aks-S4
Homecare bed with SMPS

Operating manual
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1 Introduction

The aks-S4 homecare bed meets the requirements of a modern homecare bed and can ideally be integrated into the existing residential environment due to its wood decor. It has been tested for the application cases 3 and 4 of the standard EN 60601-2-52. This includes use in domestic care and in old people’s and care homes. The use of the aks-S4 homecare bed means more quality of life for the patient and making the work easier for the care personnel.

Among other things, the aks-S4 homecare bed is also distinguished by the following features:

- safety due to modern switch mode power supply (SMPS) with surge voltage protection, short circuit protection, overcurrent and temperature shutdown
- minimal electromagnetic waves; as a result, no transformer humming is possible
- electricity saving because the power supply is in standby mode when the bed is not being operated
- safety due to 29 V instead of 230 V from mains adapter, i.e. no 230 volts voltage in the power lead and at the homecare bed
- motorised height and back part adjustment
- patented possible adjustment of thigh and lower leg part using the manual control unit by the patient without manual lifting of the lower leg part
- homelike ambience due to wood decor
- integrated wood side grills
- individually lockable castors
- uplifter
- suitable for installation alone

The present operating manual gives you the necessary information for safe use.

Read and observe this operating manual before every use.

In the case of a change of owner, pass on this operating manual.
2 Intended purpose

The aks-S4 homecare bed is an active Class I medical product according to EU Council Directive 93/42/EC, Appendix IX.

The intended use of the aks-S4 homecare bed is sleeping / resting. It is used for alleviation of or compensation for an injury, disability or illness and for making the working conditions easier for the carers.

It has been tested for the application cases 3 and 4 of the standard EN 60601-2-52. It is therefore intended both for domestic care as well as for long-term care in a medical sector (e.g. old people’s homes and care homes, rehabilitation facilities, geriatric facilities).

The bed is suitable for adult patients and not for children. The suitability of the homecare bed for the patient must be determined by the professional assessment of the health professional.

The homecare bed is only suitable for dry indoor areas.

The climatic conditions must be an ambient temperature of 0 °C to 40 °C, humidity of 20% to 80%, air pressure of 700 hPa to 1060 hPa and in the range of normally composed atmospheric air. The homecare bed is not EX-protected and must not be operated in potentially explosive areas.

The homecare bed does not have any potential equalisation and is thus not suitable for medical, electrical applications.
3 General safety instructions

- Only use the homecare bed in accordance with its intended purpose, the requirements of the medical products law and all related legal regulations, the occupational health and safety and accident prevention regulations as well as the generally recognised rules of standard engineering practice.

- Note that this homecare bed is a medical product and the Medical Products Operator Regulations (MPBetreibV) are binding for the operating organisation / user.

- The requirements for the electrical installation of the room / area where the homecare bed is connected and operated must comply with the state of the art.

- Only use the homecare bed if you have been instructed about its handling and you have the corresponding expert knowledge.

- Read the operating manual completely before commissioning in order to avoid damage due to incorrect operation or hazards. It contains important information and instructions which are necessary for the proper operation of the homecare bed.

- Only use the homecare bed in accordance with the present operating manual. Keep the operating manual safely for possible reference. Include this operating manual in the case of change of ownership of the homecare bed.

- Ensure the homecare bed and its accessories are in proper, fault-free condition before every use.

- Note that the installation, operation, maintenance and repair of the homecare bed must only be performed by suitable qualified personnel.

- You as the user and/or owner must ensure (e.g. by corresponding instructions and precautions) that mechanical load of the 29 V power cable during use is avoided (e.g. kinking, shearing, driving over the cables with the homecare bed itself or with equipment trolleys, loads during room cleaning etc.). This also applies to cables for other equipment which is used in combination with the homecare bed.

- Pay attention to compliance with the activation time and the safe working load. These must not be exceeded, otherwise reliable operation can no longer be guaranteed (see Chapter 7 Commissioning and Chapter 21 Technical Data).

- Protect the aks homecare bed from direct sunlight and heat.

- Ensure that no moisture penetrates into the electrical system.

- Note that possible electromagnetic or other influences between the homecare bed and other equipment cannot be ruled out. If there is a risk of interactions, disconnect the homecare bed from the mains power supply by unplugging the mains adapter.
Faults due to the use of mobile communications devices cannot be completely ruled out. Therefore, maintain a safety distance of at least 3.3 m to guarantee reliable operation of the homecare bed. - See position paper of the German Federal Institute for Drugs and Medical Products (BfArM) (reference No.: 9 / 0508) -

Do not leave children in the surroundings of the homecare bed unsupervised. If necessary, remove the mains adapter from the mains power socket and block the manual control unit against unauthorised operation.

If you leave the person to be cared for unsupervised, move the lying area to the lowest position in order to reduce the risk of injury due to falling when getting in and out of the bed or by falling out.

If the homecare bed has to be moved, lower the lying area elements so that they are horizontal and put the bed in the lowest position. Raise the side grills for the patient transport. Attached equipment must be removed.

Use the side grills if there is a danger of the person to be cared for falling out of the bed. Note that the side grill only provides protection against falling out if it is raised on both sides (head and foot) and if the lying area elements such as back, thigh and lower leg part are in the horizontal position.

Only use original side grills as these have been approved by aks and ensure faultless and safe function.

-- Non-original aks side grills can cause hazards! --

When using the side grills, check their suitability for the respective bed user taking account of his special characteristics. Pay particular attention to the distances between the bars and stays in relation to the physique of the bed user. Check whether the side grill height from the top side of the mattress is at least 220 mm. If this is less than 220 mm, use our tested and approved side grill height extenders.

There is a higher risk for unsupervised persons lying in the bed who are also mentally deranged or extremely fragile. Strictly comply with the safety instructions shown here in order to minimise the residual risk. Block the manual control unit if necessary.

In the case of unusual noises, damage or malfunction, the homecare bed must not be further operated. Disconnect the homecare bed from the mains power supply by unplugging the mains adapter from the mains power socket. Inform your authorised dealer.
4 Scope of delivery

The homecare bed has already been inspected at the factory for freedom from defects and completeness. Nevertheless, check the product immediately after receipt for possible transport damage.

After removing all individual parts, check the completeness of the scope of delivery. If all individual parts of the scope of delivery are not present, contact your authorised dealer.

The aks-S4 homecare bed is delivered in cartons with the following scope of delivery:

<table>
<thead>
<tr>
<th>Quantity</th>
<th>Carton</th>
<th>Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>KA</td>
<td>1x head support (Figure 02) with 6x Allen bolt (pre-assembled, Figure 10)</td>
</tr>
<tr>
<td>1</td>
<td>FA</td>
<td>1x foot support (Figure 01) with 6x Allen bolt (Figure 10) pre-assembled, 2x extension tube (connected to the frame, Figure 06), 1x carton with controller, manual control unit and switch mode power supply (Figure 08)</td>
</tr>
<tr>
<td>1</td>
<td>SH</td>
<td>1x scissor lift (Figure 03), 1x uplifter with handle and safety strap (Figure 07), 1x bag with Allen key, transport lock and operating manual (Figure 09)</td>
</tr>
<tr>
<td>1</td>
<td>SP</td>
<td>2x mirror panel (Figure 04)</td>
</tr>
<tr>
<td>1</td>
<td>HSG</td>
<td>4x wood side bar (Figure 05)</td>
</tr>
</tbody>
</table>
5 Product overview

Figure 11

- Handle with strap
- Uplifter
- Back part
- Back part drive with controller
- Mains adapter
- Manual control unit
- Scissor lift drive
- Scissor lift
- Castor with locking device
- Thigh and lower leg part
- Mirror panel
- Side grills
- Castor with locking device
- Manual control unit
In addition to the supplied 6 mm Allen key, you also need a Phillips screwdriver and a side cutter for the assembly.

If you have established based on **Chapter 4 Scope of delivery** that the delivery is complete and not damaged, perform the installation in the following steps:

1. Place the scissor lift with the castors on the floor and brake the rear castors (Figure 12).

2. Remove the two side Allen bolts M8x16 with spring washer at the support mountings of the head support (Figure 13).

3. Attach the head support with the support mountings to the side round tubes of the scissor lift. Let one end of the head support rest on the floor (Figure 14).

4. For fixing the head support, screw the two Allen bolts M8 x 16 with spring washer tightly into the support lugs on the side (Figure 13).

5. Remove all Allen bolts on the longitudinal tubes of the head and foot supports.

6. Detach the extension tubes from the foot support and insert the individual extension tubes in the longitudinal tubes of the foot support. Screw in the two Allen bolts for fixing the extension tubes loosely.
7. Let one end of the head support rest on the scissor arm (Figure 15). Move the foot support forwards and at the same time attach the C-rails to the castors on the scissor arm.

8. When both C-rails are on the castors, move the foot support so far until the cross member (see arrow) comes against the scissor lift drive. You can set down the foot support in this position (Figure 16).

9. Hold the head and foot support in the middle and connect both supports together using the extension tubes (Figure 17).

10. Screw all 8 Allen bolts tightly at the connection points of the lying area (Figure 18).

11. Remove the cable ties on the head and foot support.

12. Temporarily connect the scissor lift drive to the controller and move the scissor lift to its maximum height. Then disconnect the scissor lift drive from the controller.
13. Push the controller onto the back part drive and secure it against slipping sideways using the fixing screw (Figure 19).

14. Press the strain relief of the power cable into the holder on the head side (Figure 20).

15. Connect the manual control unit to the controller and install the strain relief (Figure 21).

16. Now connect the plug connections for the drives according to Figure 22.

   H = connection for manual control unit
   1 = connection for back part drive
   2 = connection for thigh part drive
   3 = connection for height adjustment drive in the scissor lift
   4 = blank plugs
   Z = strain relief for manual control cable

   **Note:** Strictly ensure the cable of the manual control unit is fastened to the strain relief Z, otherwise cable breaks can occur at the plug connection.
Do not operate the controller with open sockets. There is a risk of short circuit or fire in the event of ingress of moisture / liquid.

17. Fasten the connector cover strip to the controller (Figure 23).

18. Insert a mirror panel in the longitudinal tubes at the foot end of the lying area (Figure 24). Fasten the mirror panel using 2 Allen bolts.

19. Attach the side grill bars to the side grill sliders and place the respective free end on the lying area (Figure 25).

20. However, only insert the second mirror panel at the head end so far into the longitudinal tubes that it sticks (Figure 26).
21. Now lightly attach the lower side grill bars to the guide pins of the side grill slider (Figure 27).

22. Insert the mirror panel further until you can also attach the upper side grill bars to the guide pins.

23. Then insert the mirror panel as far as the stop and fasten it using two Allen bolts. Check the side grill for function.

24. Insert the uplifter on either the left or right (your choice) in one of the head side receptacles (Figure 28) and, if not already done, attach the grab handle to the uplifter (see section 8.3 Uplifter).

25. Insert the transport lock into the free uplifter socket (see Chapter 9 Patient Transport).

26. For commissioning the homecare bed, proceed as described in Chapter 7 Commissioning.
7 Commissioning

Before the commissioning and after every new assembly of the homecare bed, the safe condition of the homecare bed must be established using the maintenance information in Chapter 19 Maintenance.

An inspection according to EN 62353 must be performed for this in order to discover possible damage or defects which have occurred during the transport or the installation at the operating site.

Ensure there is sufficient clearance from other objects such as wall, window bench and power sockets and also ceiling lamp during the positioning of the homecare bed. If the homecare bed should be adjusted for height, the castors must always be braked.

The homecare bed must only be connected to a mains power supply with 100 to 240 Volts alternating current with 50/60 Hz. For the connection of the homecare bed, the 29 Volt power cable must be laid so that it cannot be dragged, driven over or endangered by moving parts during the operation of the homecare bed. Also ensure that the mains adapter is always accessible in order to be able to disconnect the homecare bed from the mains power supply in an emergency.

**Note:**
The Medical Products Operator Regulations (MPBetreibV) are binding for the operating organisation / user of medical products.

The motorised adjustment is not suitable for continuous operation.
The maximum switch-on time (ED) of 2 minutes must not be exceeded.
A pause of at least 18 minutes must follow the switch-on time.

**Note:**
In order to counteract any overload of the electrical components, the control unit is fitted with a self-resetting fuse.
If the activation time is exceeded or the minimum cooling time is not achieved, the overload protection automatically switches off the drive system. After an adequate cooling down phase, the overload protection automatically releases the drive system again. For this reason, several electrical functions must not be performed simultaneously for the adjustment of the homecare bed.
8  Operation

8.1  Castors

The homecare bed is fitted with 4 individually lockable castors. The individual locking enables you to brake each castor individually and secure the homecare bed against accidental rolling away. Operate the foot pedal in the corresponding position to release and set the brake (Figure 29 + 30).

Ensure that the castors are always braked unless you intend to transport the patient.

8.2  Side grills

The risk of the patient accidentally falling out of the homecare bed is reduced by the use of side grills.

In order to use the side grills, pull these up slowly at the top side bar on the head and foot side until the side grill gliders engage.

To lower the side grills, first raise the top side bar (1) so that the locking of the release buttons is released. While raising keep the release button (2) pressed until the top bar has lowered over the locking. Let the side grills down slowly (Figure 31).
Strictly observe the following safety instructions when using the side grills:

- Check the side grills for correct locking after every raising.
- The side grill only provides protection against falling out if it is raised on both sides (head and foot) and if the lying area elements such as back, thigh and lower leg part are in the horizontal position.
- When using the side grills, there is an increased risk of crushing and shearing and a general risk of wedging and falling out due to gap dimensions too large. Therefore, the suitability of the side grills must be checked taking account of the particular characteristics of the respective bed user, in particular the distances between bars and stays in relation to the physique of the bed user. Ensure that the side grill height from the top side of the mattress is at least 220 mm. If this is less than 220 mm, use a side grill height extender.
- Before every adjustment of the back part or thigh and lower leg part, ensure that no limbs of the patient are between the side grills.

8.3 Uplifter

Position the uplifter in the left or right retaining socket depending on requirement (see Chapter 6 Assembly, Figure 28). It can be swivelled from the centre of the bed to the edge of the bed for better getting in and out of the homecare bed.

Fasten the loop of the grab handle between the two limiting pins and adjust the height of the grab handle to the patient’s individual needs in the possible adjustment range of 30 cm.

The safe working load of maximum 80 kg of the uplifter must not be exceeded.
8.4 Lying area

The lying area of the aks-S4 homecare bed can be adjusted electrically. It consists of several elements which are shown in Figure 32. The following adjustments for the lying area can be made:

**Height adjustment of the lying area**
The lying area can be continuously adjusted for height from 40 cm to 90 cm. In doing so, the castors must be braked (Figure 33).

**Angular adjustment of the back part**
The back part can be continuously adjusted from 0° to 70° (Figure 33). The adjustment of the back part is independent from the adjustment of the thigh and lower leg parts.

**Angular adjustment of the thigh part**
The thigh part can be infinitely adjusted from 0° to 37°. The lower leg part is coupled in doing so (Figure 33).

**Patented angular adjustment of the lower leg part**
The aks-S4 homecare bed is equipped with ratchet adjusters between the thigh and lower leg parts. These enable the patient to adjust the lower leg part using the manual control unit (without the otherwise required nursing personnel) (Figure 33). Perform the following steps for this:

1. Move the thigh part completely up. In doing so, the lower leg part moves with it.
2. Now move the thigh part down again. In doing so, up to 4 stages of the ratchet adjuster are moved to one after the other. Reaching each individual stage can be recognised by an audible click. Stop the thigh part at the required stage.
3. Now move the thigh part up again to the required position. The lower leg part is now at a certain angle to the thigh part. This angular setting is fixed by the ratchet adjuster.

If a different angle between thigh part and lower leg part should be set, you must move the thigh part completely into the horizontal position. The ratchet adjuster is then disengaged. The angle can now be reset as described in steps 1 to 3.
8.5 Manual control unit

Sufficient clearance for the movement must be ensured when operating the electrical adjusters. Neither objects nor limbs must be located in the adjustment range.

In order to perform the electrically powered functions, press the corresponding function button on the manual control unit until the desired position is reached (Figure 34). In doing so, note that always only one function can be performed. Otherwise the electrical system can disconnect due to overload.

If the manual control unit is not needed, hang this on the manual control unit hook on the top side bar.

There is a rotary switch on the rear side of the manual control unit which is operated using the associated key. As well as the lock function described in Section 8.6, the manual control unit cable can be tested with this. The cable is OK if the homecare bed does not react to the manual control unit in switch position I or switch position II (Figure 36). This also refers to the emergency lowering using the battery.

Otherwise the cable is defective and must be replaced via your authorised dealer.
8.6 Lock function

The manual control unit is equipped with a lock function, i.e. the functions of the manual control unit can be blocked with the associated key. Insert the key (Figure 35) in the rotary switch on the rear side of the manual control unit (Figure 36). If an open padlock can be seen in the view window of the key (Figure 37), the manual control unit is unlocked. On the other hand, the manual control unit is blocked if a closed padlock can be seen. The rotary switch positions I and II are test functions and are used for testing the first failure safety of the manual control unit. These tests are described in the maintenance schedule.

Do not leave the key in the manual control unit. The user should carry this with him or keep it at a secure location so that no unauthorised person can deactivate the lock function again.

8.7 Emergency lowering

Lowering using the battery

In the event of a power failure, you can continue lowering the adjustment drives to their lowest position once. This is made possible using the 9 Volt block battery in the controller. However, the energy is only sufficient for one lowering. For safety reasons, the battery must be replaced immediately after it has been used once or at every service according to the maintenance schedule. Moving the drives using the emergency lowering must be done one after the other (do not move several drives simultaneously).

Emergency lowering of the back part

If the back part has to be lowered more quickly than 30 seconds, lower the back part manually. Proceed as follows:

Only perform the manual emergency lowering with two users! 
The emergency lowering must only be performed by trained users.

Uncontrolled lowering of the back part can result in severe injuries for user and patient!

Practice the lowering under normal conditions so that you can lower the back part safely in an emergency.
1. Unload the back part before the emergency lowering.

2. The first user slightly raises the back part at the tube bracket of the back part and holds it in this position.

3. The second user folds down the safety bracket of the tube clip and pulls this out (Figure 38) (the drive is disconnected and swivels away downwards).

4. The first user slowly lowers the back part.

   Restore the original condition. Ensure that the safety bracket on the tube clip is closed again. Then perform an inspection based on the maintenance plan.

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**8.8 Mains adapter**

The homecare bed is supplied with DC voltage (29 V / 2 A) via the external mains adapter. The operating state is indicated by a green LED (Figure 39) as soon as the mains adapter is plugged into a mains power socket.

The mains adapter is a modern switching power supply (SMPS = switched-mode power supply) with several safety functions (such as surge voltage protection, short circuit protection, overcurrent and temperature shutdown) and provides many benefits in use:

- safety due to 29 V instead of 230 V from mains adapter, i.e. no 230 volts voltage in the power cable and at the homecare bed
- Very low electrical and electromagnetic alternating fields (“electrosmog”) during standstill of the drives
- 0.5 W in standby mode
- no constant transformer humming

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**Improper handling can result in damage to the mains adapter and in hazards such as electric shock.**

*Do not pull on the cable of the mains adapter and do not drive over it.*
9 Patient transport

The homecare bed is also basically suitable for the transport of patients. Ensure before the patient transport that the homecare bed is in its lowest position and that the lying area elements such as back part, thigh part and leg part are lowered. Pull up the side grills until they audibly engage. Use the transport lock during the transport in order to prevent the risk of driving over the 29 Volt power cable and the falling down of the mains adapter. Ensure that none of the patient’s limbs protrude from the bed and remove any equipment or objects attached to the bed.

Procedure:

The transport lock is located in the free uplifter holder (Figure 40). The 29 Volt power cable is wrapped around the lying area and the mains adapter is inserted in the transport lock (Figure 41) for moving or transporting the homecare bed.

When inserting the mains adapter, ensure that both plug contacts are guided through the openings of the cap and that the mains adapter is tight.
10 Accessories / combination

Only original aks accessory parts must be used as accessories because these are tested by ourselves and thus guarantee faultless and safe functioning. Combinations which have not been approved by aks can cause hazards.

Accessories:

- Foam mattress RG 35 kg/m³, 90x200x12 cm, 8 kg Order No.: 77050
- Side grill height extender (mandatory when using large-cell mattresses) Order No.: 39047
- Side grill padding (one side) Order No.: 77551
- Uplifter with grab handle Order No.: 77020

Other accessories on request.

Combination:

Other aks products can also be used with the homecare bed. For example, these include our aks antidecubitus systems or our aks patient hoists.

Only use mattresses whose dimensions correspond to the dimensions of the lying area (also when using the bed extension). If there is not a distance of at least 220 mm between the mattress surface and the top edge of the side grill, you must use a side grill height extender.

Non-original side grills can cause hazards.
11 Troubleshooting / fault clearance

There is not a defect in the homecare bed for all malfunctions. Table 02 provides assistance for rectifying malfunctions.

Repairs to and measurements of the electrical components must only be performed by qualified and authorised electricians.

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible causes</th>
<th>Remedy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manual control unit and/or drive system does not function</td>
<td>Lock function activated</td>
<td>Unlock manual control unit</td>
</tr>
<tr>
<td></td>
<td>Mains adapter not plugged in and 9 V block battery empty</td>
<td>Plug in mains adapter and replace 9 V block battery</td>
</tr>
<tr>
<td></td>
<td>230 V room power socket has no voltage</td>
<td>Check power socket / fuse box</td>
</tr>
<tr>
<td>No emergency lowering, e.g. in the case of power failure</td>
<td>9 Volt block battery discharged</td>
<td>Replace 9 Volt block battery</td>
</tr>
<tr>
<td>Bed only moves very slowly</td>
<td>Mains adapter not plugged in or no mains voltage present (e.g. power failure) Bed operates using 9 Volt block battery</td>
<td>Plug in mains adapter and/or check the reason for the voltage loss and replace the 9 Volt block battery</td>
</tr>
</tbody>
</table>
12 Care / cleaning

For cleaning and disinfection, the homecare bed must always be disconnected from the power supply by unplugging the mains adapter from the mains power socket in order to prevent risk of electric shock, fire hazard and functional failure. The controller is only protected against spray water when connectors or dummy plugs are inserted.

The homecare beds are suitable for manual cleaning with a moist cloth. Cleaning and care materials suitable for wooden and plastic furniture can be used as cleaning materials.

The following points must be observed:

- Do not use any abrasive agents or cleaning materials containing ammonium chloride.
- Only use dermatologically tested materials.
- Do not use any basic and alkaline cleaning agents.
- Do not use any aggressive cleaning materials, e.g. solvents and hard brushes etc.
- Only use alcohol-free and chlorine-free disinfectants and methods from the RKI (Robert-Koch Institut) list or the disinfectants list of the VAH (Verbund für Angewandte Hygiene e.V.) for wiping disinfection.

Observe the instructions and safety precautions of the cleaning and disinfectants materials manufacturers.

The electrical components of the homecare bed are protected against spray water according to IPX4.

Never clean the homecare bed, particularly the electrical system, with a high pressure cleaner, water hose or in an automatic bed washing system because the surfaces and seals can be damaged or water can penetrate.
13 Storage

If the homecare bed should be stored, it must be covered with a film or a sheet as protection against dust. In the event of longer storage or non-use, remove the 9 Volt block battery as a precaution.

The storage location must preferably be cool and dry and not exceed normal room temperature. Direct sunlight must be avoided.

The climatic conditions must be an ambient temperature from 0 °C to 40 °C, relative humidity from 20% to 80% and air pressure from 700 hPa to 1060 hPa.

14 Reuse

The homecare bed is suitable for reuse. Ensure that the homecare bed has been cleaned according to Chapter 12 Care / Cleaning and serviced according to Chapter 19 Maintenance before reuse.

15 Service life

The service life of the homecare beds is of course dependent on the type of use. Frequent adjustment, transport, installation and cleaning reduce the service life as do improper handling, irregular maintenance and exceeding the activation time of the drives or the safe working load.

16 Disposal

If the homecare bed has outlived its purpose, the electrical components must be treated as waste electrical equipment according to the WEEE Directive (Waste Electrical and Electronic Equipment) and disposed of properly. This is indicated by the symbol in Figure 42. In the case of homecare beds brought into circulation after 13/08/2005, the owner is legally obligated not to give their electrical components to municipal collecting points but to send them directly to the manufacturer. Our General Terms and Conditions are applicable for these returns.

In the case of scrapping the homecare bed, the wood, plastic and metal parts used must be separated and disposed of properly. Contact your local disposal company for this.
17 Warranty

The homecare bed is distinguished by its long service life and high reliability. Should a fault occur and the aks homecare bed no longer functions, check the fault using Table 05 in Chapter 11 Troubleshooting / fault clearance. If the fault cannot be cleared in this way, contact your authorised dealer. The dealer will provide assistance as quickly as possible and acquire all necessary spare parts if applicable.

We guarantee our homecare beds for faultless condition in the context of our sales and delivery conditions. We make a factory warranty of **24 months** from date of purchase for material defects.

**Non-observance of the operating instructions, improperly carried out maintenance work, and technical modifications and additions (attachments) without the permission of the aks company result in voidance of the warranty and general product liability.**

18 Declaration of conformity

The aks-S4 homecare bed complies with the requirements of the EU Council Directive 93/42/EC “Medical Products” taking account of the amending Directive 2007/47/EC. The following standards have been applied for the development:

- EN 60601-1
  Medical electrical equipment - Part 1: General requirements for safety including essential performance
- EN 60601-1-2
  Medical electrical equipment - Part 1-2: General requirements for safety including essential performance - collateral standard: Electromagnetic Compatibility - Requirements and Tests
- EN 60601-2-52
  Medical electrical equipment - Part 2-52: Particular requirements for safety including the essential performance characteristics of medical beds
19 Maintenance

19.1 General maintenance instructions

The service life of the homecare bed is basically influenced by the handling. In order to ensure safe operation, a visual inspection and functional check with electrical inspection afterwards must be carried out at least annually by suitable qualified personnel.

If the homecare bed is not regularly maintained properly, safe use is no longer guaranteed. Wear, damage or also loosening of connecting elements can thus not be detected.

The Medical Products law (MPG) and the Medical Products Operator Regulations are applicable in Germany. The corresponding national requirements are applicable in other countries.

EN 62353 in the respective current version must be used as test specification for this medical product.

Check the 29 Volt power cable regularly at short intervals with respect to mechanical damage (e.g. monthly and after every occurring mechanical load).

In order to rule out hazards in advance, e.g. due to damaged insulation on the cables, the mains adapter of the homecare bed must be unplugged from the mains power socket before the visual inspection.

In the case of damage to the supporting parts or to parts of the electrical system, the homecare bed must be disconnected from the mains power supply by unplugging the mains adapter and must no longer be operated. Contact your authorised dealer who will replace these parts.

Only original aks spare parts and aks accessory parts which are approved for this product are permitted to be used. Otherwise, any warranty claim and product liability are excluded.

You must not make any technical modifications and additions without permission from aks.

Note: Keep a 9 Volt block battery ready as spare battery for safety during the maintenance work.
19.2 Replacing the battery

The natural service life of the 9 Volt block battery is limited to approx. 3 years. Note the expiry date. The 9 Volt block battery must be replaced after an emergency lowering has been performed and operation in the case of power failure.

The original 9 Volt block battery must only be replaced by an equivalent alkaline manganese battery TYPE 6LR61.

Unusable accumulators and batteries must not be disposed of in domestic waste. These must be disposed of in accordance with the regulations for the return and disposal of used batteries and accumulators.

The sealed battery compartment (Figure 43) must be opened to access the 9 Volt block battery.

**Removal of the battery:**

1. Raise the back part and lower the side grill. **Important:** Now unplug the mains adapter from the mains power socket.
2. Undo the fixing screw and remove the controller from the back part drive. Pay attention to the cable routing in doing so.
3. Using a Philips screwdriver, undo the fixing screws of the battery compartment cover and remove the cover.
4. Remove the battery from the battery compartment and disconnect the contact connector from the battery.

**Installation of the battery:**

5. Press the contact connector firmly onto the new battery and insert the battery into the battery compartment.
6. Screw the cover back onto the battery compartment using the fixing screws. Ensure that you do not damage the seal and do not overtighten the fixing screws.
7. Push the controller back onto the back part drive and secure it against slipping sideways using the fixing screw. Pay attention to the cable routing in doing so.
8. Finally, check the cable routing, the plug connections and the firm seating of the controller.
## 19.3 Maintenance schedule

Service the bed at least annually, before every reuse and after every repair.

### Maintenance schedule for aks-S4 with SMPS

<table>
<thead>
<tr>
<th>Pos.</th>
<th>Check point</th>
<th>OK</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>Check of the basic requirements</strong></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>Appropriate and safe use (no collision points or objects above or under the bed)</td>
<td></td>
</tr>
<tr>
<td>1.2</td>
<td>Permitted accessories or equipment combination</td>
<td></td>
</tr>
<tr>
<td>1.3</td>
<td>No additional power sockets, e.g. multiple sockets used for connection.</td>
<td></td>
</tr>
<tr>
<td>1.4</td>
<td>Rating plate and date of manufacture sticker present and legible</td>
<td></td>
</tr>
<tr>
<td>1.5</td>
<td>Presence of operating manual</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>Visual inspection of the mechanical parts</strong></td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td>No unauthorised interventions, modifications or improper handling</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td>No soiling (in particular the lift tubes)</td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td>No surface damage or corrosion</td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td>No deformation or sheared weld seams</td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td>No mechanical wear</td>
<td></td>
</tr>
<tr>
<td>2.6</td>
<td>Connection elements (screws, bolts, pins): tightened and/or secured (locking plate; tube clip)</td>
<td></td>
</tr>
<tr>
<td>2.7</td>
<td>Castors: undamaged and fastened</td>
<td></td>
</tr>
<tr>
<td>2.8</td>
<td>Castors: All 4 parking brakes are functional</td>
<td></td>
</tr>
<tr>
<td>2.9</td>
<td>Mirror panels: undamaged and fastened</td>
<td></td>
</tr>
<tr>
<td>2.10</td>
<td>Side grills: undamaged and fastened</td>
<td></td>
</tr>
<tr>
<td>2.11</td>
<td>Uplifter with grab handle and uplifter support: undamaged, no wear, sticker “max. 80 kg” present</td>
<td></td>
</tr>
<tr>
<td>2.12</td>
<td>Transport lock for mains adapter present</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><strong>Visual inspection of the electrical parts</strong></td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td>29 V power cable and mains adapter (SMPS) not damaged</td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td>Strain relief/kink protection applied and tight</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td>Connection cable (routing, damage, risk of getting caught)</td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td>All enclosures of the electrical system OK: O-rings; seals; no cracks on cases, fork heads and lift tubes</td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td>Controller firmly attached to back part drive and secured with the fixing screw</td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td>Replace 9 Volt block battery (alkaline manganese battery Type 6LR61)</td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td>All plug connections on the controller closed with connector with O-ring or with dummy plugs with O-ring</td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td>All drives securely attached (bolts and locking plate present)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td><strong>Electrical inspection according to DIN EN 62353: 2008</strong></td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td>Device leakage current – Alternative Method measurement: max. 500 µA</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Note: Insulation resistance measurement must not be performed. Voltages of more than 1 kV can result in damage.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td><strong>Check of the first failure safety on the manual control unit</strong></td>
<td></td>
</tr>
<tr>
<td>5.1</td>
<td>No adjustment of the bed must be possible in either position I or position II of the rotary switch when the manual switch is operated.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td><strong>Functional check</strong></td>
<td></td>
</tr>
<tr>
<td>6.1</td>
<td>Side grills (installation, locking, safety distances, deflection)</td>
<td></td>
</tr>
<tr>
<td>6.2</td>
<td>Castors (easy running, no unusual noises)</td>
<td></td>
</tr>
<tr>
<td>6.3</td>
<td>Brakes (braking, locking)</td>
<td></td>
</tr>
</tbody>
</table>
6.4 Drives (traverse complete adjustment ranges using the manual control unit, easy running, speed, switch off in both directions by limit switch, power consumption, no unusual noises)

6.5 All buttons of the manual control unit are functional during performance of the adjustment functions

6.6 Emergency lowering functional (unplug mains adapter from the mains power socket and lower the back part by operating the manual control unit for a short time), replace 9 V block battery if necessary

<table>
<thead>
<tr>
<th>Overall assessment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bed OK</td>
</tr>
<tr>
<td>YES</td>
</tr>
</tbody>
</table>

If indications of defects / damage arise during these tests, the homecare bed must be disconnected from the mains power supply immediately and must no longer be operated. Obvious defects / damage must be checked, assessed and repaired if necessary by suitable qualified personnel.

The affected electrical components must be assessed and checked by a qualified electrician or by aks. The electrical components must not be opened and must be completely replaced.
## 20 Product labelling

<table>
<thead>
<tr>
<th>Product labelling</th>
<th>Position:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Rating plate</td>
<td>foot support (inside)</td>
</tr>
<tr>
<td>Date of manufacture</td>
<td>head support, foot support, scissor lift, back part drive, thigh part drive, scissor lift drive, lifter</td>
</tr>
<tr>
<td>Rating plate</td>
<td>uplifter</td>
</tr>
<tr>
<td>Warning sign for:</td>
<td>- removable side grill</td>
</tr>
<tr>
<td></td>
<td>- replaceable mattress</td>
</tr>
<tr>
<td>Position:</td>
<td>foot support (outside)</td>
</tr>
<tr>
<td>Warning sign</td>
<td>- maximum patient weight</td>
</tr>
<tr>
<td></td>
<td>- safe working load</td>
</tr>
<tr>
<td>Position:</td>
<td>foot support (inside)</td>
</tr>
<tr>
<td>Symbol</td>
<td>Explanation</td>
</tr>
<tr>
<td>--------</td>
<td>-------------</td>
</tr>
<tr>
<td>![Symbol 1]</td>
<td>Protection class II against electric shock</td>
</tr>
<tr>
<td>![Symbol 2]</td>
<td>Type B</td>
</tr>
<tr>
<td>![Symbol 3]</td>
<td>Attention!</td>
</tr>
<tr>
<td>![Symbol 4]</td>
<td>Observe instructions for use</td>
</tr>
<tr>
<td>![Symbol 5]</td>
<td>only suitable for dry indoor areas</td>
</tr>
<tr>
<td>![Symbol 6]</td>
<td>WEEE marking (the device must not be disposed of with the domestic waste)</td>
</tr>
<tr>
<td>![Symbol 7]</td>
<td>This product complies with the basic requirements of the Medical Products Directive 93/42/EC.</td>
</tr>
</tbody>
</table>
## 21 Technical Data

### Technical Data

<table>
<thead>
<tr>
<th>Classification</th>
<th>Class I medical product according to Appendix IX of the MDD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lying area nominal dimensions:</td>
<td>90 x 200 cm</td>
</tr>
<tr>
<td>External dimensions:</td>
<td>108 x 205 cm</td>
</tr>
<tr>
<td>Height adjustment:</td>
<td>41 to 91 cm</td>
</tr>
<tr>
<td>Back part adjustment:</td>
<td>0° to 70°</td>
</tr>
<tr>
<td>Thigh part:</td>
<td>0° to 37°</td>
</tr>
<tr>
<td>Lower leg part:</td>
<td>for knee bend 0° to 23°, leg high level up to 14°</td>
</tr>
<tr>
<td>Side grill height:</td>
<td>36 cm</td>
</tr>
<tr>
<td>Side grill height extender (accessory):</td>
<td></td>
</tr>
<tr>
<td>Side grill height:</td>
<td>55 cm</td>
</tr>
<tr>
<td>Castor diameter:</td>
<td>12.5 cm</td>
</tr>
<tr>
<td>Safe working load:</td>
<td>170 kg (including patient, mattress and accessories)</td>
</tr>
<tr>
<td>max. patient weight</td>
<td>135 kg</td>
</tr>
<tr>
<td>Empty weight</td>
<td>121.5 kg</td>
</tr>
<tr>
<td>Separate weights:</td>
<td>&lt; 33.5 kg</td>
</tr>
<tr>
<td>Uplifter:</td>
<td>6.4 kg</td>
</tr>
</tbody>
</table>
| Climatic conditions: | - Ambient temperature from 0 °C to 40 °C  
- Relative humidity from 20% to 80%  
- Air pressure from 700 hPa to 1060 hPa  
- Normally composed atmospheric air |
| Materials used: | Steel (powder coated or galvanised),  
Commercially available plastics (POM, ABS, PP, PVC, PA6.6), Rubber,  
Wood (varnished or covered with decorative foil).  
MDF plates covered with decorative foil  
Aluminium (anodised) |

### Electrical Data

| Input: | 100 - 240 V  50/60 Hz; 90 W |
| Output SMPS: | 29 V  2.0 A |
| Duty cycle: | ED 2 min / Pause 18 min |
| Protection class: | II |
| Protection type: | IPX4 |
| Battery for emergency lowering: | 9 Volt block battery (alkaline manganese block battery Type 6LR61) |
| Sound pressure level: | < 53 dB(A) at distance of 1 m |
| The following requirements for the electrical system are complied with: | RoHS, REACH and WEEE |

All parts and data are subject to constant further development and can thus be different from the information shown in this document.
Enter the serial number of your homecare bed here:

**Serial number:** _____________________________

Enter the year of manufacture of your homecare bed here:

**Year of manufacture:** _____________________________

Enter the telephone number and name of the contact person of your authorised dealer here:

**Name:** _____________________________

**Telephone number:** _____________________________

Notes: