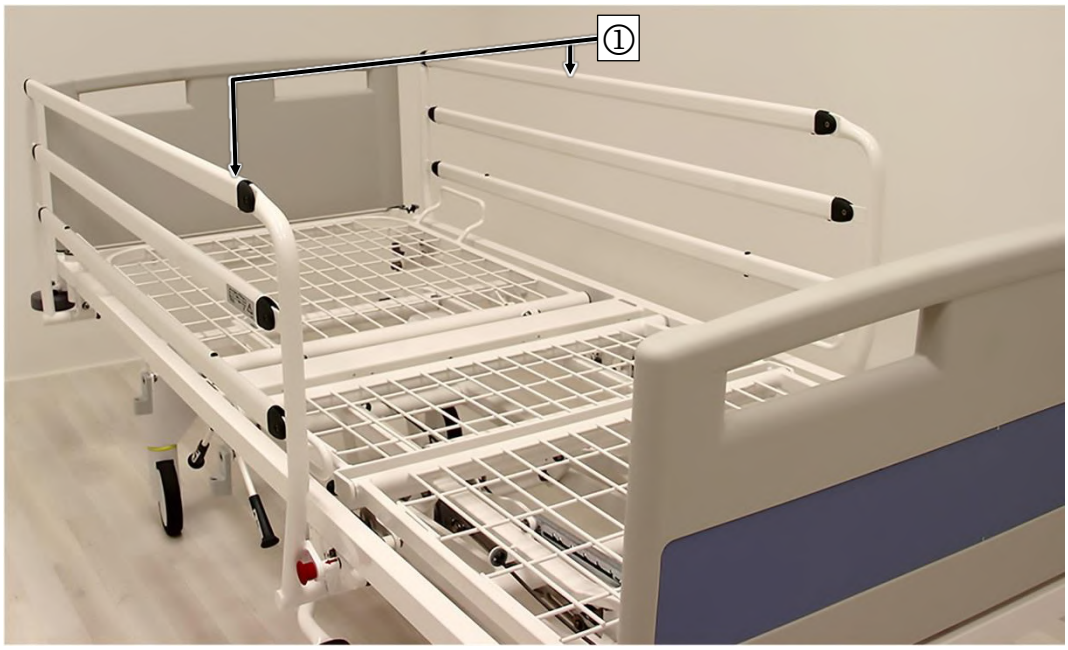
6.5.5 Electric Actuator System

The electric actuator system for a hospital bed may consist of the following components:

- An actuator / EM1: for the backrest
- Two actuators /EM2: for the backrest and mattress base
- Three actuators / EM3: for the backrest, mattress base height and thigh rest
- A handset with/without integrated multiple locking function for the patient to adjust the bed with
- Central control unit under the mattress base. The control unit there uses a transformer to generate a 24-volt protective low voltage which is non-hazardous for patients and users. The actuators, the handset and the locking box are connected to the control unit. These components operate on 24-volt protective low voltage and have dust and water protected plug connections.
- Lead-acid batteries (optional for beds with EM2 and EM3) for mains-independent emergency operation
- Locking box (optional for beds with EM2 and EM3). A handset without a locking function is supplied for this purpose. The user can lock the handset as necessary and activate CPR functions using the locking box.

6.5.6 3/4 Safety Sides (Optional)

The beds in the Deka range can optionally be fitted with a swivelling safety side (3/4 safety side) ① to protect the adult patient from falling out of bed.



3/4 Safety Sides

There are two versions:

Designation	Large mattress base	Safety Sides
Deka	90 x 200 cm 80 x 200 cm	Standard (3 bars)
Deka Junior	80 x 180 cm	Junior (4 bars with reduced spacing)

See Chapter “ 18.118.1 Accessories”.

6.5.7 Full-Length Safety Sides (Optional)

To protect the patient from accidentally falling out of bed, the Deka series beds can be fitted with a full-length safety side. These automatically extend when the bed extension is extended.

Please follow the installation and operating instructions provided in the separate instruction manual supplied with the safety side.

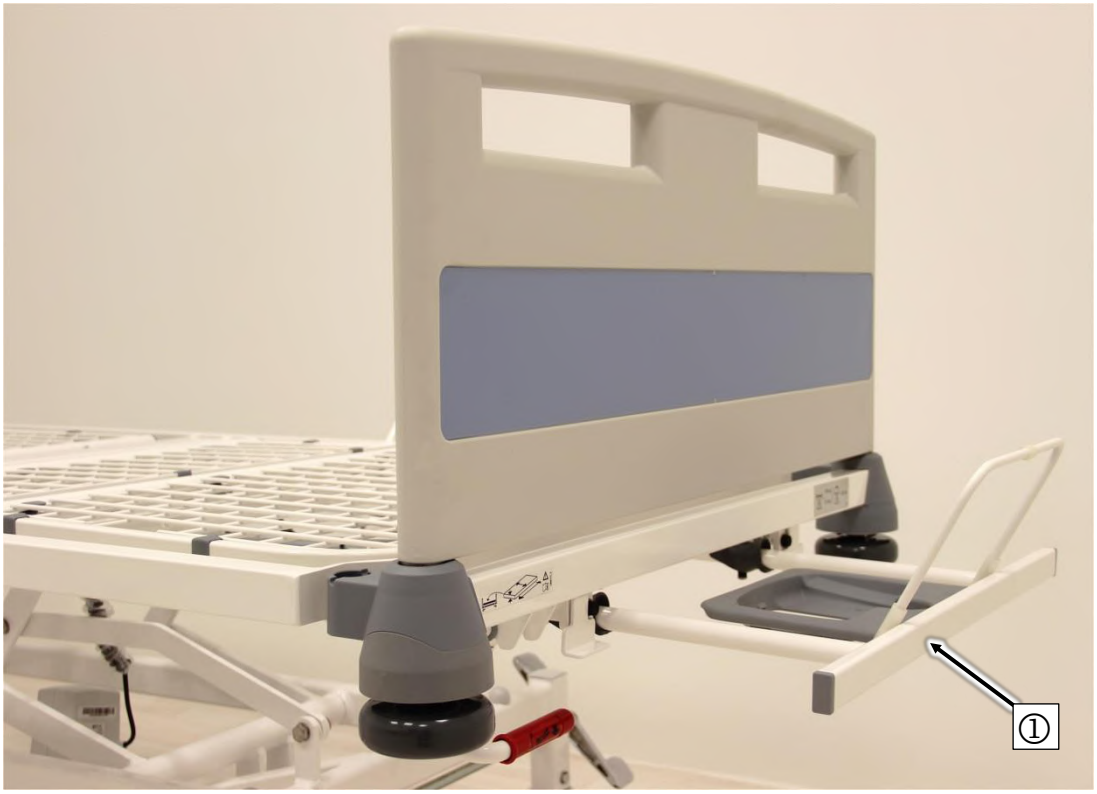
There are two versions:

Designation	Large mattress base	Safety Sides
Deka	90 x 200 cm 80 x 200 cm	Standard (3 bars)
Deka Junior	80 x 180 cm	Junior (4 bars with reduced spacing)

See Chapter “ 18.1 Accessories”.

6.5.8 Linen Holder (Optional)

. The foot end of the bed is fitted with a linen holder ①. It is fitted with a gallery rail and can be drawn out to provide a hygienic surface to put bedding on.

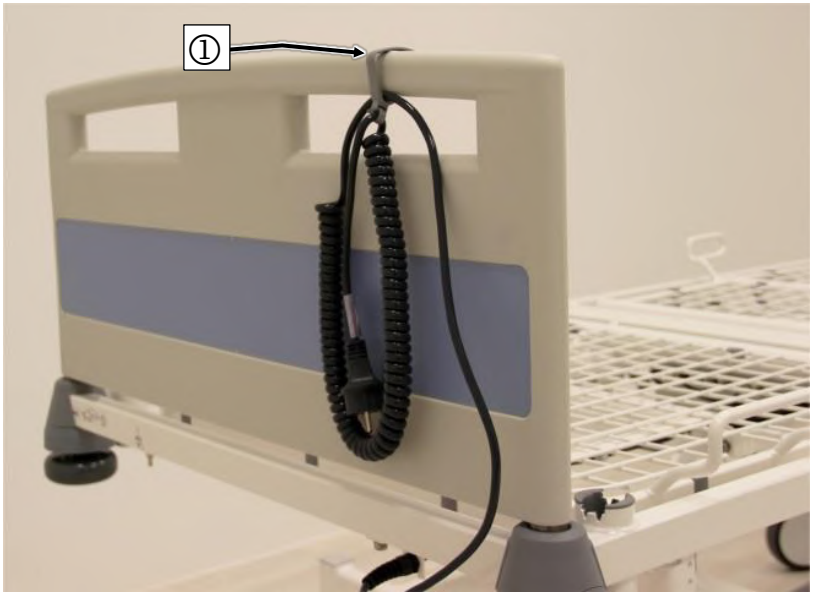


Linen holder

Instructions for using the linen holder are given in Chapter Using the Linen Holder **»** 42.

6.5.9 Mains Cable Holder

Beds in the Deka range are fitted with a plastic mains cable holder. The holder is attached to the mains cable itself ①.



Mains cable holder attached to the mains cable

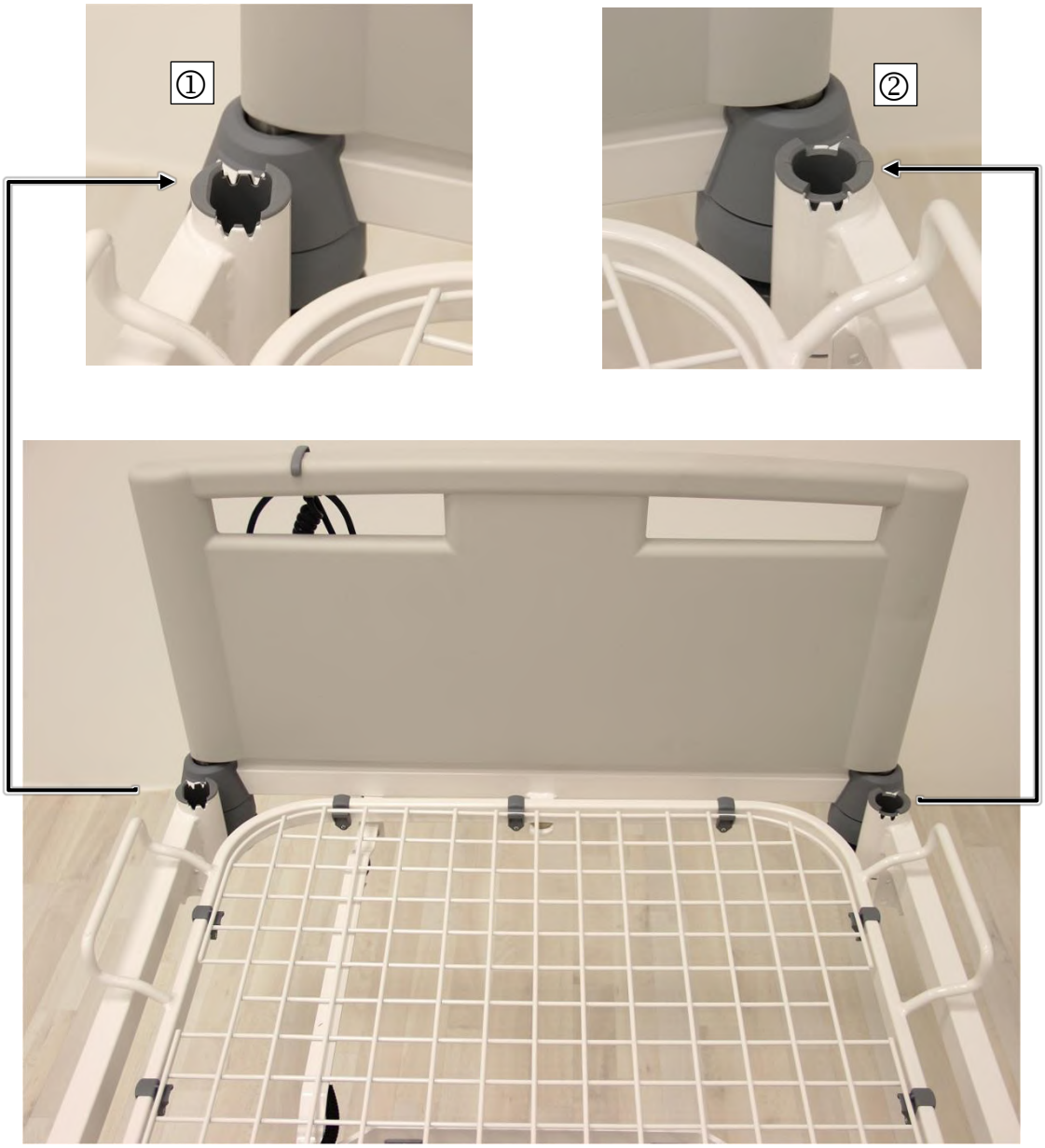
Hook the mains cable holder onto the headboard or footboard before moving the bed to prevent the mains cable from being driven over, crushed or torn off.

6.5.10 Adaptor Sleeves for Patient Lifting Pole / Infusion Stand

6.5.10.1 Patient Lifting Pole

On the inside of the headboard, there is an adaptor sleeve on each side of the bed for attaching a patient lifting pole or infusion stand. The adaptor sleeves are supplied with an oval ① or round ② reducing adaptor already inserted in them.

A grab handle is normally attached to the **patient lifting pole** (see Available Accessories » 105).

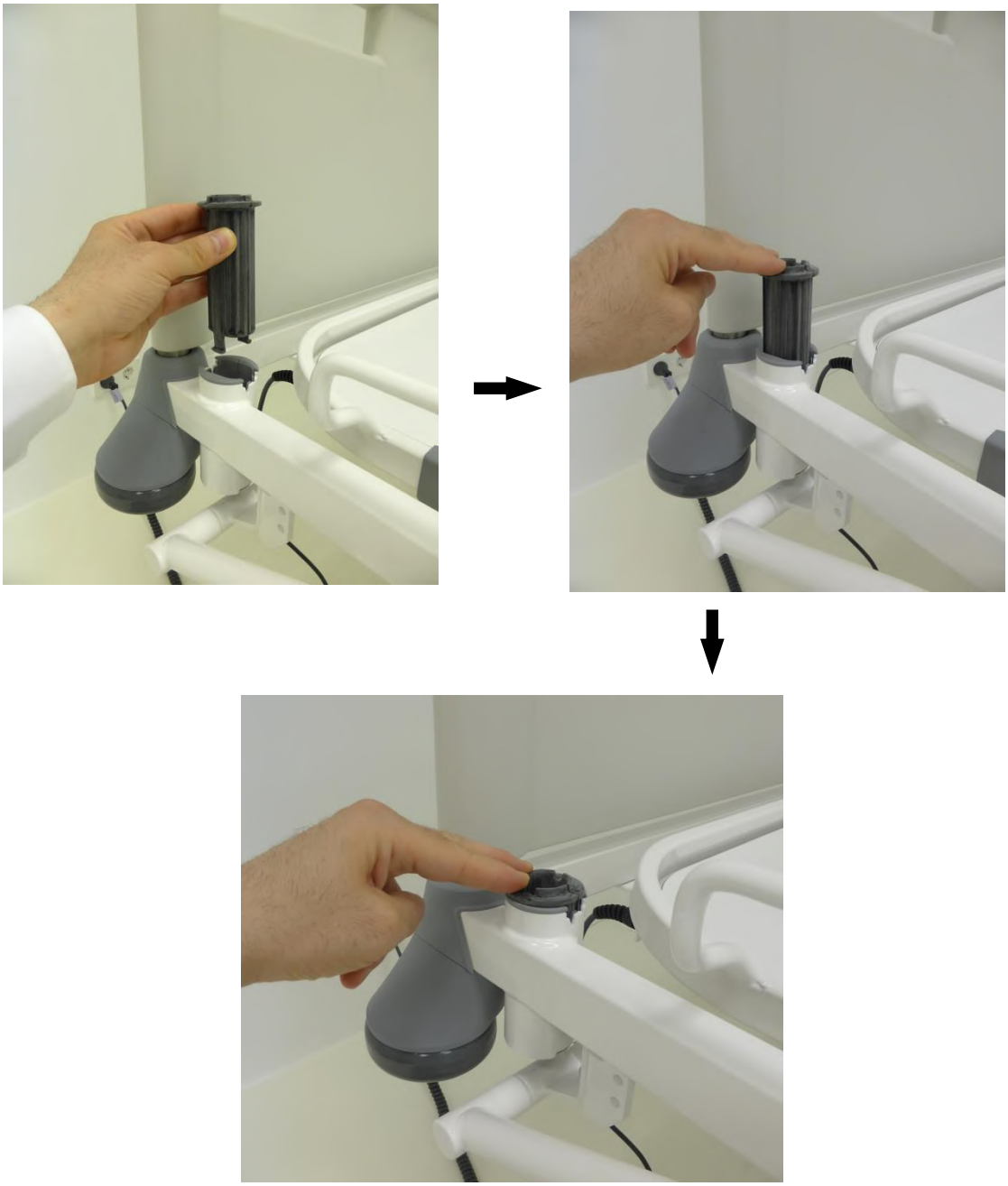


Positions of sleeves

6.5.10.2 Infusion Stand at Head End (Optional)

An optional second oval or round plastic reducing adaptor can be inserted in one of the sleeves at the head end. The second reducing adaptor is used for holding an **infusion stand**.

The following example shows the use of an oval reducing adaptor:

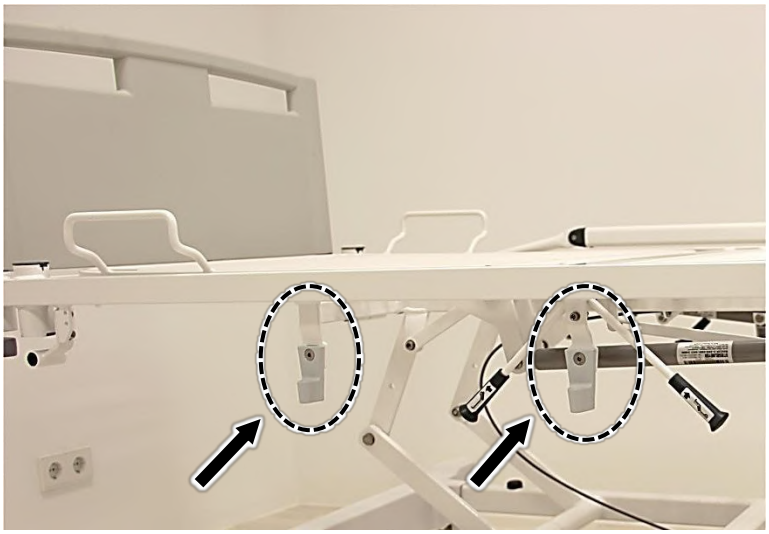


Infusion stand reducing adaptor at head end

6.5.11 Universal Holders

Depending on the bed features available, two universal holders can be attached to each of the long sides of the bed. These universal holders can be used for hanging accessories such as urine bottle holders.

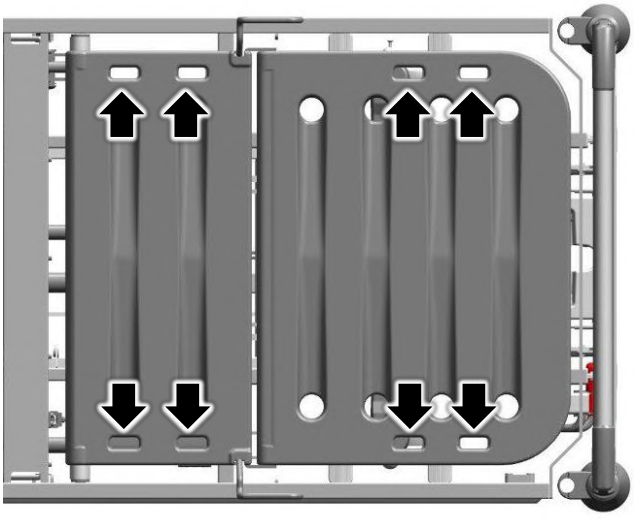
When the bed is moved, ensure that accessories hanging in the universal holders are not knocked against and damaged as a result.



Universal holders

6.5.12 Attachment Points for Posey Belts

Plastic mattress bases are fitted with slots for posey belts. The arrows show slots in the plastic mattress base through which restraint system belts can be threaded (more on this in Chapter Attaching Posey Belts » 72).



Slots for posey belts

6.5.13 Lead-Acid Batteries

In electric beds with at least two actuators, rechargeable lead-acid batteries are used in an emergency to operate the electrical actuator system independently of the mains electricity supply. This guarantees that all motorised adjustments can be carried out even during a power failure.

Emergency Operation

When the bed is occupied by a patient of normal weight (approx. 80 kg), adjustments can be made for approx. 6-10 minutes if the lead-acid battery is new and fully charged.

Under emergency conditions, if the battery capacity is depleted, an alarm will sound during adjustments.

IMPORTANT

If the battery capacity is depleted, all adjustment functions are locked out in order to prevent the battery from becoming completely discharged, as this could shorten the battery's life.

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

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

Recharging/ Battery Charge Indicator

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

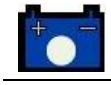
It is impossible to overcharge the lead-acid batteries.

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

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

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

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

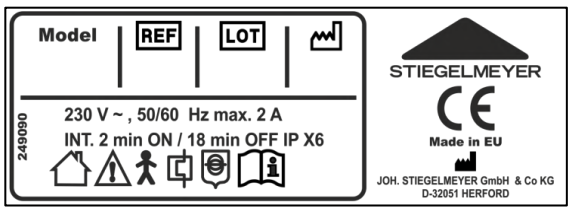
Display	Explanation
	Yellow LED off: Battery charging completed / bed is disconnected from power supply
	Yellow LED on: Battery is charging / bed is connected to power supply

6.6 Technical Data

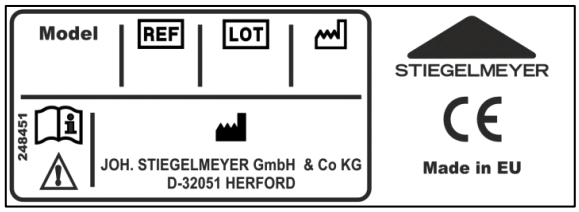
6.6.1 Type Plate

The type plate is located at the head end (inward-facing side) of the mattress base, and a separate PID barcode also can be found there on the hospital bed.

The type plate contains the following information:



Type plate - Electric bed



Type plate - Mechanical bed

Model	Name of product	REF	Item number
LOT	Order number		Date of manufacture (week/year)
	Only for use in enclosed spaces. Do not use outdoors!		Follow the safety information given!
	Device with Type B applied part in accordance with EN 606011 (special protection against electric shock)		Device with thermal fuse
	Device with VDE 0551-compliant safety transformer		Pay attention to the instruction manual

The additional PID barcode on the bed includes the serial number.

6.6.2 Materials Used

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

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

The chassis consists of steel profiles.

The headboards and footboards consist of HPL laminated particle boards.

All surfaces are safe for contact with the skin.

6.6.3 Dimensions

The dimensions indicated by an asterisk (*) are optional.
All indications of dimensions and weights in this manual are **approximate**.

Description	Mattress Base Dimensions		
	90x200 cm	80x200 cm	80x180 cm (Junior)
External dimensions	102.5x213	92.5x213	92.5x193
Mattress base (mattress dimensions)	90x200	80x200	80x180
Bed extension	10 to 20	10 to 20	10 to 20
Ground clearance of chassis	15	15	15
Castors	15	15	15
Double castors*	15	15	15
Integral castor*	15	15	15
Protective height above mattress base with ¾ safety side*	41	41	41

6.6.4 Weight

Description	Bed Model		
	90x200 kg	80x200 kg	80x180 kg (Junior)
Safe working load	225	225	225
Total weight	140	140	120
Max. weight of patient	185-215 (depending on weight of accessories)	185-215 (depending on weight of accessories)	185-215 (depending on weight of accessories)

6.6.5 Adjustment Options

The following data applies for hospital beds featuring mechanical and electric adjustment.

Description	Bed Model		
	90x200	80x200	80x180 cm (Junior)
Tilting to Trendelenburg position	16°	16°	16°
Tilting to reverse-Trendelenburg position	18°	18°	18°
Mattress base height	43 to 82.5 cm (depending on type of castors)	43 - 82.5 cm (depending on type of castors)	43 - 82.5 cm (depending on type of castors)
Backrest angle	0° to 71°	0° to 71°	0° to 71°
Thigh rest angle	up to 82° (mech.) up to 33° (electr.)	up to 82° (mech.) up to 33° (electr.)	up to 82° (mech.) up to 33° (electr.)

6.6.6 Operating Noise

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

6.6.7 Ambient Conditions

The following ambient conditions must be maintained:

Ambient Conditions for Storage	Minimum	Maximum
Storage temperature	-10°C	+50°C
Relative humidity	20 %	90 % (at 30°C; non-condensing. At altitude ≤ 2000m)
Ambient operating conditions	**Minimum**	**Maximum**
Ambient temperature	+5°C	+40°C
Relative humidity	20 %	90 % (at 30°C; non-condensing. At altitude ≤ 2000m)
Air pressure	800 hPa	1060 hPa

6.6.8 Electrical Data

Mains Cable: (coiled, anti-kink, with strain relief)	
Type	H05 BQ-F 3 x 1 mm^2 (EPR quality)
Handset (EM1 - EM3)	
Type	LINAK HB 7x; HB 8x (no locking function) LINAK HD 8xx (with integrated locking function)
Operating voltage	24 V DC
Type of enclosure	IP X6, suitable for automatic washing systems (optional)
Locking Box (EM2 - EM3) (Optional)	
Type	LINAK ACC
Operating voltage	24 V DC
Type of enclosure	IP X6, suitable for automatic washing systems (optional)
Control Unit (with integrated rechargeable lead-acid battery)	
Types	LINAK CB12L (EM1) LINAK CB16XX (EM2 - EM3); battery optional
Input voltage	AC 230 V, ± 10 %, 50/60 Hz
Current input	max. 2 A (230V)
Output voltage	24 V DC
Output current	Max. 10 A (electronic monitoring and cut-out)
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF
Classification	Protection class I, EN60601-1-compliant type B device with internal power supply (if fitted with lead-acid batteries), not for use in explosive atmospheres
Protection category	IP X6, suitable for automatic washing systems (optional)
Lead-Acid Battery (Optional)	

Type	2 sealed maintenance-free lead-acid battery
Capacity	1.3 Ah
Voltage	24 V DC
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 discharge depth 4. Frequently leaving the bed in a discharged state without being connected to the mains

(Electric) Backrest Actuator (depending on model)		**Remarks (see below)**
Type	LINAK LA 27, not suitable for automatic washing systems LINAK LA 31, suitable for automatic washing systems	1,2,3,4
Force/lift	3500 N / 200 mm	
End position cut-out	Micro-switch, analogue coding	
Input voltage	24 V DC	
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF	
Protection category	IP X6, LA 31, suitable for automatic washing systems (optional)	
Actuator (Electric Motor) Lifting Actuators (depending on model)		
Type	LINAK LA 34	1,4,5
Force/lift	10000 N / 170 mm	
Input voltage	24 V DC	
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF	
Protection category	IP X6, suitable for automatic washing systems (optional)	
(Electric) Thigh Rest Actuator (depending on model)		
Type	LINAK LA 27, not suitable for automatic washing systems LINAK LA 31, suitable for automatic washing systems	3
Force/lift	6000 N / 70 mm	
Input voltage	24 V DC	
Duty cycle	Intermittent duty: 2 min ON / 18 min OFF	
Protection category	IP X6, LA 31, suitable for automatic washing systems (optional)	

1 : Manual CPR release
2 : Manual raising
3 : Only push force – no pull force
4 : Limit switch, direct switching
5 : Safety nut

7 Putting into Service

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

Please note the following:

- Remove all transport securing devices (from the foot pedals) and packaging film (from the bed frame).
- Clean and disinfect the bed. Additional information on cleaning and disinfecting is given in Chapter Cleaning and Disinfection » 73.
- Use only authorised accessories (e.g. mattresses), to minimise endangering patients through becoming trapped or falling out of bed.
- **IMPORTANT!** When putting these beds into service for the first time, carry out all measures described in Chapter New Occupancy after a Change of Patient » 38.

7.1 Safety Information for Putting Into Service

Hospital beds in the Deka range are designed for multiple re-use. Ensure that the essential conditions specified in the following chapters are met:

- New Occupancy after a Change of Patient » 38
- Cleaning and Disinfection » 73
- Maintenance » 77 (in particular the section entitled 13.2)
- Inspection by the User » 114.

7.2 Safety Information Concerning the Place of Use

- There must be sufficient room available to accommodate the bed's entire range of adjustments. Obstacles such as bedside lockers, supply rails, furniture, or window sills must not impede adjustments.
- Before using the bed on parquet flooring, check whether the castors can leave marks on the parquet varnish. The manufacturer accepts no liability for such wear. The bed can be used on tiles, carpet, linoleum or laminate flooring without causing any damage.
- A properly installed and earthed mains socket must be available close to the bed, at the head end.
- Place the bed in a position where it is easy to unplug the mains cable from the socket.
- The mains voltage from the socket must be the same as the rating shown on the type plate on the bed.
- If other equipment (e.g. compressors for positioning systems, etc.) is attached, ensure that all items of equipment are securely fixed and function properly. Pay particular attention here to the safe routing of all loose connector cables, tubing, etc.
- Consult the manufacturer of the equipment in question, or Stiegelmeyer, if there are any uncertainties.

7.3 Safety Information for Electric Hospital Beds

In Europe

When this bed is connected to the mains supply:

- It must be connected to the hospital's potential equalisation system when intravascular and intracardial applications are involved.
- It must only be used in medical rooms which meet the electrical requirements of the IEC 60364-7-710 standard.

An electric hospital bed must not:

- Be used in explosive environments caused, for example, by cleaning agents or anaesthetics.
- Be used in combination with high frequency surgical equipment.

In other countries, the relevant national regulations must be complied with!

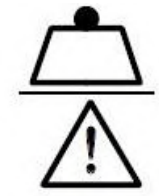
8 Bed Reprocessing / Bed Adaptation

Important: This instruction manual has been issued for a complete range of hospital beds. Hospital beds in the Deka range can be supplied in a mechanical or electric version with more or less functions. Please note that functions or equipment that your bed does not contain may be described in this instruction manual.

8.1 New Occupancy after a Change of Patient

8.1.1 Information on Loading Capacity of Bed

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



Symbol for safe working load

Symbol for permissible patient weight

The information applicable for your bed is given on a sticker with the above symbols which is located on the chassis of the bed. Two examples of a working load that is as safe as possible are given below:

Safe Working Load	Example: with Weight of Accessories	→ = Permissible Patient Weight
225 kg	10 kg	215 kg
	40 kg	185 kg

8.1.2 Requirements

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

- The bed has been cleaned and disinfected
- The castor brakes are applied
- No obstacles such as bedside lockers, supply rails or chairs will impede bed adjustments
- All adjustments work correctly and have been properly tested
- To carry out the visual inspection and functional checks, use the checklist entitled Inspection by the User » 114 in the appendix.

8.1.2.1 Electric Beds

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

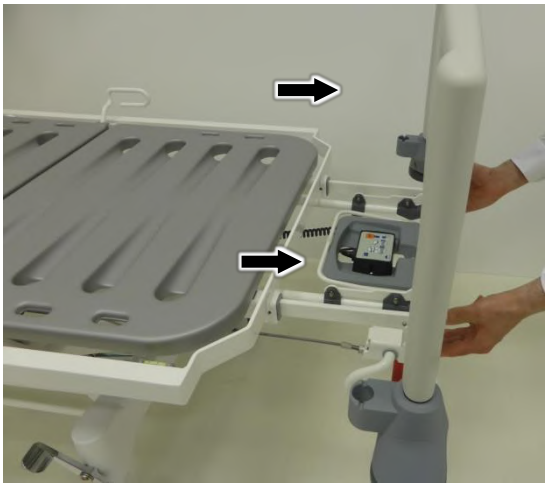
- The mains voltage from the socket must be the same as the rating shown on the type-plate on the bed
- The mains cable is connected and routed in such a way that it cannot be damaged
- The mains cable, drive cables and handset cable cannot be damaged by moving parts of the bed
- If the bed is equipped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

8.2 Extending / Shortening the Mattress Base (Optional)

8.2.1 Extending the Mattress Base

Mechanical and electric beds in the Deka range can optionally be fitted with a bed extension at the foot end.

- The mattress base can be extended either by 10 or 20 cm.
- **Important!** When the bed has been extended by 20 cm, the resulting gap must always be filled with a mattress insert piece (see Chapter Available Accessories » 105).



Two bed extension release handles for extending the mattress base are located on the left and right of the cross tubing

1 Apply the brakes and stand at the foot end of the bed.

2 Grip the bed extension release handles from underneath with both hands and lift them both at the same time.

3 Using both hands, slide the footboard out smoothly and evenly to extend the mattress base.

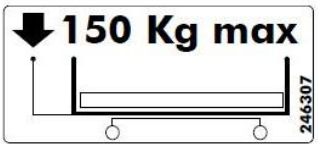
Please note: The mattress base can be extended by 10 or 20 cm at the foot end. Slide the footboard out as far as required until the extension locks into the first or second position.

4 Check that the knobs are firmly locked in place by pushing the footboard forwards and back!

⚠ CAUTION

Risk of Injury due to Bed Tipping Up

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



⚠ CAUTION

Risk of Crushing

Ensure that the resulting gap is always filled with the corresponding foam insert. This effectively prevents the risk of the patient becoming trapped in the bed extension area. (see Available Accessories » 105)

8.2.2 Shortening the Mattress Base

⚠ WARNING

Risk of Injury

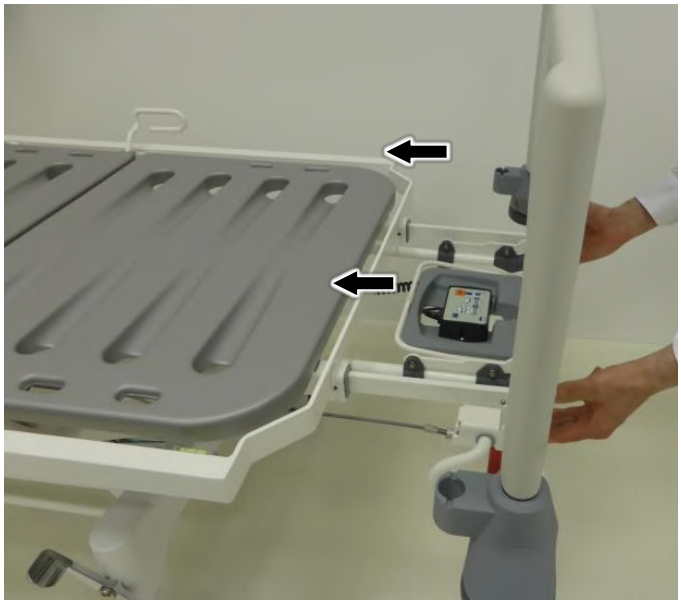
There is a risk of injury due to the patient's fingers and toes becoming trapped.

- When sliding the linen holder back under the mattress base, watch your fingers!
- Always grasp the upright tubing of the footboard handle bar.

1 Grip the bed extension release handles from underneath with both hands and lift them both at the same time.

2 Using both hands, slide the footboard smoothly and evenly back under the mattress base.

Check that the knobs are firmly locked in place by pushing the footboard forwards and back!



8.3 Using the Linen Holder (Optional)

Hospital beds can be supplied with a linen holder at the foot end of the bed that can be drawn out to provide a hygienic surface to lay bedding on. Depending on the model of bed, the locking box is also located in the linen holder.

IMPORTANT

Avoid damaging the linen holder

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

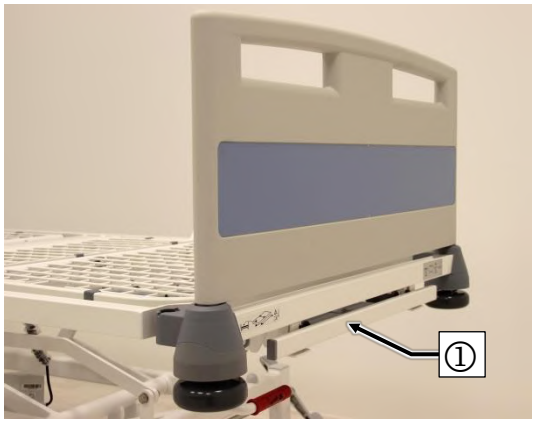
– Do not sit on the linen holder!

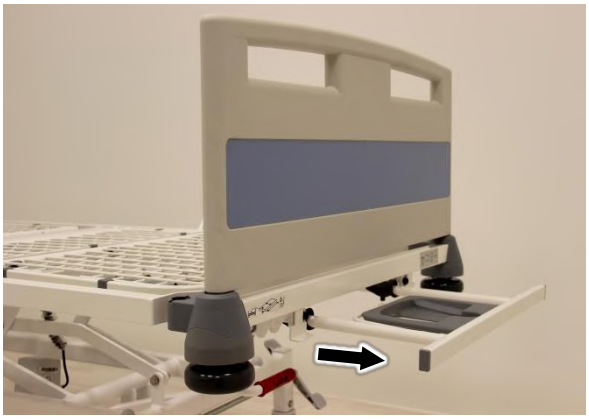
⚠ CAUTION

Risk of Injury

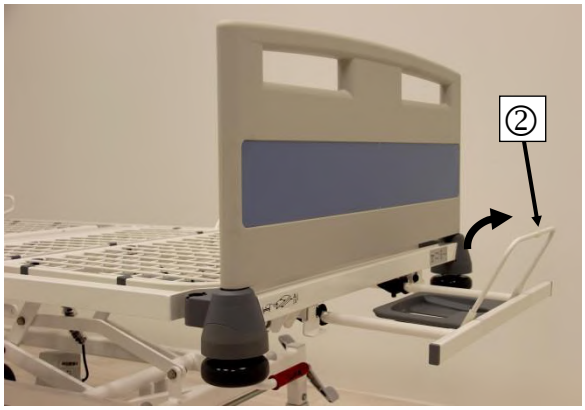
– The extended linen holder can easily become a tripping hazard.
– Always slide the linen holder back into place immediately after use.

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





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



8.4 Removing / Inserting Laminate Panels

The headboard and footboard on the bed contain moulded laminate panels. In certain models of bed, these can be removed and used for resuscitation purposes. To do so, the laminate panels are used underneath the patient to provide a steady surface.

⚠ CAUTION

Risk of Injury

The openings on the locating brackets must always face outwards away from the bed.
Otherwise there is a risk that patients could lift the laminate panel out themselves. The laminate panel would then fall onto the floor.

8.4.1 To Remove

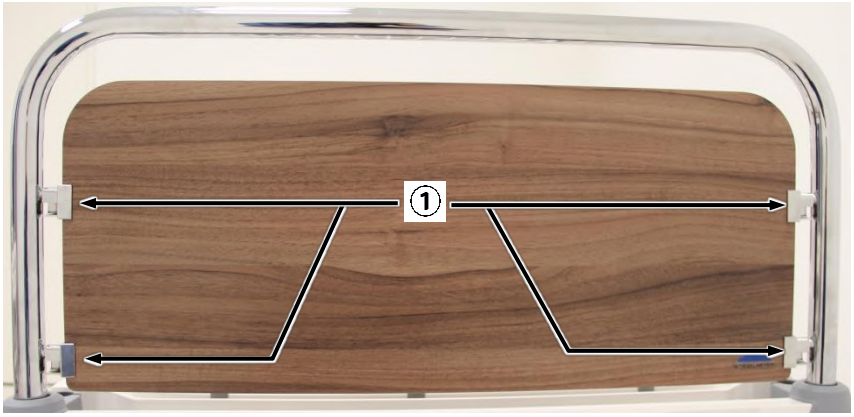
Lift the laminate panels upwards and remove them by pulling them away towards the inward-facing side of the bed.

8.4.2 To Insert

Proceed as follows:

1st Insert the moulded laminate panel from the inward-facing side of the bed.

2nd Make sure that all four locating brackets ① of the laminate panel slot onto the corresponding bolts. The bolts are located on the vertical tubing posts on the headboard or footboard.



8.5 Inserting / Removing Patient Lifting Pole

⚠ CAUTION

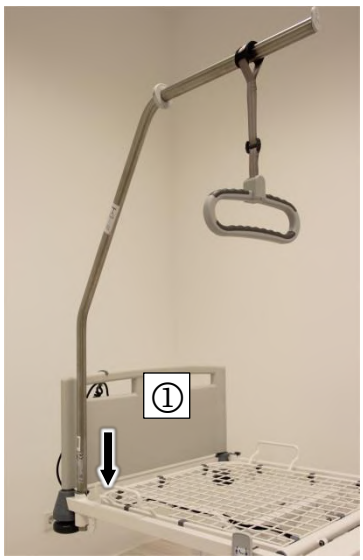
Risk of Injury

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

On the inward-facing side of the headboard, there is an adaptor sleeve on each side of the bed for attaching a patient lifting pole or infusion stand. An oval or round plastic reducing adaptor, as the customer requires, can be inserted into one of the adaptor sleeves in order to hold the patient lifting pole. An oval or round patient lifting pole is then inserted into the reducing adaptor. A further round reducing adaptor for holding an infusion stand can then be inserted in turn into the oval or round reducing adaptor.

The patient lifting pole can be supplied in two variants as the customer requires: oval or round pole. Both variants are described below.

8.5.1 Variants: Oval Pole



To Insert

An oval reducing adaptor is inserted into the round adaptor sleeve before leaving the factory.

1. Insert the long, straight end of the oval patient lifting pole into the reducing adaptor ①.
2. The metal pins on the patient lifting pole must slot into the notches ② in the adaptor sleeve and engage.

There are four notches ② in the reducing adaptor. This construction allows you to adjust the patient lifting pole to two positions:

- Patient lifting pole facing the centre of the bed
- Patient lifting pole facing the long side of the bed

To Remove

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

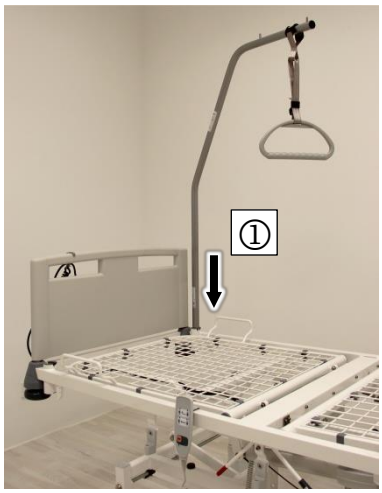
8.5.2 Variants: Round Pole

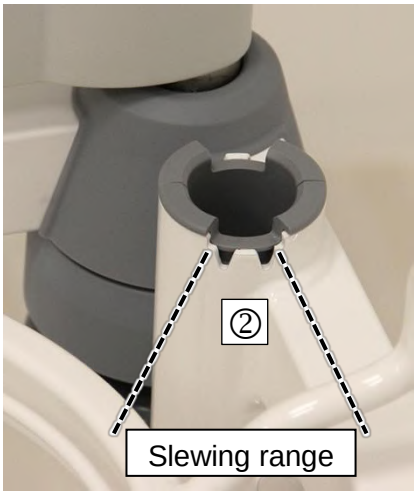
To Insert

An oval reducing adaptor is inserted into the round adaptor sleeve

1. Insert the long, straight end of the patient lifting pole into an adaptor sleeve ①.

The metal pin on the patient lifting pole must be located in the notch in the adaptor sleeve. This will limit the slewing range of the patient lifting pole. The patient lifting pole is now facing the centre of the bed and can swing to the side as far as the restriction allows.





To Remove

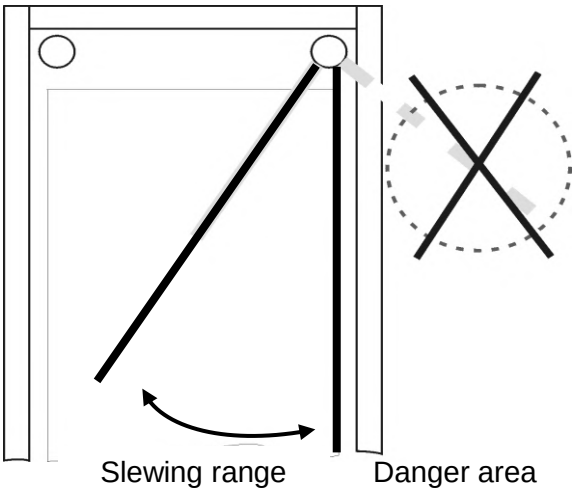
To remove the patient lifting pole, lift it out of the sleeve from above.

⚠ CAUTION

Risk of Injury

If the patient lifting pole swings outside the bed area and a weight is applied to it there, there is a danger that the bed will tip up due to the weight.

Therefore, the metal pin on the patient lifting pole must always sit in the notch in the adaptor sleeve!



8.6 Attaching and Adjusting the Grab Handle

⚠ CAUTION

Risk of Injury

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

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

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

⚠ CAUTION

Risk of Injury

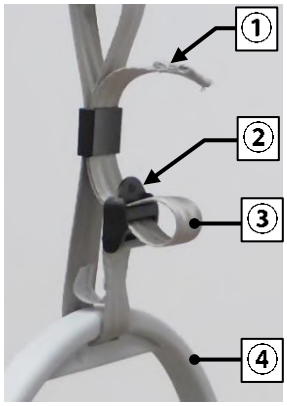
Always ensure that when the grab handle is hung over the end of the patient lifting pole, the grab handle cannot accidentally fall off.

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

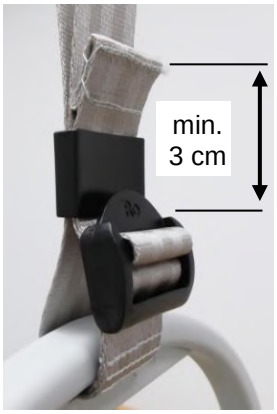
The integrated anti-slip fitting must be secured properly between the two limit points of the patient lifting pole.

2 **To Lengthen:** Draw the strap ③ out through the buckle ② and pull the triangular grab handle ④ downwards.

3 **To Shorten:** Draw the strap ③ out through the buckle ② and pull the triangular grab handle ① upwards.



Make sure when lengthening the strap that the end of the strap projects at least 3 cm beyond the top of the buckle.



8.7 Attaching an Infusion Stand

Please note that a reducing adaptor is required in order to use the infusion stand. The reducing adaptor is inserted into the reducing adaptor for the patient lifting pole.

1 Insert the reducing adaptor for the infusion stand into the first reducing adaptor at the head end of the bed
(see also Chapter 6.5.10.2)

2 Insert the long, straight end of the infusion stand into the adaptor sleeve containing the two reducing adaptors.

8.8 Using Universal Holders

Two universal holders have been attached at the head end on both long sides of the bed. A variety of accessories such as urine bottle holders and drainage bags can be attached to the universal holders.

⚠ CAUTION

Risk of Crushing

– Ensure that patients or other people are not endangered by universal holders, such as when moving the bed.

IMPORTANT

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

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

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

8.9 Double Traction Frame

Beds in the Deka range are fitted with adaptor sleeves for holding a double traction frame. A double traction frame can be ordered at the customer's request. The double traction frame is assembled and fitted at the place of use. When a double traction frame is purchased, it is supplied with an additional installation manual.

Double traction frame with accessories

8.10 Decommissioning

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

- Clean and disinfect the bed (see Cleaning and Disinfection » 73)
- Adjust the mattress base to a flat home position at its lowest level.
- For electric beds:
  - Lock the electric adjustment functions to prevent them from being activated accidentally or by unauthorised persons
  - Charge the integrated battery (to do so, connect the bed to the mains electricity supply for about 8 hours and then disconnect the mains plug from the socket.
  - Hang the mains cable on the headboard using the fixing clip attached to the mains cable
  - Repeat this procedure every 3 months to maintain the battery capacity
- Engage the brakes on the bed
- Pay attention to the ambient conditions required for storage (see Ambient Conditions » 34)

9 Operation

9.1 Moving and Immobilising the Bed

The bed is equipped with four castors as standard. The castors can be locked singly or centrally with a foot pedal located at the foot end, depending on the bed variant.

One of the castors at the head end of the bed has a steering lock that can be activated. This makes it easier to move the bed in a straight line. Optionally, the position of the steering lock can be defined as the customer requires.

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

9.1.1 Safety Information on Moving, Braking and Locking the Bed

⚠ WARNING

Electric Shock

Each time before moving the bed, ensure that:

- The mains cable cannot be stretched, driven over or damaged in any other way.
- The mains cable for the bed has been hung up and is not touching the floor.
- Cables, tubes or leads of any other additional equipment that may be attached to the bed are sufficiently 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

Trapping Hazard!

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

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

IMPORTANT

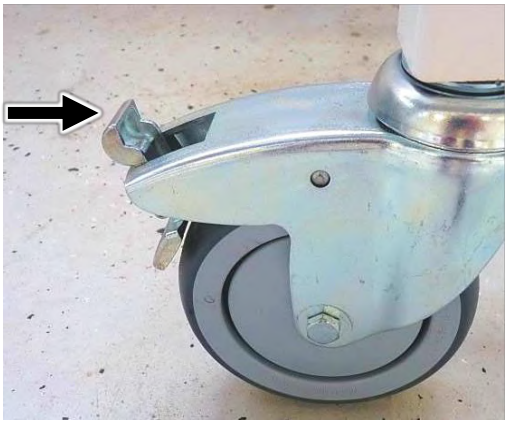
When the bed is moved, ensure that objects hanging in the universal holders do not cause any damage (e.g. to door frames).

9.1.2 Moving, Braking the Bed (Individual Locking Castors)

In this variant, the castors can be individually braked.

Released castors.

To apply the castor brake, press the pedal down with your foot in the direction of the arrow.



Braked castors.

To release the castor brake, press the pedal down with your foot in the direction of the arrow.

Caution! To safely brake the bed, the brake must be applied on all 4 castors.

9.1.3 Moving, Braking the Bed (Central Locking Castors)

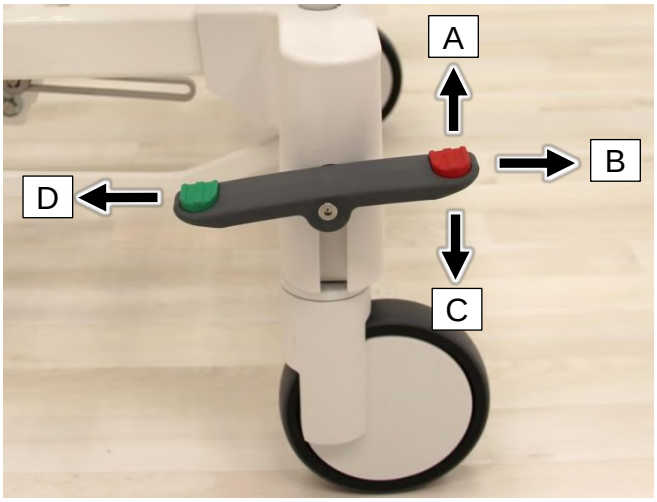
In this variant, the castors at the foot end of the bed are fitted with pedals which enable all four castors to be braked. To enable the bed to move in a straight line during transport, the central castors are fitted with a steering lock which makes it easier to move the bed in a straight line and ensures enhanced cornering stability.

Moving with Steering Lock: Lift the pedal at far as possible with the back of your foot (A).

Moving without Steering Lock: Use your foot to bring the foot pedal to a horizontal position.

Braking: Press the foot pedal down with your foot (C).

D = Direction of travel / head end



The castors must first be swivelled to the direction of travel. In this position (with the steering lock engaged), the bed can only be manoeuvred from the foot end once the steering lock has engaged. The bed is pushed from this end.

9.2 Setting the Backrest (Mechanically)

IMPORTANT! When making adjustments to the hospital bed, please note the safety information given in Chapter Bed Adjustment » 16.

Electric adjustment of the backrest, thigh rest and the height of the bed is also possible (depending on the model of bed) (see Electric Actuator System » 58).

The **mechanical** adjustments are described below. It is possible that certain functions or special features are described which your bed does not have.

9.2.1 Raising / Lowering

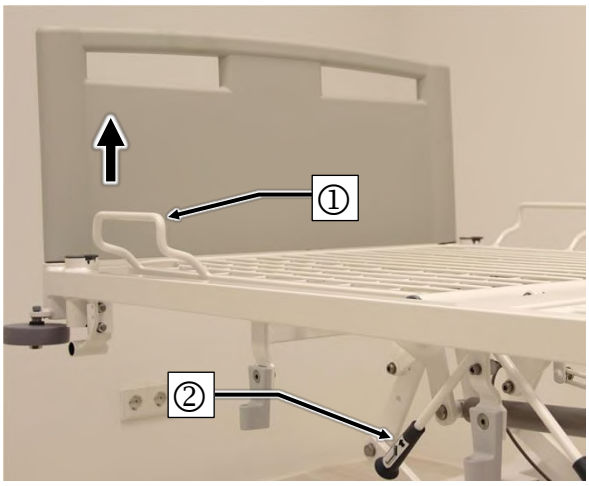
The bed must be immobilised.

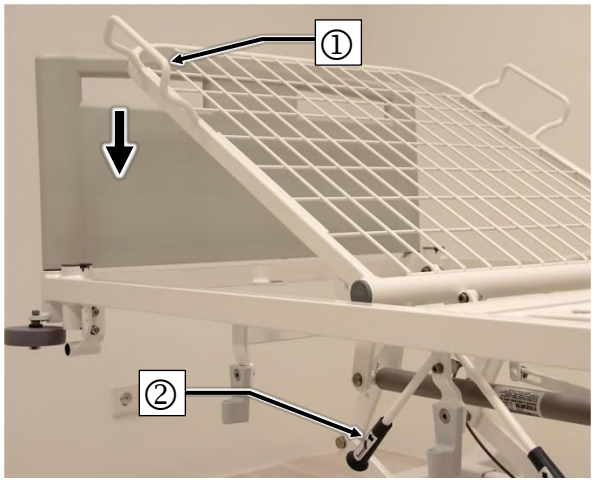
The backrest can be operated from either of the long sides of the bed.

1 Grasp one of the grab handles of the backrest ① with one hand.

2 With the other hand, pull the operating lever ② upwards and grasp the handle to guide the backrest down to the desired position (upwards / downwards). The backrest is not held in position until the operating lever is released.

If there is no load on the backrest and it is steeply raised, it must be pressed down by hand in addition.





9.3 Setting the Thigh Rest (Mechanically)

IMPORTANT! When making adjustments to the hospital bed, please note the safety information given in Chapter Bed Adjustment » 16.

Depending on the model of bed, the thigh rest can be adjusted mechanically or electrically. **Mechanical** adjustment is described below:

The operating lever in this model of bed is used to adjust both the backrest and the thigh rest. Other models of bed have two operating levers - one for adjusting the backrest and one for adjusting the thigh rest. The following operating instructions, however, apply for both models.

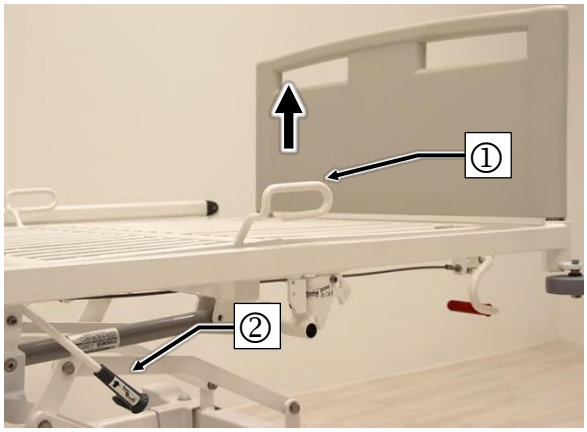
9.3.1 Raising / Lowering

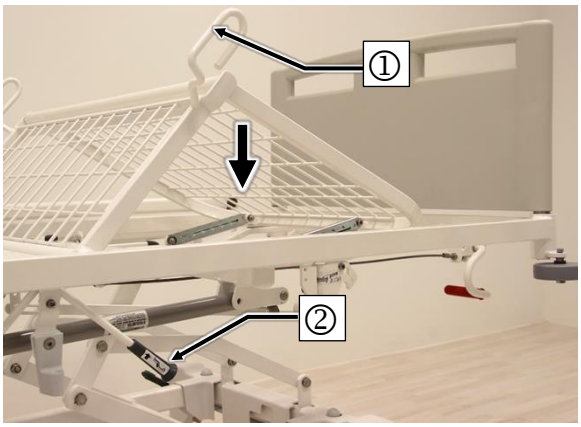
The thigh rest can be operated from either of the long sides of the bed.
The bed must be immobilised.

1 With one hand, grasp the grab handle ① for the thigh rest.

2 With the other hand, pull the operating lever ② upwards and grasp the handle to guide the thigh rest down to the desired position (upwards / downwards).

The thigh rest is not held in position until the operating lever is released.
If there is no load on the thigh rest and it is steeply raised, it may be necessary to press it down by hand in addition.





9.4 Setting the Lower Leg Rest (Mechanically)

IMPORTANT! When making adjustments to the hospital bed, please note the safety information given in Chapter Bed Adjustment » 16.

The lower leg rest in both the electric and the mechanical beds in the Deka range can only be adjusted mechanically.

The lower leg rest can be raised and lowered by hand if the thigh rest is raised. It is possible to adjust the bed to an orthopaedic position (stepped bed) or so that the lower leg rest is sloping downwards.

9.4.1 Raising

Proceed as follows:

1st Grasp the frame ① of the lower leg rest at the foot end with both hands.

2nd Raise the lower leg rest to the desired height and then release it.

↳ The lower leg rest locks into place automatically with the aid of the Rastomat ②.

↳ To do so, move the lower leg rest up and down slightly until it engages.

9.4.2 Lowering

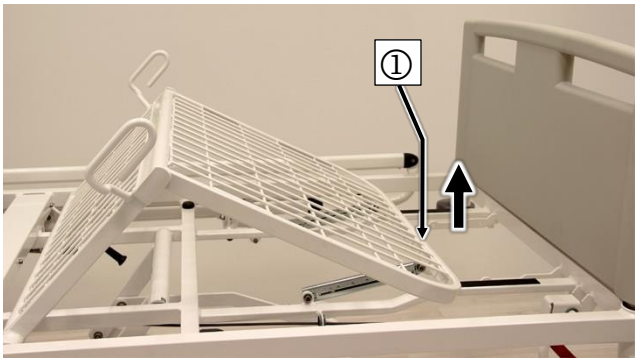
Proceed as follows:

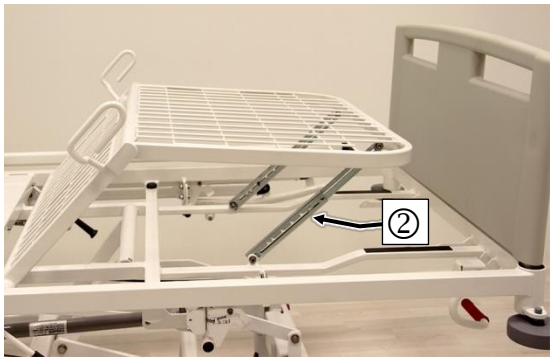
1st Grasp the lower leg rest frame ① at the foot end with both hands.

2nd Raise the lower leg rest to its full extent.

3rd Lower the lower leg rest slowly.

The lower leg rest automatically moves to a horizontal position when the thigh rest is lowered.





9.5 Setting the Bed Height (Mechanically)

IMPORTANT! When making adjustments to the hospital bed, please note the safety information given in Chapter Bed Adjustment » 16.

Depending on the model of bed, the mattress base can be adjusted mechanically or electrically. **Mechanical** adjustment is described below:

The mattress base height is continuously adjustable. Adjustment is made using a hydraulic foot pump.

Raise the mattress base

Press the pedal ① **down several times with your foot.**

↳ This raises the mattress base.

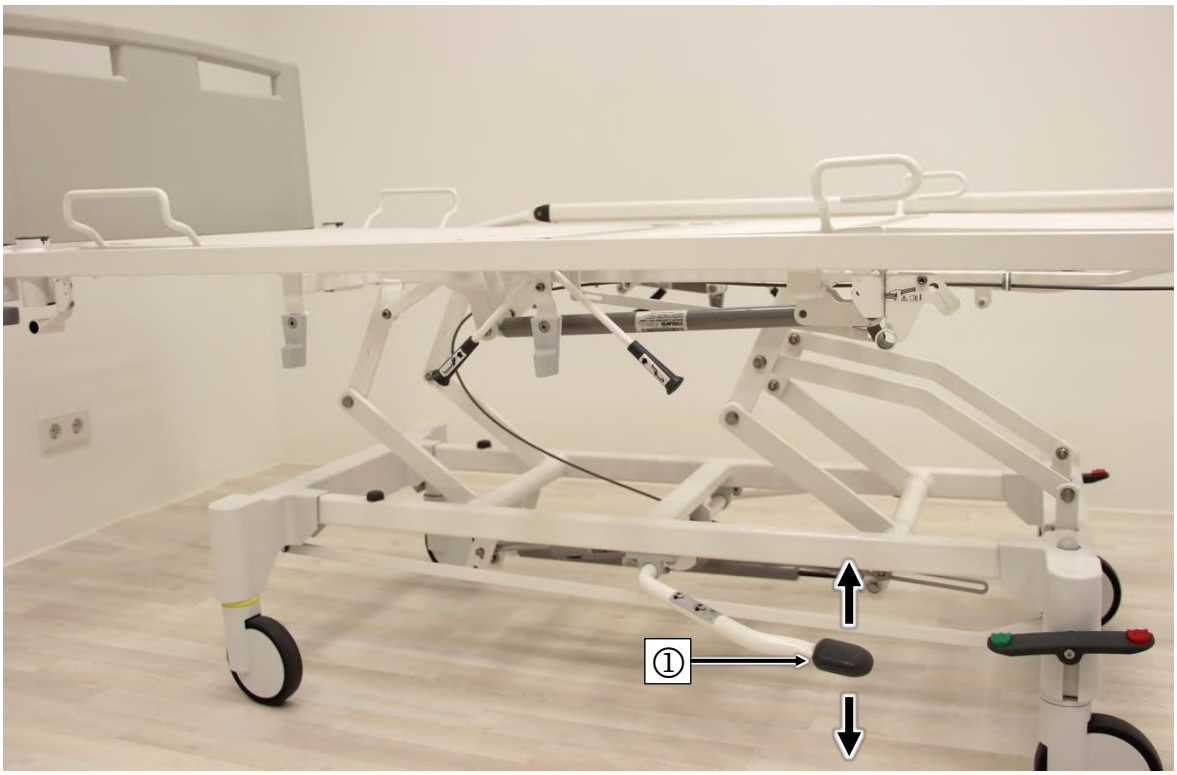
Release the pedal when the desired mattress base height is reached.

Lower the mattress base

Raise the pedal ① with your foot.

↳ This lowers the mattress base.

Release the pedal when the desired mattress base height is reached.



9.6 Tilting

The mattress base of electric and mechanical beds can only be tilted mechanically.

IMPORTANT! When making adjustments to the hospital bed, please note the safety information given in Chapter Bed Adjustment » 16.

WARNING

Risk of Injury

After actuating the handle, a heavy patient may cause the mattress base to crash down.

– Before actuating the handle, take hold of the outer edge of the mattress base and control the tilting in this way.

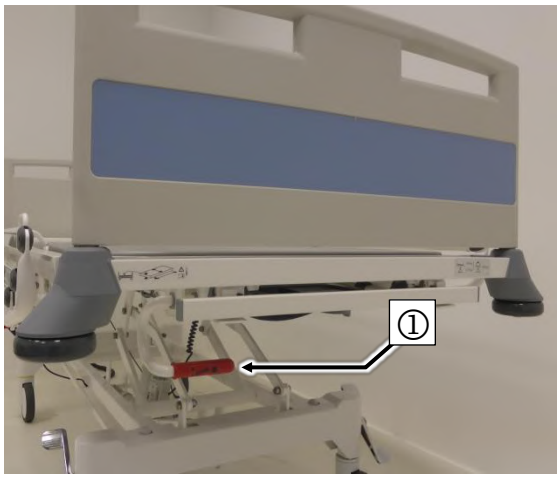
9.6.1 Tilting

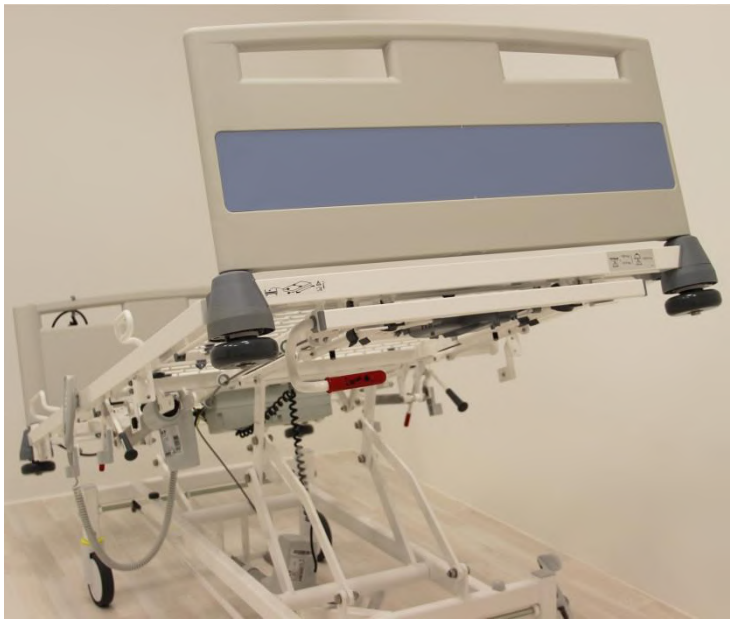
The bed must be immobilised.

1 Grasp the frame of the bed at the foot end with one hand.

2 Pull the operating lever ① away from the foot end with the other hand.

3 Now either lift the foot section of the mattress base up or press it down.
The mattress base is not held in position until the operating lever has been released.



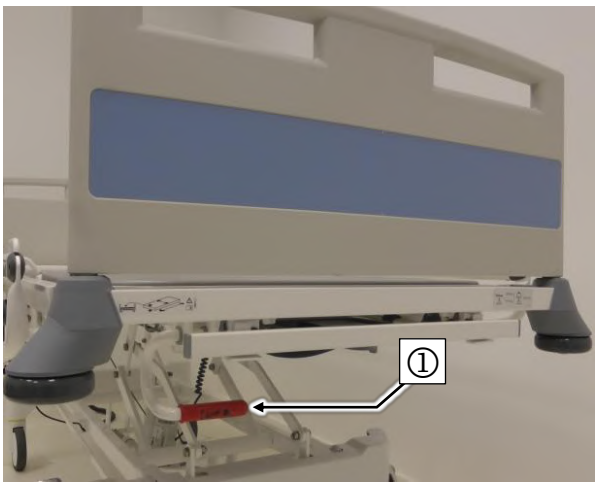


9.6.2 Bringing the Mattress Base into a Horizontal Position

The bed must be immobilised.

1. Grasp the upright tube of the footboard with one hand.
2. Pull the operating lever ① away from the foot end with the other hand.
3. Now either lift the foot section of the mattress base up or press it down.

   The mattress base is not held in position until the operating lever has been released.



A spirit-level is mounted on the inward-facing side of the foot-board for easy horizontal adjust-ment.

The mattress base is in a horizon-tal position when the air bubble is located between the two marks.

9.7 CPR Release of Backrest

In the event of power supply outages or electrical actuator system failures, the raised backrest can be lowered by hand.

⚠ WARNING

Risk of Injury

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

– Always keep hold of the backrest handle ① with one hand so as to “control” the adjustment.

1st Grasp the backrest handle ① with one hand so as to “control” the adjustment.

2nd With your other hand, pull the red operating lever ② upwards for CPR release.

3rd This decouples the actuator for the backrest.

4th You can now lower the backrest.

5th The backrest will not be held in position until the operating lever has been released.

6th Once the bed is reconnected to the mains supply, backrest adjustments can be made again using the handset or control box .

The red operating lever ② is only designed for CPR release of the backrest and not for continuous mechanical adjustments!

To enable the bed to be reprocessed faster, the unloaded backrest can also be raised quickly by grasping the far end of the backrest. You will hear it click into place automatically.

9.8 Electric Actuator System

9.8.1 Control Units

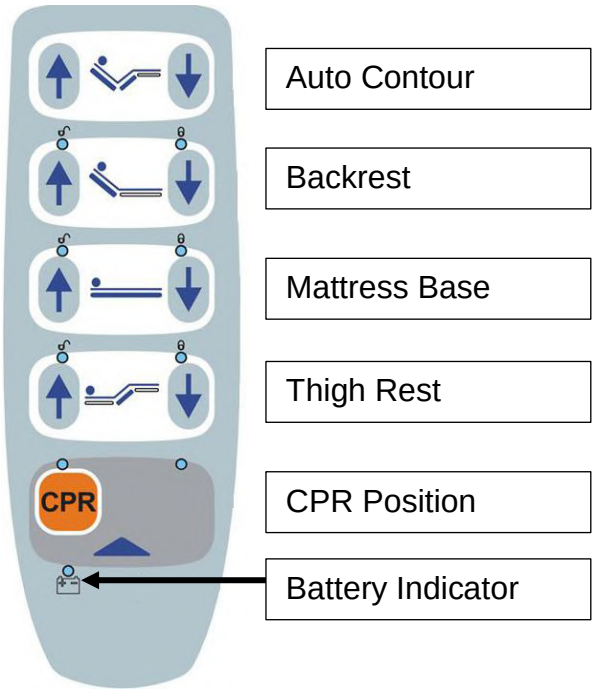
Beds in the Deka range are supplied with two control units for setting and positioning adjustable components on a:

- Handset with magnetic locking function (as standard)
- Handset with locking box (optional)

9.8.1.1 Handset with Magnetic Locking Function

Electric bed functions can be operated by the user or the patient using a handset. For safety reasons, individual functions can be locked on the handset. The user must lock adjustments on the handset if the doctor responsible considers this necessary in view of the clinical condition of the patient. This is possible using the magnetic locking function.

- Explain the handset functions to the patient!
- The electric motors operate as long as the corresponding buttons are kept pressed.
- Adjustments are possible in both directions.
- The handset can be hung at any position on the bed with an elastic hook.
- The coiled cable provides ample flexibility and freedom of motion.



Depending on the motor fitted, the number of keys may vary.

The following basic rule applies to the keys:

Raise

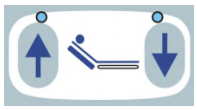
Lower

Using the Handset

Auto Contour

The backrest and thigh rest can be raised at the same time. This prevents the patient from sliding towards the foot end of the bed.

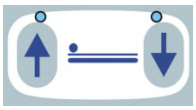
- When lowering these, the thigh rest follows the backrest after a two second delay.
- If the backrest is locked on the control box, then no adjustment can be made. If the thigh rest is locked, only the backrest is adjusted.



Backrest

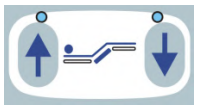
The backrest can be raised to approx. 70°.

Please also refer to Chapter CPR Release of Backrest » 56



Height Adjustment

The mattress base height can be adjusted from approx. 43 to 82 cm.



Thigh Rest

The thigh rest can be raised to approx. 35°/39°.

(EM1 to approx. 39°, EM2 to approx. 39°, EM3 to approx. 35°)

CPR Position

The CPR position allows all parts of the mattress base to be lowered quickly (backrest and thigh rest horizontal and at the same time mattress base horizontal and in the lowest position.

The CPR position can only be activated when the staff control level is set (see next page).

Battery Charge Indicator

When the bed is equipped with a rechargeable battery pack charge indicator (optional equipment with two or three actuators) and is connected to the mains supply, an active LED indicates that the battery is charging.

When the LED is not on, this indicates that charging is either completed or the hospital bed is not connected to the mains.

Setting the Lower Leg Rest

The lower leg rest can be raised and lowered by hand if the thigh rest is raised. To set the lower leg rest, proceed as described in Chapter Setting the Lower Leg Rest (Mechanically) » 53.

Function Lock - Magnetic Locking Function

For safety reasons, the handset incorporates a magnetic facility for locking individual adjustment functions. If the clinical state of the patient is so critical that any adjustment via the handset places him/her at risk, then the user must lock this adjustment function immediately. The bed remains in the position it was in at the time it was switched off.

⚠ WARNING

Risk of Injury

Only users are authorised to use the locking function! The user must decide which functions, if any, should be locked.

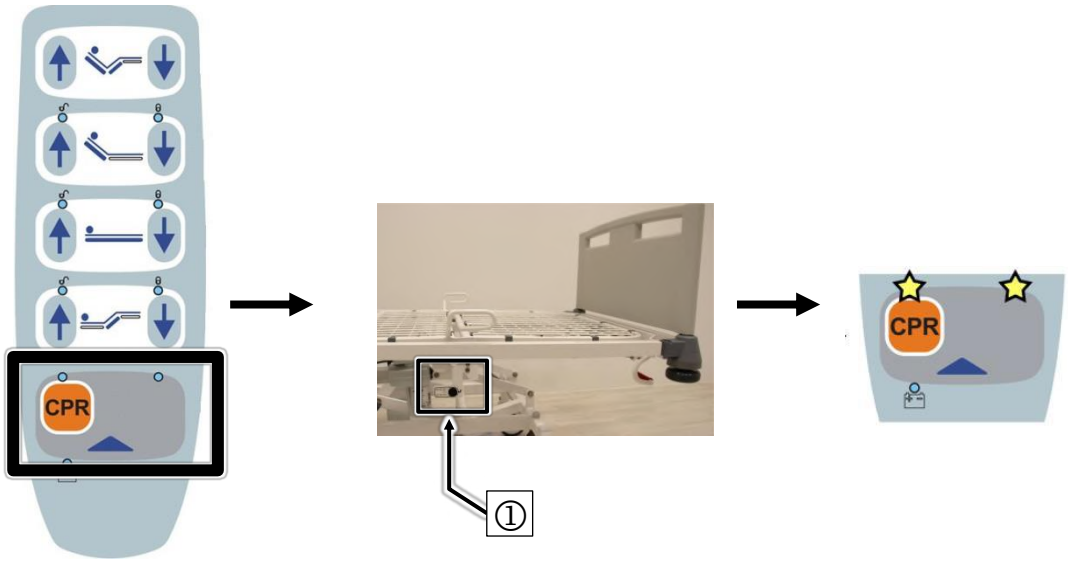
Locking is especially necessary if, for example, if:

- The patient is unable to operate the bed safely or to free himself/herself from potentially dangerous situations.
- If the patient could be harmed by unintentional or inadvertent adjustment of the actuators.
- Accessories or other devices are mounted that could restrict the adjustment range of the bed, and put the patient at risk.
- Accessory safety sides are attached.
- Children are left unsupervised in the room with the bed.
- Otherwise there is a danger of the patient's limbs being crushed or trapped if the patient inadvertently activates the handset.

Locking and unlocking functions is only possible when the handset mode is set to ‘staff control level’. This must be activated every time you wish to change the settings for a function.

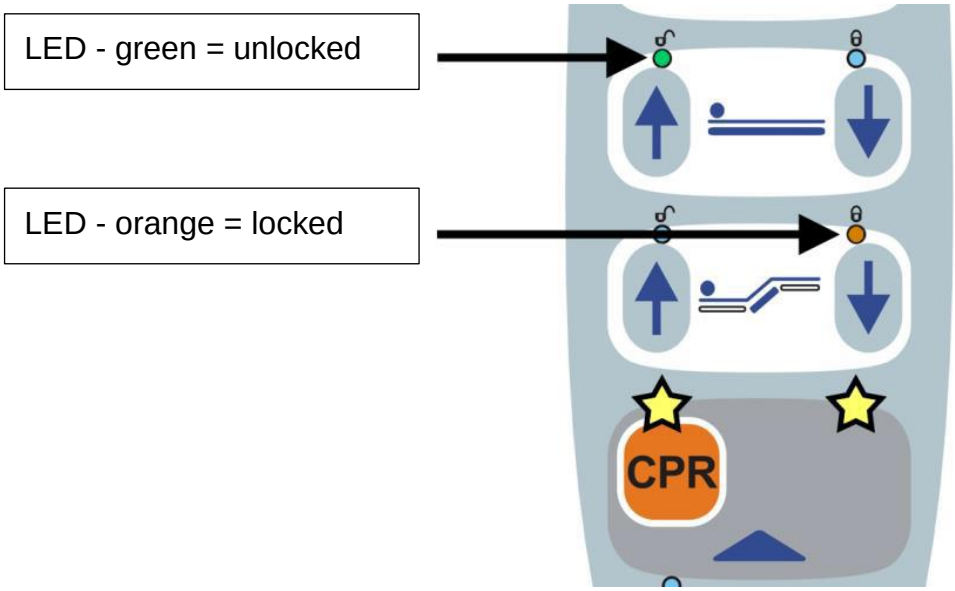
1. Hold the grey surface at the top end of the handset against the magnet on the bed. The magnet is located towards the foot end in the last third of the bed ①. A magnet is provided on both sides of the bed.

   ↳ The two LEDs above the grey surface on the handset now flash at the same time and indicate that the staff control level has been activated.



2. You can now make the desired settings on the handset.
   - Press the left button of the required function to release the function.
     ↳ The green LED under the opened padlock lights up.
   - Press the right button of the required function to lock the function.
     ↳ The orange LED under the closed padlock lights up.

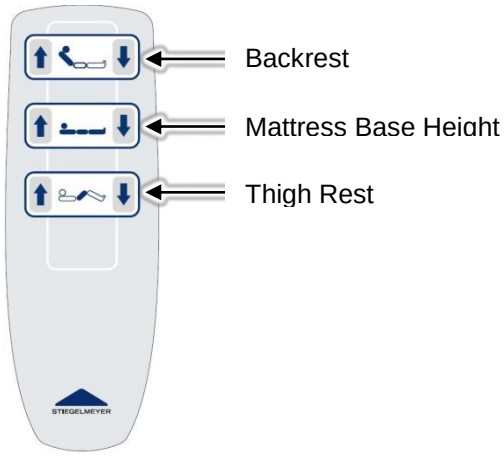
If no settings, or no further settings, are entered within 5 seconds, the staff control level will then be automatically ended again.
To change the setting for a particular function again, repeat the procedure for the function concerned.



9.8.1.2 Handset with Locking Box (Optional)

Depending on the features which the bed is fitted with, the bed comes with a conventional handset and an additional locking box. This allows electric bed functions to also be adjusted using the handset. If for safety reasons, individual handset functions need to be locked, this is not done on the handset itself but on a separate locking box.

- Explain the handset functions to the patient!
- The electric motors operate as long as the corresponding buttons are kept pressed.
- Adjustments are possible in both directions.
- The handset can be hung at any position on the bed with an elastic hook.
- The coiled cable provides ample flexibility and freedom of motion.



Depending on the motor fitted, the number of keys may vary.

The following basic rule applies to the keys:

Raise

Lower

Using the Handset

Backrest

The backrest can be raised to approx. 71°.

Please refer to Chapter CPR Release of Backrest » 56.

Height Adjustment

The mattress base height can be adjusted from approx. 43 to 82 cm.

If the mattress base is tilted, it moves automatically into a horizontal position when it reaches the highest or lowest setting.

Thigh Rest

The thigh rest can be raised to approx. 35°/39°.

(EM1 to approx. 39°, EM2 to approx. 39°, EM3 to approx. 35°)

Function Lock - Locking Box

Adjustment functions in electric beds can be locked using a separate locking box. The locking box is integrated in the linen holder at the foot end.

- The user can lock the handset for the patient on the locking box.
- The user must check to ensure that the handset is locked/enabled by pressing the corresponding handset buttons:
  - After re-locking or re-enabling.
  - After putting the bed into service or taking the bed out of service.
  - After machine washing or disinfection has taken place.

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

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

A sticker on the linen holder draws attention to the fact that:

Locked function sticker

⚠ WARNING

Risk of Injury

Locking adjustment functions is necessary in the following situations in particular:

- If the patient is not able to operate the bed safely.
- If the patient is not able to extricate himself from dangerous situations.
- If there is an increased risk of entrapment for the patient when adjusting the backrest and thigh rest if the safety sides are raised.
- Accessories or other devices are attached that could restrict the adjustment range of the bed, and put the patient at risk or cause damage to equipment.
- Children are left unattended in a room with the bed.
  - ➢ Otherwise there is a danger of limbs being crushed if the patient inadvertently activates the handset.

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

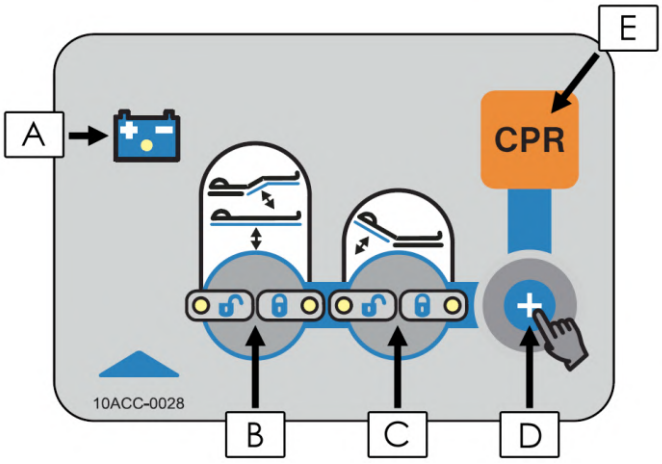


Illustration:

A = Battery charge indicator

B = Button for locking/unlocking mattress base height and thigh rest adjustments

C = Button for locking/unlocking backrest adjustments

D = Unlock button

E = Button for CPR position

Proceed as follows to lock or unlock functions:

1. Press and keep the unlock button pressed (D).
2. Press button (B) or (C) to lock or unlock the function concerned.
   - If the green LED with the opened padlock lights up, this function is unlocked.
   - If, however, the orange LED with the closed padlock lights up, this function is locked.

CPR Position

- Press button (D) and button (E) to adjust the bed to the CPR position.

Battery Charge Indicator

When the bed is equipped with a rechargeable battery (optional equipment) and is connected to the mains supply, a yellow LED (A) indicates that the battery is charging. The LED lights up when the battery is charging. When the LED is not on, this indicates that charging is either completed or the bed is not connected to the mains.

9.9 Rechargeable Batteries

In emergency use, rechargeable batteries are used to operate the electrical actuator system independently of the mains electricity supply. This guarantees that all electrical adjustments can be carried out during a power outage.

9.9.1 Emergency Operation

When the bed is occupied by a patient of normal weight (approx. 80 kg), adjustments can be made for approx. 6 to 10 minutes if the battery is new and fully charged.

Under emergency conditions, if the remaining battery capacity is 30% depleted, a signal tone will sound during the adjustment.

WARNING

If the battery capacity is depleted, all adjustment functions are locked out in order to prevent the battery from discharging their entire charge.

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

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

9.9.2 Charging the Batteries

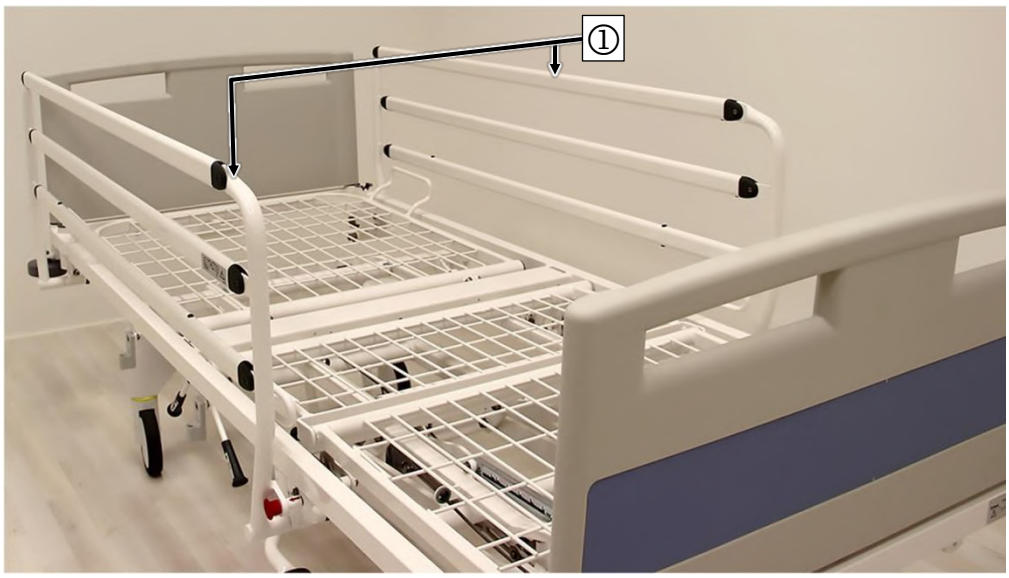
- The batteries are fully charged automatically when the bed has been connected to the mains supply for at least 8-10 hours.
- It is impossible to overcharge the battery.
- During the charging process, the bed can be adjusted using the handset, control box or locking box.

The 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 one more height adjustment (up + down) should always be possible. Otherwise, the batteries must be replaced.

In this case, contact the Stiegelmeyer customer service who will replace the rechargeable batteries and dispose of the old batteries properly. The address can be found in Chapter Service Address » **Fehler! Textmarke nicht definiert.**.

9.10 ¾ Safety Sides (Swivelling)

Hospital beds in the Deka range can optionally be fitted with a swivelling safety side ①. Safety sides provide suitable protection for patients against falling out of bed. They are not intended as a device to prevent the patient from intentionally leaving the bed.



⚠ WARNING

Potential Hazard for Patients when Using Safety Sides

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

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

- Use this safety side for adult patients only, see also Chapter 6.3
- For example, if the patient is extremely confused or very restless, avoid using safety sides as far as possible and make use of alternative safety measures such as posey belts, restraint sheets, etc.
- In the case of particularly small, slightly built patients it may be necessary to use an additional form of protection to reduce the size of the gaps between the safety sides. In this case, use protective covers (accessories), posey belts, etc. (This is the only way to ensure effective protection and reduce the risk of the patient getting trapped or slipping through the gaps).
- Only use suitable mattresses (not too soft) complying with DIN 13014 with a volume weight of at least 40 kg/m³ and dimensions complying with the specifications in the instruction manual, to prevent endangering patients through trapping or suffocation.

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

⚠ CAUTION

Risk of Injury

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

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

The patients risk of falling can be lower:

– the smaller and calmer the patient is

the softer the mattress is (patient sinks deeper).

⚠ CAUTION

Risk of Crushing

When the safety sides are raised, the electric adjustment of the backrest and thigh rest must be locked:

↳ the patient is unable to operate the bed safely

↳ the patient is unable to free himself from potentially dangerous situations

↳ If there is an increased risk of entrapment for the patient when adjusting the backrest and thigh rest if the safety sides are raised

↳ Otherwise there is a danger of the patient's limbs being crushed or trapped between the safety sides if the patient inadvertently activates the handset. The effectiveness of the safety sides can also be reduced if the mattress base is raised to a high level.

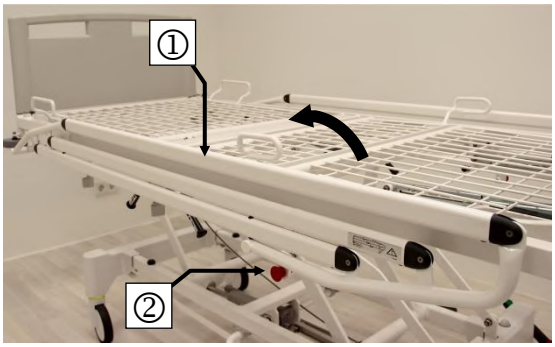
9.10.1 Raising

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

1. Grasp the top rail of the safety side ① with one hand.
2. Swivel the rail upwards as far as it will go towards the head end of the bed.

   ↳ This raises the entire safety side.

   The safety side must audibly click into place and the red release button ② must not protrude downwards!
3. Check that the safety side is securely fixed in place by pushing and pulling the top rail from one end to the other!
4. Repeat the procedure for the other safety side.



Engaged ☑

Not engaged ☒

9.10.2 Lowering

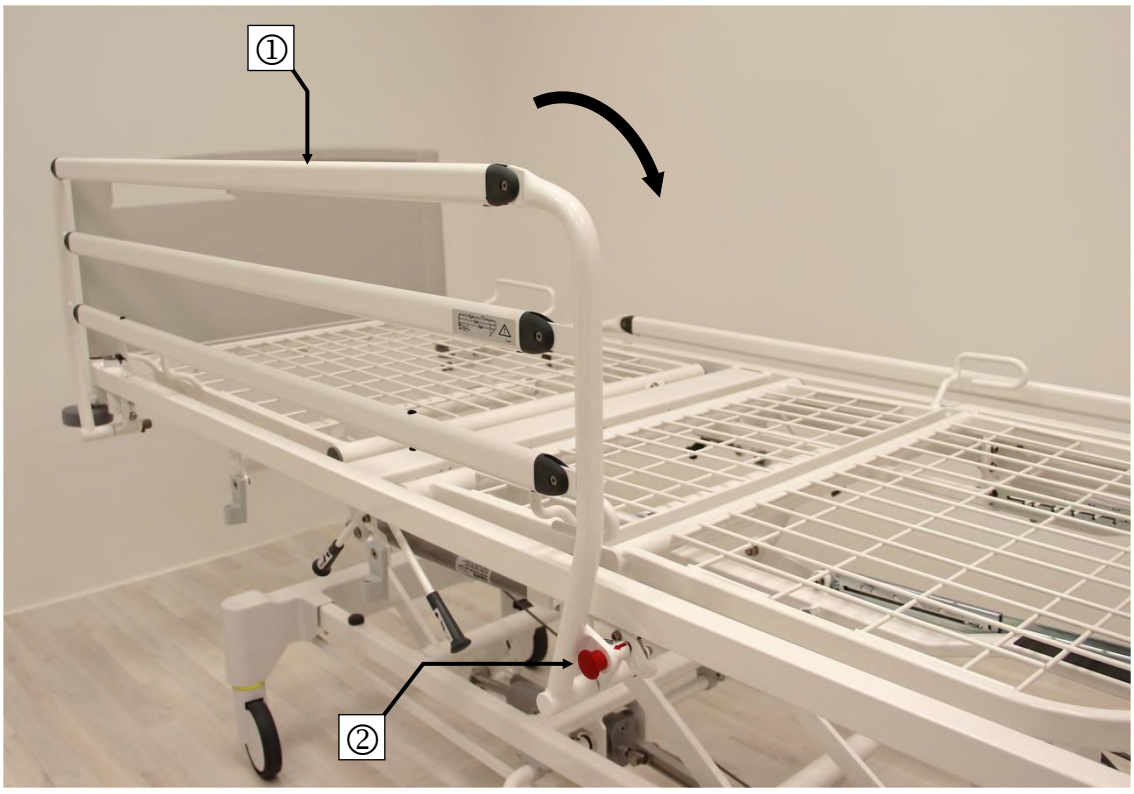
Proceed as follows:

1st Grasp the top rail of the safety side ① with one hand.

2nd Pull the red release button ② out completely with the other hand.

3rd Lower the other rail gradually with a pivoting motion towards the foot end of the bed. Be careful - do not let it drop!

4th Repeat the procedure for the other safety side.



10 Use in an Emergency

10.1 Emergency: Setting CPR Position

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

The adjustment position is preset in the factory:

- Backrest and thigh rest horizontal, simultaneously
- mattress base in lowest position

WARNING

Risk of Injury

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

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

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

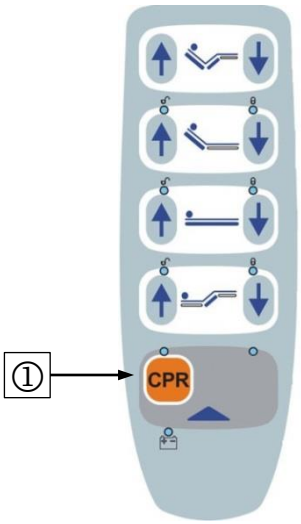
The CPR position can also be activated even if the corresponding adjustment functions are locked.

10.1.1 On the Handset

The CPR position can only be activated when the staff control level is set (see Handset with Magnetic Locking Function » 58).

1 Press the CPR button on the handset ①, and keep this pressed.

↳ The backrest and thigh rest are moved to a horizontal position and the mattress base is also adjusted to its lowest height.



10.1.2 On the Locking Box

1 Press the unlock button and the CPR button at the same time and keep them pressed.
↳ The bed moves at maximum speed into the resuscitation position.

10.2 Lowering the Backrest by Hand (Emergency Lowering)

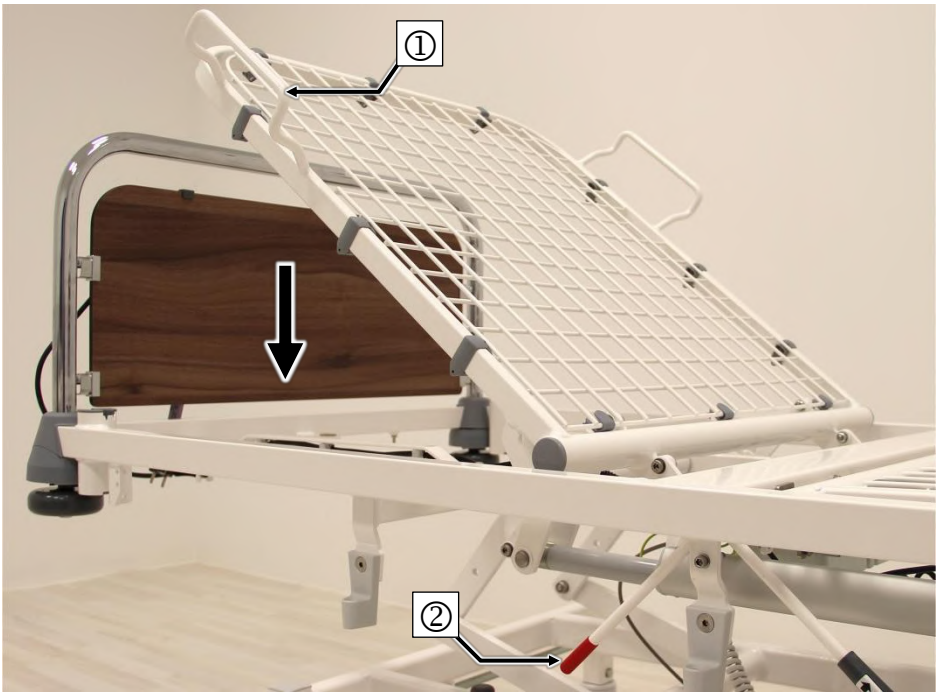
In an emergency, the backrest can be lowered by hand. The operating lever for emergency lowering is used for this purpose. The adjustment speed for lowering the backrest in an emergency depends on the mattress on the bed and the weight of the patient.

⚠ WARNING

Risk of Injury

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

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



1 Hold the backrest handle ① with one hand and pull the operating lever ② upwards with the other hand.

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

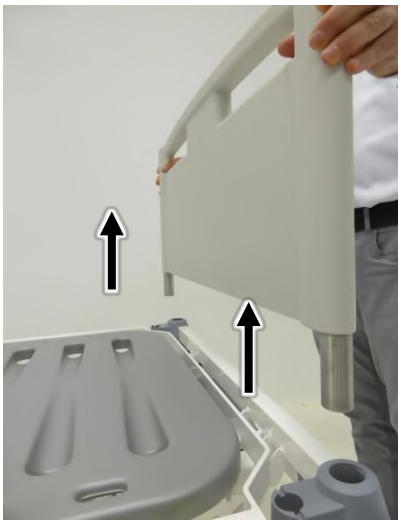
11 Special Bed Adaptations

11.1 Removing and Inserting Headboard and Footboard

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

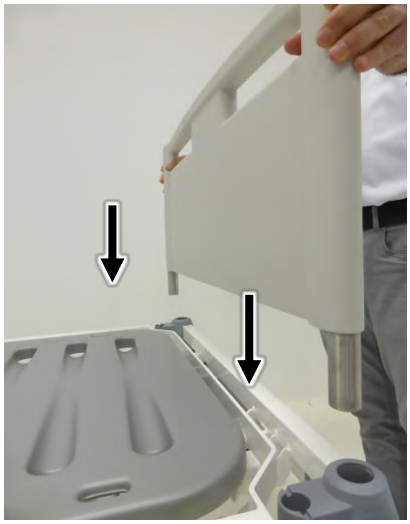
11.1.1 Removing

1 Stand behind the headboard/footboard.



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

11.1.2 Inserting



1 Stand behind the headboard/footboard.

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

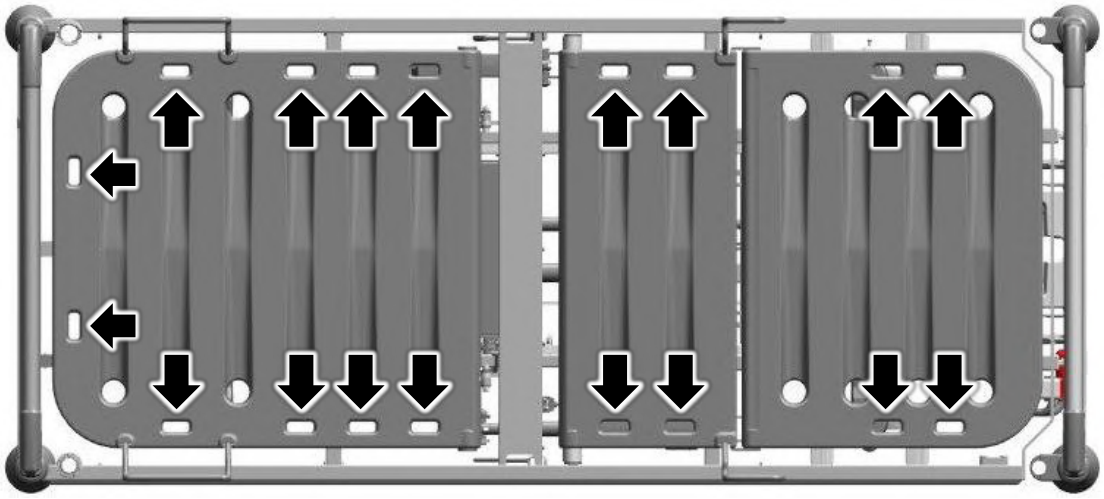
11.2 Attaching Posey Belts

WARNING

Risk of Injury

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

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



Attachment points for posey belts

12 Cleaning and Disinfection

12.1 Safety Information on Cleaning and Disinfection

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

12.1.1 Before Starting Cleaning

The following points should be noted when cleaning electric beds:

- Before cleaning, operate the actuator motors until the minimum stroke length is reached. This prevents degreasing of the spindle tubes.
- Ensure that all plugs for the actuator system are connected as prescribed.
- Lock the actuators using the handset and the locking box.
- Unplug the mains cable.
- Store the mains plug so that it does not come into excessive contact with cleaning solutions.
- Ensure that none of the electrical components show any signs of external damage. If these instructions are disregarded, water or cleaning agents may penetrate the system resulting in malfunctions or damage.

12.1.2 After Cleaning

The following points should be noted when cleaning electric beds:

- Before operating the bed again, ensure that there is no residual moisture on the electrical contacts by drying or blowing on the mains plug.
- If you suspect that water or cleaning solutions have penetrated into electrical components:
  - Unplug the bed immediately from the power socket and/or do not insert the mains plug into the socket again.
  - Indicate clearly that the bed is “Out of order”. Take it out of service immediately and report the incident to the operator of the bed without delay.

12.2 Manual Cleaning

The following information applies for mechanical and electric hospital beds in the Deka range.

IMPORTANT

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

12.3 Cleaning and Disinfection Agents

- For disinfection by wiping, most cleaning and disinfection agents commonly used in hospitals or care facilities, such as cold and hot water, detergents, alkaline solutions and alcohols, can be used.
- These agents must not contain any substances that could change the surface structure or the adhesive properties of the plastic materials.
- The choice of cleaning agents and disinfectants available on the market may change from time to time. Stiegelmeyer therefore routinely tests the most commonly used materials for compatibility.

The most up-to-date list of cleaning agents and disinfectants can be obtained from our service centre on request: Contact info: » 13.1

12.4 Machine Cleaning

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

Sticker for machine washability

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

IMPORTANT

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

- To ensure that cleaning fluids can drain off unhindered, the bed must not be washed in a horizontal or reverse-Trendelenburg position.
- The bed settings to be established as the washing position in the washing machine are:
  - Trendelenburg position (angle of tilt at least 10°),
  - All rests set to the lowest position,
  - All safety sides manually raised.
- Before washing the bed, remove any accessories that are attached, unless they are suitable for machine washing.
- The cleaning agent used for the decontamination process must have a pH value of between 5 and 8. The hardness of the washing water must not exceed 5°dH. The total salt content should not exceed 100 mg/litre. Demineralised water may only be used with the consent of the manufacturers of the decontamination system and the items to be cleaned.
- The cleaning agent must not contain substances that change the surface structure or the adhesive characteristics of the plastic materials.
- **Cleaning Agents Tested and Approved by Stiegelmeyer:**
  - Neodisher BP and Neodisher Dekonta (manufacturer: Dr. Weigert),
  - Sekumatic FDR and Sekumatic FKN (manufacturer: Ecolab).
- Do not exceed the dosage advice given by the manufacturer! Lasting and steadily worsening pre-damage, particularly to plastic parts, may result! Please consult Stiegelmeyer before using any other cleaning agents, to prevent potential damage to the bed as a result of their use.

- The cleaning and disinfection cycle (including the rinsing process) in a decontamination facility must comply with the directives issued by the Bed Frame and Chassis Decontamination Systems Working Group (AKBWA).

- The pressure of the jet sprays inside the bed decontamination system must not exceed 5 to 8 bar.
- A distance of 30 cm between the spray valves and electrical components must be ensured. The only spray nozzles which are permissible are flat jets.
- During the washing and disinfection procedure (including rinsing), the temperature of the bed must not exceed 70°C. Washing temperatures that are too low must also be avoided as this will result in poor drying. The maximum washing water temperature is 65°C. The maximum rinsing temperature is 80°C.
- Do not cool suddenly using cold water.
- After completing the washing procedure, the bed must cool down for an appropriate period of time (10 to 20 minutes) before it may be put into service again.
- In addition to the prescriptions of the AKBWA, we recommend a waiting period of approximately 10 minutes. By optimising the washing procedure, this time can be significantly minimised.

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

13 Maintenance

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

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

13.1 Service Address

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

Stiegelmeyer GmbH & Co. KG
Ackerstrasse 42, 32051 Herford, Germany
Phone: +49 (0) 5221 185-777
Fax: +49 (0) 5221 185-219
Email: servicezentrum@stiegelmeyer.de
Internet: www.stiegelmeyer.com

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

13.2 Safety Information on Maintenance

Damage, defects and wear resulting from improper operation and after long-term use cannot be ruled out. These deficiencies can cause hazards if they are not recognised and corrected immediately.

Before carrying out any maintenance work, please bear in mind that, in order to make any adjustments, the bed must be connected to the mains supply. Remember to disconnect the mains plug from the mains socket when maintenance work is finished. In addition, switch off all the actuators using the locking box.

Set the bed to the desired position for maintenance, and unplug the mains cable from the socket before beginning any maintenance work.

If any damage or malfunction is suspected, take the bed out of service at once until it has been repaired or the damaged component has been replaced!

Beds from the Deka range must not be modified without authorisation by the manufacturer.

13.2.1 Legal Principles

In Europe: In accordance with EC Medical Devices Directive 93/42 EEC and the relevant national laws/ regulations which result from this, operators of hospital beds are obliged to preserve the safe operating condition of medical products throughout their entire service life. This also includes regularly carrying out expert maintenance as well as safety checks.

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

13.3 Recommended Lubricants

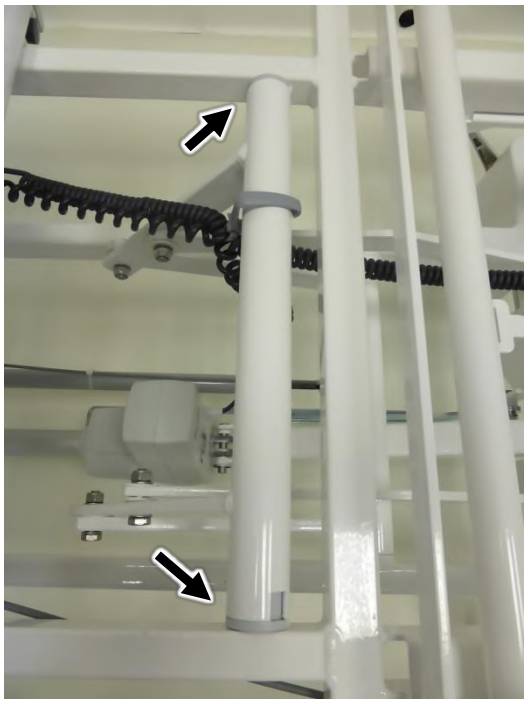
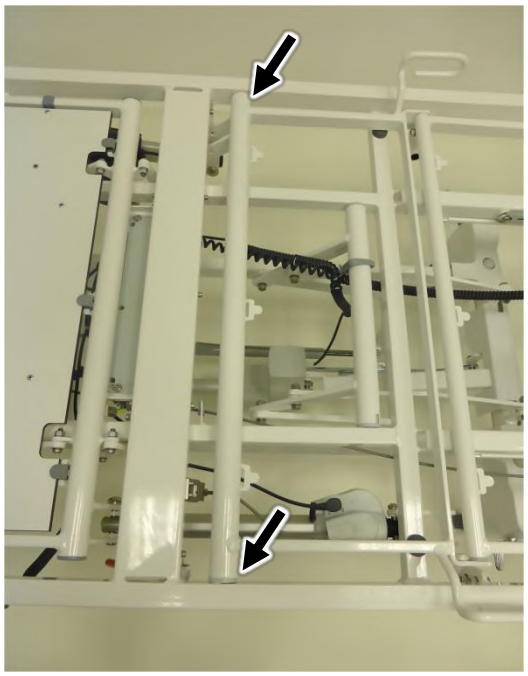
Designation in Table Lubrication Instructions	Manufacturer / Product	Stiegelmeyer Order Number
A	Weicon: Allround Lubricant AL-W	190507 (400 ml spray can) 193231 (1000 ml spray can)
B	Klüber: Polylub Gly 801020199	203807 (400 ml cartridge)
C	InnoSelf: Mega Öl with PTFE	212871 (300 ml spray can)
D	Weicon: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

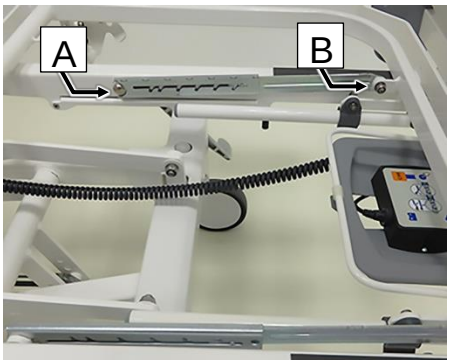
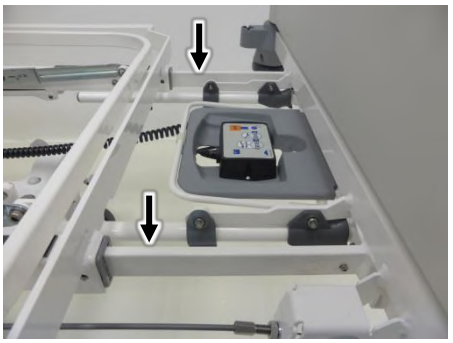
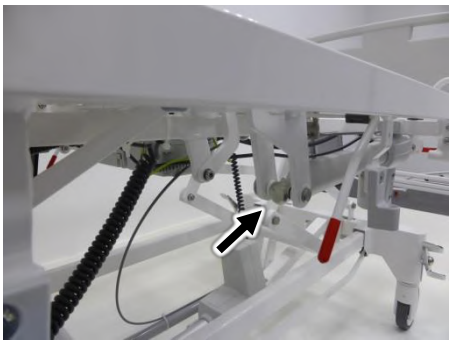
13.4 Recommended Special Varnishes

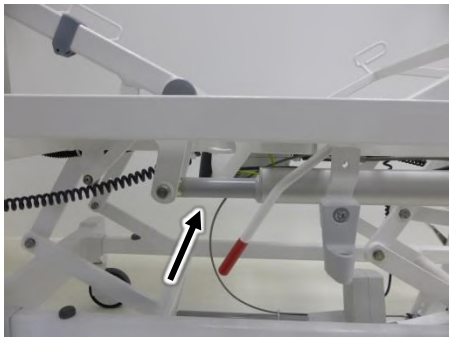
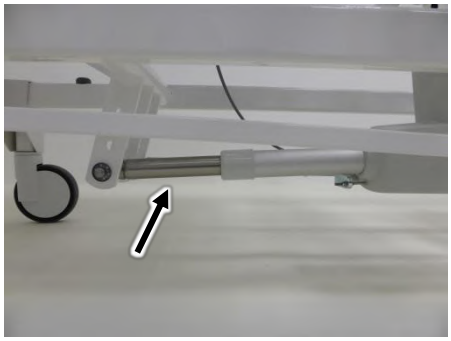
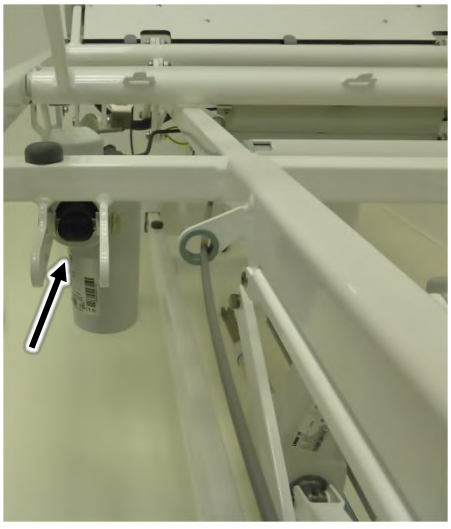
Colour	Designation	Stiegelmeyer Order Number
Silver	Varnish (500g tin)	203803
	Accelerator (100g tin)	203805
White	Varnish (500g tin)	203804

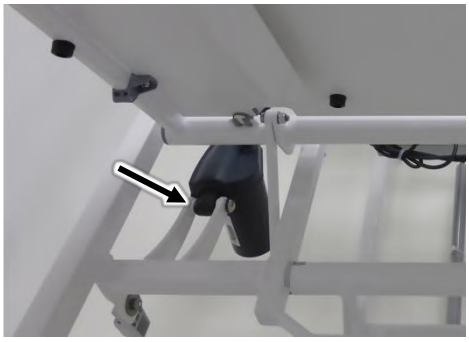
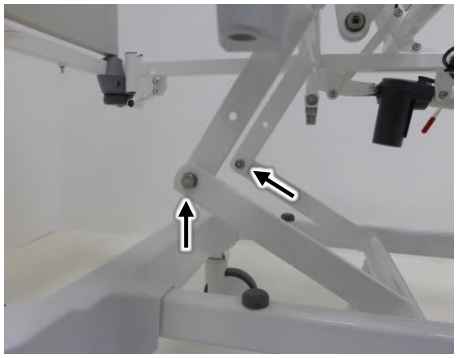
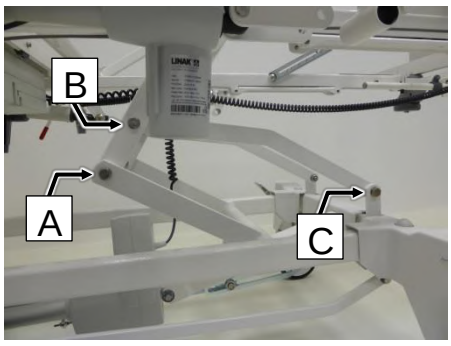
13.5 Servicing Points

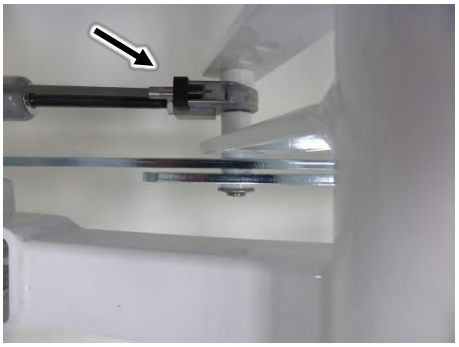
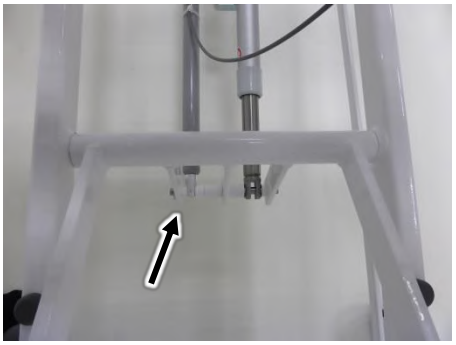
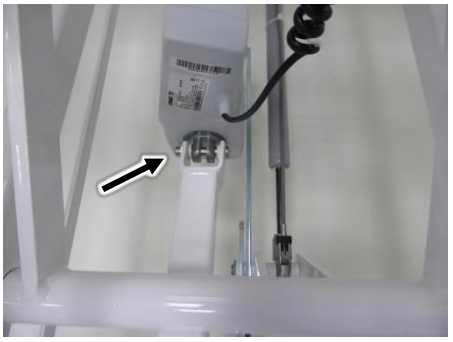
This overview applies only for the lubrication that is necessary if the bed is cleaned in an automatic washing system.

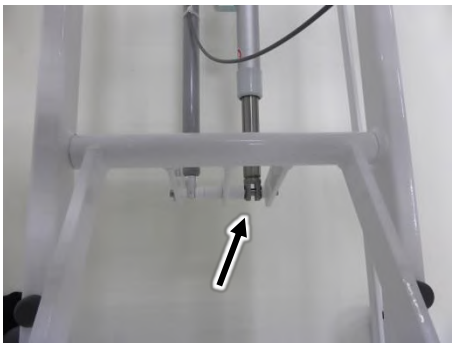
No.:	Description and Quantity of Component	Illustration	Lubrication Spots	Lubricant
1	Mattress base frame crank		2 x at head end 2 x at foot end	A
2	Pivot between mattress frame and thigh rest		2 x	A

No.:	Description and Quantity of Component	Illustration	Lubrica-tion Spots	Lubricant
3	Pivot between thigh rest and lower leg rest		2 x	A
4	Pivot between mattress base frame and Rastomat **(A)**		2 x	A
5	Pivot between lower leg rest and Rastomat **(B)**		2 x	A
6	Bed extension guide		2 x	A
7	Lifting pipe take-up, backrest motor		1 x	A

No.:	Description and Quantity of Component	Illustration	Lubrication Spots	Lubricant
8	Lubricate the lifting pipes of the electric adjustment motors and take them once through their entire adjustment travel		1 x	B
			1 x	
			1 x	
9	Motor eye take-up, backrest motor		1 x	A

No.:	Description and Quantity of Component	Illustration	Lubrication Spots	Lubricant
10	Motor eye take-up, thigh rest		1 x	A
11	Lifting pipe take-up, thigh rest		1 x	A
12	Pivot between chassis crank and mattress frame crank guide lug		2 x at head end	A
13	Pivot between chassis crank and mattress frame crank guide lug **(A)**		2 x at foot end	A
14	Pivot between mattress base frame crank and chassis guide lug **(B)**		2 x at foot end	
15	Pivot between chassis and mattress frame crank guide lug **(C)**		2 x at foot end	

No.:	Description and Quantity of Component	Illustration		Lubricant
16	Switch / brake mechanism		1 x at head end 1 x at foot end	A
17	Gas spring take-up		1 x at foot end	A
18	Gas spring take-up		1 x at head end	A
19	Motor eye take-up, height adjustment motor		1 x	A

No.:	Description and Quantity of Component	Illustration		Lubricant
20	Chassis crank pivot		2 x at foot end 2 x at head end	A
21	Tilting gas spring actuator		1 x at foot end	B
22	Lifting pipe take-up, height adjustment motor		1 x	A

13.6 Servicing Plan

Components marked with an asterisk (*) only apply for electric beds.

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

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

We recommend supplementing the specified maintenance work with appropriate preventive measures to further enhance trouble-free and fail-safe operation of the bed. A guide to preventive replacement of potentially relevant components can be obtained from our service centre: Contact info: Service Address » 77

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

IMPORTANT

Qualification of Inspectors

In accordance with DIN EN 62353:2015-10 (Association of German Electrical Engineers – Regulation VDE 0751-1), the inspection results may only be evaluated and documented by experts (a qualified electrician or, with the use of suitable measuring devices, a person instructed in electrical matters as defined by DGUV A3) with the corresponding knowledge, training and experience.

Such persons must also verify that they have knowledge of the beds that are to be inspected and of the relevant regulations (medical products act, operator ordinance, safety regulations, instruction manuals, etc.).

Proceed in the following order when testing according to EN 62353 (VDE 07511):

1st Visual inspection

2nd Electrical measurement

3rd Performance inspection

⚠ CAUTION

Risk of Injury

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

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

Only then have the requirements for further operation been met.

An inspection sheet template for testing in accordance with DIN EN 62353 (VDE 0751-1) is given in the appendix: Inspection Report » 110.

14 Replacement of Electrical Components

14.1 Safety Information

WARNING

Danger of Death Due to Electric Shock!

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

WARNING

Crushing Hazard Due to Falling Mattress Base Parts

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

WARNING

Risk of Injury Due to Faulty Maintenance

- The components (control unit, actuators, handset, control box, locking box) of the electrical actuator system are maintenance-free and must not be opened. If a malfunction occurs, the relevant component must be replaced in its entirety!
- When replacing individual components, make sure that the plugs have undamaged O-rings (for sealing) and are pushed into the control unit as far as they will go. This is the only way to ensure proper sealing and faultless operation.
- Do not wrongly connect the motor connections at the control unit. This can lead to malfunctions or even result in mechanical damage to the actuators due to the system not switching off at the end position.

The component plugs are connected to the corresponding control unit. To prevent the plugs from being inadvertently disconnected, they are secured with a locking device. This device can be carefully lifted off using a screwdriver if necessary. The locking device must always be properly refastened.

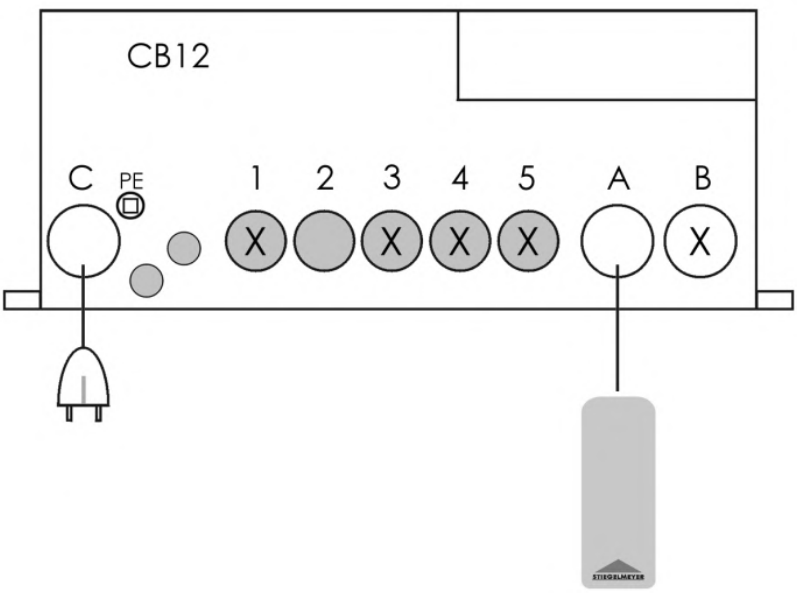
The control unit sockets should be lightly greased inside with Vaseline. The plugs can then be inserted more easily and the O-rings provide a better seal.

14.2 Assignment of Control Unit Terminals

Depending on the number of actuators EM1, EM2, EM3 and additional options such as handset and locking box, the sockets on the control unit may be occupied to a greater or lesser extent. The wiring diagram below shows all possible variants for an actuator system.

14.2.1 Variant EM1 Plug Assignment

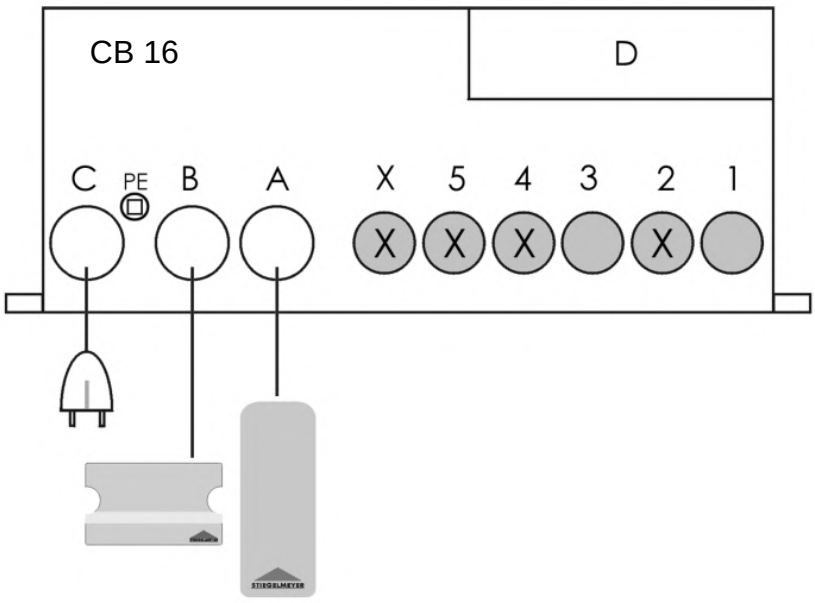
One actuator (EM1) for backrest adjustment.



1	Not assigned	2	Backrest motor
3	Not assigned	4	Not assigned
5	Not assigned	A	Handset
B	Not assigned	C	Mains cable
PE = Earth wire connection			

14.2.2 Variant EM2 Plug Assignment

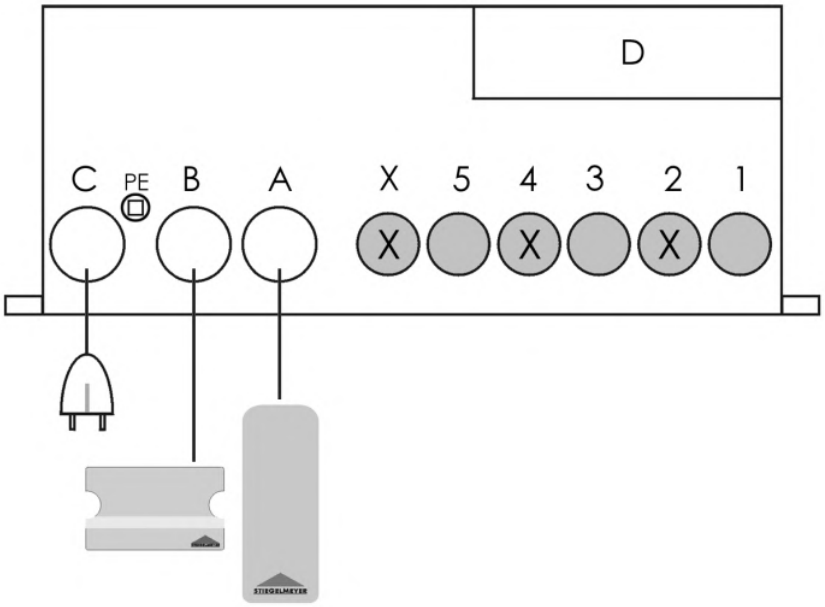
Two actuators (EM2) for adjusting the backrest and mattress base height.



1	Backrest motor	2	Not assigned
3	Mattress base height motor	4	Not assigned
5	Not assigned	X	Not assigned
A	Handset	B	Locking box (optional)
C	Mains cable	D	Battery (optional)
PE = Earth wire connection			

14.2.3 Variant EM3 Plug Assignment

Three actuators (EM3) for adjusting the backrest, thigh rest and mattress base height.



1	Backrest motor	2	Not assigned
3	Mattress base height motor	4	Not assigned
5	Thigh rest motor	X	Not assigned
A	Handset	B	Locking box (optional)
C	Mains cable	D	Battery (optional)
PE = Earth wire connection			

14.3 Changing the Lead-Acid Battery

Rechargeable batteries must be replaced once they have reached the end of their service life! Spare parts can be obtained from the manufacturer.

⚠ WARNING

Risk of Explosion

- Before the installation work, make sure that the battery set is correctly connected. Please refer to the drawing in the battery compartment and check that all connections are seated correctly.
- The battery compartment has been hermetically sealed from the electronics compartment by the manufacturer. When replacing batteries, this insulation must not be damaged or altered, as this could result in battery gases penetrating into the electronics compartment and causing an explosion in extreme cases.
- When changing batteries, the sealing material of the housing (silicone ring or joint sealer) must not be damaged and must be correctly replaced in the joint afterwards. The screws in the housing must be tightened to a torque of approx. 1 Nm.
- The battery compartment has its own fan. This must not be obstructed or covered as otherwise pressure could build up and an explosion could occur.

⚠ CAUTION

Risk of Crushing

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

Proceed as follows:

1. For easy installation, move the mattress base to the highest position.
2. Unplug the mains cable.
3. Remove the Torx screws on the underside of the control unit.
4. Replace the lead-acid battery pack with an identical one. In doing so, pay attention to the installation instructions on the inside of the housing cover.
5. Fasten the housing cover with the four Torx screws. Make sure that the silicone seal is correctly positioned!
6. Insert the mains plug into an electrical socket. The LED on the control unit must light up green, and the battery charge display on the control box must light up orange.
7. Test the function of the power adjustments!
8. Charge the lead-acid battery. To do so, connect the bed to the mains supply for at least 8 hours. Only then is the battery ready for unrestricted emergency use.

14.4 Replace Handset

Replace faulty handsets on electric beds.

Proceed as follows:

1. If possible, adjust the bed to its highest position to make work easier.
2. Unplug the mains cable.
3. Carefully lift the locking device over the plugs of the control unit using a screwdriver.
4. Disconnect the handset plug from the control unit.
5. Insert the new handset plug as far as it will go into the open socket.
   - Make sure that the plug is correctly aligned (plug groove aligned with the protrusion in the socket).
   - Make sure that the O-ring on the plug is not damaged. This ring ensures that the plug is tightly sealed.
6. Re-attach the locking device.
   - This prevents all the plugs from being inadvertently pulled out of the control unit.
7. When routing the handset cable, ensure that it cannot be damaged by any moving parts of the bed.
8. Test the function of the power adjustments.

14.5 Replace Mains Cable

Replace faulty mains cables on electric beds.

Proceed as follows:

1. For easy installation, move the mattress base to the highest position.
2. Unplug the mains cable.
3. At the head end of the chassis, release the strain relief of the mains cable.
4. Remove the mains cable from the holders.
5. Unplug the IEC connector from the control unit. To do this, use a screwdriver to slightly press the red security hooks together on the IEC connector.
6. Plug the new IEC connector into the control unit. The red securing clips must prevent the plug from being disconnected unintentionally from 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 electric socket. The control unit LED must light up green.
10. Carry out an electrical measurement!
11. Test the motorised adjustments to ensure that they work correctly!

14.6 Replace the Control Unit

1. For easy installation, move the mattress base to the highest position.
2. Unplug the mains cable.
3. Unplug the IEC connector from the control unit. To do this, use a screwdriver to slightly press the red security hooks together on the IEC connector.
4. Mark or label the position of all cables that are connected. By doing so, you will prevent mixing the sockets up when inserting the re-assembled components.
5. Carefully lift the locking device over the plugs of the control unit using a screwdriver.
6. Disconnect the handset plug and all motor cables from the control unit.
7. Disconnect the earth wire of the mains cable from the control unit to the bed (M-4 bolt right next to the mains connection)
8. Remove the 4 fastening screws fixing the control unit to the bed and replace the control unit with a new one
9. Carry out the installation work in the reverse order to the one described above; see also: Replace handset with a new one, replace mains cable with a new one
10. Please note the maximum torque for all fastening screws of 1.5 Nm.
11. Please note when reconnecting the earth wire to the M4 bolt of the control unit:
    - Slip the cable shoe onto the bolt.
    - Place the spring washer on the bolt and replace both nuts. Tighten these fully (torque: 1.5 Nm).
    - Tighten both nuts to prevent inadvertent loosening.
12. Carry out an electrical measurement!
13. Test the motorised adjustments to ensure that they work correctly!

15 Troubleshooting

15.1 Troubleshooting for Electric Beds

15.1.1 Faults and their Rectification

Problem	Possible Causes	Rectification
Handset/actuator system not working	Mains cable not plugged in	Plug mains cable in; mains power LED must light up on the control unit
	No power supply to socket	Check socket and fuse box
	Plug not inserted properly	Check connector plugs
	Actuators locked out	Enable functions
	Handset, mains cable or control unit is defective	Inform your operator about any necessary repairs
Handset not functioning, adjustments are not locked	Handset faulty	Replace handset with a new one
Battery-powered operation not possible	Lead-acid battery discharged	Connect the bed to the mains supply for approx. 8 hours
	There is no rechargeable battery	
Constant alarm sounds during adjustment	Battery capacity depleted	Connect bed to the mains supply to recharge lead-acid battery as soon as possible
Operation with sufficiently charged battery only possible for a short time	End of lead-acid battery life reached	Exchange the lead-acid battery; inform your operator about any necessary repairs
Operation is not possible despite proper power supply	Control unit has shut down due to overheating	Observe max. duty cycle: ON/OFF 2/18 min
	Control unit defective	Exchange the control unit; inform your operator about any necessary repairs
Manual CPR release of backrest is not possible	Bowden cables are too loose or not attached	Readjust at the release lever or secure them
	Bowden cable is kinked	Insert new Bowden cables; inform your operator about any necessary repairs
Mains control lamp in control unit does not light up	No power supply to socket	Use an electric socket that is working properly
	Mains cable damaged	Replace the mains cable
	Fuses in control unit defective	Exchange the control unit; inform your operator about any necessary repairs
Actuator runs for a brief time only, then stops	Drive overloaded	Remove the overload, retest
	One or more motors are not connected	Connect all motors
Control unit is not functioning; locking LEDs on handset/locking box alternate between orange and green	There is a serious problem with the control unit. For safety reasons, all functions are locked.	Unlock the control unit; if fault occurs again: Have actuator system checked. Inform your operator about any necessary repairs
Unlocking control unit as per Chapter 15.1.3 is no longer possible; Locking LEDs on handset/locking box alternate between orange and green	Handset errors, which were not rectified in time by replacing the handset, have been identified several times (3 x). Control unit locked for safety reasons.	Replace faulty handset
		Contact Stiegelmeyer's service centre. Only they can deactivate the safety lock on the control unit.

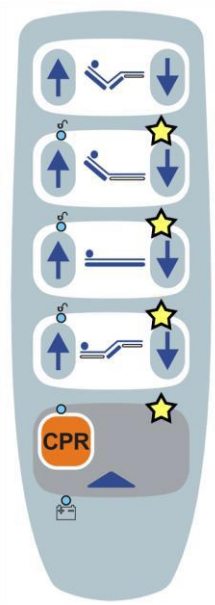
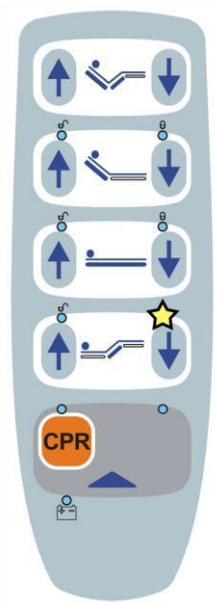
15.1.2 Fault Indicator (Version EM2 and EM3 Only)

For safety reasons, if a serious error is detected, the functions concerned are electronically locked out. At the same time, the various errors are displayed on the handset and/or locking box by the lock indicator flashing differently. This makes it easier to rectify faults.

Once the fault has been rectified, the control unit must be RESET to ensure that the system will work properly again. The necessary steps are explained in the Chapter 15.1.3 Unlocking the Control Unit – Reset.

15.1.2.1 Handset with Magnetic Locking Function

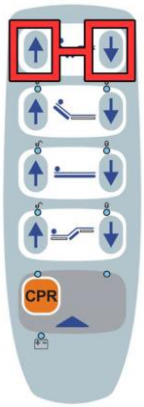
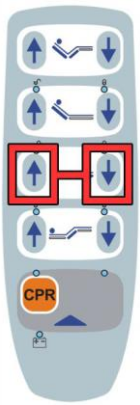
If the bed is equipped with a handset with a magnetic locking function, the error codes will be shown by the LEDs on the handset itself.

Possible Fault		– Handset fault – An internal fault in the control unit	– Thigh rest motor (socket 5) limit switch
Solution		– Replace handset with a new one – Reset the control unit	– Check cable + plug – Check/replace motor
	Faults are shown through flashing LEDs		
			

Call Up or Delete Last Faults Saved

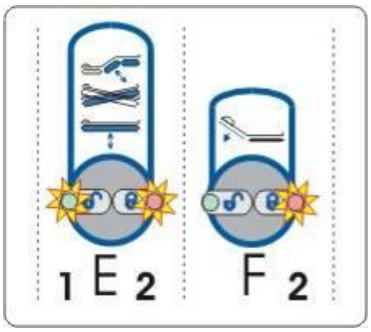
In addition, the last error code saved in the control unit can be called up and also deleted using the handset.

Indication of error codes on the handset. If no error code can be called up, there was either no fault or the memory was deleted.

Display Last Fault	Delete Last Fault
	
Press both buttons at the same time	Press both buttons at the same time for 5 seconds until the procedure is confirmed with a beep.

15.1.2.2 Optional Equipment: Handset and Locking Box

Depending on the features which the bed incorporates, the bed has a locking box. This indicates the existing fault using the LEDs on the buttons (see picture).



Locking Box			Possible Faults	Solution
E		F		
1	2	2		
✶	✶		– Thigh rest motor (socket 5) limit switch	– Check cable + plug – Check/replace motor
	✶	✶	– Handset fault – An internal fault in the control unit	– Replace handset with a new one – Replace control

Call Up or Delete Last Faults Saved

In addition, the last error code saved in the control unit can be called up and also deleted using the handset.

Indication of error codes on the locking box. If no error code can be called up, there was either no fault or the memory was deleted.

Display Last Fault	Delete Last Fault
	
Press both buttons at the same time	Press both buttons at the same time for 5 seconds until the procedure is confirmed with a beep.

15.1.3 Unlocking the Control Unit – Reset (Version EM2 and EM3 only)

For safety reasons, if a serious error is detected by the control unit, the functions concerned are electronically locked (see Faults and their Rectification » 94).

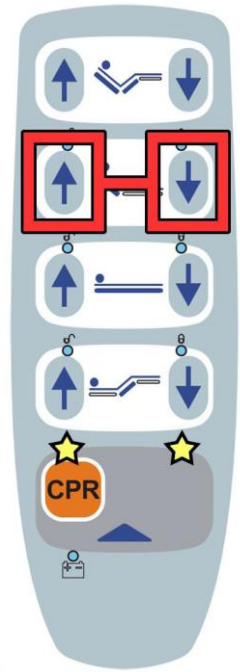
⚠ WARNING

Risk of Injury

- If the control unit automatically locks again within a short space of time, contact Stiegelmeyer's Customer Service to rectify the cause of the fault.
- Ignoring this safety cut-out function, for instance, by repeatedly resetting the control unit without rectifying the cause of the fault, may result in endangering the patient due to inadvertent actuation of the control unit.
- If a handset fault is identified 3 times in a row and not rectified previously by replacing the handset with a new one, the control unit is permanently locked. This can only be deactivated by Stiegelmeyer's service centre.

15.1.3.1 Handset with Magnetic Locking Function

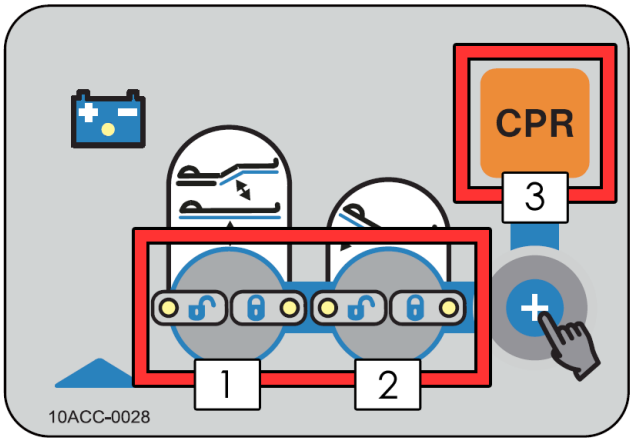
If the system is equipped with a handset with a magnetic lock, the reset is carried out on the handset. The reset is only possible at **staff control level** and not at conventional patient level.



1. Hold the grey surface at the top end of the handset against the magnet on the bed. This is located at the foot end on both sides of the bed (position of magnet: see page **» 58**)
2. The two LEDs above the grey surface on the handset now flash at the same time and indicate that the staff control level has been activated.
3. You must now carry out the reset within 5 seconds as otherwise the staff control level will be ended automatically if no input is entered.
4. To perform the reset, press and hold the two buttons marked for 5 seconds until the continuous alarm tone stops.
5. After the unlocking process has been successfully completed, all the functions will initially be locked again. All the symbols on the handset light up orange. You must unlock / release adjustment functions in the normal way at the staff control level.

15.1.3.2 Optional Equipment: Handset and Locking Box

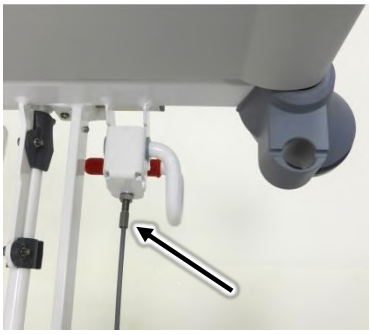
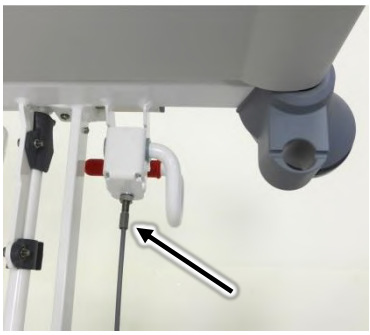
This lock is displayed by alternating green-orange flashing of the locking buttons on the locking box.



1. The 3 buttons marked (see picture) must be pressed and held one after the other in the order 1+2+3.
2. When all 3 buttons are pressed, an acoustic signal sounds.
3. Unlocking is successfully completed once the acoustic signal has stopped after 5 seconds. You can now let go of the buttons.
4. After the unlocking process has been successfully completed, all the functions will initially be locked again. All the symbols on the locking box will light up orange. The desired adjustment functions must therefore first of all be unlocked again.

15.2 Troubleshooting for Electric Beds

The following table is a guide to rectifying faults:

Problem	Possible Causes	Solution
Manual adjustment of backrest is not possible	Rod that connects release lever and gas spring is bent or has become detached	Readjust at the release lever or secure them
Manual adjustment of thigh rest is not possible	Rod that connects release lever and gas spring is bent or has become detached	Readjust at the release lever or secure it in place
Manual tilting of mattress base is not possible	Bowden cable too long / has become detached	Adjust length of Bowden cable 
	Bowden cable jammed / kinked	Rectify the cause; fix securely; replace if necessary
Manual tilting of mattress base cannot be locked	Bowden cable too short	Adjust length of Bowden cable 
	Bowden cable jammed / does not reset itself	Rectify the cause; fix securely; replace if necessary

16 Disposal

⚠ WARNING

Risk of Infection

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

16.1 Disposal of the Bed

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

16.2 Disposal of Packaging

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

16.3 Disposal of Components

16.3.1 Electrical Components

This bed – since it is electrically adjustable – is classified as a type b2b industrial electrical equipment in accordance with the WEEE Directive 2012/19/EC (law governing electrical equipment). The electrical components used are free from prohibited hazardous substances in compliance with the RoHS directive.

Replaced electrical components (actuators, control units, handsets, etc.) must be treated as electric scrap (in accordance with the WEEE Directive) 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.

16.3.2 Lead-Acid Batteries

Rechargeable lead-acid batteries that are no longer of use must be properly disposed of in accordance with the EU Battery Directive 2006/55/EC and do not belong in the household waste. If you have any queries, you can contact your local municipal waste company or our service department.

⚠ CAUTION

Environmental Risk

Lead-acid batteries must not be disposed of as household waste. They can be returned to Stiegelmeyer or disposed of at local waste collection points in the same way as car batteries.

16.4 Disposal of Gas Springs / Hydraulic Units

Any gas springs and hydraulic units available are primarily constructed from metal and plastic and can be recycled.

Before disposing of these according to the manufacturer's instructions, it is important to drain off the oil and dispose of it properly.

Please note in this connection:

DANGER

The release mechanism must not be activated if gas springs are removed. These devices are under pressure.

Careless release could cause injury!

Gas springs must first be depressurised according to the manufacturer's instructions before disposal. This information can be obtained upon request from the gas spring manufacturer (see type plate).

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

17 Installation of Accessories

- The installation work must be carried out by a person who is skilled in this type of work (e.g. company technicians).
- After installation, a performance test must be carried out.

17.1 ¾ Safety Sides (Swivelling) (Optional)

Beds in the Deka range can optionally be fitted with ¾ safety sides.

17.1.1 Product Contents per Bed

2 x Safety sides
4 x Holders
8 x Locknuts M8
8 x Interior hex cheese-head screws M8 x 25 mm
8 x Ring spacers Ø 8.4 mm

17.1.2 Installation of ¾ Safety Sides

Please note the following points when installing the safety sides:

- Installation is identical on both the left and right-hand side of the bed.
- The side with the release button must be closest to the foot end of the bed.
- Tools required:
  - Hex key 6 mm
  - Open jaw wrench 13 mm
  - Torque spanner (10 - 60 Nm).
- All screws must be tightened to a torque of 28 Nm.

Proceed as follows to install the first ¾ safety side:

1. Attach 2 x holder, 1 x at head end and 1 x facing centre of bed (see Fig. 1 - ①)
2. Tighten screws to a torque of 28 Nm.

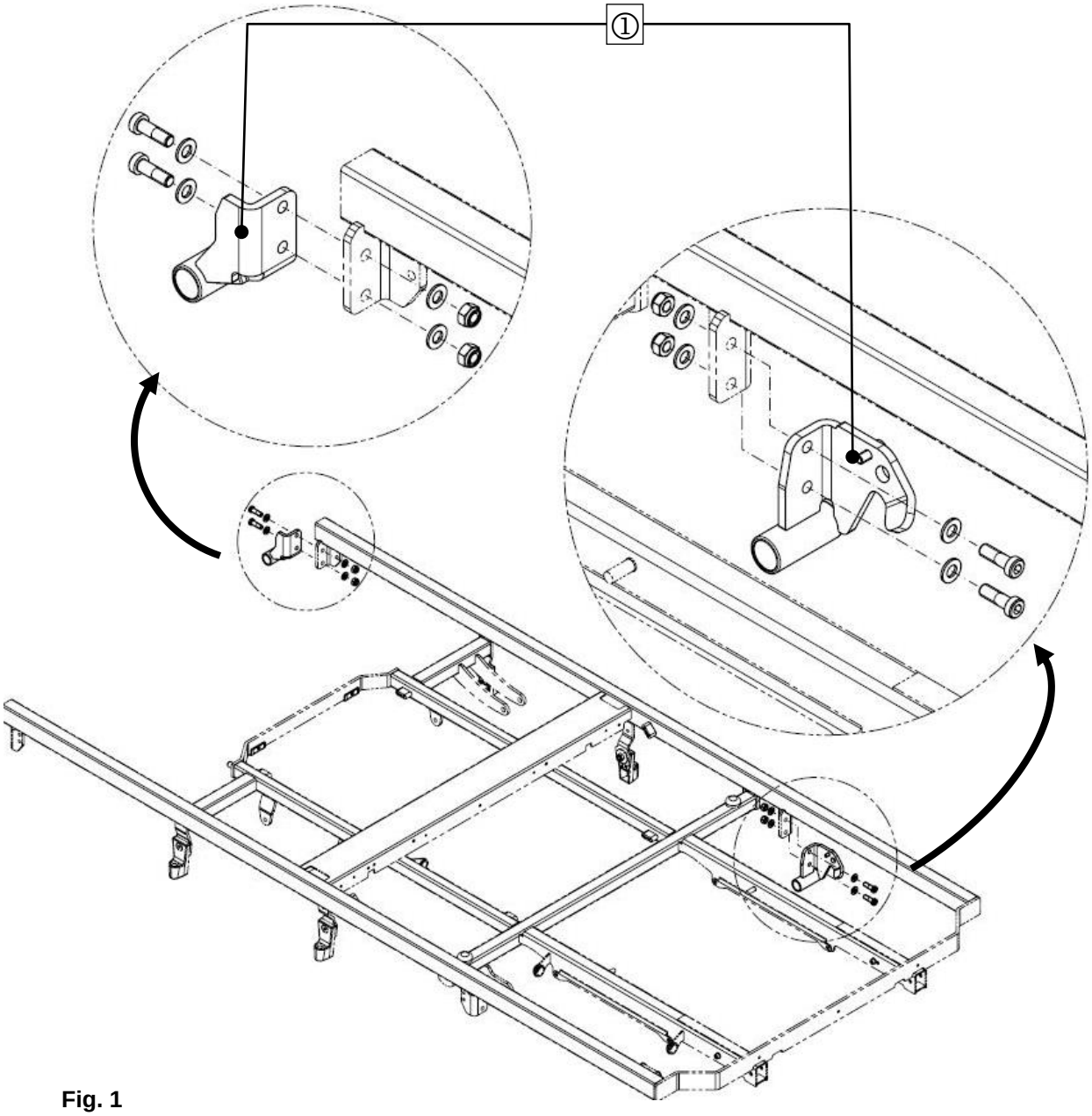


Fig. 1

3. Hold the safety side (see Fig. 2) close to the long side of the bed.
4. Insert the safety side posts into the sleeves in the holder.
   - To do so, press the spring against the safety side posts (see Fig. 2 - ②).
   - Ensure that the side with the release button is closest to the foot end of the bed (see Fig. 3 - ③).
5. Insert the safety side until both ends of it click into place.
   - Check that safety side is firmly attached.
6. Attach second safety side to other long side of the bed.
   - To do so, repeat steps 1 to 5.

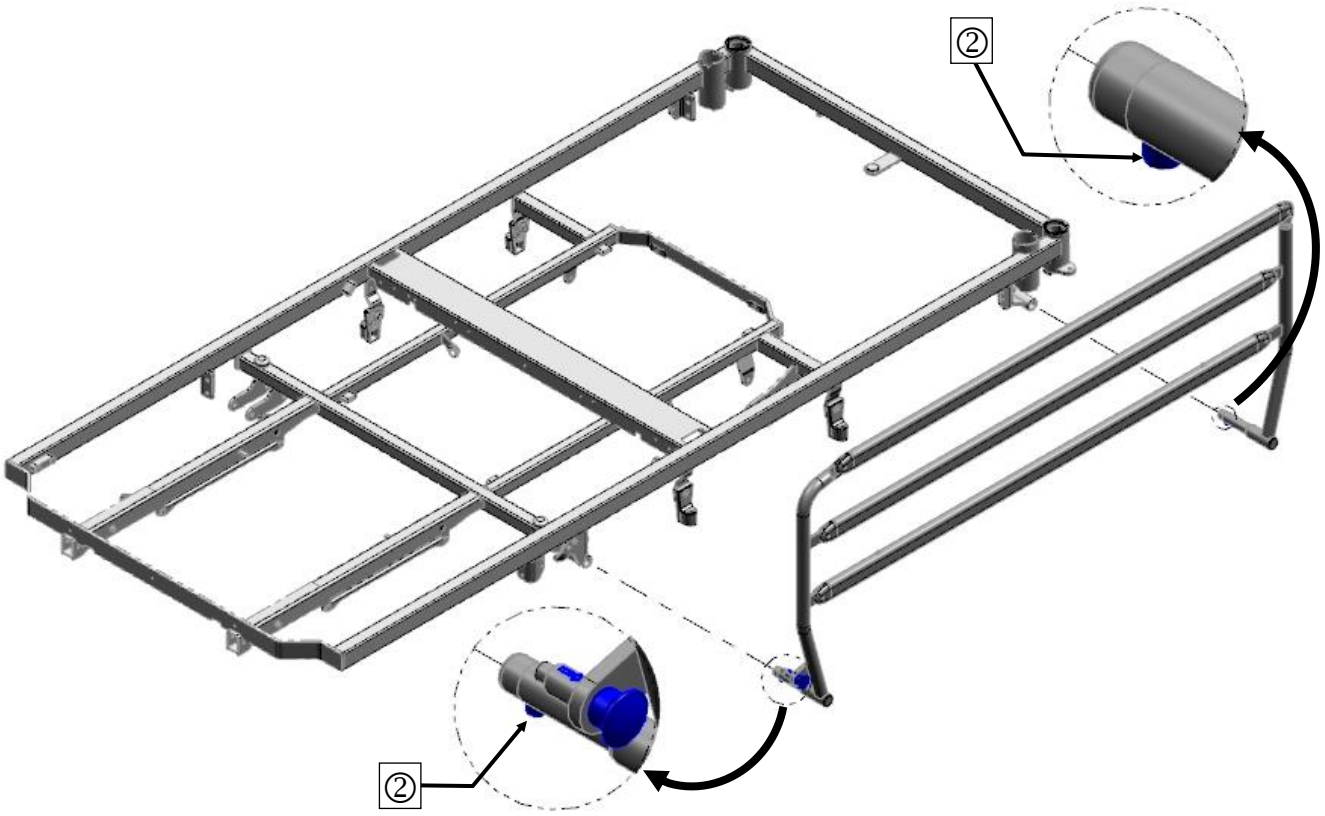


Fig. 2

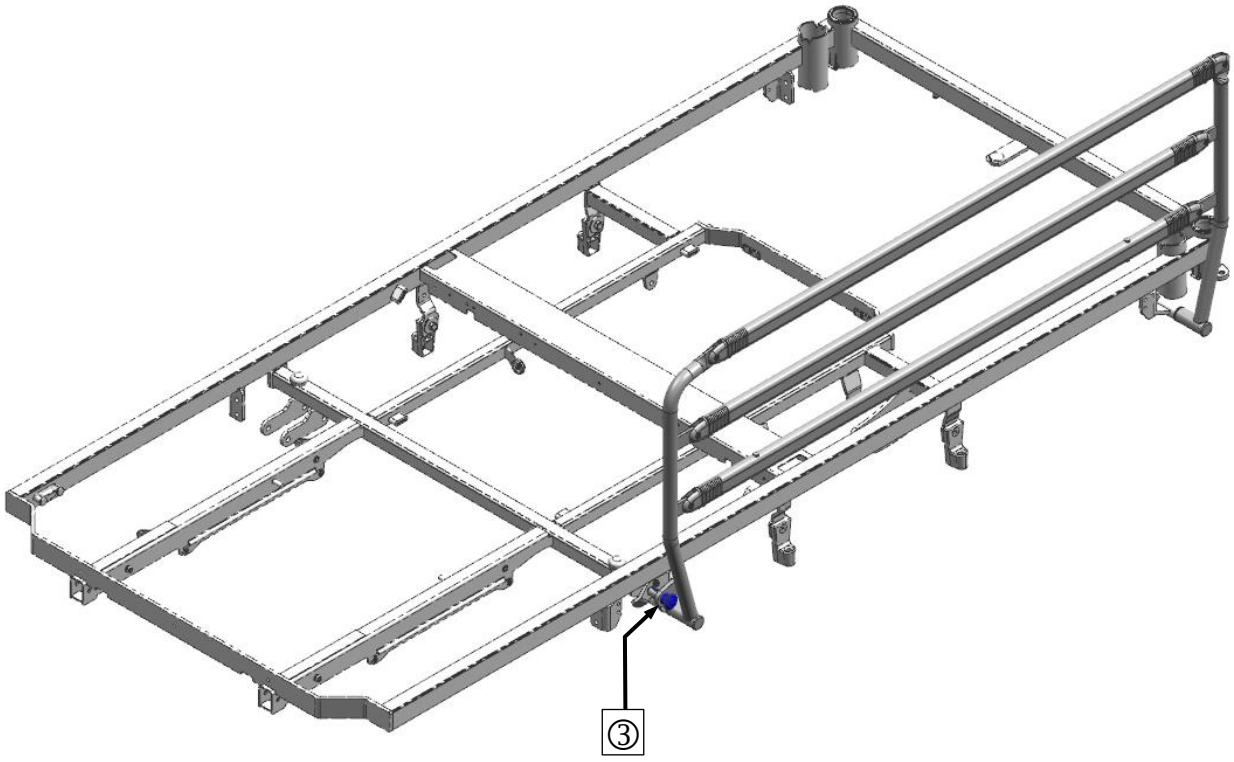


Fig. 3

18 Appendix

18.1 Available Accessories

A wide range of accessories is available for hospital beds in the Deka series, and we are continually extending this range.

⚠ CAUTION

Risk of Injury

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

Lists of accessories can be obtained from us, quoting the bed model.

The following is an extract from this list:

- Patient lifting pole, oval, without grab handle
- Patient lifting pole, round, without grab handle
- 'Soft touch' grab handle (triangular handle)
- full-length safety sides 6638, can be connected to headboard/footboard (only possible in conjunction with screw-attached fixed headboard/footboard special feature)
  - Standard variant (3 bars) for standard beds with mattress base length of 200 cm
  - Special variant (4 bars) with reduced spacing between bars for Junior beds with mattress base length of 180 cm
- Double extension frame / patient lifting handle on over-bed rail
- Mattress pieces for bed extensions, each consisting of a support base + a mattress extension piece
- Standard mattress (polyether cold foam): 200 x 90 x 12 cm (L x W x H) (density 45 kg/m^3)
- Holders for crutches, towels etc., various
- Universal holder for urine bottle holders, drainage bags, universal brackets, etc.
- Handles, various
- Infusion holders, for attachment to patient lifting pole, various
- Infusion stands for attachment to the bed, various
- Urine bottle holders, various
- Document holder
- Mattresses, various

Please note: The information and test reports shown on the following pages refer partly to **electric** and partly to **mechanical beds** Depending on the version of bed you have purchased, refer to the appropriate information or fill in the appropriate inspection reports.

18.2 EMC Info Tables

To ensure EMC, only use cables and accessories approved by the manufacturer (see Available Accessories » 105)

IMPORTANT

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

18.2.1 Guidelines and Manufacturer's Declaration

IMPORTANT

An electric bed from the Deka range is intended for use in the electromagnetic environment described below. Operators of electric beds should ensure that the beds are used in such an environment.

18.2.1.1 Electromagnetic Emissions

Interference Emission Measurements	Compliance	Electromagnetic Environment Guidelines
HF emissions to CISPR 11	Group 1	The bed uses HF energy for its internal functions only.
HF emissions to CISPR 11	Class B	The bed is intended for use in all types of establishment including residential and similar uses that are directly connected to a public supply network that also serves buildings used for residential purposes.
Harmonics according to IEC 6100032	Class D	
Voltage fluctuations/ /flicker acc. to IEC 6100033	Complies	
HF emissions to CISPR 141	Complies	The bed is not intended for connection to other technical equipment.

18.2.1.2 Electromagnetic Immunity

Interference Immunity Tests	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidelines
Electrostatic discharge (ESD) according to IEC 6100042	+/- 6 kV contact discharge	+/- 20 kV contact discharge	Floors should be made of wood and concrete or be tiled with ceramic tiles. If the floor is covered with synthetic flooring material, the relative air humidity must be at least 30%. Can be used when higher ESD levels are present.
	+/- 8 kV air discharge	+/- 20 kV air discharge	
Short, transient electrical disturbances / bursts according to IEC 61000-4-4	+/- 2 kV for network cables	+/- 2 kV for network cables	The quality of the supply voltage should be equivalent to that of a typical business or hospital environment.
	+/ 1 kV for input and output cables	Not applicable	
Surges according to IEC 61000-4-5	+/- 1 kV transversal voltage	+/- 1 kV transversal voltage	The quality of the supply voltage should be equivalent to that of a typical business or hospital environment.
	+/- 2 kV longitudinal voltage	+/- 2 kV longitudinal voltage	
Voltage dips, short interruptions and fluctuations in the supply voltage according to IEC 610004-1-1	<5% U_T (>95% dip in U_T) for half a period	<5% U_T (>95% dip in U_T) for half a period	The quality of the supply voltage should be equivalent to that of a typical business or hospital environment. If the person using the bed requires that the bed functions must continue despite any interruptions in the energy supply, it is recommended that the bed be connected to an uninterruptible electricity supply or a battery.
	40% U_T (60% dip in U_T) for 5 periods	40% U_T (60% dip in U_T) for 5 periods	
	70% U_T (30% dip in U_T) for 25 periods	70% U_T (30% dip in U_T) for 25 periods	
	<5% U_T (>95% dip in U_T) for 5 periods	<5% U_T (>95% dip in U_T) for 5 periods	
Magnetic fields with a supply frequency (50/60Hz) according to IEC 6100048	3 A/m	3 A/m	Magnetic fields with a network frequency should be equivalent to those to be found in a typical business or hospital environment.
Note: UT is the AC network voltage before the test level is applied			

Interference Immunity Tests	IEC 60601 Test Level	Compliance Level	Electromagnetic Environment - Guidelines	
			Portable and mobile radio devices should not be used in closer proximity to the BED, including the cables, than the recommended protection distance calculated using the equation for the appropriate transmission frequency. Recommended protection distance:	
Radiated HF interference according to IEC 61000-4-6	3 V_{eff} 150 kHz to 80 MHz	3 V_{eff} 150 kHz to 80 MHz	d = 1.2 √P	
Radiated HF interference according to IEC 61000-4-3	3 V/m 80 MHz to 2500 MHz	3 V/m 80 MHz to 2500 MHz	d = 1.2 √P	for 80 MHz to 800 MHz
			d = 2.3 √P f	for 800 MHz to 2.5 GHz
			with **P** as the maximum rated power of the transmitter in watts (W) according to the manufacturer of the transmitter and **d** as the recommended protection distance in metres (m). According to an in-situ test[a], the field strength of stationary radio transmitters should be lower, for all frequencies, than the compliance level.[b] Interference is possible when in the vicinity of equipment bearing the following sign.	
				

Note 1:	The higher frequency range applies for 80 MHz and 800 MHz.
Note 2:	These guidelines may not be applicable in all circumstances. The propagation of electromagnetic interference is affected by buildings, objects and people due to absorption and reflection.
a	The field strength of stationary transmitters, such as base stations for cordless telephones and for public mobile radio devices, amateur radio stations, and AM and FM radio and television transmitters cannot be predicted exactly by theoretical means. In order to determine the electromagnetic environment with regard to the transmitter, a study of the location should be considered. If the field strength measured at the location where the BED is to be used exceeds the upper compliance limit, the BED should be observed to check that it functions properly. Should any unusual performance characteristics be observed, additional measures could be necessary, such as turning the bed or moving it to a different location.
b	Across the frequency range of 150 kHz to 80 MHz, the field strength should be less than 3 V/m.

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

IMPORTANT

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

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

18.3 Inspection Report

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

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

I. Visual Inspection What to Check...	Check for...	Ok	Not Ok	Description of Defect
Visual Inspection of the Mechanical Components (if installed)				
Type plate + warning labels on bed	Available on bed frame, legible			
Patient lifting pole, adaptor sleeves, grab handle with strap	No damage or deformation			
Manufacturer's recommendation: Replace grab handle after 5 years				
Bed frame: Mattress base, chassis	No damage, deformation, no split welded seams			
Castors	No damage			
Mattress base	No damage or deformation			
Safety sides	No damage, cracks or deformation			
Connecting elements (screws, bolts, nuts, safety caps)	Fixed position, completeness			
Wearing parts, Movable joints	No damage or severe wear			

II. Electrical Measurement according to DIN EN 62353 (VDE 0751-1): 2015-10					
	Threshold	Measured value			
Resistance of earth wire Measuring point: PE pin on the bed, head end. Measuring current ≥2 A	0.3 Ω	Ω			
Leakage current of device, direct/ difference (place bed with conductive castors in a way that it is insulated).	0.5 mA	mA			
1 Plug the bed mains cable in the test socket on the measuring instrument.					
2 Connect the measuring instrument probe to the PE connector (mattress base, head end).					
3 For the duration of the measurements, activate the motors using the handset.					

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

Overall Inspection Result			
Defects/Remarks:			
[ ] No safety or functional defects were detected [ ] No direct risk, the defects detected can be rectified quickly [ ] Appliance must be taken out of circulation until the defects have been rectified! [ ] Appliance does not conform to requirements – modification/replacement of components/ decommissioning recommended.			
Test approval sticker applied:	[ ] Yes	[ ] No	Next inspection date:
Documents that form part of this inspection report:			
Checked:	**Date:**	**Name:**	**Signature:**
Test approval sticker applied:	**Date:**	**Name:**	**Signature:**
Address/stamp of responsible company:			

18.4 Inspection by the User

Inspection		Ok	Not OK	Description of Defect
What to Check...	Check for...			
Visual Inspection of the Electrical Components (if installed)				
Handset: Housing + key-pad + display + cable:	No damage			
Handset: Cable + cable suspension	Securely suspended + routed without risk of being crushed in the bed frame			
Mains cable	No damage, safe routing			
Control box / locking box: Housing + keypad + cable	No damage, routed without risk of being crushed in the bed frame			
Visual Inspection of the Mechanical Components				
Patient lifting pole, location sleeves	Damage, deformation			
Grab handle with strap	No damage			
Chassis	Damage, deformation			
Mattress base, covers	Damage, deformation			
Performance Check of the Electrical Components (if installed)				
Handset / locking box	Performance check according to Electric Actuator System » 58			
Performance Check of the Mechanical Components (if installed)				
Castors	Safe braking according to Moving and Immobilising the Bed » 49			
Emergency lowering of backrest (CPR)	Lowers when release lever is activated in accordance with Lowering the Backrest by Hand » 70			
Side rails, safety sides	Performance test, securely engaged in accordance with ¾ Safety Sides (Swivelling) » 66			
Accessories (e.g. patient lifting pole, grab handle with strap, side rails)	Securely fixed, undamaged; suitability according to ¾ Safe-ty Sides (Swivelling) » 66			
Inspector's signature:	Inspection results:			Date:

18.5 EC Declaration of Conformity

EC Declaration of Conformity

STIEGELMEYER

We,

Stiegelmeyer GmbH & Co. KG
Ackerstrasse 42,
32051 Herford, Germany

hereby declare under sole responsibility as the manufacturer that the product model named below:
Product model:

Hospital Bed Series
Deka

in the version submitted complies with the regulations of the EC Directive 93/42/EEC Appendix VII for Medical Devices, last amended by Directive 2007/47/EC dated 5 September 2007.
It is categorised as a Class I active medical device.
The relevant technical documentation is kept by the manufacturer's safety representative.
To evaluate the conformity to the Directives, all applicable parts of the following standards were referred to:

Harmonised Standards:

DIN EN ISO 14971: 2013-04	Application of Risk Management for Medical Devices
DIN EN 60601-1: 2007-07	Medical Electrical Equipment, Safety
DIN EN 60601-1-2: 2007-12	Electromagnetic Compatibility
DIN EN 60601-1-6: 2010-10	Medical Electrical Equipment - Suitability for intended use
DIN EN 60601-2-52: 2016-04	Particular requirements for the safety and essential performance of medical beds

International Standards:

IEC 60601-2-52:2009-12 +AMD 1: 2015-03	Medical Electrical Equipment: Particular requirements for the basic safety and essential performance of medical beds
IEC 62366:2007	Medical equipment: Usability

Herford, 2016-12-20

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