



## KÜSCHALL K-SERIES

en	<b>Active wheelchair</b>	
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es	<b>Silla de ruedas activa</b>	
	Manual del usuario .....	58
pt	<b>Cadeira de rodas ativa</b>	
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This manual MUST be given to the user of the product.  
BEFORE using this product, read this manual and save for  
future reference.

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# 1 GENERAL

## 1.1 Introduction

This user manual contains important information about the handling of the product. To ensure safety when using the product, read the user manual carefully and follow the safety instructions.

Note that there may be sections in this document, which are not relevant to your product, since this document applies to all available models (on the date of printing). If not otherwise stated, each section in this document refers to all models of the product.

The models and configurations available in your country can be found in the country-specific price lists.

Invacare reserves the right to alter product specifications without further notice.

Before reading this document, make sure you have the latest version. You find the latest version as a PDF on the Invacare website.

If you find that the font size in the printed document is difficult to read, you can download the PDF version from the website. The PDF can then be scaled on screen to a font size that is more comfortable for you.

For more information about the product, for example product safety notices and product recalls, contact your Invacare representative. See addresses at the end of this document.

## 1.2 Symbols in this manual

Symbols and signal words are used in this manual and apply to hazards or unsafe practices which could result in personal injury or property damage. See the information below for definitions of the signal words.



### WARNING

Indicates a hazardous situation that could result in serious injury or death if it is not avoided.



### CAUTION

Indicates a hazardous situation that could result in minor or slight injury if it is not avoided.



### IMPORTANT

Indicates a hazardous situation that could result in damage to property if it is not avoided.



### Tips and Recommendations

Gives useful tips, recommendations and information for efficient, trouble-free use.



This product complies with Directive 93/42/EEC concerning medical devices. The launch date of this product is stated in the CE declaration of conformity.



Manufacturer of the product.

### 1.3 Warranty information

We provide a manufacturer's warranty for the product in accordance with our General Terms and Conditions of Business in the respective countries.

Warranty claims can only be made through the provider from whom the product was obtained.

### 1.4 Compliance

Quality is fundamental to the company's operation, working within the disciplines of ISO 13485.

This product features the CE mark, in compliance with the Medical Device Directive 93/42/EEC Class 1.

We are continuously working towards ensuring that the company's impact on the environment, locally and globally, is reduced to a minimum.

We only use REACH compliant materials and components.

#### 1.4.1 Product-specific standards

The wheelchair has been tested in accordance with EN 12183. It includes a test for flammability.

For further information about local standards and regulations, contact your local Invacare representative. See addresses at the end of this document.

### 1.5 Intended use

This Active Wheelchair is intended to provide mobility to persons limited to a sitting position.

### Indications

Disabled persons ages 12 and up (adolescents and adults) with mobility difficulties and a restriction to a sitting position.

### Contraindications

There are no contraindications.



This active wheelchair needs to be prescribed and fit to your specific health condition.

### 1.6 Service life

The expected service life is five years, presuming that the product is used daily and in accordance with safety instructions, maintenance instructions and intended use, stated in this manual.

### 1.7 Copyright protection

This User Manual is protected by copyright. It may not be reprinted or copied or transferred to third parties in part or in full without the prior written consent of the manufacturer.

### 1.8 Limitation of liability

Küschall AG accepts no liability for damage arising from:

- Non-compliance with the User Manual
- Incorrect use
- Natural wear and tear
- Incorrect assembly or set-up by the purchaser or a third party
- Technical modifications

- The usage of unapproved 3rd party accessories instead of a tested and approved Invacare accessories.
- Unauthorised modifications and/or use of unsuitable spare parts

A written authorisation of Küschall AG must be obtained before installing additional adaptations on a Küschall wheelchair. Otherwise no liability claims can be made.

## 2 SAFETY

### 2.1 Safety information

This section contains important safety information for the protection of the wheelchair user and assistant and for safe, trouble-free use of the wheelchair.

**WARNING!****Risk of accidents and serious injury**

Accidents with resulting serious injury can occur if the wheelchair is improperly adjusted.

- Wheelchair adjustments must always be carried out by a specialist dealer.

**WARNING!****Risk due to driving style being unsuitable for the conditions**

There is a risk of skidding on wet ground, gravel or uneven terrain.

- Always adjust your speed and driving style to the conditions (weather, surface, individual ability, etc.).

**WARNING!****Risk of injury**

In a collision you could sustain injury to parts of your body that extend beyond the wheelchair (e.g. feet or hands).

- Avoid an unbraked collision.
- Never drive into an object head-on.
- Drive carefully through narrow passages.

**WARNING!****Risk due to wheelchair being out of control**

At high speed you could lose control of your wheelchair and overturn.

- Never exceed a speed of 7 km/h.
- Avoid collisions in general.

**CAUTION!****Risk of burning**

The wheelchair components can heat up when exposed to external sources of heat.

- Do not expose the wheelchair to strong sunlight before use.
- Before usage, check all components that come into contact with your skin for their temperature.

**CAUTION!****Risk of getting fingers caught**

There is always a risk of getting, e.g. fingers or arms, caught in the moving parts of the wheelchair.

- Make sure when activating the folding or insertion mechanisms of moving parts, such as the removable axle of the rear wheel, folding backrest or antitipper, that nothing becomes caught.



## 2.2 Safety devices



### **WARNING!** **Risk of accidents**

Safety devices that are incorrectly set or no longer working (brakes, antitipper) can cause accidents.

- Always check that the safety devices are working before you use the wheelchair and have them checked regularly by the specialist dealer.

The functions of the safety devices are described in chapter 3 *Components and their functions*, page 11.

## 2.3 Labels and symbols on the product

### **Identification label**

The identification label is attached to the frame of your wheelchair and gives the following information:



(A)	Manufacturer's address
(B)	Product description
(C)	Date of manufacture
(D)	Instruction to read the User Manual
(E)	Maximum user weight
(F)	Serial number
(G)	Warning that this is an active wheelchair and tipping is possible

### **Snap hook symbol**



Tie-down positions where the restraint system straps must be placed in case of transporting the occupied wheelchair in a motor vehicle, refer to 7.4 *Transporting the occupied wheelchair in a vehicle*, page 41.


These symbols are only attached to the wheelchair when it is ordered with the transportation kit option.




### **WARNING Symbol**

This wheelchair is not configured for passenger transport in a motor vehicle.


## Antitipper warning label

	<p><b>WARNING: Read user manual</b></p> <p>Follow user manual instructions prior to the usage of an antitipper device.</p>
--	--

## Non-locking side parts warning label

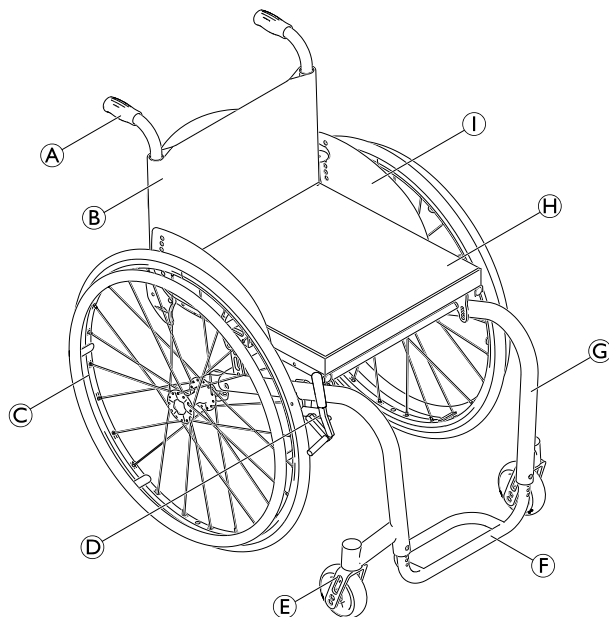
	<p>Do not lift the wheelchair by non-locking side parts.</p>
---	--

## Suspension warning label

 <p>max. body weight 100 kg / 220 lbs</p>	<p>Maximum user weight of 100 kg when the wheelchair is equipped with the suspension option.</p>
--	--

### 3 COMPONENTS AND THEIR FUNCTIONS

#### 3.1 Overview



Ⓐ	Push handle
Ⓑ	Back
Ⓒ	Rear wheel with handrim
Ⓓ	Parking brake
Ⓔ	Front wheel fork with front wheel
Ⓕ	Footrest
Ⓖ	Frame
Ⓗ	Seat / Cushion
Ⓘ	Clothes-guard

#### Short description

The küschall K-Series is a rigid frame wheelchair with folding backrest.



The equipment of your wheelchair may differ from the diagram as each wheelchair is manufactured individually to the specifications in the order.

## 3.2 Parking brakes

The parking brakes are used to immobilise the wheelchair when it is stationary to prevent it from rolling away.



### **WARNING!**

#### **Risk of overturning if you brake sharply**

If you engage the parking brakes while you are moving, the direction of movement can become uncontrollable and the wheelchair may stop suddenly, which can lead to a collision or to you falling out.

- Never engage the parking brakes while you are moving.



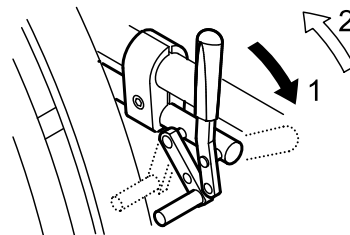
### **WARNING!**

#### **Risk of overturning**

The parking brakes will not operate correctly unless there is sufficient air in the tires.

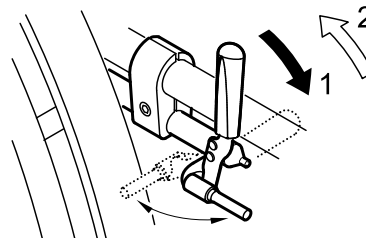
- Ensure the correct tire pressure, *3.13 Tires, page 21*.

### **Standard brake**



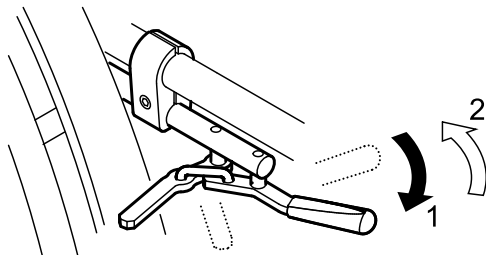
1. To engage the brake, push the brake lever forwards as far as possible.
2. To disengage the brake, pull the brake lever backwards.

### **Performance brake**



1. To engage the brake, push the brake lever forwards as far as possible.
2. To disengage the brake, pull the brake lever backwards.

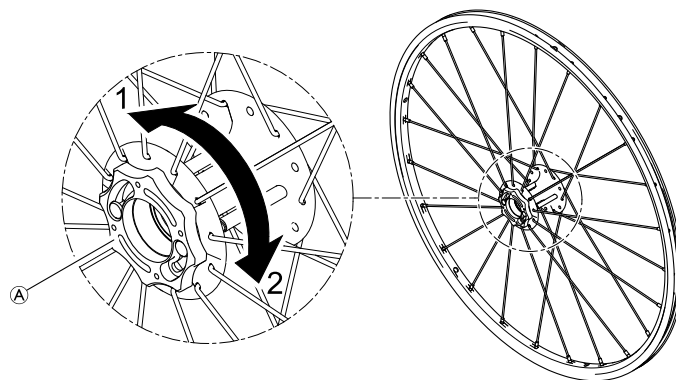
## Active brake



1. To engage the brake, pull the brake lever forwards beside or between your knees as far as possible.
2. To disengage the brake, push the brake lever backwards beside or between your knees.

## Hub brake (optional)

The hub brake is operated via the brake ring located on the outside of each wheel's hub.



1. To engage the hub brake, turn the brake ring **A** in direction 1 until it stops.
2. To disengage the hub brake, turn the brake ring in direction 2 until it stops.



### **WARNING!**

#### **Risk of overturning if you brake sharply**

If you engage the hub brakes while you are moving, the direction of movement can become uncontrollable and the wheelchair may stop suddenly, which can lead to a collision or to you falling out.

– Never engage the hub brake while you are moving.

**WARNING!****Risk of injury due to overturning wheelchair**

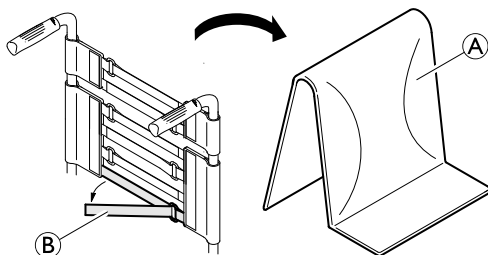
When driving backwards, the wheelchair could overturn due to a snapping in hub brake pin that locks the wheel.

- Contact your specialized dealer immediately, as soon as you hear a rattling noise caused by the hub brake when driving in your wheelchair.
- Avoid driving backwards when you hear such noise until the hub brake is repaired or replaced.

### 3.3 Backrest

**Backrest cover**

You can adjust the tension of the backrest cover as required.

**Adjusting the backrest cover**

1. Remove the backrest cushion (A).
2. Loosen the hook and loop straps (B) on the rear of the backrest cover by simply pulling on them.
3. Tighten or loosen the tapes as required then reattach them.

**WARNING!****Risk of tipping**

If the bands are set very loose, the tipping point of your wheelchair is changed for the worse.

- Ensure that the bands are set correctly.

**Backrest height**

The height of the backrest can be adjusted. The adjustment must be carried out by the specialist dealer.

**Backrest angle**

The angle of the backrest can be adjusted. The adjustment must be carried out by the specialist dealer.

**Backrest bar****WARNING!****Risk of accidents**

The backrest bar is not suited for lifting or carrying the wheelchair with the user sitting in it as it can break.

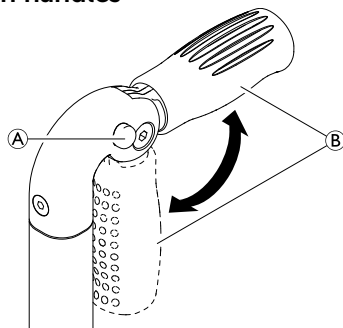
- The backrest bar may not be used to lift or carry the wheelchair while the user is sitting in it.

### 3.4 Push handles

#### ! IMPORTANT!

- Always check the push handles before using the wheelchair, as to whether the hand grips are secure, cannot be turned and cannot be pulled off.

#### Foldable push handles



1. Fully depress button **A** and fold up respectively fold down the push handle **B** until it audibly engages.

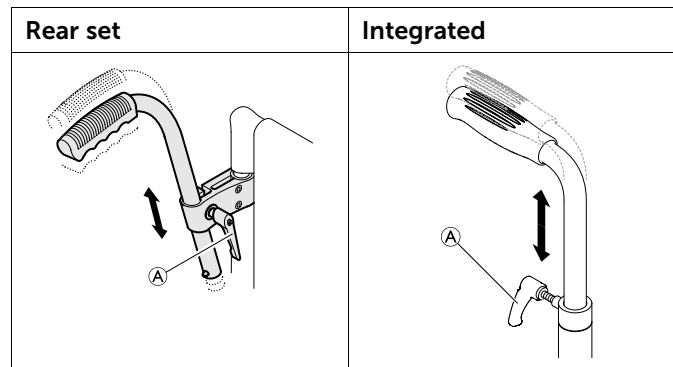


#### CAUTION!

- If not correctly engaged, the push handle could accidentally fold down while pushing the wheelchair.
- Make sure that the push handle is correctly engaged.

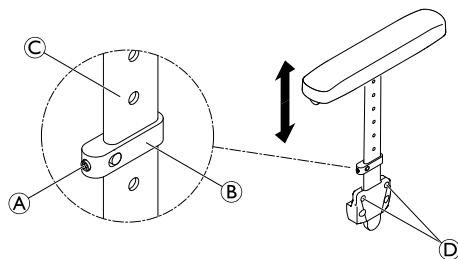
#### Height adjustable push handles

The stepless height adjustable push handles allow any assistant to adjust the handles to a comfortable level.



1. To set the height of the push handles, loosen the bolt **A**, push the handle to the desired position and tighten the bolt again.

### 3.5 Side rest, stepless height adjustable, non-locking



#### **WARNING!** **Risk of injury**

The side rests are not locked and can be easily pulled out upwards.

- Do not lift or transfer the wheelchair using the side rests.
- Do not use the side rests for transportation when carrying the wheelchair up- or downstairs.

#### **Removing**

1. Pull the side rest by the arm cushion out of the holder.
2. To adjust how easy or difficult it is to pull the side rest out of the holder, change the degree to which the screws ④ are tightened.

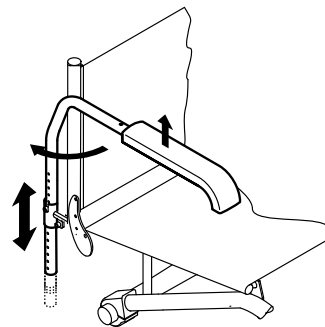
#### **Fitting**

1. Push the side rest into the holder.

#### **Adjusting the height**

1. Slightly loosen the grub screw ① on the clamping part ②.
2. Move the clamping part upwards or downwards on the profile ③ to the desired height.
3. Re-tighten the grub screw.
4. Perform the setting on both sides.

### 3.6 Simple armrest, height-adjustable, swivelling, non-locking







### **WARNING!** **Risk of injury**

The armrests are not locked and can be easily pulled out upwards.

- Do not lift or transfer the wheelchair using the armrests.
- Do not use the armrests for transportation when carrying the wheelchair up- or downstairs.

### **Removing**

1. Raise the armrest and pull it upwards out of the holder.

### **Fitting**

1. Push the armrest into the holder.

### **Adjusting the height**

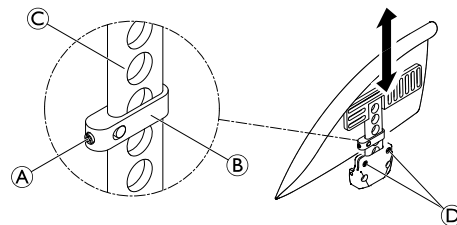
1. Pull the armrest out of the holder.
2. Loosen the screw on the tube of the armrest and screw it back in at the desired height.
3. Push the armrest back into the holder.
4. Perform the setting on both sides.

### **Swivelling**

1. Raise the armrest a little and swivel it outwards.

## **3.7 Mudguard**

In order to prevent dirt from the wheels spraying upwards, a removable mudguard can be fitted. The position of the mudguard can be adjusted. The adjustment must be carried out by a specialist dealer.



### **WARNING!** **Risk of injury**

The mudguards are not locked and can be easily pulled out upwards.

- Do not lift or transfer the wheelchair using the mudguards.
- Do not use the mudguards for transportation when carrying the wheelchair up- or downstairs.

### **Removing**

1. Pull the mudguard upwards out of the holder.
2. To adjust how easy or difficult it is to pull the mudguard out of the holder, change the degree to which the screws ① are tightened.

## Installing

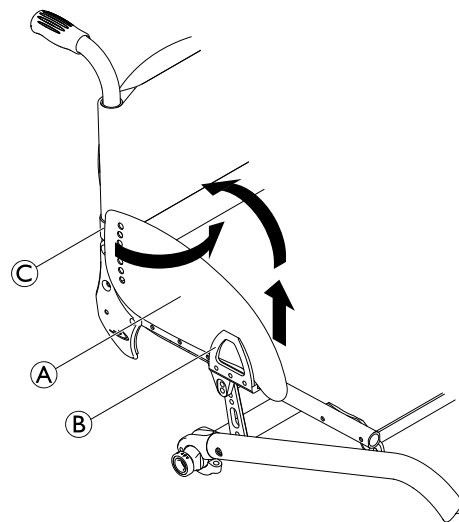
1. Push the mudguard into the holder.

## Adjusting the height

1. Slightly loosen the grub screw **A** on the clamping part **B**.
2. Move the clamping part upwards or downwards on the profile **C** to the desired height.
3. Re-tighten the grub screw.
4. Perform the setting on both sides.

## 3.8 Clothes-guard

A clothes-guard can be fitted to protect your clothes. Before folding the back of the wheelchair, the clothes-guard must first be folded inwards against the backrest.

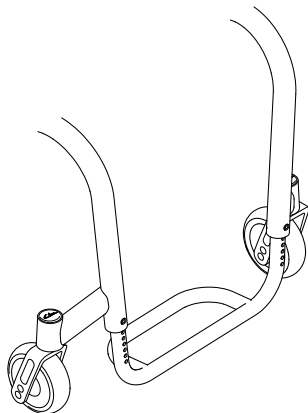


## Folding in

1. Raise the clothes-guard **A** at the front out of the holder **B** and swivel it inwards around the joint **C** in front of the backrest.

### 3.9 Footrest

The height of the footrest can be adjusted. The adjustment must be carried out by the specialist dealer.



### 3.10 Antitipper

An antitipper prevents the wheelchair from tipping backwards.



#### **WARNING!** **Risk of overturning**

Antitippers that are incorrectly set or no longer working can lead to overturning.

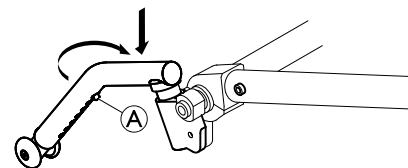
- Always check that the antitipper is working before using the wheelchair and have it set or readjusted by a specialist dealer when required.



#### **WARNING!** **Risk of overturning**

On uneven or soft ground, the antitipper can sink into potholes or directly into the ground, thereby curtailing or eliminating its safety function.

- Only use the antitipper when travelling on even and firm ground.



#### **Activating the antitipper**

1. Push the antitipper completely downwards against the spring and swivel it backwards through 90° until it engages.



#### **WARNING!** **Risk of tipping**

An activated antitipper can catch when negotiating a step or an edge.


- Always deactivate the antitipper before driving over a step or kerb.

## Deactivating the antitipper

1. Push the antitipper completely downwards against the spring and swivel it inwards through 90° until it engages.

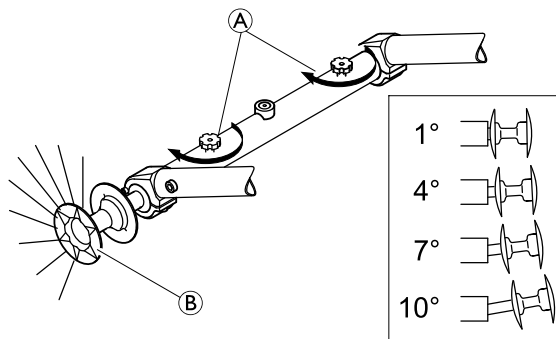
## Setting the height

1. Press the spring pin ① on the antitipper and push the inner section to the position required. Allow the spring pin to engage in the nearest hole.

 If further adjustments of height and/or position are necessary, refer to your specialist dealer.

## 3.11 Vario-Ax

Your wheelchair can be fitted with a Vario-Ax. The Vario-Ax makes it possible to change the wheel camber.



## Adjusting wheel camber of the Vario-Ax

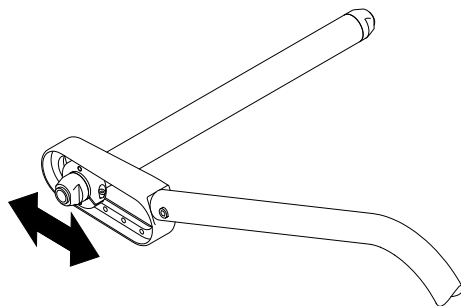
**! IMPORTANT!**  
– Do not overtighten the knurled screw ① as this can damage its mechanism.

**! IMPORTANT!**  
– Changing the wheel camber can impair or negate the function of the parking brakes.

1. Loosen the knurled screw ① on the Vario-Ax.
2. Pull the wheel by the hub ② until the desired angle is set.
3. A gentle engagement will indicate when it has reached one of the four possible positions.
4. Retighten the knurled screw ①.
5. Perform the same setting on both sides.

### 3.12 Rear wheel extension

Your wheelchair can be fitted with a rear wheel extension. The rear wheel extension makes it possible to alter the position of the rear wheel and thus the tipping stability of the wheelchair. The adjustment must be carried out by the specialist dealer.



### 3.13 Tires

The ideal pressure depends on the tire type:

The table below is an indication. In case the tire differs from the list below, check the side of the tire, the maximum pressure is often listed there.

Tire	Max. pressure		
Profile tire	7 bar	700 kPa	101 psi
Schwalbe® Marathon Plus	10 bar	1000 kPa	145 psi
Schwalbe® One	10 bar	1000 kPa	145 psi

Tire	Max. pressure		
Schwalbe® Rightrun	10 bar	1000 kPa	145 psi
Solid tire, profile, grey	-	-	-
Solid tire (KIK type), black	-	-	-
Solid, light wheel	-	-	-



The compatibility of the tires listed above depends on the configuration and/or model of your wheelchair.



In case of a tire puncture consult a suitable workshop (e.g. bike repair shop, bicycle dealer ...) to have the tube replaced by a skilled person.



The size of the tire is mentioned on the sidewall of the tire. The change of appropriate tires must be carried out by a specialist dealer.



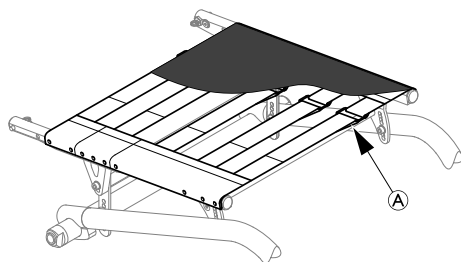
#### CAUTION!

- The tires pressure needs to be equal in both wheels to avoid decreased driving comfort, to keep the parking brakes working properly and to ease propelling of the wheelchair.

### 3.14 Seat cover

Standard seat covers and tension adjustable seat covers are available.

#### Adjusting the tension adjustable seat cover



1. Remove the seat cushion and the covering sheet.
2. Loosen the hook and loop tapes (A) on the underside of the seat cover by simply pulling on them.
3. Tighten or loosen the tapes as required then reattach them.

### 3.15 Seat cushion

A suitable cushion is needed to provide an even pressure distribution on the seat.



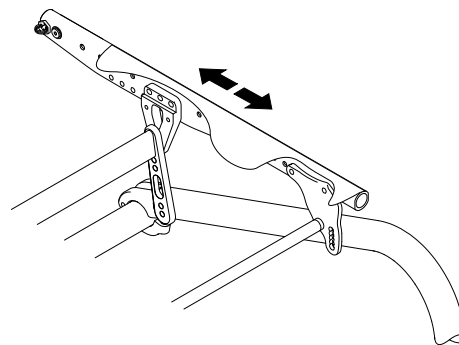
#### CAUTION!

Adding a cushion to the seat will raise your height above the ground and can affect your stability in all directions. If a cushion is changed it may also change the user's stability. If the thickness of the cushion is changed, a complete set up of the wheelchair need to be done by a specialist dealer.



Use a seat cushion with anti-slip underlay or hook fastening tapes to avoid slipping of the seat cushion. A loop fastening tape is pre-attached to the seat cover.

### 3.16 Seat position



**Tipping stability**

The seat position and thus the tipping stability of your wheelchair can be altered. The adjustment must be carried out by the specialist dealer.

**Seat height front**

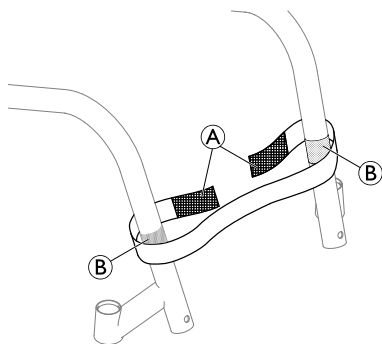
The front seat height can be adjusted. The adjustment must be carried out by the specialist dealer.

**Seat height rear**

The rear seat height can be adjusted by several centimeters. The adjustment must be carried out by the specialist dealer.

**3.17 Calf strap**

A calf strap can be installed to the wheelchair to provide a better position of the users' legs.



1. Fix and adjust the calf strap ① around the hook and loop fasteners ② on both frame parts.

## 4 ACCESSORIES

### 4.1 Posture belt

The wheelchair can be equipped with a posture belt. It prevents the user from sliding downward in the wheelchair or from falling out of the wheelchair. The posture belt is not a positioning device.

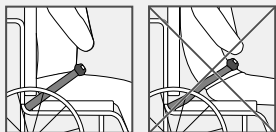


#### **WARNING!**

##### **Risk of serious injury / strangulation**

A loose belt can allow the user to slip down and create a risk of strangulation.

- The posture belt should be mounted by a qualified technician and fitted by the responsible prescriber.
- Always make sure that the posture belt is tightly fitted across the lower pelvis.
- Each time the posture belt is used, check if it fits properly. Changing the seat and/or backrest angle, the cushion and even your clothes influence the fit of the belt.



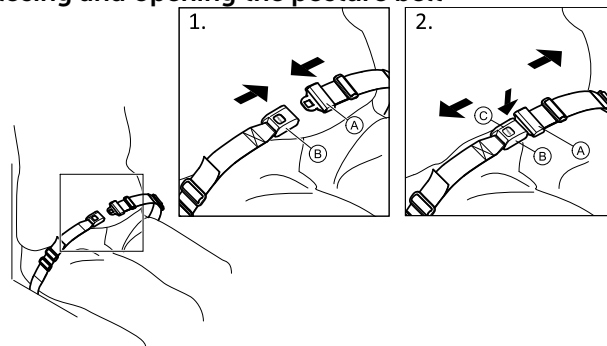
#### **WARNING!**

##### **Risk of serious injury during transport**

In a vehicle, a user in his wheelchair must be secured by a safety belt (3-point belt). A posture belt only is not sufficient as a personal restraint device.

- Use the posture belt as a complement, but not as a substitute to the 3-point safety belt, when transporting the wheelchair user in a vehicle.

#### **Closing and opening the posture belt**




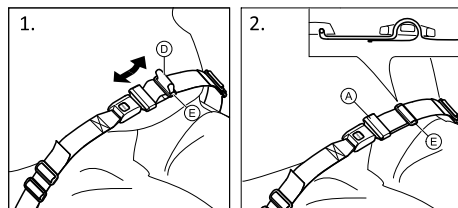
Ensure that you are sitting fully back in the seat and that the pelvis is as upright and symmetrical as possible.

1. To close, push the catch **A** into the buckle clasp **B**.
2. To open, push the PRESS button **C** and pull the catch **A** out of the buckle clasp **B**.



## Adjusting the length

-  The posture belt has the good length, when there's just sufficient space for a flat hand between body and belt.



1. Shorten or extend the loop ① as required.
2. Thread loop ① through catch ② and plastic buckle ③ until the loop is flat.

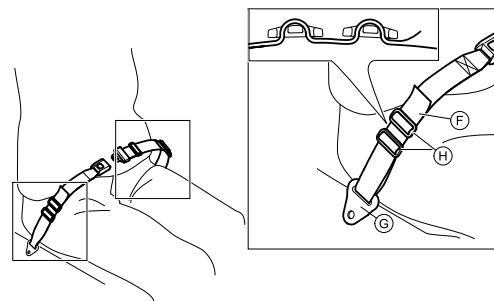
If this adjustment is not sufficient, it might be required to re-fit the posture belt at the fixations.

## Fitting the posture belt at the fixations



### CAUTION!

- Thread the belt loop through both plastic buckles to avoid the belt from loosening.
- Do the adjustments on both sides equally, so that the buckle clasp remains in a central position.
- Make sure that the belts do not get caught in the spokes of a rear wheel.



1. Thread the loop ⑥ through the fixation on the chair ⑦ and then through BOTH plastic buckles ⑧.

## 4.2 Air pump

The air pump is fitted with a universal valve connection.

1. Remove the dust cap from the valve connection.
2. Push the valve connection onto the open valve on the wheel and pump the wheel up.

### 4.3 Passive illumination

You can attach reflectors to the rear wheels.

### 4.4 Luggage carrier

Your wheelchair can be fitted with a luggage carrier. When not in use, the luggage carrier can be folded up.

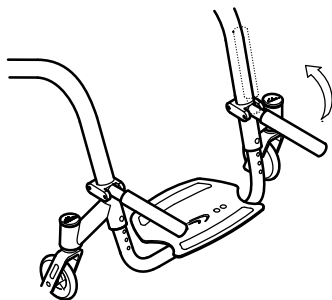


#### **WARNING!**

##### **Risk of tipping**

Weight on the carrier changes the tipping behavior of the wheelchair. The wheelchair can tip forwards more easily when the luggage carrier is loaded.

- Use the luggage carrier only for transporting small and lightweight luggage.
- Avoid driving the wheelchair too fast when carrying luggage.
- Avoid driving ramps and slopes when carrying luggage.
- Do not stand on the luggage carrier.



### 4.5 Transit wheels

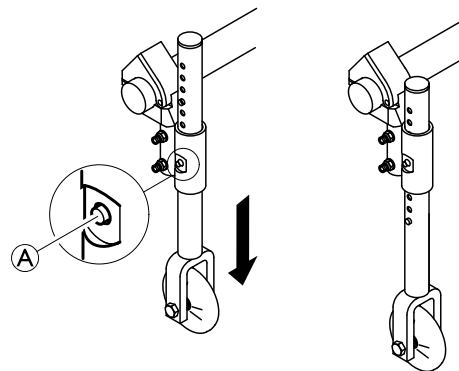
If your wheelchair is too wide for certain applications, e.g. trains/aeroplanes, narrow passageways, narrow doors, the transit wheels can be used.



#### **WARNING!**

##### **Risk of severe accidents**

- When using transit wheels, the parking brakes no longer have any effect and you cannot control your wheelchair via the handrims.



#### **Switching to transit wheels**

1. Lower the transit wheels into the operating position. To do this, press the pin Ⓐ inwards until you can pull the tube down.
2. Press the second pin in.
3. Pull the tube further downwards until the pin engages into the slot.

4. Move the wheelchair to a stable object (door frame, heavy table), which you can use for support and hold onto it firmly with one hand.
5. Tilt the wheelchair until the rear wheel on the opposite side rises off the floor.



Prior to removing the rear wheels, the distance between the lowered transit wheels and the floor should not be more than 2 cm.

6. Remove the rear wheel, → *7.3 Removing and installing the rear wheels, page 40*.
7. Repeat the process on the other side.

### **Switching from transit wheels to rear wheels**

1. Move the wheelchair to a stable object, which you can use for support and hold onto it firmly with one hand.
2. Tilt the wheelchair until the transit wheel on the opposite side rises slightly off the floor.
3. Install the rear wheel back onto the removable axle, → *7.3 Removing and installing the rear wheels, page 40*.
4. Bring the transit wheels back into the inactive position.
5. Repeat the process on the other side.

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## 5 SETUP

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### 5.1 Safety information

**CAUTION!****Risk of injury**

- Before using the wheelchair, check its general condition and its main functions, 8.2 *Maintenance Schedule, page 47.*

Your specialist dealer will supply your wheelchair ready for use. Your dealer will explain the main functions and ensure that the wheelchair meets your needs and requirements.

Adjustments of the axle position and the front wheel supporters must be carried out by a specialist dealer.

## 6 USING THE WHEELCHAIR

### 6.1 Safety information



**WARNING!**  
**Risk of accidents**

Uneven tire pressure can have a huge effect on handling.

- Check the tire pressure before each journey.



**WARNING!**  
**Risk of falling out of the wheelchair**

When using small front wheels the wheelchair could get stuck at curbs or in floor grooves.

- Make sure that the front wheels are suitable for the surface you are driving on.



**CAUTION!**  
**Risk of crushing**

There may be a very small gap between the rear wheel and the mudguard or the parking brake with the risk that you could trap your fingers.

- Ensure that you always propel your wheelchair using the handrims only.

### Theft and metal detection systems

In seldom cases the materials used in the wheelchair may activate theft and metal detection systems.

### 6.2 Braking during use

Whilst you are moving, you brake by transferring force to the handrim with your hands.



**WARNING!**  
**Risk of overturning**

If you apply the parking brakes while you are moving, the direction of movement can become uncontrollable and the wheelchair may stop suddenly, which can lead to a collision or to you falling out.

- Never apply the parking brakes while you are moving.



**WARNING!**  
**Risk of falling out of the wheelchair**

If the wheelchair is rapidly decelerated by an assistant pulling at the push handles, the user may fall out of the wheelchair.

- Always apply the posture belt if present.
- Make sure your assistant has been trained individually in transferring occupied wheelchairs.

**CAUTION!****Risk of burning your hands**

If you brake for a long time, a lot of frictional heat is produced at the handrims (especially Supergripp).

- Wear suitable gloves.

1. Hold the handrims and press evenly with both hands until the wheelchair stops.

### 6.3 Getting in and out of the wheelchair

**WARNING!****Risk of overturning**

There is a high risk of overturning during the transfer.

- Only get in and out without assistance if you are physically able to do so.
- When transferring, position yourself as far back as possible in the seat. This will prevent damaged upholstery and the possibility of the wheelchair tipping forward.
- Make sure that both castors are facing straight to the front.

**WARNING!****Risk of overturning**

The wheelchair could tip forwards if you stand on the footrest.

- Never stand on the footrest when getting in and out.

**CAUTION!**

If you release or damage the brakes the wheelchair could roll away out of control.

- Do not support yourself on the brakes when getting in and out.

**IMPORTANT!**

The mudguards and armrests could become damaged.

- Never sit on the mudguards or armrests when getting in and out.



1. Propel the wheelchair as near as possible to the seat that you want to move to.
2. Apply the parking brakes.
3. Remove the armrests or move them upwards out of the way.
4. Place your feet on the ground.

5. Hold the wheelchair and, if necessary, also hold a fixed object in the vicinity.
6. Move slowly to chair.

## 6.4 Driving and steering the wheelchair

You drive and steer the wheelchair using the handrims. Before driving without an assistant you must find your wheelchair's tipping point.



### **WARNING!**

#### **Risk of tipping**

The wheelchair can tip backwards if it is not fitted with an antitipper. When finding the tipping point, an assistant must stand immediately behind the wheelchair to catch it if it tips over.

- To prevent tipping, install an antitipper device.



### **WARNING!**

#### **Risk of tipping**

The wheelchair can tip forwards.

- When setting up your wheelchair, test its behavior in terms of tipping forward and adjust your driving style accordingly.

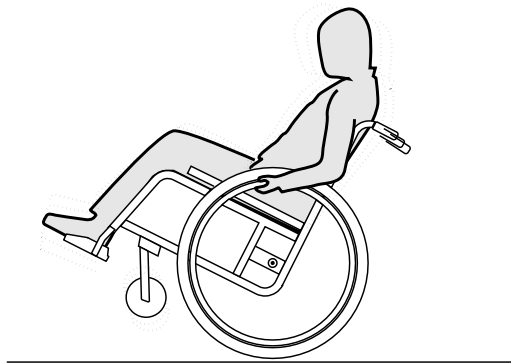


### **CAUTION!**

A heavy load hanging on the backrest can affect the wheelchair's centre of gravity.

- Change your driving style accordingly.

## Finding the tipping point



1. Release the brake.
2. Roll backwards a short distance, grasp both handrims firmly and push forwards with a slight kick.
3. The shift in weight and steering in opposite directions with the handrims will enable you to identify the tipping point.

## 6.5 Negotiating steps and kerbs



### **WARNING!**

#### **Risk of overturning**

When negotiating steps you could lose your balance and tip the wheelchair over.

- Always approach steps and kerbs slowly and carefully.
- Do not go up or down steps that are higher than 25 cm.



### **CAUTION!**

An activated antitipper prevents the wheelchair from tipping backwards.

- Deactivate the antitipper before going up or down steps or kerbs.



## With an assistant



## Going down a step

1. Move the wheelchair right up to the kerb and hold the handrims.
2. The assistant should hold both push handles, place one foot on the tipper aid (if installed) and tilt the wheelchair backwards so that the front wheels lift off the ground.
3. The assistant should then hold the wheelchair in this position, push it carefully down the step and then tilt it forwards until the front wheels are back on the ground.

## Going up a step



### **WARNING!**

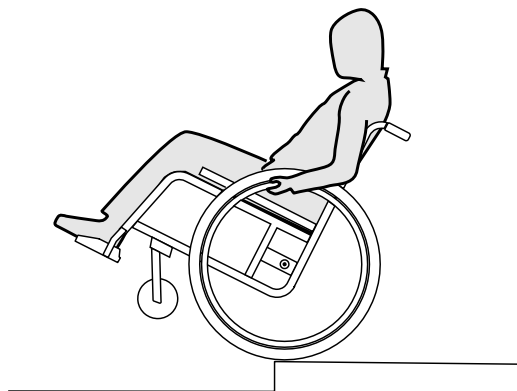
#### **Risk of serious injuries**

Going up steps and kerbs frequently can result in earlier than expected fatigue break of the wheelchair backrest. The user might fall out of the wheelchair.

- Always use a tipper aid when going up steps or kerbs.

1. Move the wheelchair backwards until the rear wheels touch the kerb.
2. The assistant should tilt the wheelchair using both push handles so that the front wheels lift off the ground, then pull the rear wheels over the kerb until the front wheels can be placed back on the ground.

## Without an assistant



## Going down a step

1. Move the wheelchair right to the kerb, lift the front wheels and keep the wheelchair balanced.
2. Now slowly roll both rear wheels over the kerb. While doing this, hold the handrims firmly with both hands until the front wheels are back on the ground.



### **WARNING!**

#### **Risk of tipping**

When going down a step without an assistant you could tip over backwards if you cannot control your wheelchair.

- First learn how to go down a step with an assistant.
- Learn how to balance on the rear wheels, 6.4 *Driving and steering the wheelchair, page 31.*

## 6.6 Going up and down stairs



### **WARNING!**

#### **Risk of overturning**

When negotiating stairs you could lose your balance and overturn your wheelchair.

- Always use two assistants when negotiating stairs with more than one step.



1. You can go up and down stairs by taking them one step at a time, as described above. The first assistant should stand behind the wheelchair holding the push handles. The second assistant should hold a solid part of the front frame to steady the wheelchair from the front.

## 6.7 Negotiating ramps and slopes



### **WARNING!**

#### **Risk due to wheelchair being out of control**

When negotiating slopes or gradients your wheelchair could tip backwards, forwards or sideways.

- Always have an assistant behind the wheelchair when approaching long slopes.
- Avoid lateral slopes.
- Avoid slopes of more than 7°.
- Avoid jerking when changing direction on a slope.



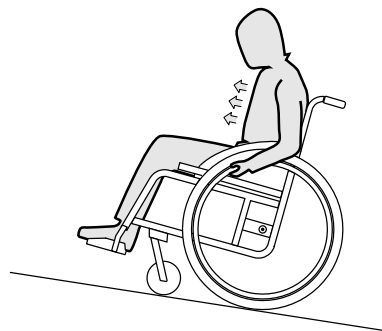
### **CAUTION!**

Your wheelchair could run away even on slightly sloping ground if you do not control it using the handrims.

- Use the parking brakes if your wheelchair is stationary on sloping ground.

### **Going up slopes**

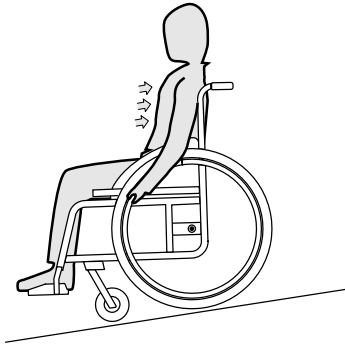
To go up a slope, you must create some momentum, keep up the momentum and control the direction at the same time.



1. Bend your upper body forwards and propel the wheelchair with quick, powerful strokes on both handrims.

## Going down slopes

When going down slopes, it is important to control your direction and particularly your speed.



1. Lean back and carefully allow the handrims to run through your hands. You should be able to stop the wheelchair at any time by gripping the handrims.



### CAUTION!

#### **Risk of burning your hands.**

If you brake for a long time, a lot of frictional heat is produced at the handrims (especially MaxGrepp and Supergripp).

- Wear suitable gloves.

## 6.8 Stability and balance when seated

Some everyday activities and actions require you to lean forwards, sideways or backwards out of the wheelchair. This has a major effect on the wheelchair's stability. To keep your balance at all times, proceed as follows:

### Leaning forwards

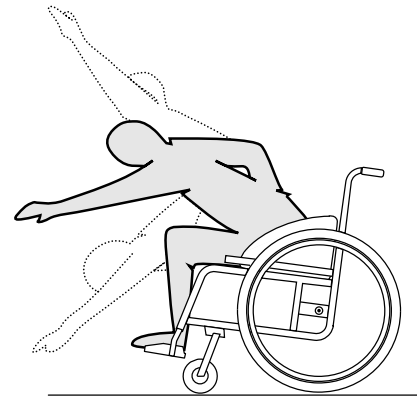


#### **WARNING!**

#### **Risk of falling out**

If you lean forwards out of the wheelchair you could fall out of it.

- Never bend too far forwards and do not shift forwards in your seat to reach an object.
- Do not bend forwards between your knees to pick up something off the floor.



1. Point the front wheels forwards. (To do this, move your wheelchair forwards slightly then back again.)
2. Apply both parking brakes.
3. When leaning forwards your upper body must remain over the front wheels.

## Reaching backwards

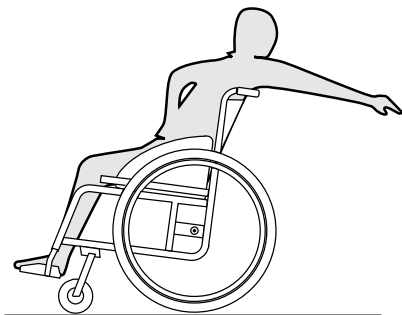


### **WARNING!**

#### **Risk of falling out**

If you lean too far backwards you could tip your wheelchair over.

- Do not lean out over the backrest.
- Use an antitipper device.



1. Point the front wheels forwards. (To do this, move your wheelchair forwards slightly then back again.)
2. Do not apply the parking brakes.
3. When reaching backwards do not reach so far that you have to change your sitting position.

## 7 TRANSPORT

### 7.1 Safety information



#### **WARNING!**

**Risk of injury if the wheelchair is not properly secured**

In the event of an accident, braking manoeuvre, etc. you may suffer serious injuries from flying wheelchair parts.

- Always remove the rear wheels when transporting the wheelchair.
- Firmly secure all wheelchair components in the means of transport to prevent them from coming loose during the journey.



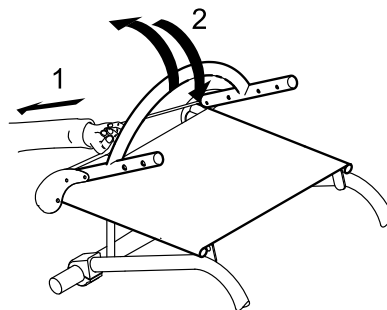
#### **IMPORTANT!**

Excessive wear and abrasion could affect the strength of load-bearing parts.

- Do not pull your wheelchair across abrasive surfaces without the wheels fitted (e.g. pulling the frame over tarmac).

### 7.2 Folding and unfolding the wheelchair

The wheelchair has a rigid frame. Nevertheless, the backrest can be folded forwards and fixed there.



#### **Folding the wheelchair**

1. Remove the seat cushion, if present.
2. Fold the clothes-guard, if present, inwards against the backrest on both sides.
3. Pull the cord on the back of the wheelchair (1) and fold the backrest forward (2) until it engages.
4. The wheelchair can now be lifted using the backrest brace.

## Unfolding the wheelchair

### ! IMPORTANT!

- When unfolding the wheelchair, do not pull the backrest brace without previously releasing the backrest using the cord.
- Check that the backrest is completely engaged on the frame, before you use the wheelchair again.

1. Pull the cord on the backrest of the wheelchair.
2. Pull the backrest backwards using the backrest brace, until the backrest tube engages on both sides of the frame.
3. Fold the clothes-guard back into position on both sides.

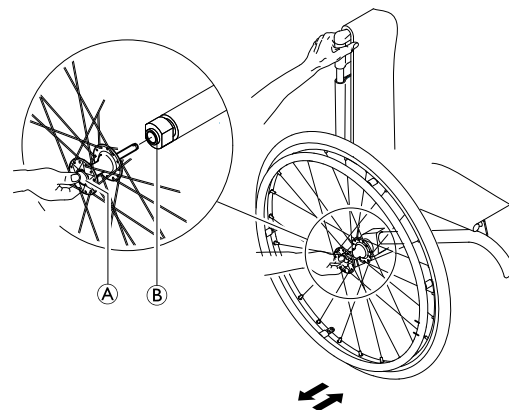
## 7.3 Removing and installing the rear wheels



### WARNING! Risk of overturning

If the removable axle of a rear wheel is not fully engaged, the wheel can become loose during use. This can lead to overturning.

- Always ensure that the removable axles are fully engaged whenever you fit a wheel.



### Removing the rear wheels

1. Disengage the parking brakes.
- 2.
3. With one hand, hold the wheelchair upright.
4. With the other, hold the wheel through the external spoke rim around the wheel hub.
5. Using your thumb, press the removable axle button Ⓐ. Keep it pressed and pull the wheel out of the adapter sleeve Ⓑ.

### Installing the rear wheels

1. Disengage the parking brakes.
- 2.
3. With one hand, hold the wheelchair upright.
4. With the other, hold the wheel through the external spoke rim around the wheel hub.
5. Using your thumb, press the removable axle button Ⓐ and hold it down.



6. Push the axle into the adapter sleeve ⑥ up to the stop.
7. Release the removable axle button and make sure that the wheel is secure.

## 7.4 Transporting the occupied wheelchair in a vehicle

Even when the wheelchair is properly secured and the following rules are met, injuries to passengers may occur in a collision or sudden stop. Therefore KÜSCHALL strongly recommends transferring the wheelchair user to the vehicle seat with the seatbelt on. Do not make alterations or substitutions to points of the wheelchair (structure, frame or parts) without the written consent of KÜSCHALL AG. The wheelchair has been successfully tested according to the requirements of ISO 7176-19.



### **WARNING!**

#### **Risk of serious injury or death**

To use the wheelchair as a seat in a vehicle the backrest height must be at least 400 mm.

To transport the wheelchair with user in a vehicle, a restraint system must be installed in the vehicle. Wheelchair tie-downs and occupant restraint systems must be approved according to ISO 10542-1. Contact your local Invacare representative or specialist dealer for more information on getting and installing an approved and compatible restraint system.



### **WARNING!**

If, for some reason, it is impossible to transfer the wheelchair user to a vehicle seat, the wheelchair can be used as a seat in a vehicle if the following procedures and regulations are followed. A transportation kit (optional) has to be fitted on the wheelchair for such a purpose.

- The wheelchair must be secured in the vehicle with a 4-point wheelchair restraint system.
- The user must wear a 3-point passenger restraint system secured to the vehicle.



### **WARNING!**

Safety restraint devices must only be used when the wheelchair user's weight is 22 kg or more (ISO-7176-19).

- Do not use the wheelchair as a seat in a vehicle when the user weight is lower than 22 kg.



### **WARNING!**

- Before journey contact transporter and request information about the capability for the below required equipment.
- Make sure there is sufficient free space around the wheelchair and user to avoid the user making contact with other vehicle occupants, unpadded parts of the vehicle, wheelchair accessories or anchor points of the restraint system.

**WARNING!**

- Make sure the tie-down points at the wheelchair are not damaged and that the parking brakes are fully functional.
- It's recommended to use puncture-proof tires during transport to avoid brake problems due to reduced tire pressure.

**WARNING!**

Injury or damage may occur from wheelchair components or accessories loosened during a collision or sudden stop.

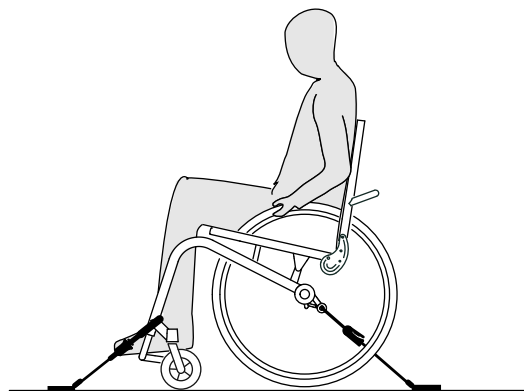
- Ensure all removable or detachable components and accessories are removed from the wheelchair and securely stored in the vehicle.
- It is essential to have your wheelchair checked by a specialist dealer after an accident, collision etc.

**IMPORTANT!**

It is recommended that training be given on the proper use of a restraint system product.

- Refer to the user manuals supplied with the restraint systems.
- The following illustrations may differ depending on the restraint system supplier.

## Securing the wheelchair with a 4-point restraint system

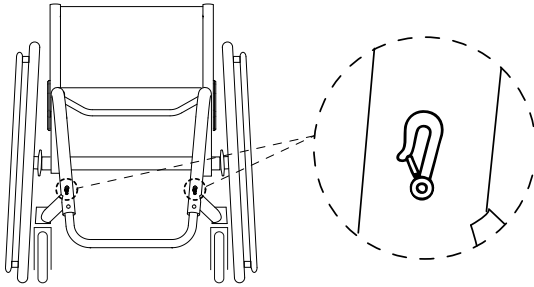
**WARNING!**

- Place the wheelchair with the user forward-facing in direction of vehicle travel.
- Apply the wheelchair parking brakes.
- Activate antitipper (if installed).

The wheelchair tie-down positions where the restraint system straps must be placed are marked with snap hook symbols (see following figures and section 2.3 *Labels and symbols on the product, page 9*).

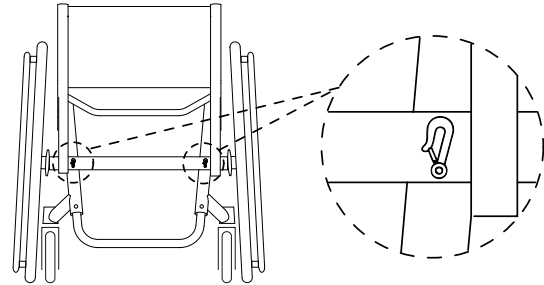
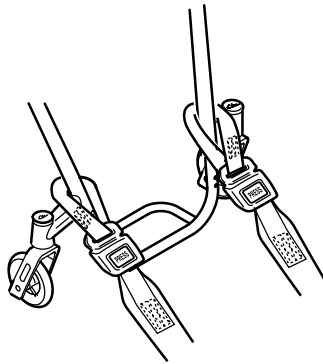
1. Using the front and rear straps of the 4-point restraint system, secure the wheelchair to the vehicle mounted rails. Refer to the user manual supplied with 4-point restraint system.

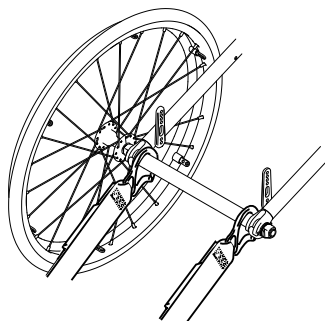
Front side tie-down positions for belt straps:



1. Attach the front straps above the castor supporters as shown in the two figures above (see location of the attachment labels).
2. Attach front straps to the rail system referring to best practice recommended instructions from the safety belt manufacturer.
3. Release the parking brakes and apply tension front straps by pulling the wheelchair backwards from the rear.
4. Re-apply the parking brakes.

Rear side tie-down positions for snap hooks:





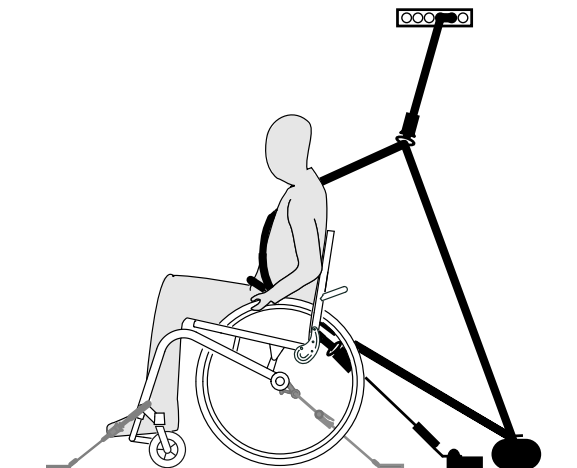
1. Attach the snap hooks to the axle right next to the axle holders as shown in the two figures above (see location of the attachment labels).
2. Attach rear straps to the rail system referring to best practice recommended instructions from the safety belt manufacturer.
3. Tighten the straps.

**!** **IMPORTANT!**

- Make sure that the snap hooks are covered with slip resistant material to avoid laterally slipping on the axle.

**!** **IMPORTANT!**

- Check the plungers are fully engaged on both sides and located in the same position of the cut-out section of the rail.
- Make sure that the angle between the rails and the straps lies between 40° and 45°.



**IMPORTANT!**

The illustration above may differ depending on the restraint system supplier.

## Fastening the 3-point passenger restraint system

**WARNING!**

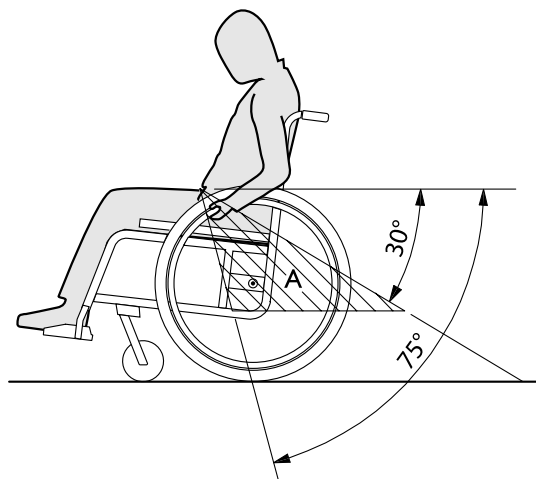
- Ensure the 3-point passenger restraint system fits as tightly across the user's body as possible without discomfort and no part is twisted.
- Ensure the 3-point passenger restraint system is not held away from the user's body by parts of the wheelchair such as armrests or wheels etc.
- Ensure the user restraint has a clear path from the user to the anchor point without interference by any part of the vehicle, wheelchair, seating or accessory.
- Ensure the lap belt fits snugly over the occupant's pelvis and is not allowed to ride up into the abdominal area.
- Ensure the user is able to reach the release mechanism unaided.



1. Attach the 3-point passenger restraint system referring to the user manual supplied with your 3-point restraint system.

**IMPORTANT!**

- Apply the lap belt of the 3-point passenger restraint system low across the pelvis so that the angle of the lap belt is within the preferred zone (A) of 30° to 75° to the horizontal. A steeper angle is preferred, but never exceeding 75°.



## 8 MAINTENANCE

### 8.1 Safety information



#### **WARNING!**

Some materials deteriorate naturally over time. This could result in damage to wheelchair components.

- Your wheelchair should be checked by a specialist dealer at least once a year or if it has not been used for a long period.



Your küschall specialist dealer can provide help in carrying out regular maintenance. To find an authorized specialist dealer near you, contact the küschall distributor for your country (end of this document).

### 8.2 Maintenance Schedule

To ensure safe and reliable operation, carry out the following checks and maintenance regularly or have it carried out by another person.

	weekly	monthly	annually
Check the tire pressure	x		
Check that rear wheels are seated correctly	x		

	weekly	monthly	annually
Check the adjustment of the backrest joint	x		
Check the posture belt	x		
Visual check		x	
Check the front wheels		x	
Check bolts		x	
Check spokes		x	
Check parking brakes		x	
Have wheelchair checked by a specialist dealer			x

#### **Check the tire pressure**

1. Check the tire pressure.



See section "Tires" for more information.

2. Inflate the tires to the required pressure.
3. Check the tire tread at the same time.
4. If necessary, change the tires.

### Check that rear wheels are seated correctly

1. Pull on the rear wheel to check that the removable axle is seated correctly. The wheel should not come off.
2. If the rear wheels are not engaged properly, remove any dirt or deposits. If the problem persists, have the removable axles re-fitted by a specialist dealer.

### Check the adjustment of the backrest joint

1. Sit into the wheelchair and lean back on the backrest. The backrest must be correctly engaged.
2. Pull the release cord. The pins must be free-moving on both sides. Otherwise, the backrest joint will have to be re-fitted by a specialist dealer.

### Check the posture belt

1. Check that the posture belt is adjusted correctly.



#### IMPORTANT!

- Loose posture belts must be adjusted by a specialist dealer.
- Damaged posture belts must be replaced by a specialist dealer.
- Posture belts must always be installed by a specialist dealer.

### Visual check

1. Examine your wheelchair for loose parts, cracks or other defects.
2. If you find anything, have your wheelchair checked immediately by a specialist dealer.

### Check the front wheels

1. Check that the front wheels turn freely.
2. Remove any dirt or hair from the front wheel bearings.
3. Faulty or worn out front wheels must be replaced by a specialist dealer.

### Check the bolts

Bolts can work loose through constant use.

1. Check that the bolts are tight (on the footrest, seat cover, sides, backrest, frame, seat module).
2. Tighten any loose bolts with the suitable torque. Therefore refer to the service manual, available on the internet at [www.kuschall.com](http://www.kuschall.com).



#### IMPORTANT!

- Safety nuts and bolts lose their effectiveness as a result of repeated loosening and tightening.
- Safety nuts and bolts must be replaced by a specialist dealer.

### Check the spoke tension

The spokes should not be loose or distorted.

1. Loose spokes must be tightened by a specialist dealer.
2. Broken spokes must be replaced by a specialist dealer.

### Check the parking brakes

1. Check that the parking brakes are positioned correctly. The parking brake is set correctly if the parking brake shoe depresses the tire by a few millimeters when the parking brake is engaged.
2. If you find that the setting is not correct, have the parking brakes correctly set by a specialist dealer.



**! IMPORTANT!**

The parking brakes must be reset after replacing the rear wheels or changing their position.

**Checking after a heavy collision or blow****! IMPORTANT!**

The wheelchair can sustain visibly undetectable damage as a result of a heavy collision or hard blow.

- It is essential to have your wheelchair checked by a specialist dealer after a heavy collision or hard blow.

**Repairing or changing an inner tube**

1. Remove the rear wheel and release any air from the inner tube.
2. Lift one tire wall away from the rim using a bicycle tire lever. Do not use sharp objects such as a screwdriver which could damage the inner tube.
3. Pull the inner tube out of the tire.
4. Repair the inner tube using a bicycle repair kit or, if necessary, replace the tube.
5. Inflate the tube slightly until it becomes round.
6. Insert the valve into the valve hole on the rim and place the tube inside the tire (the tube should lie right round the tire with no creases).

7. Lift the tire wall over the edge of the rim. Start close to the valve and use a bicycle tire lever. When doing this, check all the way round to ensure that the inner tube is not trapped between the tire and the rim.
8. Inflate the tire to the maximum operating pressure. Check that no air is escaping from the tire.

**Spare parts**

All spare parts may be obtained from a küschall specialist dealer. A current list of spare parts is available on the internet at [www.kuschall.com](http://www.kuschall.com).

**8.3 Cleaning**

Your wheelchair will serve you well for many years if you clean it regularly.

**! IMPORTANT!**

Sand and seawater can damage the bearings and steel parts can rust if the surface is damaged.

- Only expose the wheelchair to sand and seawater for short periods and clean it after every trip to the beach.

**! IMPORTANT!**

- Do not use coarse abrasives, aggressive cleaning products or high-pressure cleaners. Never use acids, alkalines or solvents such as acetone or cellulose thinner.
- Always use ordinary household cleaning agents.

1. Clean the cushions and metal parts with a soft, damp cloth.
2. Dry the wheelchair carefully with a cloth after using it in the rain.
3. If the wheelchair is dirty, wipe off the dirt as soon as possible with a damp cloth and dry it carefully.



Regular cleaning will reveal loose or worn parts and enhance the smooth operation of your wheelchair. To operate properly and safely, your wheelchair must be cared for just like any other vehicle. For upholstery that is severely stained or surface finish that is badly damaged, contact an authorized dealer for further information.

### **Cleaning upholstery**

For cleaning upholstery refer to the instructions on the label on the seat, cushion and backrest cover.

### **Cleaning metal surfaces**

Hot water and mild detergent on soft cloth should be used to cleaning metal surfaces.

1. Wipe down with damp cloth.
2. Dry surface by wiping down with dry cloth.

Car polish and soft wax can be used to remove abrasions and restore gloss.

### **Cleaning plastic surfaces**

Plastic surfaces must be cleaned with soft cloth, mild detergent and hot water.



### **IMPORTANT!**

- Do not use solvents or kitchen cleaners to clean plastic surfaces.

1. Rinse surface with clean water.
2. Dry surface by wiping down with dry cloth.

## **8.4 Disinfection**

The wheelchair may be disinfected by spraying or wiping with tested, approved disinfectants.



The Robert Koch Institute has a list of currently approved disinfectants at [www.rki.de](http://www.rki.de).

## 9 AFTER USE

### 9.1 Storage



#### **IMPORTANT!**

- Risk of damage to the product
- Do not store the product near heat sources.
  - Never store other items on top of the wheelchair.
  - Store the wheelchair indoors in a dry environment.
  - Refer to temperature limitation in chapter *11.2 Environmental conditions, page 56.*

After long-term storage (more than four months) the wheelchair must be inspected in accordance to chapter *8 Maintenance, page 47.*

### 9.2 Re-use

The wheelchair is suitable for re-use. The following actions should be taken:

- Cleaning and disinfection, *8.3 Cleaning, page 49* and *8.4 Disinfection, page 50* in this manual.
- Inspection, *8.2 Maintenance Schedule, page 47* in this manual.
- The wheelchair should be adapted for the new user in accordance with the service documentation (available from the küschall distributor in your country).

### 9.3 Disposal information

Be environmentally aware and dispose of your wheelchair properly. Disposal is subject to national and local regulations.



For correct disposal, contact your specialist dealer or ask your town or district council about local waste management companies.

## 10 TROUBLESHOOTING

### 10.1 Safety information

Faults may arise as a result of daily use, adjustments or changing demands on the wheelchair. The table below shows how to identify and repair faults.

**CAUTION!**

- Contact your specialist dealer immediately if you notice a fault with your wheelchair, e.g. a significant change in handling.

**IMPORTANT!**

- Some of the actions listed must be carried out by an authorized specialist dealer. These are indicated. We recommend that *all* adjustments are carried out by a specialist dealer.

## 10.2 Identifying and repairing faults

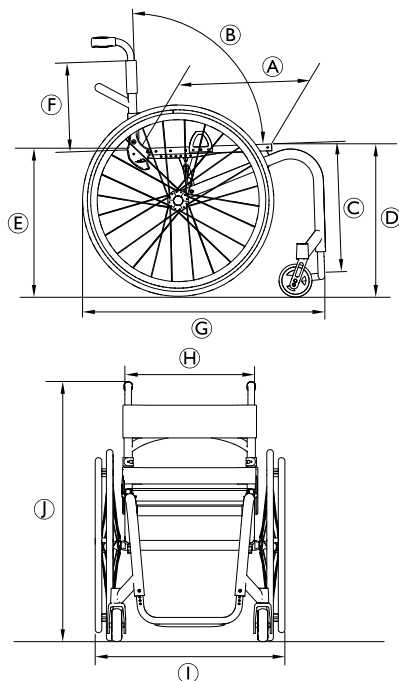
Fault	Possible cause	Action
The wheelchair does not travel in a straight line	Incorrect tire pressure on one rear wheel	Correct tire pressure, → 3.13 Tires, page 21
	One or more spokes broken	Replace faulty spoke(s), → specialist dealer
	Spokes tightened unevenly	Tighten loose spokes, → specialist dealer
	Front wheel supporter is not aligned correctly	Correct position and alignment of front wheel supporter, → specialist dealer
	Front wheel bearings are dirty or damaged	Clean or replace the bearings, → specialist dealer
	Rear wheels are off track	Change track, → specialist dealer
	Front wheels not adjusted to same height	Position the front wheels such that they touch the floor at the same time, → specialist dealer
The wheelchair tips backwards too easily	Rear wheels are mounted too far forwards	Mount the rear wheels further back, → specialist dealer
	Back angle too large	Reduce the backrest angle, → specialist dealer
Removable axles cannot be inserted correctly	Removable axles dirty	Clean removable axles
	Removable axles misaligned	Adjust removable axles, → specialist dealer
The parking brakes are gripping poorly or asymmetrically	Incorrect tire pressure in one or both rear tires	Correct tire pressure, → 3.13 Tires, page 21
	Parking brake setting incorrect	Correct the parking brake setting, → specialist dealer

<b>Fault</b>	<b>Possible cause</b>	<b>Action</b>
Rolling resistance is very high	Tire pressure in rear tires is too low Tire is punctured	Correct tire pressure or replace the tube inside the tire, → <i>3.13 Tires, page 21</i>
	Rear wheels not parallel	Ensure the rear wheels are parallel, → specialist dealer
The front wheels wobble when moving fast	Too little tension in front wheel bearing block	Tighten the nut on the bearing block axle slightly, → specialist dealer
	Front wheel has worn smooth	Change front wheel, → specialist dealer
The front wheel is stiff or stuck	Bearings are dirty or faulty	Clean or replace the bearings, → specialist dealer

## 11 TECHNICAL DATA

### 11.1 Dimensions and weight

Dimensions and weight may alter according to different configurations. All dimensions and weight specifications given below reflect the minimum/maximum possible values for the wheelchair.



Ⓐ	Seat depth	350 – 525 mm, in increments of 25 mm
Ⓑ	Backrest angle	74°/78°/82°/86°/90°
	Seat plane angle	0° – 20°
Ⓒ	Knee-to-heel length	290 – 480 mm, in increments of 10 mm
	Leg to seat surface angle	55° – 115°
Ⓓ	Seat height front	450 – 520 mm, in increments of 10 mm
Ⓔ	Seat height rear	380 – 490 mm, in increments of 10 mm
Ⓕ	Backrest height	270 – 480 mm, in increments of 15 mm
Ⓖ	Overall length	760 – 1055 mm
Ⓗ	Seat width	320 – 500 mm, in increments of 20 mm
Ⓘ	Overall width	490 – 805 mm
Ⓙ	Overall height	650 – 1200 mm
	Folded height	600 – 710 mm
	Hand rim diameter	520 – 580 mm
	Horizontal location of axle	–20 to +140 mm
	Total weight	7.8 – 21.3 kg

	Transport weight	5.1 – 11.3 kg
	Maximum user weight	130 kg
	Minimum turning radius	920 – 1230 mm
	Center of gravity	80 – 140 mm, in increments of 15 mm
	With rear wheel extension	–20 to +80 mm, in increments of 25 mm
	Maximum slope angle brake	7°
	Static stability downhill	20°
	Static stability uphill	7°
	Static stability sideways	20°

## 11.2 Environmental conditions

Do not expose the wheelchair to temperatures below -20 °C or above 40 °C.

## 11.3 Materials

The components used to manufacture küschall wheelchairs consist of following materials:

Frame tubes	Aluminum / Titanium / Carbon Fiber
Backrest tubes	Aluminum / Titanium
Axle tube	Aluminum / Carbon Fiber
Seat cover / Backrest cover	PA / PE / PVC
Push handle	Steel / Aluminum / TPE
Clothes guard / Mudguard	Carbon Fiber or Plastic
Front wheel forks	Aluminum
Footrest tube	Aluminum / Titanium
Footplate	Carbon Fiber
Supporting parts / Attachments	Steel / Aluminum
Screws and bolts	Steel

All components have either a protective coating or are corrosion resistant.





## Küschall distributors:

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