Ventus

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1 Foreword

INFORMATION
Date of the last update: 2012-05-14
► Please read this document carefully.
► Follow the safety instructions.

INFORMATION
Missing instructions for use can be downloaded from the homepage at www.ottobock.com or ordered directly from the manufacturer’s service (see back cover or inside back cover for addresses).

Initial adjustments to the wheelchair were made according to the order form. Nevertheless, fine adjustment may be required and settings may have to be made according to the medical conditions or the user’s requirements. These instructions for use provide the information necessary for adjusting the settings. This work should be closely coordinated with the user.

Please note the following:
• The instructions for use (qualified personnel) are intended only for qualified personnel and remain with them.
• Operation of the wheelchair and options is described in the instructions for use (user). These instructions for use must be given to the user.
• Children and youths must be instructed in the use of the product by you or an attendant using the instructions for use (user).
• The manufacturer recommends checking the wheelchair settings regularly in order to assure an optimum fit over the long term. A review is required every six months for children and youths in particular.
• The installation and retrofitting of all optional components are generally described in the service manual.

2 Application

2.1 Intended Use
The manual wheelchair for active use is designed solely for individual use by persons who are unable to walk or who have a walking impediment and can be operated either by the patient or by another person.
The manual wheelchair for active use may only be combined with the options listed in these instructions for use.
Ottobock assumes no liability for combinations with medical devices and/or accessories from other manufacturers outside of the modular system.

2.2 Indications
The broad range of equipment options and the modular design allow the wheelchair to be used by people who are unable to walk or have a walking impediment, for example due to:
• Paralysis (paraplegia, tetraplegia)
• Loss of limbs (leg amputation)
• Defects or deformation of the limbs
• Joint contractures or damage
• Neurological and muscular diseases
• Disorders such as cardiac or circulatory insufficiency, equilibrium disturbances or cachexia as well as geriatric patients who still have usable residual strength in the upper limbs.
The wheelchair was designed in particular for individuals who are generally able to move around actively and freely in the wheelchair.

2.3 Contraindications
In view of the wide variety of setting options (e.g. active/passive settings), this wheelchair type is suitable for all user groups.
In certain versions and with certain settings, however, the wheelchair tends to tip backwards due to its design. This is an intentional feature designed to enable users with the corresponding physical prerequisites to manoeuvre quickly and nimbly. Users lacking the necessary physical or psychological prerequisites must not be supplied with such versions/settings.
Due to its dimensions, this wheelchair type should not be used for small children.
2.4 Necessary qualifications
The installation and adjustments described below may only be carried out by qualified personnel.

3 Safety

3.1 Explanation of Warning Symbols

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WARNING</td>
<td>Warnings regarding possible risks of severe accident or injury.</td>
</tr>
<tr>
<td>CAUTION</td>
<td>Warnings regarding possible risks of accident or injury.</td>
</tr>
<tr>
<td>NOTICE</td>
<td>Warnings regarding possible technical damage.</td>
</tr>
</tbody>
</table>

3.2 General safety instructions

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>WARNING</td>
<td>Lack of instruction</td>
</tr>
<tr>
<td></td>
<td>Risk of falling, tipping over due to lack of knowledge</td>
</tr>
<tr>
<td></td>
<td>► Instruct the user or the attendant in the proper use of the product when handing it over.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUTION</td>
<td>Use of unsuitable tools</td>
</tr>
<tr>
<td></td>
<td>Pinching, crushing or damaging the product</td>
</tr>
<tr>
<td></td>
<td>► When working, use only tools that are suitable for the conditions at the workplace and whose proper use ensures safety and health protection.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTICE</td>
<td>Tipping or falling of the product</td>
</tr>
<tr>
<td></td>
<td>Damage to the product</td>
</tr>
<tr>
<td></td>
<td>► When you work on the product, secure it so that it cannot tip over or fall over.</td>
</tr>
<tr>
<td></td>
<td>► Use a clamping device to secure the product for all work at a workbench.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>NOTICE</td>
<td>Use of unsuitable packaging</td>
</tr>
<tr>
<td></td>
<td>Damage caused by transport in the wrong packaging</td>
</tr>
<tr>
<td></td>
<td>► Use only the original packaging for delivery of the product.</td>
</tr>
</tbody>
</table>

3.3 Safety instructions for assembly

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUTION</td>
<td>Incorrect fitting of the rear wheels</td>
</tr>
<tr>
<td></td>
<td>Risk of falling or tipping due to wheels coming loose</td>
</tr>
<tr>
<td></td>
<td>► After every assembly, check the proper mounting of the rear wheels. The wheel axles must be securely locked in the fitting.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAUTION</td>
<td>Modified diameters/mounting positions of the wheels</td>
</tr>
<tr>
<td></td>
<td>Risk of falling of tipping of the user due to locking wheels</td>
</tr>
<tr>
<td></td>
<td>► Modification of the size and position of the front wheels and of the rear wheel size can lead to wobbling of the front wheels at higher speeds. If modification is necessary, ensure proper horizontal alignment of the wheelchair frame (see chapter &quot;Adjustment of the rear wheel&quot;, &quot;Adjustment of the front wheel&quot;).</td>
</tr>
</tbody>
</table>
CAUTION
Incorrect fitting of anti-tipper / missing anti-tipper
Risk of tipping of the user to the rear
► Verify that the anti-tipper is installed and set properly.
► Depending upon the settings of the chassis, the centre of gravity of the wheelchair and the back angle and on the experience of the user, the use of an anti-tipper may be necessary.
► For a small wheelbase and a backrest that is tilted far back, an anti-tipper may need to be installed on both sides, depending upon the user’s experience.

3.4 Rating Plate

<table>
<thead>
<tr>
<th>Label</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Type designation</td>
</tr>
<tr>
<td>B</td>
<td>Manufacturer’s article number</td>
</tr>
<tr>
<td>C</td>
<td>Maximum load capacity (see section “Technical Data”)</td>
</tr>
<tr>
<td>D</td>
<td>Manufacturer information, address, country of origin</td>
</tr>
<tr>
<td>E</td>
<td>Serial number/manufacturing date</td>
</tr>
<tr>
<td>F</td>
<td>European Article Number/Global Trade Item Number</td>
</tr>
<tr>
<td>G</td>
<td>Read the instructions for use before using the product.</td>
</tr>
<tr>
<td>H</td>
<td>The product has not been approved by the manufacturer for use as a seat in a wheelchair accessible vehicle</td>
</tr>
<tr>
<td>I</td>
<td>CE marking – product safety according to EU guidelines</td>
</tr>
</tbody>
</table>

The rating plate can be found on the rigid axle.

See the instructions for use (user) for additional warning labels

4 Delivery

4.1 Scope of Delivery
The wheelchair is delivered preassembled and with the rear wheels removed packed in a crate.
The scope of delivery includes:
• Preassembled wheelchair
• 2 rear wheels
• Options according to the order
• Instructions for use (qualified personnel), instructions for use (user)

INFORMATION
Only provide the instructions for use (user) to the user.

Seat cushions are not included and must be ordered separately.

4.2 Options
The functionality and operation of the options are described in more detail in the instructions for use (user).
All of the available options/accessories are listed on the order form.

4.3 Storage
The wheelchair must be stored dry.
The ambient temperature must be maintained between -10°C and +40°C during transportation and storage.
Wheelchairs with PU tyres should not be stored for prolonged periods with the knee-lever brake applied as the tyres could be deformed.

INFORMATION
Tyres contain chemical substances that can react with other chemical substances (such as cleaning agents, acids, etc.).
5 Preparation for Use

5.1 Tools required
The following tools are required to make fine adjustments / settings:
• Hex keys in sizes 3 – 5 mm
• Ring and open-ended wrenches in sizes 10, 13, 19, 24 and 27
• Socket wrenches in sizes 10, 13 and 19
• Phillips screwdriver, size 2
• Flat screwdriver, size 3
• Torque wrench (measurement range 5 – 50 Nm)

5.2 Assembly

CAUTION
Exposed pinch points
Risk of crushing or pinching the fingers due to incorrect handling
► When folding out the backrest, only grip by the specified components.

CAUTION
Incorrect fitting of the rear wheels
Risk of falling or tipping due to wheels coming loose
► After every assembly, check the proper mounting of the rear wheels. The wheel axles must be securely locked in the fitting.

INFORMATION
For details of weights of the individual parts, see section “Technical Data”.

1) Push the rear wheels into the wheel brackets. The quick-release axles must not be able to be removed after the pushbutton has been released.
2) If necessary, position the backrest upright and allow the latch to engage.
3) Rotate the side panels into position and insert them into the supports.
4) If necessary, insert the calf strap.
5) Place the cushion on to the seat.

6 Adjustments

6.1 Prerequisites

WARNING
Incorrect settings
Risk of falling, tipping over or improper user posture due to incorrect settings
► Adjustments may be carried out only by qualified personnel.
► Only the settings described in these instructions for use may be carried out.
► Settings may only be changed within the allowable adjustment ranges; otherwise, the stability of the product may be impaired (see this chapter and the chapter “Appendixes”). If you have questions, contact the manufacturer’s service (see back cover for addresses).
► Only conduct tests in the presence of an assistant.
► Unless expressly described, you should not change any settings with a person sitting in the product.
► Secure the user against falling out during all tests.
► Before testing setting changes with the user seated, firmly tighten all screw connections.
► Check for safe function before handing over the product.
Adjustments

**Unsecured screw connections**
Risk of pinching, crushing, tipping over, falling of user

- After all adjusting/readjusting work, retighten the mounting screws/nuts firmly. Observe any torque settings which may be specified.
- Any time you loosen a screw connection with thread lock, replace it with a new screw connection or secure the old screw connection with medium strength thread locker (e.g. Loctite 241).

**Improper use of self-locking nuts**
Risk of the user falling or tipping over

- Always replace self-locking nuts with new self-locking nuts after disassembly.

Fine adjustments and setting changes to match the concrete physical and mental condition of the user should always be made in the user’s presence.

All parts of the product should be cleaned thoroughly before adjustments are made.

**6.2 Adjustment of the rear wheel**

**Lack of fine adjustment of the rear wheel**
Risk of falling or tipping of the user

- Check the standard adjustments of the wheelchair for stability against tipping and function of the rear wheels.
- Avoid any extreme settings.

**Incorrectly adjusted wheelbase**
Risk of falling or tipping of the user

- Please note that with the rear wheel in the front position and with an unfavourable body position, the user may tip backwards even on level ground.
- Use an anti-tipper for inexperienced users and with extreme settings of the rear wheel.
- Be sure to position the rear wheels towards the rear for transfemoral amputees. That improves the stability of the wheelchair.

**INFORMATION**
Changing the rear wheel position can also change the angle between the front stub axle and the ground. Ensure that this angle is always approx. 90°. The knee lever brake must also be re-adjusted.

**6.2.1 Adjusting the horizontal rear wheel position**
The horizontal rear wheel position is changed by moving of the slider on the frame horizontally. This has the following effects:

<table>
<thead>
<tr>
<th>Position of rear wheel</th>
<th>Effects</th>
</tr>
</thead>
</table>
| Move to rear           | • Larger wheelbase  
                         | • Larger turning circle  
                         | • Greater stability of the wheelchair  
                         | • Wheelchair is harder to tip backwards when crossing obstacles  
                         | • Position recommended for inexperienced users |
| Move forwards          | • Smaller wheelbase  
                         | • Less load on castor wheels = greater manoeuvrability  
                         | • Less stability of the wheelchair  
                         | • Wheelchair is easier to tip backwards when crossing obstacles  
                         | **NOTE: An anti-tipper can be installed if necessary.**  
                         | • Position recommended only for experienced users |
Adjustments

6.2.1.1 Moving the sliders on the frame
The sliders can be moved continuously in a horizontal direction along the frame tube. To facilitate adjustment the frame has a grid with 9 positions (see Fig. 61).
1) Remove the wheels.
2) Place the wheelchair upside down.
3) Loosen the 2 x 2 socket head screws on the sliders under the seat bottom (see Fig. 1, item 1).
4) Move the sliders with the axle unit to the desired position (see Fig. 1, item 2):
   → Use the grid as a rough guide (see Fig. 2, item 1).
   → For a more accurate guide, measure the distance between the end of the tube and the outer edge of the slider (see Fig. 2, item 2).
5) Ensure that the depth setting is the same. Once changed, the left and right sliders must both have exactly the same horizontal position on the frame.
6) Tighten the socket head screws to 10 Nm (see Fig. 1, item 1).

INFORMATION
Following adjustment the track of the rear wheel, the castor journal angle and the knee lever wheel lock must be checked and, if necessary, readjusted (refer to the corresponding section).

6.2.2 Adjusting the seat height and seat angle
The seat height and seat angle are changed through moving of the real wheel vertically in the slider (axle retainer). This has the following effects:

<table>
<thead>
<tr>
<th>Position of rear wheel</th>
<th>Effects</th>
</tr>
</thead>
</table>
| Move upwards           | • The higher the rear wheel position, the more the seat surface is tilted to the rear  
                         • The wheelchair is easier to tip backwards when crossing obstacles  
                         • The change in the centre of gravity results in a lower / more stable seat position in the wheelchair  
                         • The seat height can be further adjusted in combination with a height adjustment of the castor wheels. |
| Move downwards          | • The lower the rear wheel position, the less the seat surface is tilted to the rear  
                         • Wheelchair is harder to tip backwards when crossing obstacles  
                         • The seat height can be further adjusted in combination with a height adjustment of the castor wheels. |

6.2.2.1 Adjusting the height of the rear wheels
The rear wheels can be moved vertically with the "long" slider in 15 height positions (see Fig. 61) and with the "medium" slider in 10 height positions (not pictured).
1) Remove the wheels.
2) Place the wheelchair upside down.
3) Loosen and remove the 2 x socket head screws on each clamping flange on the slider (see Fig. 3, item 1; figure with accessory mount).
4) Move the axle unit to the desired position on the slider (see Fig. 4; item 2). Ensure the height settings are the same.
5) Tighten the socket head screws to **10 Nm** (see Fig. 3, item 1).
   → Once changed, the clamping flanges on the left and right must both have the same vertical position on the slider.

**INFORMATION**
Following adjustment the track of the rear wheel, the castor journal angle and the knee lever wheel lock must be checked and, if necessary, readjusted (refer to the corresponding section).

### 6.2.3 Adjusting the track width (additional adjustment)

1) Remove the wheels.
2) Place the wheelchair upside down.
3) Loosen the clamping screw on the clamping flange (see Fig. 5, item 1).
   **NOTE:** The adjustment must be made on one side first and then on the other.
   **NOTE:** The track width must be adjusted symmetrically on both sides.
4) Insert the rear wheel’s quick-release axle into the camber module to aid removal (see Fig. 6, item 1).
5) Move the camber module (see Fig. 6, item 2) to the desired position outwards with the aid of the quick-release axle or inwards with the help of a soft-faced hammer.
   → Do not pull the camber module out too far. During installation the whole camber module must be fully enclosed by the clamp bracket.
   → Check the position by measuring it afterwards (see Fig. 7).
6) Clamp the camber module lightly using the clamping screw on the clamping flange.
7) Adjust the track width in the same fashion on the other clamping flange. Make sure that both camber modules have been adjusted symmetrically.
8) Attach the wheels.
9) Make the track adjustments (see Page 13).
10) Tighten the clamping screws to **10 Nm** (see Fig. 5, item 1).
6.2.4 Adjusting the rear wheel camber

The rear wheel camber is adjusted by exchanging of the camber modules. This has the following effects:

<table>
<thead>
<tr>
<th>Position of rear wheel</th>
<th>Effects</th>
</tr>
</thead>
</table>
| Wheel camber 3°/6°/9°   | • Wheelchair becomes more manoeuvrable, turns faster and tips less easily to the side  
          | • Overall width increases                                     
          | • Increased rolling resistance                                |
| 0° position             | • Narrow track, excellent straight-line stability             
          | • Low rolling resistance                                      |

6.2.4.1 Adjusting the 3°/6°/9° rear wheel camber

The modular system of the product offers camber adapters for different sloped settings of the rear wheels (3°, 6° and 9°; see Fig. 8).

1) Remove the wheels.
2) Place the wheelchair upside down.
3) Loosen the clamping screw on the clamping flange (see Fig. 5, item 1).

**NOTE:** The exchange can be made on one side first and then on the other or simultaneously.

**NOTE:** The track width must be adjusted symmetrically on both sides.

4) Insert the rear wheel’s quick-release axle into the camber module to aid removal (see Fig. 9, item 1).
5) Pull out the camber module (see Fig. 9, item 2) with the aid of the quick-release axle.
6) Replace and install the camber module.
   → Set the track width so that the slanted rear wheels can run freely (see Page 11).
   → During installation the whole camber module must be fully enclosed by the clamp bracket.
   → Check the position by measuring it afterwards (see Fig. 7).
7) Clamp the camber module lightly using the clamping screw on the clamping flange.
8) Replace the camber module on the other side in the same fashion. Make sure that both camber modules have been adjusted symmetrically.
9) Attach the wheels.
10) Make the track adjustments (see Page 13).
11) Tighten the clamping screws to **10 Nm** (see Fig. 5, item 1).
6.2.5 Adjusting the track

INFORMATION

- The track must be adjusted after the following adjustments have been made:
  → Adjusting the track width: see Page 11
  → Adjusting the rear wheel camber: see Page 12

- The track setting must be checked and, if necessary, adjusted after the following adjustments have been made:
  → Adjusting the horizontal position of the rear wheel: see Page 10
  → Adjusting the height of the rear wheel: see Page 10

INFORMATION

- When adjusting the rear wheel track, always check the symmetry of the track width setting. To do this, measure the distance between the outer side of the camber module and the outer side of the clamping flange on both sides (see Fig. 7).
- The castor journal angle should be checked immediately after every adjustment to the track (see Page 15 ff.).

> The clamping screws on the clamping flanges must be loosened until the camber module and the rear wheel axle are only slightly clamped (see Page 11).

1) Place the wheelchair on an even surface. Avoid twisting the axle when doing this.
2) Pull the rear wheel out slightly in order to make room for the installation.
3) Place the spirit level on the camber module (see Fig. 10).
4) Carefully twist the camber module until the spirit level is centred (not pictured). If necessary, after changing the wheel camber, for example, twist the rear wheel axle carefully as well until the spirit level is centred (see Fig. 11).
5) Tighten the clamping screws on the clamping flanges to **10 Nm** (see Fig. 5, item 1).

6.2.6 Adjustments in the case of a wheelbase extension

The manufacturer offers a wheelbase extension for this product. This allows the use of the wheelchair with an adaptable handbike (wheelchair with double axle: see Fig. 12) or a particularly passive setting for the wheelchair.
Adjustments

(see Fig. 13, item 1). Depending upon the order, the wheelbase extension may already be installed when delivered.

All adjustments with the wheelbase extension installed are made in the same way as the adjustments without wheelbase extension:

- Adjusting the horizontal position of the rear wheel: see Page 10
- Adjusting the rear wheel height: see Page 10
  Special requirement: During adjustment of the rear wheel height 4 socket head screws must be loosened and moved on each slider (see Fig. 14, item 1).
- Adjusting the track width: see Page 11
  Special requirement: During adjustment of the track width, the clamps for the wheelbase extension must be loosened (see Fig. 14, item 2).
- Adjusting the rear wheel camber: see Page 12
  Special requirement: During exchange of the camber modules, the clamps for the wheelbase extension must be loosened (see Fig. 14, item 2).

NOTE: For a wheelbase extension with a double axle, only certain camber modules can be combined:

- Front axle camber modules / Rear axle camber modules: 0°/3° or 6°/9°.
- If 9° camber modules are installed on the front axle, no camber modules can be used on the rear axle.

- Adjusting the knee lever wheel lock: see Page 17
  Special requirement: For extreme settings, the wheelbase extension must be used in combination with an "Upgrade" knee lever wheel lock (see Fig. 13, item 2).

If necessary, the wheel lock holder must be moved behind the locking mechanism for the side panel supports.

CAUTION: Risk of falling, tipping over. If the wheelbase extension is used in combination with a double axle, there is no braking function available when the rear wheels are moved to the rear axle (e.g. before adaptation to a handbike).

Wheelbase extension and clothing protector

If a wheelbase extension is installed, the side panels can be folded when the user is getting into the wheelchair as follows:

- The "Standard" side panel can be folded towards the rear (see Fig. 15).
- The "Clothing protector" side panel can be swung back (see Fig. 16) and folded down (see Fig. 17).

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Retrofitting
Use the 647G629 service manual if the retrofitting of a wheelbase extension becomes necessary in the course of an initial fitting.

6.3 Adjustment of the front wheel

6.3.1 Adjusting the castor journal angle  "Standard" castor fork
When the rear wheels have been adjusted for the user, the castor journal angle must be adjusted at the castor wheel adapter.

The threaded axle in both castor wheel adapters should be perpendicular to the ground to ensure optimum rolling behaviour of the wheelchair. The castor wheel adapters permit continuous adjustment of this angle.

1) Lift off the plastic cover on the inner side of the frame (see Fig. 18).
2) Slightly loosen the socket head screws on the inner side of the frame (see Fig. 19, item 1/2). If necessary, loosen and move the front screw (see Fig. 19, item 1).
3) Remove the protective cap (see Fig. 20, item 1).
4) Slightly loosen the socket head screw on the eccentric (see Fig. 20, item 2).
5) Position the spirit level (see Fig. 20, item 3).
6) Adjust the castor axle with a large flat screwdriver until it is vertical. The bubble in the spirit level must be in the centre position (see Fig. 21).
7) Tighten the socket head screw on the eccentric to 10 Nm (see Fig. 20, item 2).
8) Tighten the socket head screws on the inner side of the frame to 23 Nm (see Fig. 19, item 1/2).
9) Place the protective cap (see Fig. 20, item 1) and the plastic cover on the inner side of the frame (see Fig. 18).
→ The castor axle on each of the two castor wheel adapters must be positioned vertically.
6.3.2 Adjusting the castor journal angle  "Design"/"Froglegs" castor fork

**INFORMATION**
Proceed in the same way as in the previous section.
The adjustments for the "Design" castor fork (see Fig. 63) and the "Froglegs" castor fork (see Fig. 64) are made in the same fashion.

1) Lift off the plastic cover on the inner side of the frame (not pictured).
2) Slightly loosen the socket head screws on the inner side of the frame (not pictured).
3) Remove the cover of the eccentric (not pictured) and the cap above the castor axle (see Fig. 22, item 1).
4) Slightly loosen the socket head screw on the eccentric (see Fig. 22, item 2).
5) Slightly loosen the socket head screws on the inner side of the frame (not pictured).
6) Position the spirit level (see Fig. 23, item 1).
7) Adjust the castor axle with a large flat screwdriver until it is vertical. The bubble in the spirit level must be in the centre position (see Fig. 23, item 2).
8) Tighten the socket head screw on the eccentric to 8 Nm (see Fig. 22, item 2).
9) Tighten the socket head screws on the inner side of the frame to 23 Nm (not pictured).
10) Replace all covers (not pictured).

→ The castor axle on each of the two castor wheel adapters must be positioned vertically.

6.3.3 Adjusting the castor wheel

**INFORMATION**
Observe the seat height table in the "Technical Data".
The anterior seat height is adjusted via the row of holes in the fork and via the castor wheel diameter.
1) Unscrew the screw on the threaded axle (see Fig. 24, item 1).
2) Remove the threaded axle / spacers.
3) Remove the castor wheel.
4) Insert the threaded axle with the 1st spacer bush offset in one of the 4 holes (see Fig. 24, item 2).
5) Install the castor wheel.

6) Slide on the 2nd spacer bush (not pictured).

7) Insert the screw in the threaded axle and tighten to **8 Nm**.

   → Once changed, the left and right castor wheels must both have the same vertical position in the castor wheel fork.

   → Once the anterior seat height has been adjusted, the rear wheel tracking (see Page 13) and the castor journal angle (see Page 15) must be checked and, if necessary, readjusted.

---

**6.4 Adjustment of the brake**

**6.4.1 Adjusting the knee lever wheel lock**

![Image of knee lever wheel lock](image_url)

**CAUTION**

*Insufficient braking action of the knee lever wheel lock*

Risk of accidents, falling

- Check the air pressure of the rear wheels and the correct setting of the knee lever wheel lock. The correct tyre pressure is printed on the casing. For rear wheels, the minimum air pressure is **7 bar**.

- Use only original rear wheels with an approved radial excursion of **1 mm** maximum.

The adjustment is necessary after changing the position of the rear wheel or during fine adjustment.

The following brake types are adjusted in the same way: "Standard" knee lever wheel lock, "Upgrade" knee lever wheel lock, scissor wheel lock.

1) Loosen the socket head screws in the clamp bracket on the underside of the frame (see Fig. 25, item 1).

2) Adjust/move the support for the knee lever wheel lock (see Fig. 25, item 2) to any position in the clamp bracket (see Fig. 25, item 3).

   When the wheel lock is disengaged, the gap between the tyre and wheel lock bolt must not exceed **5 mm** (see Fig. 26).

   **INFORMATION:** For special requirements when adjusting the scissor wheel lock, see the section "Special requirements when adjusting the scissor wheel lock".

3) Tighten the socket head screws to **10 Nm**.

   → After adjustment, the left and right knee lever wheel locks must both have the same braking force.
Special requirements for adjustments (all types of wheel locks)
Depending upon the adjustment, it may be necessary to rotate or replace the support for the wheel lock. This makes further wheel lock adjustments possible.
1) Loosen the socket head screws between the wheel lock and the support (example: scissor wheel lock: see Fig. 27, see Fig. 28, item 1).
2) Rotate and reposition the support as necessary (example: scissor wheel lock: see Fig. 27, see Fig. 28, item 2).
3) Retighten the socket head screws between the wheel lock and the support.

Special requirements for adjustments to the scissor wheel lock
• Install the scissor wheel lock such that it can be guaranteed that the swivelling parts can move freely without colliding (see Fig. 29 and see Fig. 30, item 1).
• The scissor wheel lock should not hit the frame when it is open.
• For information on using the scissor wheel lock, see the instructions for use (user), reference number 647G828.
6.5 Adjustment of the backrest

6.5.1 Adjusting the backrest height
The backrest height does not need to be adjusted during the initial fitting.
Back tubes must be retrofitted if the backrest height is to be adjusted. To install these, see the 647G629 service manual.

6.5.2 Adjusting the back angle

**CAUTION**

Insufficient tipping protection
Risk of the user tipping backwards due to missing anti-tipper
- For a small wheelbase and a backrest that is tilted far back, an anti-tipper may need to be installed on both sides, depending upon the user’s experience.

The backrest angle can be adapted to the user’s requirements e.g. after the wheelbase has been adjusted. The angle can be adjusted between 65° - 105°.

Preliminary adjustment (20° steps)
1) Using the cable, pull out the locking bolts from the locking points (see Fig. 31, item 1).
2) Push the plug out of the desired locking point on each side (see Fig. 31, item 2).
3) Rotate the counter nuts against the head of the set screw (see Fig. 31, item 3).
4) Screw in the set screws by hand (see Fig. 31, item 4).
5) Pull the backrest rearwards until the locking bolts lock into the desired locking points.
6) Unscrew each set screw until the screw head hits against the hook and loop patch (see Fig. 31, item 5).
7) Retighten the counter nuts (see Fig. 31, item 3). Use an open-end wrench to hold the head of the set screw still (see Fig. 31, item 4).
8) Insert the plugs into the locking points that are no longer used (see Fig. 31, item 2).

Fine adjustment (10° steps)
1) Remove the upper mounting screw on both sides (see Fig. 32, item 1).
2) Slightly loosen the lower mounting screw on both sides (see Fig. 32, item 2).
3) Rotate the counter nuts against the heads of the set screws (see Fig. 31, item 3).
4) Screw in the set screws by hand (see Fig. 31, item 4).
5) Adjust the back plate on both sides. Two settings are available (see Fig. 32, item 3).
6) Reattach the mounting screws and tighten them (see Fig. 32, item 1/2).
7) Unscrew each set screw until the screw head hits against the hook and loop patch (see Fig. 31, item 5).
8) Retighten the counter nuts (see Fig. 31, item 3). Use an open-end wrench to hold the head of the set screw still (see Fig. 31, item 4).

6.5.3 Adjusting the push handles
The "Standard" push handle (see Fig. 33) and the "Folding" push handle (not pictured) cannot be adjusted in height.
The "Height-adjustable" push handle (see Fig. 34) can have its height adjusted in order to make pushing easier for the attendant.
Adjustments

1) Release the clamping lever.
2) Adjust the height of the push handle.
3) Lock the clamping lever securely.

INFORMATION: Both push handles must be adjusted to the same height.

6.6 Adjusting the back/seat upholstery

6.6.1 Adjusting the back upholstery

INFORMATION
A well-adjusted backrest provides lasting comfort for the wheelchair user and reduces the risk of secondary damage and pressure zones. Do not create too much pressure.

INFORMATION
Ensure that the user’s pelvis is positioned as far back in the wheelchair as possible, i.e. between the backrest tubes.

The backrest upholstery (adjustable) can be adjusted in segments to the needs of the user.

1) Remove the seat cushion.
2) Fold the seat pad forwards away from the hook and loop fastener (see Fig. 35, item 1).
3) Pull the flap of the backrest pad off the hook and loop fastener (see Fig. 35, item 2) and let it hang down.
4) Remove the backrest pad.
5) Loosen the backrest straps and then fasten together with the desired tension (see Fig. 36).
6) Fit the backrest padding and secure it with the hook and loop fastener to the back and seat upholstery:
   → Place the kink in the backrest pad at the top. The "V" in the pad (see Fig. 37, item 1) shows exactly where the kink is.
   → Pull the backrest pad flap tightly downwards (see Fig. 38).
   → Pull the part of the flap that can be fastened forwards and fasten tightly to the seat upholstery (see Fig. 35, item 2).

INFORMATION: The part of the flap that can be fastened prevents sliding and protects against draughts.

7) Fasten the seat pad (see Fig. 35, item 1) and the seat cushion.
6.6.2 Adjusting the seat upholstery

**INFORMATION**
You can slightly correct the centre of gravity by making small changes to the sag of the seat upholstery. Larger corrections, however, need to be made through adjustment of the frame, slider and castor wheels.

"Standard" seat upholstery
This seat upholstery does not need to be adjusted during the initial fitting. If the upholstery sags significantly after longer periods of use, it must be exchanged. To exchange these, see the 647G629 service manual.

"Adaptable" seat upholstery
This seat upholstery can be adjusted in segments to the needs of the user.
1) Remove the seat cushion.
2) Pull the seat pad off the hook and loop fastener (see Fig. 39).
3) Pull the flap of the backrest pad off the hook and loop fastener (see Fig. 35, item 2) and let it hang down.
4) Loosen the backrest straps and then fasten together with the desired tension (see Fig. 40).
5) Secure the backrest padding to the seat upholstery with the hook and loop fastener. To do this, pull the part of the flap that can be fastened forwards and fasten to the seat upholstery (see Fig. 35, item 2).

**INFORMATION:** The part of the flap that can be fastened prevents sliding and protects against draughts.
6) Fasten the seat pad (see Fig. 35, item 1) and the seat cushion.
6.7 Adjusting the footrest

6.7.1 Adjusting the lower leg length
The required footrest height depends on the lower leg length of the user and the thickness of the seat cushion.

"Angle-adjustable" footrest and "Fixed" footplate
1) Slightly loosen the four clamping screws on the inner side of the castor attachment device (see Fig. 41, item 1).
2) Adjust the lower leg length (continuously adjustable). The foot stirrups must be slid at least 60 mm into the frame tube.
3) Tighten the clamping screws to 7 Nm.

Footrest for short lower leg lengths adjusting the height
1) Loosen the lower mounting screws on both sides (see Fig. 42, item 1).
2) Remove the footplate unit (see Fig. 42, item 2).
3) Loosen the upper mounting screws on both sides (see Fig. 42, item 3).
4) Move the footplate in the perforated plate to the desired height position (see Fig. 42, item 4).
5) Tighten the upper mounting screws (with washers) to 7 Nm (see Fig. 42, item 3).
6) Insert the footplate unit.
7) Tighten the lower mounting screws to 5 Nm (see Fig. 42, item 1).

Footrest for short lower leg lengths adjusting the horizontal position
1) Loosen the lower mounting screws on both sides (see Fig. 42, item 1).
2) Select the right holes on the adjustment circle for the desired positioning (see Fig. 42, item 5).
3) Tighten the lower mounting screws to 5 Nm (see Fig. 42, item 1).

NOTE: After every adjustment to the horizontal position, the angle of the plate must be adapted.

6.7.2 Adjusting the plate angle
The footrest setting should be chosen so that the ankle is in a relaxed, comfortable position.
"Angle-adjustable" footrest
1) Loosen the socket head screws on the clamp bracket (see Fig. 43, item 1).
2) Rotate the footplate to the desired angle (see Fig. 43, item 2).
3) Tighten the socket head screws to **10 Nm**.

Footrest for short lower leg lengths
1) Loosen the socket head screws on the clamp bracket (see Fig. 42, item 6).
2) Rotate the footplate to the desired angle (see Fig. 42, item 7).
3) Tighten the socket head screws to **10 Nm**.

"Fixed" footplate
The angle of the plate cannot be changed (see Fig. 44).

6.7.3 Installing / adjusting the heel block
The heel block can be installed using the pre-drilled holes on the footplate.
1) Install the heel block using the socket head screws on the underside of the footplate (see Fig. 45, item 1).
2) Before tightening, slide the heel block in the slot to the desired foot width (see Fig. 46).
3) Tighten the socket head screws.

6.8 Adjustment of the side panels
6.8.1 Adjusting the "Height-adjustable" armrest

**Adjusting the height**
1) Press in the release button on the inner side of the side panel (see Fig. 47, item 1).
2) Push the armrest to the desired position (see Fig. 47, item 2).
3) Let go of the release button.
   → The armrest locks into place automatically.
Adjustments

Adjusting the depth of the armrest
1) Loosen the mounting screws (see Fig. 48, item 1).
2) Remove the armrest and move it (see Fig. 48, item 2).
3) Screw in the armrests again.

![Image of armrest adjustment](image)

6.8.2 Adjusting the "Padded" armrest
1) Loosen the mounting screw on the locking point (see Fig. 50, item 1).
2) Slide the armrest to the desired position (see Fig. 50, item 2).
3) Tighten the mounting screw.

![Image of padded armrest adjustment](image)

6.8.3 Adjusting the "Standard" and "Clothing protector" side panels
It is not possible to make an adjustment. If a large change to the positions or sizes of the rear wheels has been made, the side panels must be exchanged.
1) Loosen the socket head screw on the support bracket (see Fig. 51 and see Fig. 52, item 1).
2) Remove and replace the side panel.
3) Tighten the socket head screw on the support bracket.

![Image of side panel adjustment](image)
6.9 Installing / adjusting the anti-tipper and tip-assist

**CAUTION**
Incorrect fitting of anti-tipper / missing anti-tipper
Risk of tipping of the user to the rear
- Verify that the anti-tipper is installed and set properly.
- Depending upon the settings of the chassis, the centre of gravity of the wheelchair and the back angle and on the experience of the user, the use of an anti-tipper may be necessary.
- For a small wheelbase and a backrest that is tilted far back, an anti-tipper may need to be installed on both sides, depending upon the user’s experience.

6.9.1 Installing the accessory mount
The manufacturer offers an accessory mount for this product. This enables the installation of the anti-tipper and the tip-assist.
Depending upon the order, the accessory mount (see Fig. 57) may be installed when delivered.
It may be necessary to retrofit the accessory mount in the course of an initial fitting. To install this, see the 647G629 service manual.

6.9.2 Installing the anti-tipper
Depending upon the order, the anti-tipper (see Fig. 53) may already be installed when delivered.
It may be necessary to retrofit or adjust the anti-tipper in the course of an initial fitting. To install and adjust this, see the 647G629 service manual.

6.9.3 Adjusting the Anti-Tipper

**INFORMATION**
In order to adjust the anti-tipper correctly, it may be necessary to combine the steps to adjust the length and angle.

**Adjusting the length of the pivot arm**
1) Remove the socket head screw on the pivot arm (see Fig. 54, item 1).
2) Adjust the length of the pivot arm.
3) Bolt down the pivot arm. The rocker’s outer arm should protrude beyond the largest diameter of the tyre (see Fig. 53).

**Adjusting the angle of the pivot arm option 1**
1) Remove the socket head screw between the anti-tipper tube and the angle adjuster (see Fig. 55, item 1).
2) Loosen the 2nd socket head screw on the angle adjuster (see Fig. 55, item 2).
3) Set the angle of the pivot arm.
4) Bolt down the pivot arm. The distance between the anti-tipper rollers and the ground must be approx. 5 cm (see Fig. 53).
Adjustments

Adjusting the angle of the accessory mount  option 2
1) Remove the 3 socket head screws between the accessory mount and the clamping flange (see Fig. 56, item 1).
2) Set the angle of the accessory mount (3 settings at intervals of 10°: see Fig. 57).
3) Tighten the accessory mount to **10 Nm**. The distance between the anti-tipper rollers and the ground must be approx. **5 cm** (see Fig. 53).

6.9.4 Installing / adjusting the tip-assist
The tip-assist can be installed on the accessory mount in the installation position provided (see Fig. 58, item 1).
1) Press the spring on the tip-assist (see Fig. 58, item 2).
2) Insert the tip-assist into the accessory mount (see Fig. 58, item 1).
3) Allow the spring to lock in.

6.10 Fitting the safety belt
Depending upon the fitting situation and the settings, the safety belt can be installed with the lower securing point on the back plate (see Fig. 60, item 1) or on the topmost free securing point on the slider (see Fig. 60, item 2).
1) Fasten the safety belt to the securing points with the supplied mounting screws.
2) Tighten the mounting screws to **7 Nm**.

---

### 7 Handover

#### 7.1 Final inspection

A final check must be carried out before the wheelchair can be handed over:

- Are all options installed according to the order form?
- Have the rear wheels been correctly positioned?
- Have the tyres been correctly inflated?

**NOTE: The correct air pressure is printed on the sidewall of the tyre. For rear wheels with high-pressure tyres, the minimum air pressure is 7 bar.**

- Has the axle unit been fastened to the slider and tightened to the specified torque?
- Can the wheel shafts rotate freely?
- Have the wheel locks been adjusted correctly?
- Has the castor journal angle been adjusted vertically?
- Has the anti-tipper been adjusted correctly?

#### 7.2 Transport to the customer

The wheelchair should be transported to the user in disassembled state using the outer packaging.

#### 7.3 Handover

The following steps should be performed for the safe handover of the product:

- A trial sitting with the user of the product should be carried out. Pay special attention to proper positioning according to medical considerations.
- The user and possible attendants should be instructed in the safe use of the product. In particular, the enclosed instructions for use (user) are to be used.
- The instructions for use (user) must be issued to the user/attendant during handover of the wheelchair.

### 8 Maintenance/Repair

The manufacturer recommends regular maintenance of the product every **12 months**.

More information on cleaning/disinfection and maintenance/repair can be found in the instructions for use (user).

The service manual contains detailed information on repairs.

### 9 Disposal

#### 9.1 Disposal information

In case of disposal, all components of the product must be disposed of in accordance with the respective national environmental laws.
9.2 Information on re-use

**CAUTION**

**Use of used seat upholstery**
Functional and hygiene risks for the skin
- Replace the seat upholstery if the wheelchair is to be re-used.

The product is suitable for re-use. Similar to second-hand machines or cars, products that are being re-used are subject to increased strain. The characteristics and specifications must not change to an extent that would endanger the safety of patients and, if applicable, third parties during the lifespan of the product.

Based on market observations and the current state of technology, the manufacturer has calculated that the product can be used for a period of **4 years**, provided that it is used properly and that the service and maintenance instructions are observed. Storage times at the dealer or with paying parties are not included in this period. It should be emphasised, however, that the product is reliable far beyond this defined period of time if it is cared for and maintained properly.

The product must first be thoroughly cleaned and disinfected before it can be re-used. Then the product must be examined by an authorised specialist to check the condition and to look for wear and possible damages. Any worn and damaged components as well as components that do not fit or are not suitable for the new user must be replaced.

Detailed information on the replacement of parts and details of tools required and prescribed service intervals can be found in the service manual.

10 Legal Information

10.1 Liability

The manufacturer’s warranty applies only if the device has been used under the conditions and for the purpose described. The manufacturer recommends that the device be used and maintained according to the instructions for use.

The manufacturer is not responsible for damages caused by components and spare parts not approved by the manufacturer. Repairs must be carried out exclusively by authorised dealers or by the manufacturer.

10.2 CE Conformity

This device meets the requirements of the 93 / 42 / EEC guidelines for medical devices. This device has been classified as a class I device according to the classification criteria outlined in appendix IX of the guidelines. The declaration of conformity was therefore created by the manufacturer with sole responsibility according to appendix VII of the guidelines.

10.3 Warranty Terms and Conditions

Further information on the warranty terms and conditions is available from the manufacturer’s service (see inside back cover for addresses).

11 Technical Data

**General information**

<table>
<thead>
<tr>
<th>Specification</th>
<th>Venustus</th>
</tr>
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<tbody>
<tr>
<td>Maximum load capacity [kg]</td>
<td>100</td>
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<tr>
<td>Weight [kg]; (for seat width 44 cm; 4&quot; full rubber castor wheels, 24&quot; hollow rim)</td>
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<td>Transport weights [kg]; (for seat width 44 cm; 4&quot; full rubber castor wheels)</td>
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<tr>
<td>Seat width [cm]</td>
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<td>Seat depth [cm]</td>
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<td>Maximum total height [cm]; (for rear seat height: 50 cm; back height 50 cm; push handle)</td>
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### Technical Data

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<th>Turning circle approx. [mm]</th>
<th>Ventus</th>
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<tr>
<td>(for seat width 44 cm; seat depth 50 cm)</td>
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<td>1250 (with wheelbase extension)</td>
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<table>
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<tr>
<th>Minimum tyre pressure [bar]</th>
<th>7(^{3)})</th>
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<tr>
<td>Maximum permissible inclination [°]</td>
<td>10(^{5)})</td>
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</table>

\(^1\) The specified weight varies according to the selected options and model.
\(^2\) For a rear wheel with hollow rim
\(^3\) With wheelbase extension: rear axle position + 8 cm
\(^4\) In accordance with ISO 7176-5, 8.12
\(^5\) Varies according to tyre option; see the print on the tyre wall
\(^6\) The anti-tipper is obligatory for an inclination of more than 10°.

### Overall length [cm]

<table>
<thead>
<tr>
<th>Seat depth</th>
<th>Lower leg length min./max.</th>
<th>22&quot; rear wheel</th>
<th>24&quot; rear wheel</th>
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With wheelbase extension: Rear axle position + 8 cm

### Overall width with rear wheel with hollow rim [cm]

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<th>Seat width</th>
<th>Overall width</th>
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<tr>
<td>32</td>
<td>49</td>
</tr>
<tr>
<td>34</td>
<td>51</td>
</tr>
<tr>
<td>36</td>
<td>53</td>
</tr>
<tr>
<td>38</td>
<td>55</td>
</tr>
</tbody>
</table>
Technical Data

### Seat width

<table>
<thead>
<tr>
<th>Seat width</th>
<th>Overall width</th>
</tr>
</thead>
<tbody>
<tr>
<td>40</td>
<td>57</td>
</tr>
<tr>
<td>42</td>
<td>59</td>
</tr>
<tr>
<td>44</td>
<td>61</td>
</tr>
</tbody>
</table>

Applicable to push rim attachment, narrow and a 0° camber of the rear wheels (push rim attachment, wide: +2 cm)

### Increase of the overall width because of the wheel camber setting of the rear wheels [cm]

<table>
<thead>
<tr>
<th>Wheel camber</th>
<th>22&quot; rear wheel</th>
<th>24&quot; rear wheel</th>
<th>25&quot; rear wheel</th>
</tr>
</thead>
<tbody>
<tr>
<td>3°</td>
<td>&lt; 6</td>
<td>6</td>
<td>&gt; 6</td>
</tr>
<tr>
<td>6°</td>
<td>&lt; 12</td>
<td>12</td>
<td>&gt; 12</td>
</tr>
<tr>
<td>9°</td>
<td>&lt; 18</td>
<td>18</td>
<td>&gt; 18</td>
</tr>
</tbody>
</table>

### Lower leg length [cm]

<table>
<thead>
<tr>
<th>Short lower leg length</th>
<th>17–32</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lower leg length</td>
<td>32 – 50</td>
</tr>
</tbody>
</table>

Measured from top of seat upholstery to top of footrest (lower leg length minus height of the seat cushion used)

### Anterior seat height

1) [cm]

<table>
<thead>
<tr>
<th>Castor wheel size</th>
<th>&quot;Standard&quot; castor fork (see Fig. 62)</th>
<th>Available positions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>short</td>
<td>long</td>
</tr>
<tr>
<td>3°</td>
<td>45 – 46</td>
<td>48 – 50</td>
</tr>
<tr>
<td>4&quot;</td>
<td>45 – 48</td>
<td>49 – 52</td>
</tr>
<tr>
<td>5&quot;</td>
<td>45 – 49</td>
<td>49 – 53</td>
</tr>
<tr>
<td>5.5&quot;</td>
<td>47 – 49</td>
<td>50 – 53</td>
</tr>
<tr>
<td>6&quot;</td>
<td>47 – 49</td>
<td>50 – 53</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Castor wheel size</th>
<th>&quot;Design&quot; castor fork (see Fig. 63)</th>
<th>Available positions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>short</td>
<td>long</td>
</tr>
<tr>
<td>3°</td>
<td>46 – 47</td>
<td>50 – 51</td>
</tr>
<tr>
<td>4&quot;</td>
<td>46 – 49</td>
<td>50 – 53</td>
</tr>
<tr>
<td>5&quot;</td>
<td>46 – 50</td>
<td>50 – 53</td>
</tr>
<tr>
<td>5.5&quot;</td>
<td>48 – 51</td>
<td>51 – 54</td>
</tr>
<tr>
<td>6&quot;</td>
<td>50 – 51</td>
<td>51 – 54</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Castor wheel size</th>
<th>&quot;Froglegs&quot; castor fork (see Fig. 64)</th>
<th>Available positions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>short</td>
<td>long</td>
</tr>
<tr>
<td>3°</td>
<td>48 – 49</td>
<td>50 – 51</td>
</tr>
<tr>
<td>4&quot;</td>
<td>48 – 50</td>
<td>50 – 52</td>
</tr>
<tr>
<td>5&quot;</td>
<td>50 – 51</td>
<td>52 – 53</td>
</tr>
<tr>
<td>5.5&quot;</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>6&quot;</td>
<td>51 – 52</td>
<td>53 – 54</td>
</tr>
</tbody>
</table>

### Posterior seat height

1) [cm]

<table>
<thead>
<tr>
<th>Wheel size</th>
<th>Axle with camber</th>
<th>Slider</th>
<th>short</th>
</tr>
</thead>
<tbody>
<tr>
<td>22&quot;</td>
<td>0°/3°</td>
<td>medium</td>
<td>34 – 44</td>
</tr>
<tr>
<td></td>
<td>6°/9°</td>
<td>33 – 43</td>
<td>33 – 48</td>
</tr>
</tbody>
</table>
Wheel size | Axle with camber | Slider
---|---|---
| | medium | short
24" | 0°/3° | 39 – 46 | 39 – 50
| | 6°/9° | 38 – 45 | 38 – 49
25" | 0°/3° | 42 – 47 | 42 – 50
| | 6°/9° | 41 – 46 | 41 – 49

3) The anterior seat height depends on the selected wheel size, castor fork and mounting position.

Specified at 0° seat angle, without seat cushion

The values indicated are theoretically determined values (max. deviation: 1 cm)
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