

# Stair Climbing System

*s-max* 160 kg

Translation of the original user's manual

GB



Ideen bewegen mehr



## CE Declaration of conformity

The company AAT Alber Antriebstechnik GmbH herewith declares that the products of the stair climbing system s-max were developed and manufactured in concordance with the current regulations of the European Union, EEC Guidelines 93/42/EG, 2007/47/EG and 2006/42/EG.

This declaration becomes void if the above mentioned devices have been altered without the consent of Alber Antriebstechnik GmbH.



Signature of the manufacturer:

Markus Alber  
Managing shareholder  
AAT Alber Antriebstechnik GmbH



The stair climbing system s-max has been successfully tested and certified according to the standard design for stair climbing vehicles ISO 7176-23 and DIN EN 12182 at the Technical University of Berlin, Berlin-Cert.



AAT Alber Antriebstechnik GmbH  
Postfach 10 05 60 · D-72426 Albstadt  
Tel.: 0 74 31.12 95-0 · Fax: 0 74 31.12 95-35  
info@aat-online.de · [www.aat-online.de](http://www.aat-online.de)



## Table of contents

	<b>CE Declaration of conformity</b> . . . . .	2
	<b>Table of contents</b> . . . . .	3
<b>1</b>	<b>General information</b> . . . . .	5
1.1	How to use this user's manual . . . . .	5
1.2	Instruction . . . . .	5
1.3	Care and maintenance . . . . .	5
1.4	Warranty and liability. . . . .	5
<b>2</b>	<b>Description of the product</b> . . . . .	6
2.1	Adequate use . . . . .	6
2.2	Features of the s-max . . . . .	7
2.3	Technical data . . . . .	8
2.4	Dimensioned sketch . . . . .	9
2.5	Standard scope of delivery . . . . .	10
2.6	Optional accessories . . . . .	10
<b>3</b>	<b>Assembly</b> . . . . .	11
3.1	Handle . . . . .	11
3.2	Attach the battery pack. . . . .	12
3.3	Detach the battery pack . . . . .	12
3.4	Adjust the handle . . . . .	13
3.5	Functional check. . . . .	13
<b>4</b>	<b>Safety instructions</b> . . . . .	14
4.1	Special information concerning the operation . . . . .	14
4.2	Instruction . . . . .	15
4.3	Safety brakes . . . . .	15
4.4	Lining of the climber's rollers . . . . .	15
4.5	Lifting capacity . . . . .	15
4.6	Climbing mechanism. . . . .	15
4.7	Care and maintenance . . . . .	15
4.8	Condition of paths, walkways etc. . . . .	15
4.9	Charge of the batteries . . . . .	15
4.10	Climbing mechanism. . . . .	16
4.11	TransportMounting the brackets. . . . .	16
4.12	Mounting the brackets . . . . .	16
<b>5</b>	<b>Operation</b> . . . . .	17
5.1	Maximum lifting capacity. . . . .	17
5.2	Battery pack. . . . .	17
5.3	Safety brakes . . . . .	17
5.4	Rollers attached to climber . . . . .	17
5.5	Control lights . . . . .	17



<b>6</b>	<b>Instructions for operation</b>	<b>18</b>
6.1	Control unit	18
6.2	Single step control	19
6.3	Climber	19
6.4	Safety brakes	20
6.5	Attach s-max to or detach it from the wheelchair	21
6.6	Transportation of a person with the s-max	24
6.7	Operation on level ground	24
6.8	Adjust the handle	24
6.9	Tilting the stair climbing system	25
6.10	Operation on slopes	25
6.11	Climbing upstairs	26
6.12	Climbing downstairs	28
6.13	Laying the s-max on the stairs	29
6.14	Transportation	29
6.15	Trouble shooting	30
<b>7</b>	<b>Accessories</b>	<b>31</b>
7.1	Battery pack	31
7.2	Voltage converter for your vehicle	31
<b>8</b>	<b>Care, maintenance and recycling</b>	<b>32</b>
8.1	New user	32
8.2	Charger	32
8.3	Battery pack	34
8.4	Fuses	36
8.5	Check brake lining	37
8.6	Check the climber feet	37
8.7	Cleaning	37
8.8	Recycling	37
<b>9</b>	<b>Warranty and liability</b>	<b>38</b>
9.1	Warranty	38
9.2	Liability	38

## 1 General information

Congratulations! With the acquisition of this stair climbing system you have a device that will quickly become a reliable and indispensable partner in transporting physically disabled people.

With the s-max you are able to transport one person safely and effortlessly up- and downstairs; even winding stairs are no problem for the s-max. Driving on slopes is also possible. The safety brakes on both sides of the s-max ensure your safety.

Naturally the s-max is also suitable to drive on level ground. The device is lightweight, flexible and does not take up much space.

The s-max is capable of climbing stairs up to a step height of 22 cm. The minimum depth of the step's surface must be 12 cm regardless of the type of stairs (regular straight stairs or winding stairs).

The necessary step width concerning straight stairs is the width of the s-max plus an extra 10 cm for manoeuvring.

The minimum platform size for u-shaped stairs depends on factors such as the wheelchair's dimensions, etc. Your AAT representative or your authorized dealer are happy to advise you.

The sticker with the device's serial number is located inside the batteries' drawer. Remove the battery pack and read the number.

### 1.1 How to use this user's manual

The user's manual is part of the delivery package and instructs you step by step about the safe and adequate use of the s-max. Operating the s-max takes a certain skill.

Please read this user's manual carefully and particularly take note of the safety instructions before you use the s-max for the first time.

After reading, please store this user's manual at an appropriate place for further reference.

### 1.2 Instruction

In the interest of your safety the s-max may only be operated by trained personnel.

Instruction on how to operate the device is part of the delivery package and takes place with your authorized dealer or an AAT representative.

 Please read this user's manual carefully and particularly take note of the safety instructions before you use the s-max for the first time.

### 1.3 Care and maintenance

One of the most important aspects concerning the maintenance of the s-max is charging the sealed lead acid batteries. They are part of the battery pack and must be charged every time after using the device.

Other than that your s-max does not need much care or maintenance. More extensive instructions you find in chapter 8.

### 1.4 Warranty and liability

For damage that was caused by inadequate use disregarding this manual we assume no liability whatsoever. (Please read chapter 9 for more detailed information concerning warranty and liability).



## 2 Description of the product

### 2.1 Adequate use

Please use the s-max exclusively for the transportation of physically disabled persons.

Said persons should be able to sit properly without help, otherwise you should secure them with a safety belt. The latter is an accessory available at AAT Alber Antriebstechnik GmbH.

In addition, the arms of the person to be transported should not protrude over the arm rests during the transportation process.

- ☞ In the interest of your safety you may not use the stair climbing device s-max on escalators or moving belts!
- ☞ Transporting other kinds of loads is explicitly prohibited!
- ☞ Only authorized operators may use the s-max. Therefore never leave the s-max unattended.
- ☞ Please do not use the s-max in the rain, slippery and wet conditions, snow or ice due to the following potential safety hazards, e.g. danger of slipping restricted braking effect etc.
- ☞ Due to safety reasons the s-max may only be operated by trained personnel who are physically and intellectually capable to handle the device in all situations of operation.



Mastering stairs



Driving on slopes



Driving on level ground

## 2.2 Features of the s-max

### Handle unit

1 = tightening knob for the handles' horizontal adjustment

2 = control unit

3 = handle

4 = tightening knob for the handles' height adjustment

5 = column

6 = tightening knob for the column

### Climbing unit

7 = upper rod

8 = battery pack

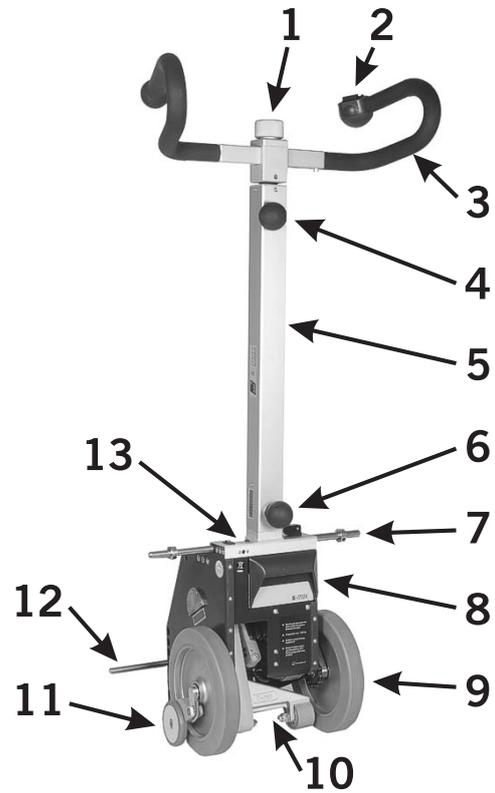
9 = main wheel with safety brakes on both sides

10 = climber

11 = safety brakes

12 = lower rod

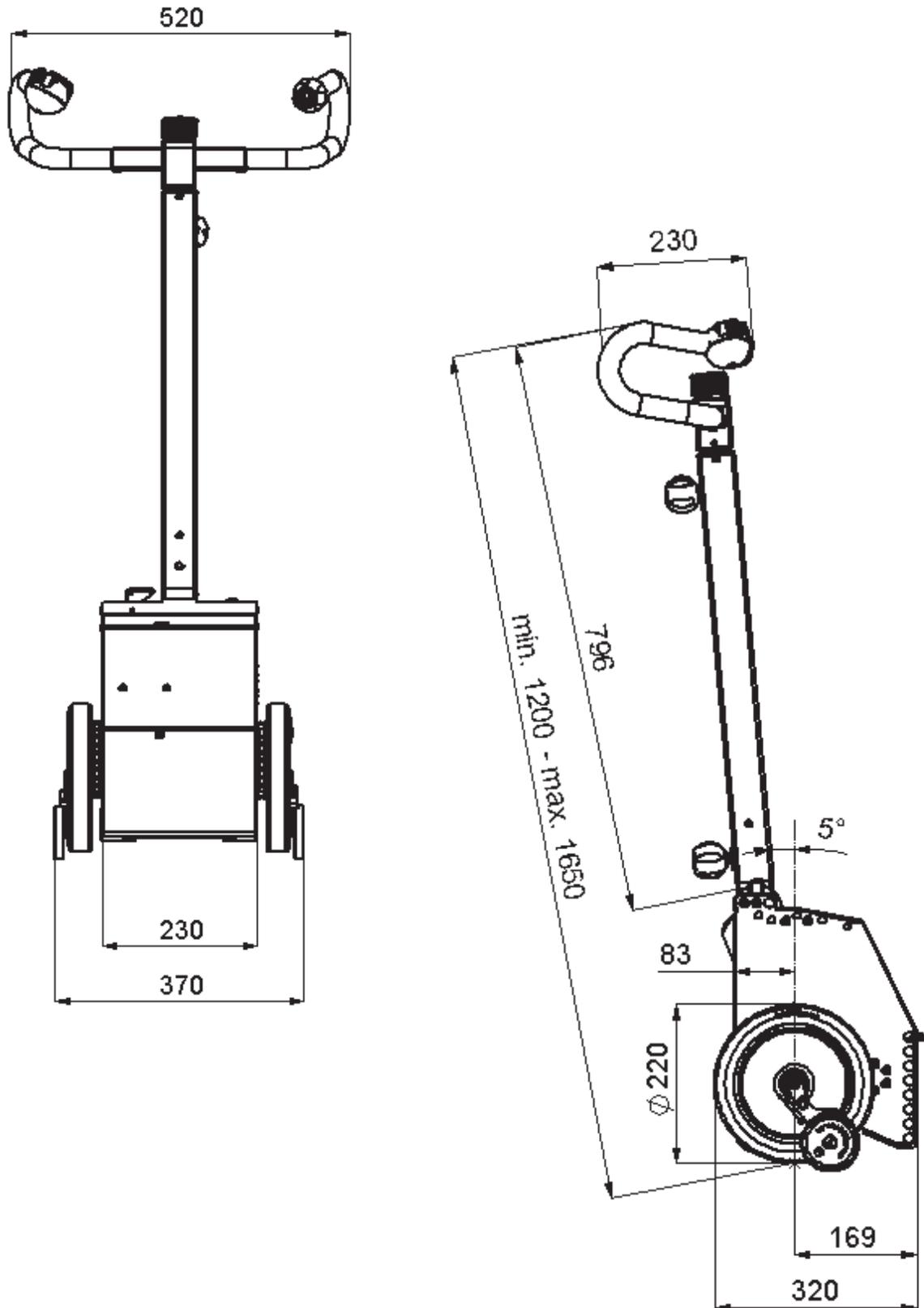
13 = single step switch and control lights



**2.3 Technical data**

measurements	height = 1200 mm, max. 1650 mm width: handle 520 mm, climbing unit = 370 mm depth: climbing unit = 320 mm, handle = 230 mm
weight	climbing unit = 16,9 kg handle = 3,2 kg battery pack = 3,0 kg charger = 0,2 kg total weight = 23,3 kg
total weight approved	180 kg
max. weight of the person	135 kg
climbing speed	8 - 23 steps / minute, continually adjustable
range with one charge of the batteries on average load of 75 kg	approx. 15 levels (equates 225 steps)
range with one charge of the batteries on maximum load	approx. 9 levels (equates 135 steps)
maximum height of step	22 cm
batteries	2 x 12 V / 3,3 Ah sealed lead acid
direct current motor	24 V / 275 W
noise level	the device's A weighted noise level lies typically below 70 dB (A)
storing/operating temperature, device	0° C up to + 60° C / - 30° C up to + 50° C
storing/operating temperature, batteries	0° C up to + 60° C / - 30° C up to + 50° C
vibrations	the weighted RMS value of acceleration the upper body is exposed to lies typically below 2.5 m/s <sup>2</sup>

## 2.4 Dimensioned sketch





**2.5 Standard scope of delivery**

- 1 = charger including instructions
  - 2 = battery pack
  - 3 = handle unit
  - 4 = climbing unit
- plus the user's manual

**2.6 Optional accessories**

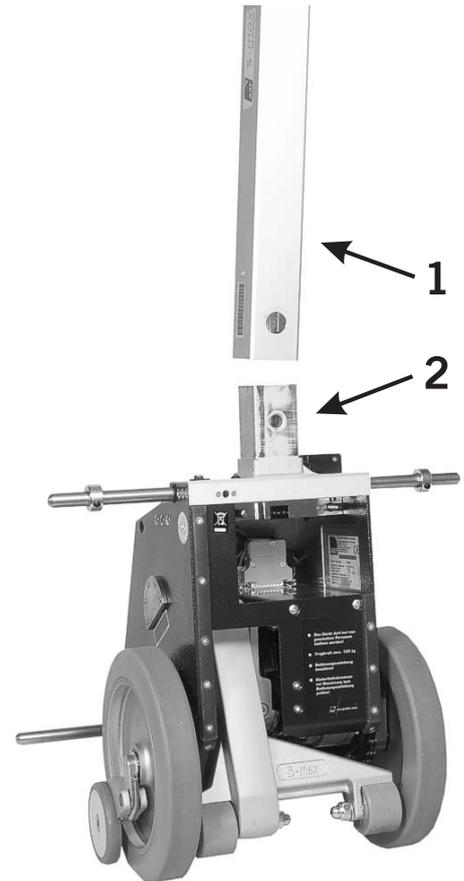
- 1 = anti-tilt support
- 2 = tipping bar
- 3 = transportation adapter
- 4 = bracket
- 5 = increase of climbing height
- 6 = seat belt system including hip belt
- 7 = hip belt
- 8 = voltage converter

## 3 Assembly

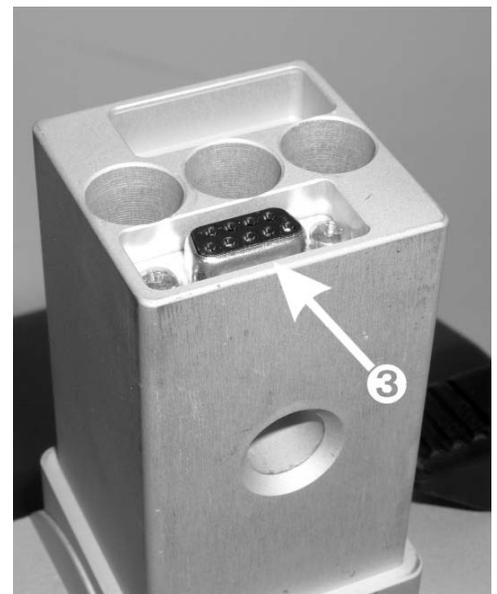
With a few movements you can assemble the s-max by means of several fixtures and tightening knobs. Disassembly is just as easy.

### 3.1 Handle

First connect the handle with the climbing unit by inserting the column ❶ into the holding device ❷ on the climbing unit.

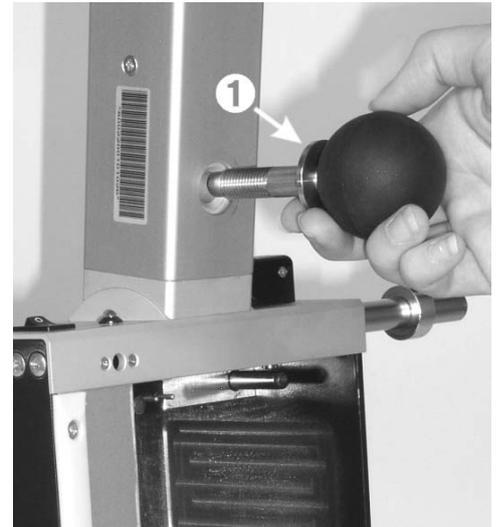


A 9-pin Sub-D socket connector ❸ located in the climbing unit's holding device makes the electrical connection.



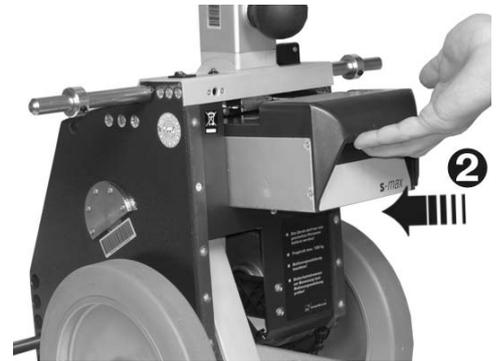
Secure the connection with the tightening knob ❶.

- ❏ Please always make sure that the handle is safely connected to the climbing unit.
- ❏ Please only connect the handle unit with the climbing unit if both parts are clean and dry. Should there be dirt or moisture the two parts should never be connected.
- ❏ Clean and dry the Sub-D socket connector with a regular cleaning cloth.
- ❏ You may not connect other devices to the Sub-D socket connector. This could destroy the s-max or the other electrical devices.



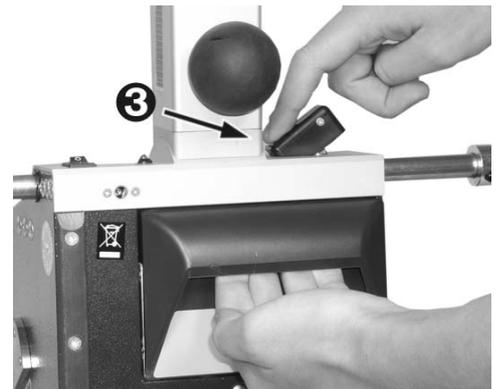
### 3.2 Attach the battery pack

Push the battery pack ❷ sideways into the climbing unit; once connected it is automatically locked.



### 3.3 Detach the battery pack

Push down the locking lever ❸ on the climbing unit and take out the battery pack.

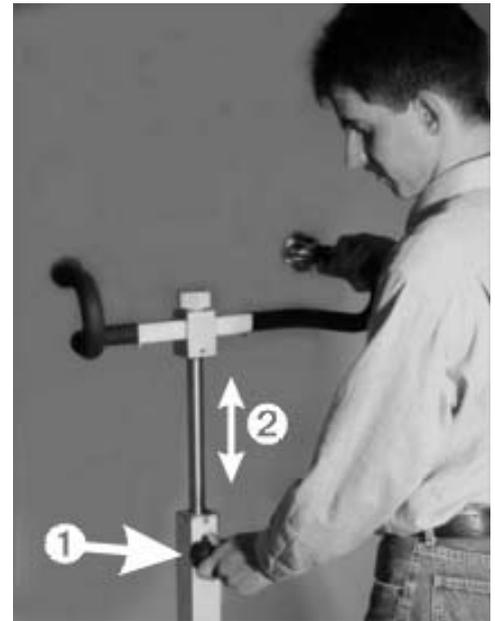


## 3.4 Adjust the handle

### 3.4.1 Adjust the height of the handle

Release the tightening knob ❶ by turning counter clockwise. Pull out the handles ❷ to the appropriate height (maximum shoulder height). Then re-tighten the tightening knob.

- ☞ Please always make sure that the tightening knob is secure.
- ☞ Please adjust the handle exactly according to instructions (see picture).

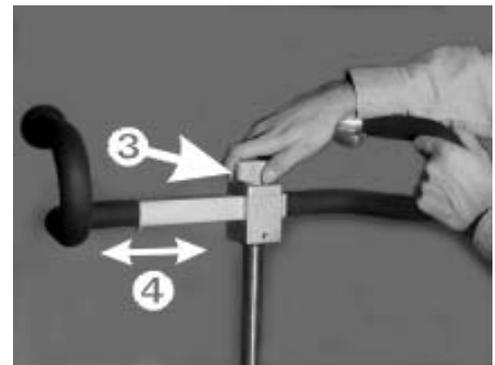


### 3.4.2 Adjust the handle horizontally

In very narrow staircases or on winding stairs the handle may hit the wall. To be able to drive on such stairs the handle can be adjusted horizontally.

Release the tightening knob ❸ counter clockwise and adjust the handle ❹ horizontally to the desired position. Then retighten the tightening knob.

- ☞ Please make sure that the tightening knob is secure.



## 3.5 Functional check

- ☞ Please check the safety brakes each time before using the device (see chapter 6.4 and 8.5)!
- ☞ Please also check the safety brakes' braking effect as described in chapter 6.4.1 and 6.4.2!
- ☞ Please check the device's electronic functions each time before using it (see chapter 6.11 and 6.12)!
- ☞ Regularly check whether the lining of the climber's rollers are undamaged (see chapter 8.6)
- ☞ Make sure that the battery pack is charged before you use the device!

## 4 Safety instructions

- ☞ For a safe operation of the s-max it is important that you observe and adhere to all warning signs and instructions in this user's manual as well as the warning signs and instructions on the device itself.

**4.1 Special information concerning the operation:** Due to safety reasons the stair climber s-max may not be used on escalators and moving walkways!

**4.1.1 Environmental conditions, electro-magnetic compatibility:** Electro-magnetic compatibility means that an electric device functions properly in its electro-magnetic environment without influencing other devices in the same environment.

Warning: Radio wave sources may affect powered device control!

Radio wave source, such as radio stations, TV stations, amateur radio (HAM) transmitters, two-way radios, and cellular phones, can affect your s-max. Following the warning listed below should reduce the chance of unintended brake release or movement, which could result in serious injury.

- ☞ Do not turn ON hand-held personal communication devices, such as citizens band (CB) radios and cellular phones, while the s-max is turned ON.
- ☞ Be aware of nearby transmitter, such as radio or TV stations, and try to avoid coming close to them.
- ☞ If unintended movement or brake release occurs, turn the powered s-max OFF as soon as it is safe.
- ☞ Be aware that adding accessories or components, or modifying the s-max, may take it more susceptible to interference from radio wave sources (Note: There is no easy way to evaluate their effect on the overall immunity to the s-max).
- ☞ Report all incidents of unintended movement or brake release to the s-max manufacturer, and note whether there is a radio wave source nearby.

### Important EMI-Information:

- ☞ 20 Volts per meter (V/m) is a generally achievable and useful immunity level against interference from radio wave sources (as of May 1994) (the higher the level, the greater the protection).
- ☞ This device has an immunity level of 20 V/m with no accessories connected to the device.
- ☞ Nevertheless, always check whether the device's electronic functions work properly before each use. This is particularly important if there is an aerial mast nearby.
- ☞ Please note that the s-max may interfere with other electronic devices' sensitive electro-magnetic fields (e.g. anti-theft systems in department stores). This may also happen if you connect other devices.
- ☞ Also make sure that the s-max is not operated in close proximity to medical devices with a high potential for danger and/or life-supporting functions as well as diagnostic devices.



**4.1.2 Climate:** To ensure proper functioning it is not advisable to expose the s-max to freezing conditions. Should this be unavoidable, always put the device in a non-freezing environment for at least one hour before using it.

**4.2 Instruction:** The s-max may only be operated by trained personnel. In addition, the operator should be capable of lifting 1/3 of his or her own weight. Minors are not allowed to use the s-max; exempt from the above are adolescents over 16 years of age who have been trained under supervision to operate the s-max. While using the s-max you should always wear good shoes that do not slip.

**4.3 Safety brakes:** Please check the safety brakes each time before using the s-max (see also chapter 6.4 and 8.5). The safety brakes, particularly the knurled surface of the brake drums in the wheel rims, must be cleaned weekly or after contamination with spirit to ensure the optimum braking effect.

- ☞ Never smoke during the cleaning of the device as well as keep it away from ignition source.
- ☞ Please consider the danger warning of the manufacturer previous cleaning the device with spirit.
- ☞ Never use suds or greasy cleaners.

After cleaning the safety brakes must be checked as described in chapter 6.4.

**4.4 Lining of the climber's rollers:** Please check regularly whether the lining of each roller is undamaged (see chapter 8.6).

**4.5 Lifting capacity:** The approved total weight of 180 kg and the max. weight of the person of 135 kg may not be exceeded. Please also read chapter 5.1.

You may under no circumstances use the s-max to transport goods!

**4.6 Care and maintenance:** Please make sure that you charge the battery pack after each use of the s-max. If the s-max is not in operation, please turn off the device.

If the working elements of the device block, turn the s-max off immediately.

- ☞ Repairs may be done by authorized dealers or the manufacturer only. Please exclusively use AAT Alber parts and accessories.

Please note the extensive care and maintenance instructions in chapter 8.

**4.7 Condition of paths, walkways etc.:** Please make sure that the paths and walkways you use with the s-max are free of obstacles and not slippery. Avoid operation on damaged stair linings, snow, ice, etc.

- ☞ The s-max may not be used in wet and rainy conditions.

**4.8.1 Environmental conditions:** Although the s-max has been tested for its electro-magnetic compatibility, you should still check its electronic functions before each use. This is particularly important if there is an aerial mast nearby.

**4.8 Charge of the batteries:** You should only use the s-max with fully charged batteries. In case the batteries run low on the stairs (a sequence of 2 flashes repeated every 2.5 seconds) the available charge of the batteries is sufficient to transport the person safely to the bottom of the stairs. Driving downstairs the motor works as a generator, thus recharging the batteries. The potential steps downward, therefore, are not limited.



**4.9 Climbing mechanism:** The climber is for the most part covered by the housing. However, please make sure that during the climbing process no hands or feet get into the vicinity of the rotating areas. Always keep a safe distance.

**4.10 Transport:**

-  Always turn the s-max off for transportation!
-  When you transport the device in vehicles, please secure it according to the relevant legal regulations in your country.

**4.11 Mounting the brackets:** Please make sure that the running wheels do not jolt the brackets or get caught by parts of the them when climbing. This could lead to dangerous situations.

## 5 Operation

### 5.1 Maximum lifting capacity

Please make sure that the max. weight of the person of 135 kg is not exceeded.

### 5.2 Battery pack

Please make sure that the sealed lead acid batteries **1** are fully charged before you use the s-max for the first time (extensive instructions you find in chapter 8.3).

### 5.3 Safety brakes

Before operating the s-max check the safety brakes **3** every single time.

Extensive instructions you find in chapter 6.4 and 8.5.

### 5.4 Rollers attached to climber

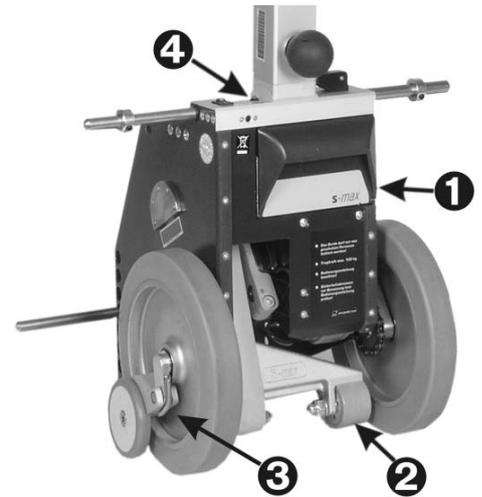
Please check regularly whether the linings on both rollers **2** attached to the climber are intact.

You find further information in chapter 8.6.

### 5.5 Control light

After turning on the device, the control light **4** should light up and stay on. Flashing of the control light indicates malfunction.

Further information on malfunction you find in chapter 6.1.5



## 6 Instructions for operation

Before we get to the actual instructions for operation, we would like to introduce the s-max's most important components to you.

### 6.1 Control unit

The control unit is situated on the right handle and consists of an UP/DOWN switch ❶, a speed control ❷, a safety chip for the engine immobiliser ❸ and an ON/OFF switch ❹.

- ☞ It is possible to supply you with a left-handed control for additional charge.

#### 6.1.1 ON/OFF switch

If the s-max is not in operation, please turn the device off.

- ☞ The s-max is equipped with a turn off feature: if the device is on and has not been used for 5 minutes, the turn off feature switches the s-max off automatically. In such case you can only use the s-max again by pressing the ON/OFF switch.

#### 6.1.2 UP/DOWN switch

With the UP/DOWN switch you activate the climbing mechanism up- or downstairs.

- ☞ Wait a few seconds (approx. 2 sec.) after turning on the device before you push the UP/DOWN switch.

#### 6.1.3 Speed control

The speed control enables you to adjust the speed continuously.

When you use the s-max for the first time, please choose the lowest speed.

#### 6.1.4 Safety chip for the engine immobiliser

The Up/Down switch only works if you put the safety chip for the engine immobiliser into its slot. Please make sure that the chip is properly set to ensure safe and continuous operation.

If you do not put in the chip you can turn on the s-max, but you cannot drive with it. This feature makes sure that no unauthorized person uses the device.



### 6.1.5 Control light to indicate malfunction

After turning on the s-max the green control light ❹ lights up and remains lit, which indicates that the stair climbing system is in order and ready to use.

Potential malfunction is indicated by a light diode. After a period of 3 seconds each time a blinking signal is repeated.

In case of malfunction, turn the device first off and then on again. If there is still an indication of malfunction, charge the batteries in case of low battery charge. For all other cases of malfunction, please call your authorized dealer.



LED is blinking	Identified malfunction
1 x	overload of the device
2 x	battery pack, undervoltage
3 x	overvoltage
4 x	UP/DOWN switch or its supply line is damaged
5 x	defective electromagnetic brake
6 x	malfunction of electronics

### 6.2 Single step control

The single step switch ❶ is located on the climbing unit.

Please activate the single step mode to practise and in particular to climb winding stairs.

If you activate the UP/DOWN switch in that mode, the device will climb only one step at a time. The climbing system stops in the correct position, even if you press the UP/DOWN switch continuously.

The climbing mechanism cannot unintentionally be activated. You can take you time to move the main wheels to the next step's edge.

☞ To continue climbing you simply release the UP/DOWN switch and then press it again.

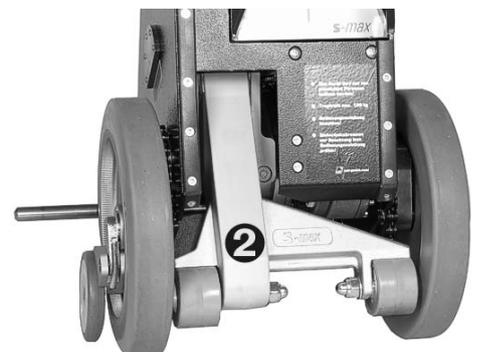


### 6.3 Climber

The climber ❷ (see picture) must be pulled in to topmost position by means of the UP/DOWN switch if you want to:

- drive on level ground and on slopes
- check the safety brakes
- begin climbing upstairs or downstairs

However, you need to fold out the climber by activating the UP/DOWN switch, direction up, whenever a person takes a seat in the s-max, so the device is supported by the climber (please also see chapter 6.6.1).



## 6.4 Safety brakes

There are safety brakes ❶ located on the climbing unit on both sides.

☞ Please check the safety brakes each time before you use the s-max.

You may check the brake effect either on top of the stairs or on level ground as described in 6.4.1 and 6.4.2.

### 6.4.1 Test the required brake effect

Pull in the climber to its upmost position and tilt the s-max backwards approximately to a 45 degree angle of the column ❷.

If the s-max cannot be pushed forward ❸ by the handle in said position, but merely rolls backwards ❹, then the required brake effect for the safe operation of the s-max is granted.

☞ Important: If the required brake effect is not guaranteed, you may, under no circumstances, use the s-max any more. Please contact your authorized AAT Alber dealer or the manufacturer immediately.

☞ Should the brake not kick in, you may under no circumstances use the device. Please contact your authorized dealer or an AAT representative immediately.

### 6.4.2 Test the required brake effect at the top edge of the stairs

☞ Please make this test without a person sitting in the chair.

and tilt the s-max backwards approximately to a 45 degree angle of the column ❷.

Drive forward to the first step's edge (without person). If you cannot push the device over the edge of the step, the required braking effect for a safe operation of the s-max is granted.

☞ Important: If the required brake effect is not guaranteed, you may, under no circumstances, use the s-max any more. Please contact your authorized AAT Alber dealer or the manufacturer immediately.

☞ Should the brake not kick in, you may under no circumstances use the device. Please contact your authorized dealer or an AAT representative immediately.



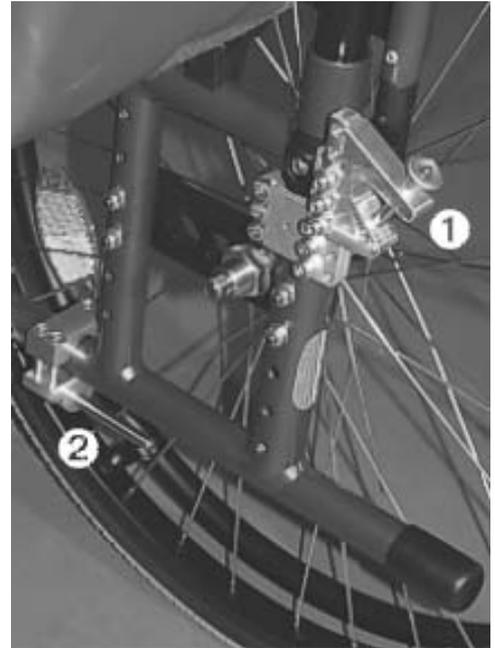
## 6.5 Attach the s-max to or detach it from the wheelchair

### 6.5.1 Bracket on the wheelchair

The wheelchair must be equipped with a bracket in order to attach the s-max to the wheelchair.

AAT Alber Antriebstechnik GmbH offers a universally applicable mounting system. At your authorized Alber dealership or directly at Alber an upper **1** and lower **2** bracket is affixed to both sides of your wheelchair's frame.

- ☞ Please note that by attaching the s-max the wheelchair's seat or back may be constricted (depending on the type of wheelchair).

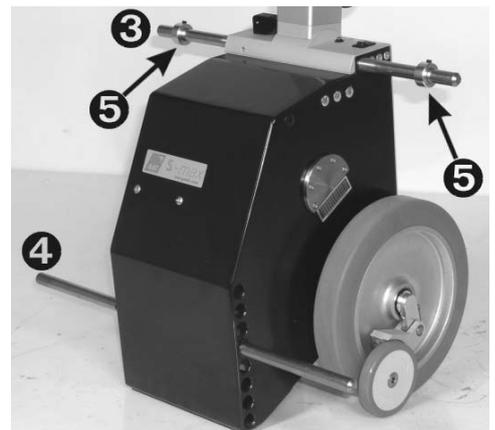


### 6.5.2 Bracket on the s-max

On your s-max you find an upper **3** and lower **4** rod. To adjust the lower **4** rod's height there are several vertical holes drilled into the housing of the s-max.

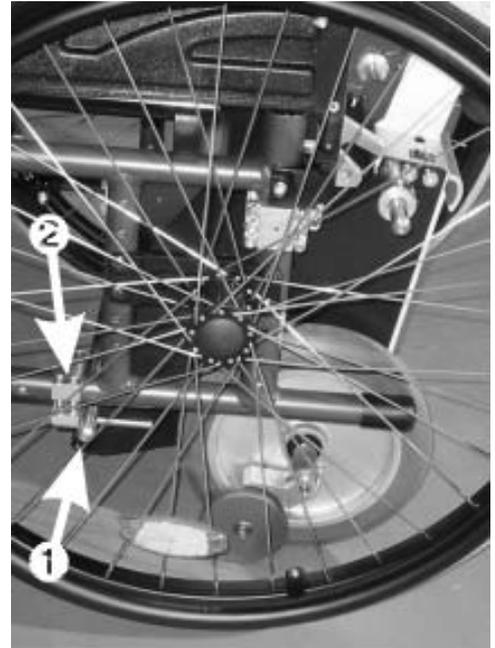
Your authorized AAT Alber dealership or the company AAT Alber Antriebstechnik GmbH adjusts the height at which the s-max is mounted to your type of wheelchair.

On both sides of the upper rod there are rings **5**. The position of said rings are also adjusted to your type of wheelchair.



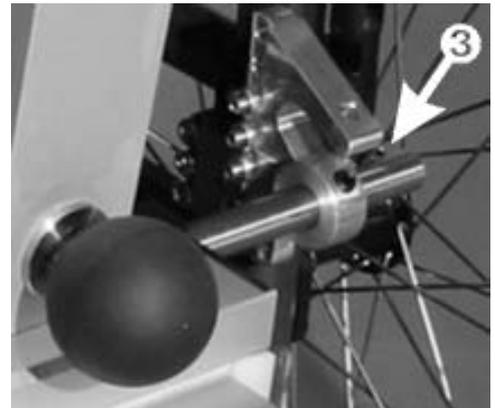
### 6.5.3 Insert the s-max into the lower bracket on the wheelchair

1. Please use the locking brakes of your wheelchair to avoid any movement of the chair while the s-max is being mounted.
2. Pull in the s-max's climber entirely.
3. Tilt the s-max slightly backwards and drive the device in the middle of the wheelchair's back.
4. At this point push the s-max forward until the lower rod **1** is inserted all the way into the lower bracket **2** on the wheelchair.



### 6.5.4 Insert the s-max into the upper bracket on the wheelchair

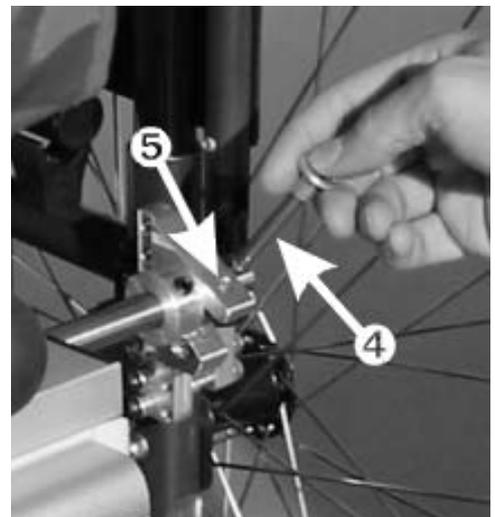
1. Select the lowest climbing speed.
2. Push the UP/DOWN switch, direction UP (never DOWN) so that the climber moves in the direction of the attendant backward and downward.
3. As soon as the climber touches the ground the device is lifted. If the s-max is positioned in the middle, the upper rod moves into the claws of the upper bracket **3**. The rings are now at the inner sides of the brackets.
4. As soon as the rod is all the way in the bracket, the wheelchair is lifted. Release the UP/DOWN switch when the wheelchair's wheels are approximately 1cm off the ground.



### 6.5.5 Fix the s-max to the wheelchair

1. Take one of the quick pins **4** and with your thumb push down the locking bolt in the middle.
2. Put the quick pin all the way into the drilled hole **5** of one of the upper brackets on the wheelchair and release the locking bolt.
3. Now take the other locking pin and put it into the other bracket on the wheelchair as described in point 2.

Only by using quick pins a strong connection between s-max and wheelchair is secured.



## 6.5.6 Remove the wheelchair's wheels / anti-tilt supports

To move the wheelchair with the s-max up- and downstairs you need to remove the wheelchair's big wheels.

If your wheelchair is equipped with anti-tilt supports, they must be removed before climbing stairs.

☞ After the climbing process they should be reattached!

The wheels must be lifted approximately 1 cm off the floor. After mounting the s-max to the wheelchair with the quick pins, if necessary, push the UP/DOWN switch in direction UP until the device plus chair is lifted accordingly by the climber.

1. The axles of the wheelchair's wheels are equipped with a quick release system. With your index finger push in the locking bolt in the middle of the quick release system, which releases the connection to the wheel so that the wheel can be removed.
2. Please remove the wheelchair's wheels one by one accordingly.

Finally pull in the climber entirely. At this point the wheelchair plus s-max is ready to use.



## 6.5.7 Remove the s-max from the wheelchair

Push the UP/DOWN switch in direction UP (never DOWN) so that the climber moves backward and downward in the direction of the user. Device plus wheelchair is lifted as soon as the climber touches the ground.

Release the UP/DOWN switch as soon as the wheelchair is lifted high enough to mount the big wheels (this is already possible at 3/4 of the highest position - as you can see in the picture on the right).

Insert the wheels and employ the locking brakes.

Remove both quick pins from the upper brackets (remember pushing in the locking bolts).

Now push the UP/DOWN switch, direction DOWN, pull in the climber entirely and drive the s-max backwards away from the wheelchair. In case the s-max ever gets caught at the lower bracket while driving backwards, push the handle slightly down and forward, then try again.



## 6.6 Transporting a person with the s-max

Please note that the s-max was developed to be operated by one person. Always use both hands when using the device.

- ☞ Only one person may be transported with the s-max.
- ☞ Please practice driving with the s-max on level ground, slopes and climbing up- and downstairs at first without a person sitting in the chair! Also make sure that while you practise using the s-max nobody is within close range of the potentially dangerous area underneath the device.

We suggest that you practice climbing up- and downstairs with the single step mode activated (see chapter 6.2). Also choose the lowest climbing speed for practicing (see chapter 6.1.3)

- ☞ Please do not exceed the maximum lifting capacity (see chapter 5.1)
- ☞ In the interest of your safety please always operate the s-max from behind, never sideways.

When a persons takes a seat on the s-max, please follow these instructions:

### 6.6.1 Secure stand of the s-max

To avoid the s-max moving when a person takes a seat, you must fold out the climber in such a way that it rests on the ground.

Turn on the device and press the UP/DOWN switch, direction UP until the climber touches the floor.

## 6.7 Operation on level ground

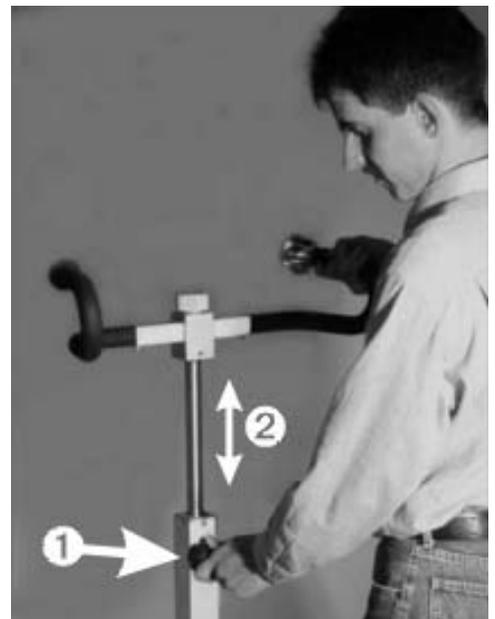
After the person has been properly seated, you may transport him or her effortlessly on level ground. Make sure that the climber is pulled in entirely.

- ☞ You overcome a threshold by pulling the s-max backwards over it.

## 6.8 Adjust the handle

For climbing stairs or driving on slopes, comfortably and safely, adjust the height of the handle ② approximately to the level of the operator's shoulders. Release the tightening knob ① counter clockwise and adjust the handle as desired.

- ☞ After adjusting the handle, always make sure that it is securely fastened.



## 6.9 Tilting the stair climbing system

To drive on slopes or to climb stairs you must tilt the s-max, which can be done easily by means of the climber.

1. Turn on the s-max by pressing the ON/OFF switch.
2. Press the UP/DOWN switch direction DOWN until the climber lifts the main wheels at least 1-2 cm off the floor.
3. Put your foot on the power unit's housing and tilt the s-max slightly toward you until you feel that the device is balanced.
4. The s-max is balanced if you feel neither pull nor push in the handle.
5. In order to drive on level ground, the climber must be pulled in entirely.

If you tilt the s-max further, or too much, the safety brakes engage and the s-max can't be moved forward any more.



## 6.10 Operation on a slope

To drive on a slope, make sure the handle is adjusted appropriately (see chapter 3.4 and 6.8). Now tilt the s-max slightly backwards (see chapter 6.9) and pull in the climber entirely.

- ☞ For safety reasons we recommend you to ask another person to assist when driving on a slope.

### 6.10.1 Downhill

Drive forward to the edge of the slope. In order to slow down you need to tilt the s-max a bit more, so that the safety brakes are activated.

### 6.10.2 Uphill

Please drive backwards up a slope. In order to slow down you need to tilt the s-max a bit more, so that the safety brakes are activated.



## 6.11 Climbing upstairs

- ☞ You may only be permitted to transport a person with the s-max, if you have been properly trained in the device's operation.
- ☞ Please always practice climbing stairs without a person and by activating the single step mode plus the lowest climbing speed!
- ☞ Please always check the safety brakes before using the s-max (see chapters 6.4 and 8.5).

The climbing process can be accomplished quickly and without problems if you adhere closely to the following instructions.

A tip before you start:

- ☞ Always pull the s-max a bit backwards during the entire climbing process, i.e. always keep the device under tension so that the wheels can touch down properly on the next step.

1. Adjust the handle to the appropriate height (see chapter 3.4 and 6.8)
2. Turn the s-max on by pressing the ON/OFF switch.
3. Activate the single step mode if necessary (see chapter 6.2)
4. Pull in the climber to its topmost position by pressing the UP/DOWN switch (see chapter 6.3).
5. Tilt the s-max slightly toward you (see chapter 6.9).
6. Drive backwards to the stairs ❶ and move up 2 to 3 steps ❷

Now the s-max is in its initial position for climbing upstairs.

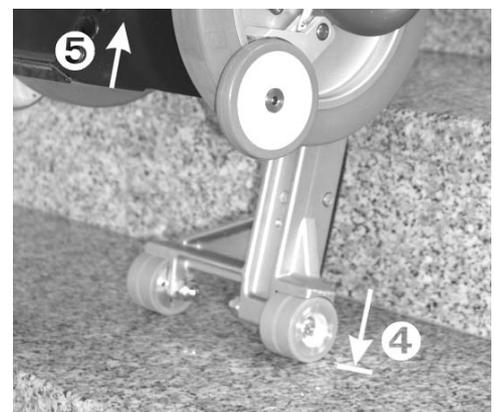
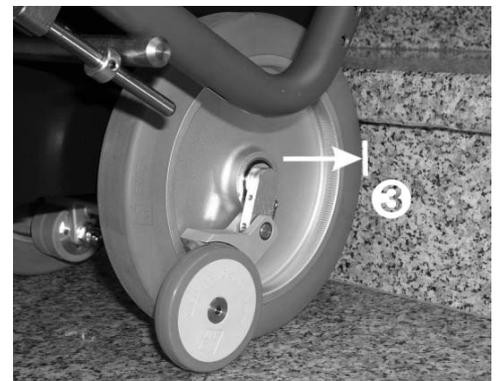
- ☞ Make sure that both main wheels touch the lowest step ❸.

The climbing process takes place in two intervals.

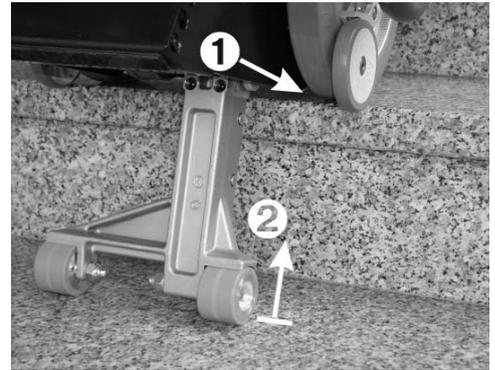
7. Press the UP/DOWN switch, direction UP to begin the climbing process by moving the climber downward.

- ☞ Always keep the device under tension during the entire climbing process, i.e. always pull it slightly backward toward you.

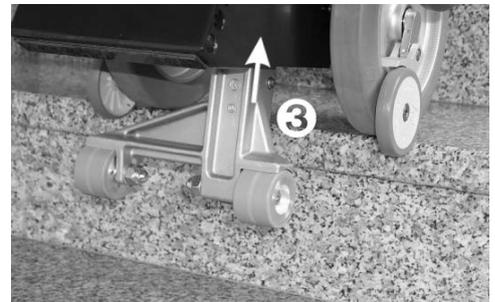
After the climber reaches the floor ❹, it assumes the load of the main wheels while the main wheels and the frame are lifted at the same time ❺.



The first interval is finished when the main wheels **1** touch down on the next higher step and resume the load of the climber **2**.



The second interval begins by pulling in the climber **3**. It is finished when the climber reaches its topmost **4** position.



Because the s-max is always pulled slightly backward, it rolls automatically to the next step and reaches the initial position again - both main wheels touch the next step **4**.

If you activated the single step mode, the climbing process ends at this point. To resume climbing you need to press the UP/DOWN switch once again, direction UP.

At this point the climbing process repeats itself as described in point 7.



## 6.12 Climbing downstairs

- ☞ You may only be permitted to transport a person with the s-max, if you have been properly trained in the device's operation.
- ☞ Please always practice climbing stairs without a person and by activating the single step mode plus the lowest climbing speed!
- ☞ Please always check the safety brakes before using the s-max (see chapter 6.4 and 8.5).

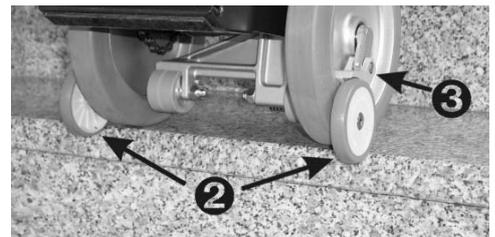
The climbing process can be accomplished quickly and without problems if you adhere closely to the following instructions.

1. Adjust the handle to the appropriate height (see chapter 3.4 and 6.8).
2. Turn the s-max on by pressing the ON/OFF switch.
3. Activate the single step mode if necessary (see chapter 6.2).
4. Pull in the climber to its topmost position by pressing the UP/DOWN switch (see chapter 6.3).
5. Tilt the s-max slightly (see chapter 6.9).
6. Drive the s-max forward to the edge of the stairs **1**.

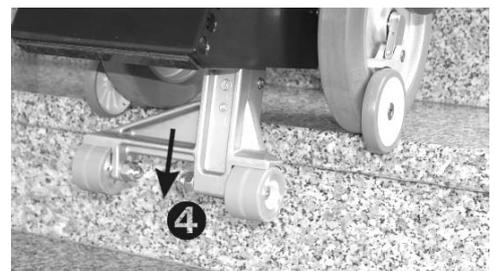


The sensitive rolls **2** of the safety brakes **3** keep the s-max from rolling over the edge.

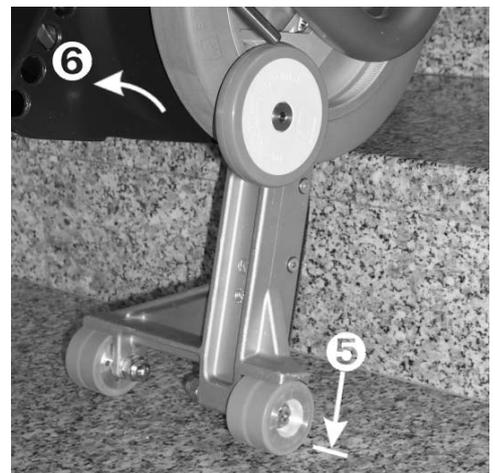
7. Press the UP/DOWN switch, direction DOWN, and the descending process begins.



The drive retracts the climber downward **4** and touches down on the next lower step.

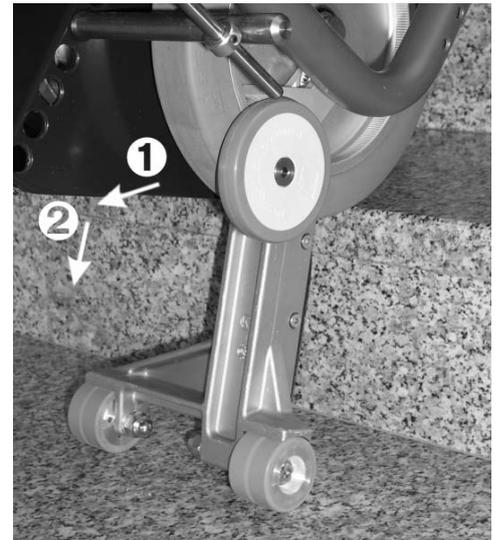


When the climber reaches the next lower step **5**, it resumes the load of the main wheels, while those plus the climbing frame are lifted off the higher step **6**.



Now the main wheels and the climbing frame are moved forward ❶ - away from the operator.

Afterwards the main wheels and the frame are lowered ❷ by retracting the climber. This results in a small shift in load distribution, which you will feel at the handle by a slight pull forward.



The main wheels touch down on the next step ❸ and resume the load of the climber ❹ which is retracted further.

Since the single step mode is activated every time you turn on the device, the climber is pulled in entirely and then the descending process ends at this point.

8. Again push the s-max all the way to the edge of the step, i.e. until the sensitive rolls of the security brakes stop the s-max.

To continue descending you need to press the UP/DOWN switch again, direction DOWN.

At this point the climbing process repeats itself as described in point 7.



### 6.13 Laying the s-max on the stairs

In an emergency the s-max may tilt backwards and lay down on the stairs. The safety brakes prevent the s-max from rolling down.

### 6.14 Transportation

For transportation you may remove the handle (see assembly chapter 3.1) and carry the climbing unit at the upper rod.



- ☞ Note that the device weighs 16,9 kg!
- ☞ Always turn off the s-max for transportation!
- ☞ When transporting the s-max in a vehicle, always secure the device according to the legal rules and regulations.
- ☞ The sealed lead acid batteries used in the s-max are not considered dangerous according to the IATA special guidelines A67 and GGVS Rn-Nr. 2801 A Abs.2 and admitted to air travel by DOT and IATA.
- ☞ Before using mass transportation such as buses or subways, etc. or your personal vehicle, please detach the s-max from you wheelchair!

**6.15 Trouble shooting**

If there are problems using the s-max, please check the following trouble shooting chart and see whether you can fix them yourself.

<b>problem</b>	<b>check and potential solution</b>
s-max cannot be turned on	Is the charger connected to the s-max? If so, disconnect the charging cable.
	Is the battery pack empty? If so, charge the batteries.
	Are the fuses damaged? If so, exchange the fuses.
	If there is still a problem turning on the s-max, please contact your dealer.
s-max do not drive	Is the safety chip for the engine immobiliser inserted? If so, please contact your dealer
Batteries don't charge	Please contact your dealer

Potential malfunction is indicated by a light diode (see chapter 6.1.5).

## 7 Accessories

### 7.1 Battery pack

The s-max works with batteries and is delivered with one battery pack with charging electronics and safety latch.

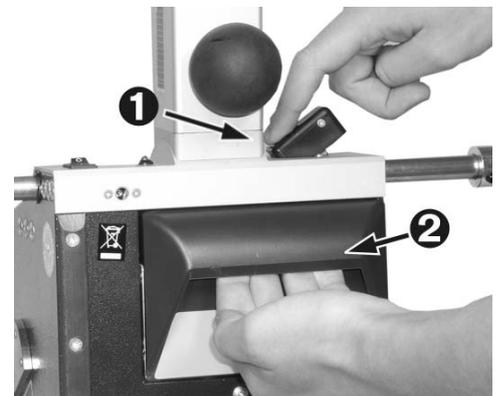
If you use the s-max often, i.e. if there are not sufficient breaks for the batteries to be recharged, we recommend you obtain an additional battery pack (available as an accessory). In such case one battery pack is in use while the other is being recharged at the same time.

- ☞ If you do not use the s-max both battery packs should be connected to the charger to increase their durability (see chapter 8.3.2).
- ☞ Please exclusively use the AAT Alber Antriebstechnik GmbH charger to charge your battery pack.

#### 7.1.1 Exchange battery pack

1. Turn off the s-max using the ON/OFF switch.
2. Press the release button on top of the climbing unit's housing ❶ until it disengages. Now you pull out the battery pack at its handle ❷ from its housing.
3. Push the other fully charged battery pack into its housing. This establishes the power connection and locks the battery pack.

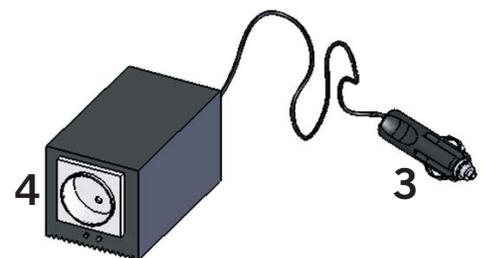
- ☞ The battery packs should always be connected to the charger to extend its durability (see chapter 8.3.2).
- ☞ Please exclusively use the AAT Alber Antriebstechnik GmbH charger to charge your battery pack.



### 7.2 Voltage converter for your vehicle

We recommend the voltage converter for your vehicle, if you transport the stairclimber s-max in your car. The Alber voltage converter is designed for a 12 V electrical system. This voltage converter transforms 12 V / 24 V direct current (D.C.) into 230 V alternating current (A.C.)

The plug of the voltage converter ❸ is plugged into the cigarette lighter in your car or into the socket of the supply system. The automatic charger's 230 V connector is plugged into the socket ❹ of the converter.



## 8 Care, maintenance and recycling

To insure the s-max safe and proper functioning we recommend a safety check done on the device every two years, even though there might not be any outer damage or malfunction evident.

- ☞ In the interest of your safety repairs of any kind may only be done by personnel authorized by AAT Alber Antriebstechnik GmbH. We are happy to inform you about the contact address of the dealer closest to you.

The device itself (as opposed to the batteries) does not need any particular maintenance except for an occasional cleaning (see chapter 8.7).

### 8.1 New user

If the device goes to a new user, we recommend a safety check.

### 8.2 Charger

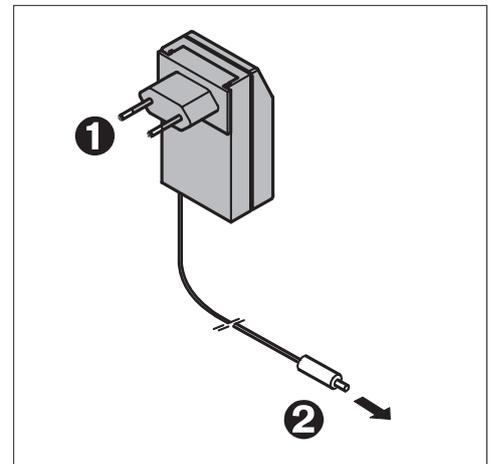
Please exclusively use the AAT Alber Antriebstechnik GmbH charger to charge your battery packs.

#### 8.2.1 Automatic charger

The charger does not need any particular maintenance. The scope of delivery includes the AAT Alber Antriebstechnik GmbH charger. Plug ❶ is inserted into the wall outlet and plug ❷ into the socket on the device or the battery pack.

This automatic charger recharges your batteries 100%. As soon as the charging process is completed, it switches to a retaining mode, thus overcharging is impossible.

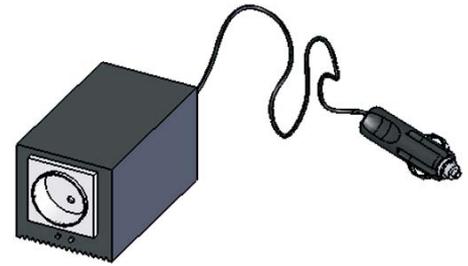
- ☞ Before using the charger, please read and follow all instructions and warning notes included with the charger.
- ☞ Exclusively use the AAT charger to charge the batteries.
- ☞ Check the charger regularly and protect it from oils, grease, aggressive cleaning agents, thinners and/or damage by sharp edges, etc.
- ☞ Repairs and service check-ups may only be performed by AAT Alber Antriebstechnik GmbH or their authorized personnel.
- ☞ Please do not disassemble or modify the charger!
- ☞ Please make sure that the charger is not exposed to dampness or humidity while charging the batteries.
- ☞ Never touch the plug with moist hands!



### 8.2.2 Voltage converter for the vehicle

The voltage converter does not need particular care or maintenance. Nevertheless, check your voltage converter regularly and protect it from oil, grease, aggressive cleaners, diluting agents and/or damage due to sharp edges, etc.

- ☞ Before using the voltage converter, please read and follow all instructions and warning notes included with the voltage converter.
- ☞ Exclusively use the AAT Alber Antriebstechnik GmbH voltage converter!
- ☞ Check the voltage converter regularly and protect it from oil, grease, aggressive cleaning agents, thinners and/or damage by sharp edges, etc.
- ☞ Repairs and service check-ups may only be performed by AAT Alber Antriebstechnik GmbH or their authorized personnel.



## 8.3 Battery pack

The battery pack's sealed lead acid batteries should be recharged after each use. (Technical details for the sealed lead acid batteries you find in chapter 8.3.1).

The battery pack is subject to a so-called self-discharge. Therefore, you should connect the battery pack to the charger whenever possible. Due to the fact that the battery pack automatically goes into charge retention as soon as it is fully charged, an overcharge is impossible.

If your battery pack does not possess its full capacity yet, the reason may be that a new battery pack reaches its full capacity only after several charging/discharging cycles.

If fully charged batteries discharge more quickly as before, they are probably used up. In such case, please have your authorized dealer check and replace them, if necessary.

- ☞ When the s-max is not being used, always connect the battery charger to retain the charge. This does not damage the sealed lead acid batteries, on the contrary, it increases their durability.

### 8.3.1 Sealed lead acid batteries

There are 2 sealed lead acid batteries 12 V / 3,3 Ah in the battery pack of the s-max. These batteries are sealed, maintenance free, rechargeable and of top quality.

They are considered as safe as dry cells and admitted for air travel according to DOT and IATA.

The durability of sealed lead acid batteries depends primarily on the charge/discharge cycle. For instance, you may discharge them partially more than 1000 times and use up the entire capacity more than 200 times, if you avoid a total discharge entirely.

A total discharge does not only lead to a loss of the batteries' capacity, but also shortens their durability. Thus, do avoid a total discharge, by recharging the batteries whenever possible!

- ☞ Charging your batteries is taking good care of them
- ☞ Always charge your battery pack with the AAT charger delivered with your s-max. This particular charger automatically turns off when the batteries are fully charged keeping them from being overcharged.

If fully charged batteries run empty faster as usual, then they are probably used up. In such case please have them checked and, if necessary, replaced by Alber Antriebstechnik or its representative.

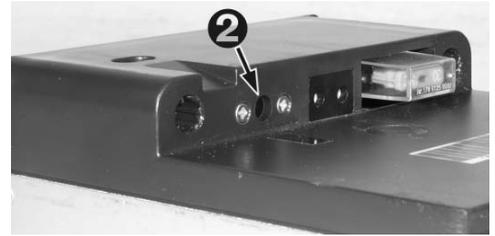
Damaged batteries you can turn in at designated places for proper recycling. You may also return them to your authorized AAT representative.



### 8.3.2 Charging the battery pack

- ☞ Before charging, please read and follow all instructions and warning notes included with the charger.
- ☞ Please always turn off the s-max before you charge the batteries!
- ☞ Exclusively use the AAT Alber Antriebstechnik GmbH charger!
- ☞ Never touch the plug with moist hands!

The battery pack may be charged either by means of the charging socket ❶ on the device or, if pulled out, by means of the battery pack's socket ❷ itself.

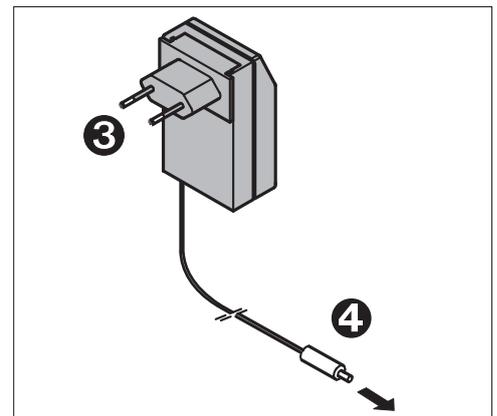


### 8.3.3 Charging with the automatic charger

1. Plug in the connector ❹ of the automatic charger to the socket on the s-max ❶ or on the battery pack ❷.
2. Plug in the connector ❸ to the the wall outlet and the batteries are being charged.

The LED on the automatic charges indicates the charging process.

- ☞ Should you charge the batteries while they remain attached to the device, the latter cannot be used!



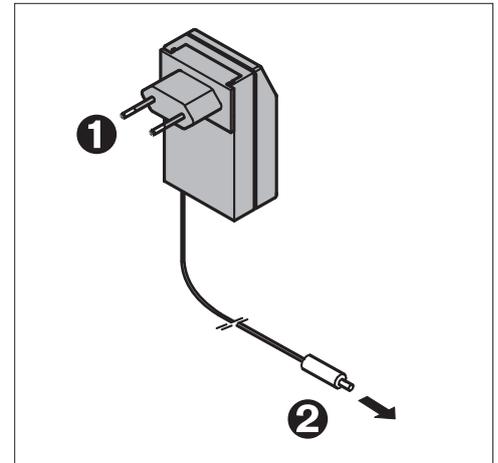
### Signals of the charger

charger	LED orange	batteries are being charged
charger	LED green	batteries are fully charged, maintenance mode

### 8.3.4 Charging in a vehicle

1. Put the charger's plug ❷ either into the socket on the battery pack or the socket on the s-max (please see chapter 8.3.2).
2. Then put the plug ❶ of the automatic charger into the 230 V socket of ❹ the voltage converter.
3. Put the 12 V plug ❸ into the cigarette lighter.
4. Turn on the voltage converter by pushing the switch and the battery pack is being charged.

A control light (LED) on the charger and a beeper in the voltage converter allow the charging process to be monitored.



### Signals of the charger and the voltage converter

<b>charger</b>	LED, orange	batteries are being charged
<b>charger</b>	LED, green	batteries are charged, retaining of the charge
<b>voltage converter</b>	beeping	12 V supply is low

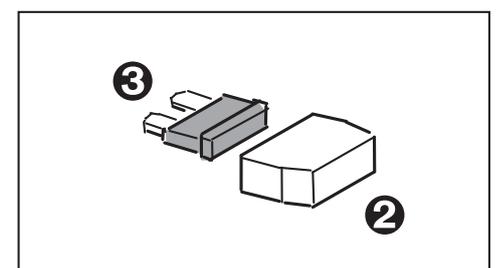
### 8.4 Fuses

The battery pack is equipped with a 30 A fuse protected by a cover ❶.

- ☞ You may not mend or by-pass a defect fuse. Always replace it with an identical one of the same amperage.
- ☞ AAT Alber Antriebstechnik GmbH could offer you replacements of the fuses!
- ☞ Before you exchange the fuses, please remove the charger from the battery pack!

To exchange the fuse, remove the cover ❷ and pull out the fuse ❸; insert the new one and replace the cover.

Should your fuses burn out frequently, please contact AAT Alber Antriebstechnik GmbH or your authorized dealer.



## 8.5 Brake lining

Please check the thickness of the safety brakes' lining ❶ regularly. The minimum thickness is 1 mm. In case the lining is thinner than 1 mm ❷, the lining must be exchanged on both sides. Please contact AAT Alber Antriebstechnik GmbH or your authorized dealer.

- ☞ Please check the safety brakes before each use of the s-max (see also chapter 4.3 and 6.4).

The safety brakes, particularly the knurled surface of the brake drums in the wheel rims, must be cleaned weekly or after contamination with spirit to ensure the optimum braking effect.

- ☞ Never smoke during the cleaning of the device as well as keep it away from ignition source.
- ☞ Please consider the danger warning of the manufacturer previous cleaning the device with spirit.
- ☞ Never use suds or greasy cleaners.

After cleaning the safety brakes must be checked as described in chapter 6.4.

## 8.6 Check the climbing feet

Please also check the climbing feet ❸ on a regular basis.

- ☞ If the lining is worn or broken, please have both rollers exchanged by AAT Alber Antriebstechnik GmbH or your authorized dealer.

## 8.7 Cleaning

All parts of the s-max - except the safety brakes and the knurled brake drums (see chapter 4.3) - can be cleaned with a moist cloth; please use regular mild household cleaners.

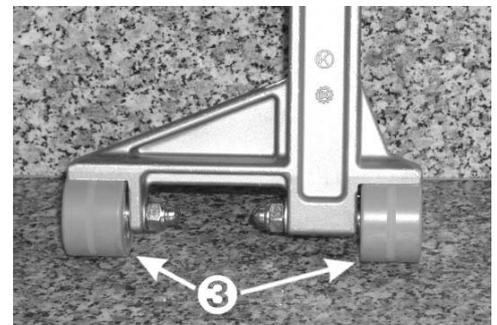
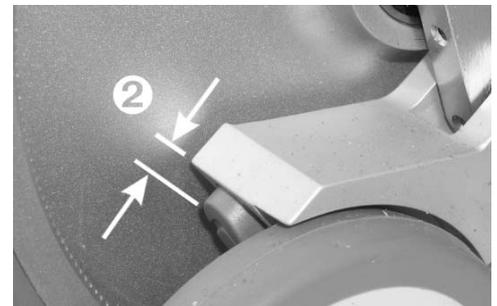
- ☞ For safety reasons, please do not use a high-pressure cleaning device!
- ☞ Please use regular mild household cleaners and make sure that no water can get into the the s-max.
- ☞ Please make sure that your wheelchair is cleaned according to the manufacturer's specifications.

## 8.8 Recycling

The s-max and its battery pack are products of long durability. However, if your s-max is old and has reached the end of its lifespan you may return its components to AAT Alber Antriebstechnik GmbH or your authorized dealer to be recycled.

A new law concerning electric and electronic devices (ElektroG) has been passed on March 24, 2005 regulating the taking back and recycling of old electric and electronic devices.

According to the Federal Office of Environment Protection (German BDU) the s-max is considered a means of transportation and does not fall under this law concerning the recycling of old electric or electronic devices (ElektroG, §2 paragraph 1 sentence 1 (cross reference, Guideline of the European Parliament 2002/96/EG).





## **9 Warranty and liability**

### **9.1 Warranty**

AAT Alber Antriebstechnik GmbH grants a warranty of two years for all its products of type s-max including all its accessory parts (with the exception of the sealed lead acid batteries). The warranty begins at the date of purchase and covers failure of material and errors in manufacturing.

For the sealed lead acid batteries, always assuming correct maintenance, AAT Alber Antriebstechnik GmbH grants a warranty of one year from the date of purchase.

The warranty becomes void concerning defects or damage which are the result of the following:

- damage due to excessive strain
- damage due to improper handling
- violent damage
- natural wear and tear such as brake linings, gliding stirp housing and climber, tread plate, climbing rollers
- improper and insufficient maintenance
- unauthorized constructional changes or inappropriate use of the device or its accessories
- using the s-max exceeding its maximum lifting capacity
- improper charging of the lead batteries.

### **9.2 Liability**

The manufacturer AAT Alber Antriebstechnik GmbH is neither liable nor responsible for potential damage of the s-max in case of:

- improper handling of the device.
- repair, assembly or other work performed on the s-max by unauthorized persons.
- operation not in accordance with this user's manual.
- extraneous parts added or connected to the s-max.
- parts removed from the s-max.
- operation exceeding the maximum lifting capacity.
- operation of the s-max with insufficiently charged batteries.
- the upper and lower bracket as well as the adjusting rings of the s-max were not properly adjusted to the respective wheelchair.



Ideen bewegen mehr

***s-max*** 160 kg

---

Notes:



Ideen bewegen mehr

***s-max*** 160 kg

---



**AAT Alber Antriebstechnik GmbH**

P.O. Box 10 05 60 · D-72426 Albstadt  
Tel. +49.74 31.12 95-0 · Fax +49.74 31.12 95-35  
[www.aat-online.de](http://www.aat-online.de) · [info@aat-online.de](mailto:info@aat-online.de)