



Motus CV, Motus CS, Motus Hemi, Motus XXL

EN Instructions for use (qualified personnel) 3

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1 Foreword

INFORMATION

Date of last update: 2023-05-26

- ▶ Please read this document carefully before using the product and observe the safety notices.
- ▶ Instruct the user in the safe use of the product.
- ▶ Please contact the manufacturer if you have questions about the product or in case of problems.
- ▶ Report each serious incident related to the product to the manufacturer and to the relevant authority in your country. This is particularly important when there is a decline in the health state.
- ▶ Please keep this document for your records.

INFORMATION

- ▶ New information regarding product safety and product recalls as well as the declaration of conformity can be obtained at ccc@ottobock.com or from the manufacturer's service department (visit www.ottobock.com for addresses).
- ▶ You can request this document as a PDF file at ccc@ottobock.com or from the manufacturer's service department. The PDF file can also be displayed in a larger size.

Initial adjustments to the product were made according to the order form. Nevertheless, fine adjustments and settings may have to be made depending on the medical situation 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.
- The product has been adapted to the needs of the user. We recommend checking the product settings **once per year** to ensure that the product provides optimal treatment over the long term. Especially in the case of users with a changing anatomy (such as body dimensions or weight), an adjustment at least **once every six months** is recommended.
- The manufacturer reserves the right to make technical changes to the model described in these instructions for use.

2 Intended use

2.1 Indications for use

For additional information about the indications for use, see the instructions for use (user).

The operational safety of the product can only be ensured in case of intended use in accordance with the information contained in these instructions for use (qualified personnel) and in the instructions for use (user). The user is ultimately responsible for accident-free operation.

2.2 Indications, contraindications, side effects




For more information on indications and contraindications as well as possible side effects when using the product, see the instructions for use (user).

2.3 Qualification

The tasks described below may only be carried out by qualified personnel. Compliance with all manufacturer specifications and all applicable legal provisions is required. Please contact the manufacturer's service department for further information.

3 Safety

3.1 Explanation of warning symbols

 WARNING	Warning regarding possible serious risks of accident or injury.
 CAUTION	Warning regarding possible risks of accident or injury.
 NOTICE	Warning regarding possible technical damage.

3.2 General safety instructions

CAUTION

Use of unsuitable tools
 Pinching, crushing or damaging the product due to use of unsuitable tools

- ▶ When completing the tasks, only use tools that are suitable for the conditions at the place of work and for which safety and the protection of health are assured with proper use.
- ▶ Observe the specifications in the section "Required Tools".

NOTICE

Tipping or falling of the product
 Damage to product due to lack of attachment

- ▶ When you work on the product, secure it so that it cannot tip over or fall over.
- ▶ Use a clamping fixture to secure the product whenever you work on it at a workbench.

3.3 Safety Instructions for Assembly

WARNING

Changed diameter/installation position of the wheels
 Tipping, falling over of the user due to blocked wheels

- ▶ Modification of the size and position of the front wheels and of the drive wheel size can lead to wobbling of the front wheels at higher speeds. If changes are required, verify the horizontal alignment of the wheelchair frame (see the section "Adjusting the drive wheels", "Adjusting the caster wheels").

WARNING

Improper assembly of removable wheels
 Tipping, falling over of the user due to wheels coming off

- ▶ After each assembly, verify the proper fit of the removable wheels. The quick-release axles must be firmly locked in the wheel attachment.

3.4 Further information

INFORMATION

The serial number required for enquiries and ordering spare parts and accessories is found on the nameplate. For explanations of the nameplate, see the section "Nameplate" (see page 6).

3.5 Nameplate and warning labels

3.5.1 Nameplate

The nameplates are found on the crossbrace.

Label	Meaning
	A Manufacturer's product name
	B CE marking
	C Maximum load (see section "Technical data")
	D Manufacturer information/address
	E Serial number ¹⁾
	F Manufacturing date ²⁾
	G Symbol for medical device
	H WARNING! Read the instructions for use before using the product. Observe important safety-related information (e.g. warnings, precautions).
	I Manufacturer's reference number for the product variant
	J Serial number (PI) ^{3),1)}
	K Global Trade Item Number (DI) ⁴⁾

- 1) YYYY = year of manufacture; WW = week of manufacture; PP = production site; XXXX = sequential production number
- 2) YYYY = year of manufacture; MM = month of manufacture; DD = day of manufacture
- 3) UDI-PI to GS1 standard; UDI = Unique Device Identifier, PI = Product Identifier
- 4) UDI-DI to GS1 standard; UDI = Unique Device Identifier, DI = Device Identifier

3.5.2 Warning labels

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

4 Delivery

4.1 Scope of delivery

- Preassembled wheelchair
- Two drive wheels (installed or included)
- Options according to the order
- Instructions for use (qualified personnel), instructions for use (user)
- Instructions for use for accessories (depending on equipment)

The seat cushion is not included in the standard package.

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

Store the wheelchair in a dry, enclosed room, protected from external influences. Specific information about storage conditions: see page 33.

During extended storage, the knee lever wheel lock on wheelchairs with PU tyres must be released since tyre deformation may otherwise result.

Maintain sufficient clearance from sources of heat. If the product is parked for an extended period of time or the tyres overheat (e.g. in the vicinity of radiators or in case of exposure to strong sunlight behind glass), the tyres may become permanently deformed.

5 Preparing the product for use

5.1 Assembly

CAUTION

Exposed pinch points

Crushing, pinching due to incorrect handling

- ▶ When folding the wheelchair out or together, only grip by the specified components.

CAUTION

Failure to verify readiness for use before putting into operation

Tipping, falling due to incorrect adjustment or installation

- ▶ Check the existing settings prior to first use.
- ▶ After every assembly, check for proper mounting of the drive wheels. The quick-release axles must be securely locked in the receiver bushings.
- ▶ Pay particular attention to the stability against tipping, free running of the drive wheels and correct function of the wheel locks.
- ▶ Check the tyre pressure. The correct tyre pressure is printed on the sidewall. Ensure that the pressure is the same in both tyres.

It takes just a few simple steps to prepare the wheelchair for use:

- 1) Attach the drive wheels to the quick-release axle mountings (see fig. 1):
 - Press the button on the quick-release axle.
 - Attach the drive wheel to the quick-release axle mounting and release the button on the quick-release axle.
 - The quick-release axles must not be removable after releasing the push-button.

- 2) Unfold the wheelchair:
 - Loosen the safety strap.
 - Press the wheelchair apart with your flat hands (see fig. 2; see fig. 3).
- 3) Pull up the flap of the back support upholstery and attach it to the seat upholstery with the hook-and-loop fastener (see fig. 4).
- 4) **For option "drive wheel with one-handed operation":** Insert the telescoping rod (see instructions for use (user)).
- 5) **If necessary:** Attach the leg supports. Fold the foot plate(s) down. With a single-panel foot plate, make sure the support of the foot plate is locked into the receiver.
- 6) **If necessary:** Secure the seat cushion against sliding by pressing it onto the hook-and-loop fastener.



6 Settings

6.1 Prerequisites

⚠ WARNING

Faulty settings

Tipping over, falling or malposition of the user due to incorrect adjustments

- ▶ Adjustment and assembly work may be carried out only by qualified personnel.
- ▶ Only the adjustments described in these instructions for use may be carried out.
- ▶ Settings may be changed only within the allowable adjustment ranges; otherwise, the stability of the product may be impaired (see this section and the "Technical data" section). If you have questions, contact the manufacturer's service (see www.ottobock.com for addresses).
- ▶ Conduct tests only in the presence of an assistant.
- ▶ Unless expressly described, you may 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 delivering the product.

⚠ CAUTION**Unsecured screw connections**

Pinching, crushing, tipping over, falling of user due to assembly errors

- ▶ Always firmly re-tighten the mounting screws and nuts after changing settings. Observe the specified torques in doing so.
- ▶ Any time you loosen a screw connection with thread lock, replace it with a new screw connection with thread lock or secure the old screw connection with medium strength thread locker (e.g. Loctite 241).
- ▶ Always replace self-locking screws and nuts with new self-locking screws and nuts after disassembly.

Fine-tuning and adjustments should always be carried out in the presence of the user. The user should be sitting upright in the wheelchair while making adjustments.

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

The tools required for configuration and maintenance are summarised in the section "Appendices" (see page 35 ff.).

6.2 Adjusting the drive wheels**⚠ WARNING****Lack of fine adjustment of the drive wheels**

Tipping over, falling of the user due to incorrect adjustment

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

⚠ WARNING**Incorrectly adjusted wheelbase**

Tipping over, falling of the user due to unstable settings

- ▶ Please note that with the drive wheel in a more forward mounting 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 drive wheel.
- ▶ Be sure to position the drive wheels towards the rear for transfemoral amputees. This improves the stability of the wheelchair.

INFORMATION

Changing the drive wheel position can also change the angle between the caster wheel journal and the ground. However, this must always be **approx. 90°** and thus readjusted accordingly. The knee lever wheel lock also has to be readjusted.

6.2.1 Setting the drive wheels horizontally

The horizontal position of the drive wheels can be changed by horizontally shifting the drive wheel adapter.

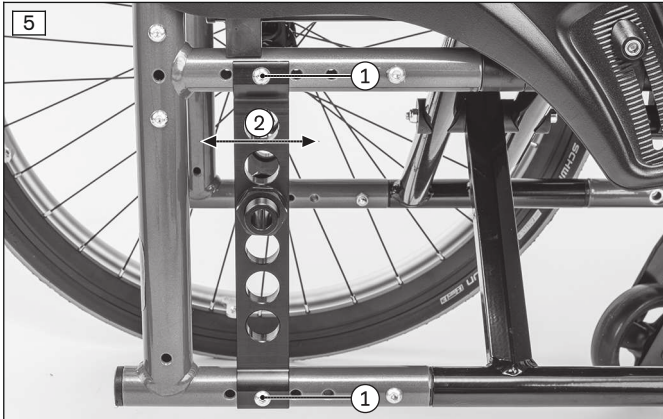
Changing the drive wheel position has the following effects:

Position of drive wheel	Effects
Move backwards (passive setting)	<ul style="list-style-type: none"> • 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 (active setting)	<ul style="list-style-type: none"> • Smaller wheelbase • Less load on caster wheels = greater manoeuvrability • Less stability of the wheelchair • Wheelchair is easier to tip backwards when crossing obstacles • INFORMATION: An anti-tipper should be installed if necessary. • Setting recommended only for experienced users

The drive wheel adapter can be installed at four depth positions in the frame.

- 1) Remove the drive wheels.
- 2) Loosen and remove the Allen screws (see fig. 5, item 1).

- 3) Move the drive wheel adapter to the desired position (see fig. 5, item 2).
- 4) Tighten the Allen screws to **8 Nm**.
INFORMATION: After adjusting, the left and right drive wheel adapters must be in the same horizontal position on the frame.
- 5) After adjusting the position of the drive wheels, check the following settings:
 - Tracking of the drive wheels (see page 13)
 - Height and alignment of the caster attachment device (see page 14)
 - Adjustment of the brakes (see page 16)
 - Distance of the side panels to the drive wheels (see page 28)



6.2.2 Adjusting vertical the position of the drive wheels

The vertical position of the drive wheels can be adjusted by moving the quick-release axle mounting (of the fittings)¹⁾ vertically in the drive wheel adapter.

Combined with adjusting the height of the caster wheels, this also allows the seat height to be optimally adjusted to individual requirements.

¹⁾ The term “fitting” is the term used in the German and English spare parts catalogue. Alternatively, the instructions for use explain the function of the component, which is why the term quick-release axle mounting is used there.

Changing the drive wheel position has the following effects:

Drive wheel position	Effects
Move upwards	<ul style="list-style-type: none"> • The higher the drive wheel position, the more the seat surface is tilted to the rear • 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 caster wheels.
Move downwards	<ul style="list-style-type: none"> • The lower the drive 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 caster wheels.

The drive wheel can be set to a total of 12 height positions. It can be set to six additional positions by rotating the drive wheel adapter by **180°**.

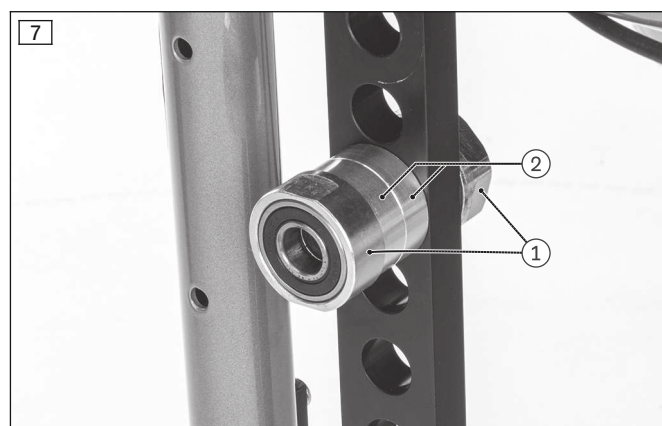
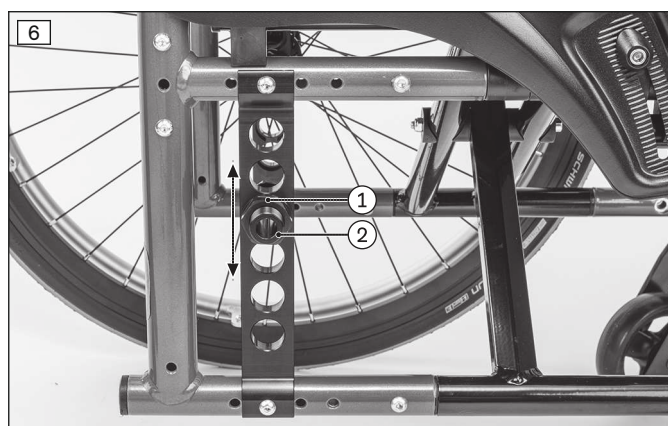
Quick-release axle mounting for standard drive

- 1) Remove the wheels.
- 2) Loosen the hexagon nuts (see fig. 6, item 1) on both sides of the quick-release axle mounting (see fig. 6, item 2) and remove the quick-release axle mounting.
- 3) Put the quick-release axle mounting back on in the desired position and tighten the hexagon nuts slightly.
- 4) Note the following during assembly of the quick-release axle mounting:
 - Camber setting: This is adjusted via the angle of the bore in the quick-release axle mounting (see page 11).

- **INFORMATION: After being adjusted, the left and right quick-release axle mountings must both be in the same vertical and horizontal position in the drive wheel adapter.**
- 5) Tighten the hexagon nuts on both sides of the quick-release axle mounting to **40 Nm**.
 - 6) After adjusting the position of the drive wheels, check the following settings:
 - Tracking of the drive wheels (see page 13)
 - Height and alignment of the caster attachment device (see page 14)
 - Adjustment of the brakes (see page 16)
 - Distance of the side panels to the drive wheels (see page 28)

Quick-release axle mounting for one-hand drive

- 1) Remove the wheels.
- 2) Loosen the hexagon nuts (see fig. 6, item 1) on both sides of the quick-release axle mounting (see fig. 6, item 2) and remove the quick-release axle mounting with the spacers.
- 3) Slide the quick-release axle mounting with the spacers back on in the desired position and tighten the hexagon nuts slightly (see fig. 7).
- 4) Note the following during assembly of the quick-release axle mounting:
 - For the following side panels, the two spacers are positioned on the outside (see fig. 7, item 2): plug-on side panels, side panels with arm pad ("plastic, plug-on side panel"; side panel with short arm pad; side panel with long arm pad).
 - For the following side panels, a spacer is positioned on the inside and a spacer on the outside (not illustrated): short/long side panels, short/long clothing guard (side panel with protection against cold; side panel with splash guard and protection against cold; carbon side panel with splash guard).
 - **INFORMATION: After being adjusted, the left and right quick-release axle mountings must both be in the same vertical and horizontal position in the drive wheel adapter.**
- 5) Tighten the hexagon nuts on both sides of the quick-release axle mounting to **50 Nm**.
- 6) After adjusting the position of the drive wheels, check the following settings:
 - Tracking of the drive wheels (see page 13)
 - Height and alignment of the caster attachment device (see page 14)
 - Adjustment of the brakes (see page 16)
 - Distance of the side panels to the drive wheels (see page 28)



6.2.3 Adjusting the drive wheel camber

The modular system of the product offers quick-release axle mountings with angled bores for different sloped settings of the drive wheels (see fig. 8, item 1).

The drive wheel camber is adjusted by exchanging the quick-release axle mounting. This has the following effects:

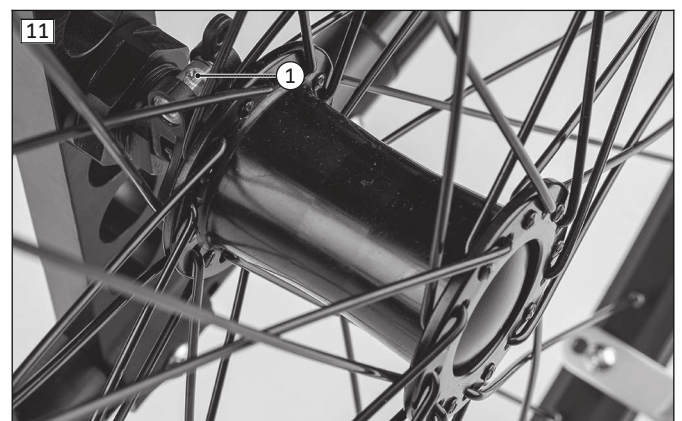
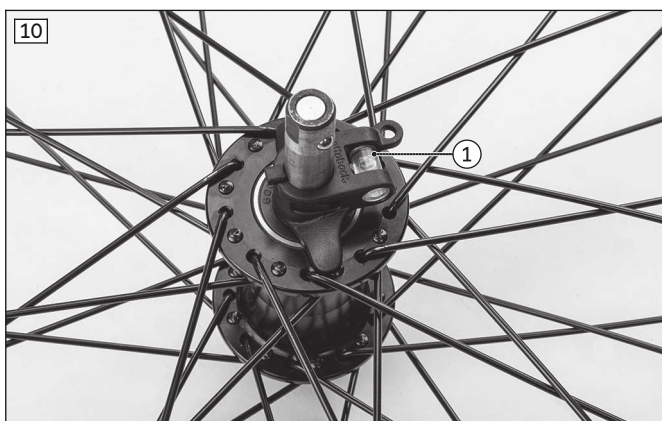
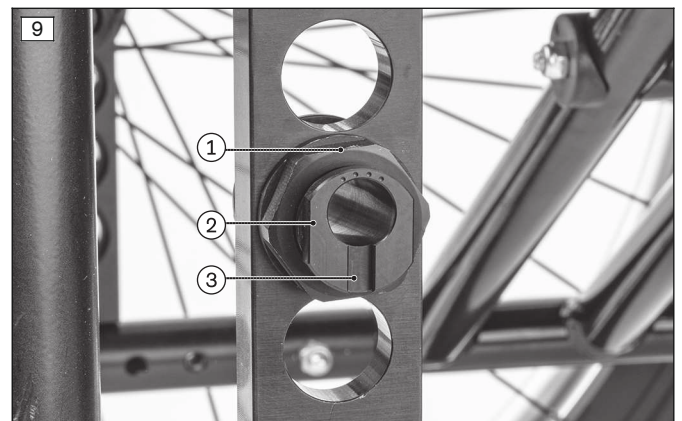
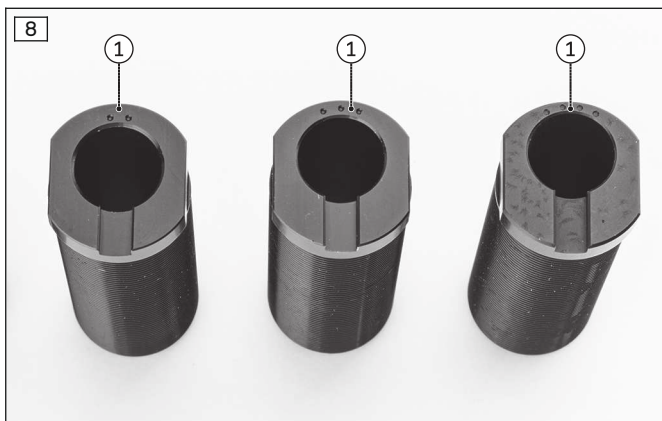
Position of drive wheel	Effects
0° position	<ul style="list-style-type: none"> • Narrow track, excellent straight-line stability • Low rolling resistance
Wheel camber	<ul style="list-style-type: none"> • Wheelchair becomes more manoeuvrable, turns faster and tips less easily to the side • The wheel position protects the hands when turning the handrim

Position of drive wheel	Effects
	<ul style="list-style-type: none"> • Overall width increases • Increased rolling resistance

The drive wheel camber can be set to **0°**, **2°**, **3°** and **4°**.

Adjusting the drive wheel camber

- 1) Loosen and remove the hexagon nuts (see fig. 9, item 1) on the quick-release axle mounting (see fig. 9, item 2).
- 2) Remove the quick-release axle mounting.
- 3) Have the new quick-release axle mounting ready. The camber is embossed in the quick-release axle mounting (2°, 3°, 4° = 2, 3, 4 dots: see fig. 8, item 1).
- 4) Insert the selected quick-release axle mounting and slightly tighten the hexagon nuts.
INFORMATION: The groove on the quick-release axle mounting respectively faces vertically down and out (see fig. 9, item 3).
- 5) Slide the supplied assembly aid (spirit level) (see fig. 10, item 1) onto the quick-release axle with the drive wheel and insert the quick-release axle into the quick-release axle mounting.
- 6) The assembly aid must engage in the groove of the quick-release axle mounting (see fig. 9, item 3).
- 7) Align the quick-release axle mounting so the spirit level is in the centre position (see fig. 11, item 1). Tighten the hexagon nuts on both sides of the quick-release axle mounting to **40 Nm**.
- 8) Detach the drive wheel and remove the assembly aid.
- 9) Reattach the drive wheel.
 - After adjustment, the camber of the left and right drive wheels must be the same.
- 10) After adjusting the drive wheel camber, check the following settings:
 - Tracking of the drive wheels (see page 13)
 - Height and alignment of the caster attachment device (see page 14)
 - Adjustment of the brakes (see page 16)
 - Distance of the side panels to the drive wheels (see page 28)



6.2.4 Adjusting the track

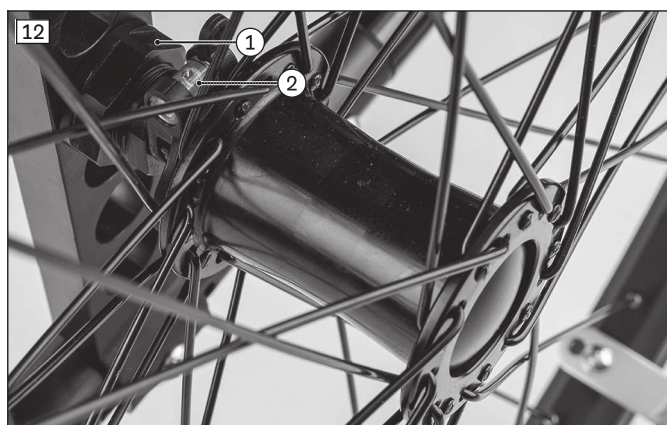
INFORMATION

- ▶ The track setting must be checked and, if necessary, adjusted after the following adjustments have been made:
 - Adjusting the vertical position of the drive wheels
 - Adjusting the horizontal position of the drive wheels
- ▶ The track setting must be adjusted after the following adjustments have been made:
 - Adjusting the drive wheel camber
 - Adjusting the track

INFORMATION

- ▶ Always adjust the track on both sides and check both sides.
- ▶ With each track adjustment, always check the symmetry of the track width setting.
- ▶ The caster wheel journal angle should be checked immediately after every adjustment to the track (see page 14).

- 1) Slightly loosen the hexagon nuts (see fig. 12, item 1) on the quick-release axle mounting.
 - 2) Use the adjustment aid (spirit level) (see fig. 12, item 2) to adjust the track by turning the hexagon nut slightly.
 - 3) Tighten the hexagon nuts on both sides of the quick-release axle mounting to **40 Nm**.
- Once adjusted, the left and right quick-release axle mountings must both be in the same vertical position in the frame.



6.2.5 Adjusting the quick-release axle

The quick-release axle should be set so the wheel is correctly engaged, with no play on the axle.

- 1) Hold the quick-release axle by the head (wrench size: **19 mm**) and by the tip (wrench size: **11 mm**) with a ring and open-ended wrench respectively.
- 2) Adjust the play by turning the nut on the end of the quick-release axle (see fig. 13, item 1) in or out.



6.2.6 Adjusting the handrims

INFORMATION

This section does not apply to standard wheels.

All handrims are designed for a spacing from the drive wheel of **15 mm** (standard setting) and **25 mm** (see fig. 14).

- 1) Loosen/remove the handrim screw connections from the rim.
- 2) Tightly screw the handrims onto the rim in narrow or wide installation position (see fig. 15).



6.3 Adjusting the caster wheels

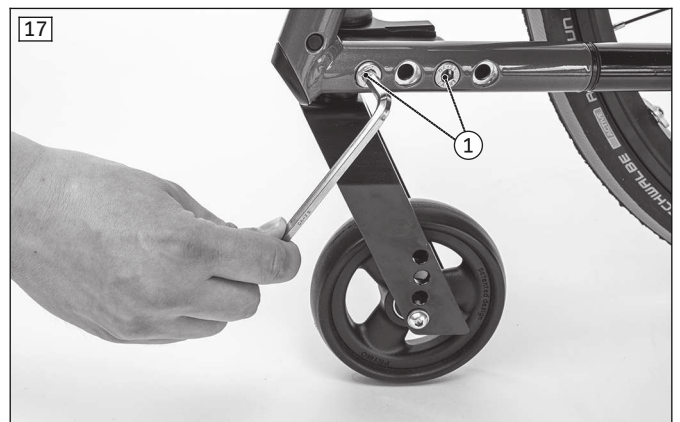
6.3.1 Adjusting the caster journal angle

When the drive wheels have been adjusted for the user, the caster journal angle must be adjusted at the caster wheel adapter.

The threaded axle in the caster wheel adapter should be perpendicular to the ground to ensure optimum rolling behaviour of the wheelchair. The caster wheel adapter permits a continuous adjustment of this angle.

- 1) Pull off the protective cap on the caster wheel adapter using a screwdriver (see fig. 16, item 1).
- 2) Slightly loosen the Allen screws on the inside of the frame (see fig. 17, item 1).
- 3) Slightly loosen the Allen screw on the eccentric (see fig. 18, item 1).
- 4) Position the assembly aid (spirit level) (see fig. 19, item 1).
- 5) Adjust the positive/negative caster to **90°** on the eccentric disc using a wide slotted screwdriver (see fig. 19, item 2). The bubble in the spirit level must be in the centre position.
- 6) Tighten the Allen screw on the eccentric to **8 Nm**.
- 7) Firmly tighten the Allen screws on the inside of the frame.
- 8) Attach the protective cap to the caster wheel adapter.

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





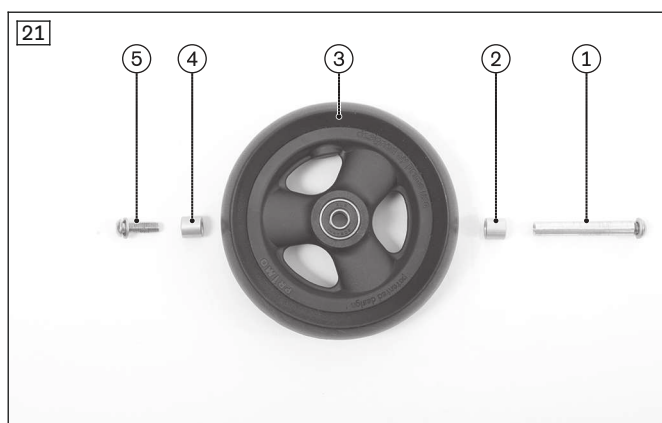
6.3.2 Changing the installation position of the caster wheels

INFORMATION

Please refer to the seat height table in the technical data.

The front seat height is adjusted using the row of holes in the fork and the diameter of the caster wheels.

- 1) Loosen the screw connection on the threaded sleeve (see fig. 20, item 1).
 - 2) Remove the threaded sleeve and spacer bushings.
INFORMATION: Note that the illustrated and described spacer bushings are not present with all available caster wheels.
 - 3) Remove the caster wheel.
 - 4) Insert the threaded sleeve (see fig. 21, item 1) into the desired hole in the fork and slide on the first spacer bushing (see fig. 21, item 2) from the inside.
 - 5) Install the caster wheel (see fig. 21, item 3).
 - 6) Slide the second spacer bushing on (see fig. 21, item 4).
 - 7) Insert the mounting screw (see fig. 21, item 5) and tighten the threaded sleeve to **8 Nm**.
- Once adjusted, the left and right caster wheels must have the same vertical position in the caster fork.
- After changing the front seat height, always check the caster wheel journal angle and adjust it if necessary (see page 14).



6.4 Adjusting the wheel locks

⚠ WARNING

Failure to verify brake functionality

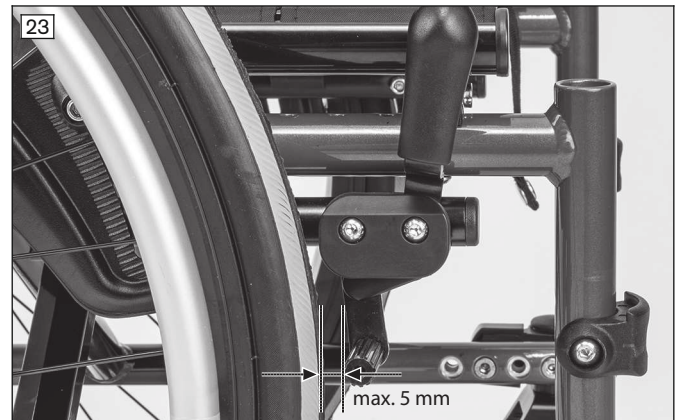
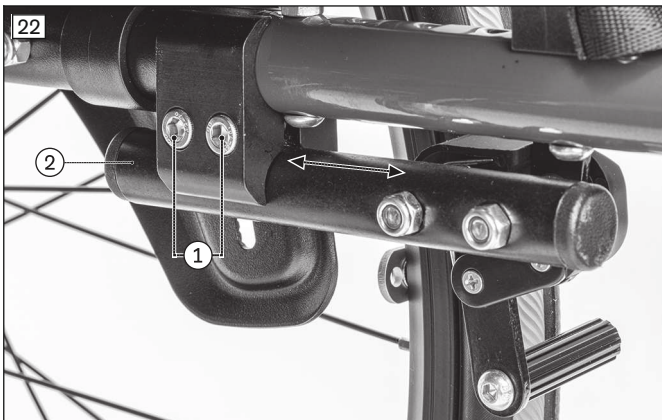
Accident, user falls due to incorrect adjustment and improperly inflated tyres

- ▶ Check the correct spacing between the wheel lock bolt and tyre (see the following section for details).
- ▶ Check the correct position of the wheel lock bolt relative to the tyre. During braking, the wheel lock bolt has to cover at least half the tyre width.
- ▶ Always carry out adjustments to the wheel lock on both sides.
- ▶ Ensure that the user can operate the wheel lock without great effort. The force required to do so must not exceed 60 N.
- ▶ Check the tyre pressure of the drive wheels. Note the information in the section "Technical data" or on the tyre sidewall.
- ▶ Only use original drive wheels with a verified maximum radial out-of-round of **1 mm**.

This adjustment must be made for fine adjustment of the wheel lock.

6.4.1 Adjusting the knee lever wheel locks

- 1) Loosen the hexagon socket screws on the tube clamp (see fig. 22, item 1).
- 2) Adjust the knee lever wheel lock by sliding it (see fig. 22, item 2). When the wheel lock is disengaged, the clear distance between the tyre and wheel lock bolt must not exceed **5 mm** (see fig. 23).
 - The distance between the wheel lock bolt and the drive wheel may be **1 – 5 mm** when the wheel lock is not engaged.
 - It must be possible to operate the brake evenly and easily on both sides.
 - The wheel lock bolt must lock the drive wheel securely when stationary.
- 3) Tighten the hexagon socket screws evenly to **15 Nm**.
 - After adjustment, the left and right knee lever wheel locks must both have the same braking force.



6.4.2 Adjusting the scissor wheel locks

- 1) Loosen the hexagon socket screws on the tube clamp (see fig. 24, item 1).
- 2) Adjust the scissor wheel lock by sliding it (see fig. 24, item 2).
 - If necessary:** Slide and twist the clamp bracket on the seat tube.
- 3) Install the scissor wheel lock so that the full braking force is reached and the swivelling parts can also move freely without colliding.
 - The scissor wheel lock must not hit the frame when it is open (see fig. 24).
 - It must be possible to operate the brake evenly and easily on both sides.
 - The scissor wheel lock must lock the drive wheel securely when stationary (see fig. 25).
 - It must not be possible to push the wheelchair with the wheel locks engaged.
- 4) Tighten the hexagon socket screws to **15 Nm** (see fig. 24, item 1).
 - After adjustment, the left and right scissor wheel locks must both have the same braking force.



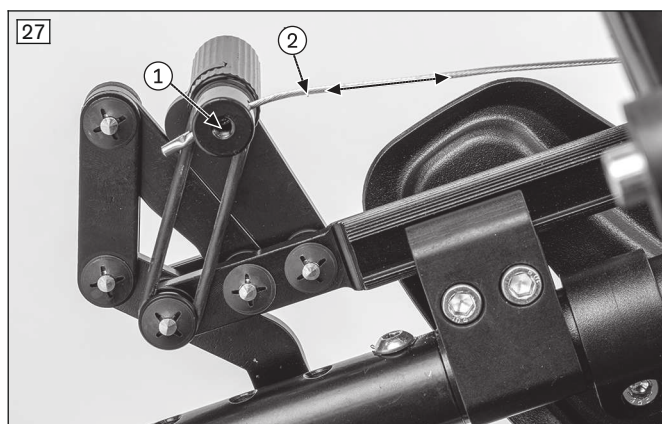
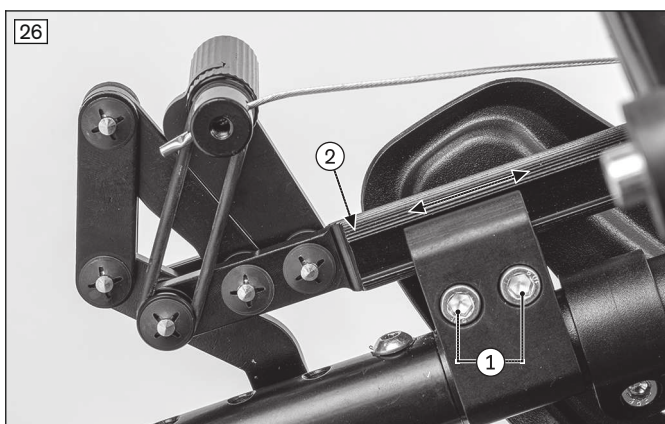
6.4.3 Adjusting the knee lever wheel lock for user and attendant

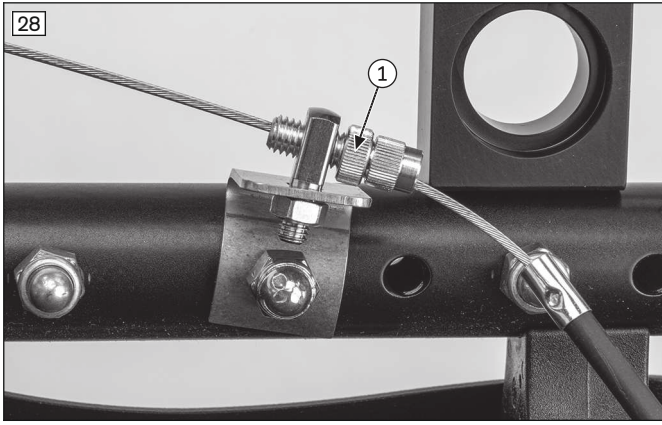
Presetting (as needed)

- 1) Loosen the hexagon socket screws on the tube clamp (see fig. 26, item 1).
- 2) Adjust the knee lever wheel lock by sliding it (see fig. 26, item 2).
 - When the wheel lock is disengaged, the clear distance between the tyre and wheel lock bolt must not exceed **5 mm** (similar illustration: see fig. 23).
 - The distance between the wheel lock bolt and the drive wheel may be **1 – 5 mm** when the wheel lock is not engaged.
- 3) Tighten the hexagon socket screws evenly to **10 Nm**.

Fine adjustment

- 1) Separate the Bowden cable mounting from the wheel lock bolt (see fig. 27, item 1).
- 2) Adjust the Bowden cable (see fig. 27, item 2).
- 3) Reattach the Bowden cable.
- 4) Use the adjusting screw for fine-tuning (see fig. 28, item 1).
 - It must be possible to operate the brake evenly and easily on both sides.
 - The wheel lock bolt must lock the drive wheel securely when stationary.
- 5) **If necessary:** Shorten the Bowden cable to **10 mm** after making the adjustments and attach a cable end cap (not illustrated).





6.4.4 Adjusting the knee lever wheel lock for one-handed operation

INFORMATION

To adjust the brake block on the active side: see the section "Adjusting the knee lever wheel lock".

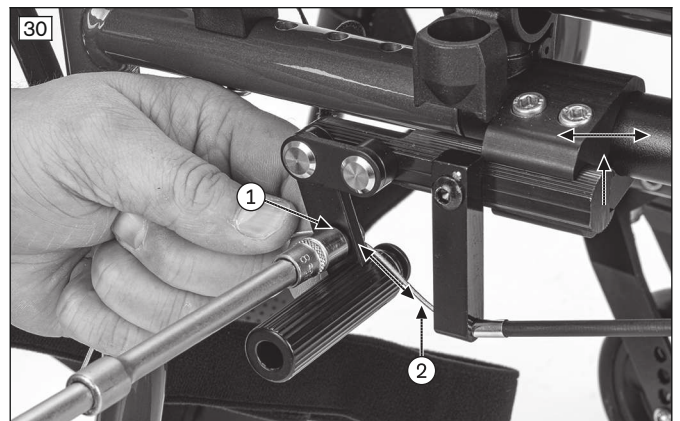
This adjustment must be made after the drive wheel has been repositioned or during fine adjustment.

Presetting (as needed)

- 1) Loosen the hexagon socket screws on the tube clamp (see fig. 29, item 1).
- 2) Adjust the knee lever wheel lock by sliding it (see fig. 29, item 2).
 - When the wheel lock is disengaged, the clear distance between the tyre and wheel lock bolt must not exceed **5 mm** (similar illustration: see fig. 23).
 - The distance between the wheel lock bolt and the drive wheel may be **1 – 5 mm** when the wheel lock is not engaged.
- 3) Tighten the hexagon socket screws evenly to **8 Nm**.

Fine adjustment

- 1) Separate the sleeve from the wheel lock bolt (see fig. 30, item 1).
- 2) Adjust the Bowden cable (see fig. 30, item 2).
- 3) Clamp the Bowden cable by tightening the nut.
 - The wheel lock has to operate easily.
 - The braking force must be the same at both wheel lock bolts.
 - The wheel lock bolt must lock the drive wheel securely when stationary.
- 4) **If necessary:** Shorten the Bowden cable to **10 mm** after making the adjustments and attach a cable end cap.



6.4.5 Adjusting the braking force of the drum brake

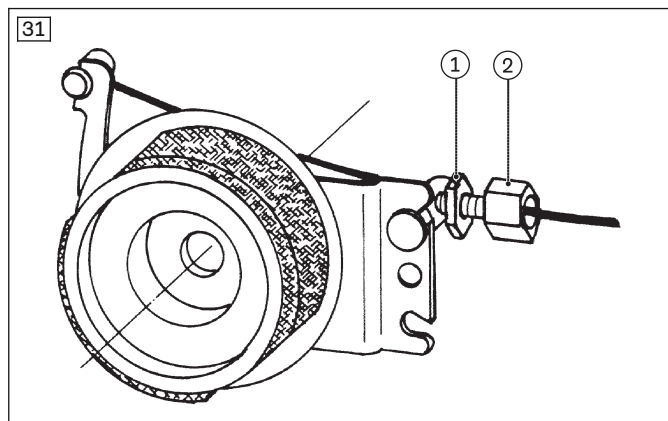
INFORMATION

After making adjustments, check that activating the manual brake lever creates a sufficient braking effect.

Note that the drum brake must still be able to produce sufficient braking force even when the manual brake lever is locked into a ratchet position.

To achieve an optimum braking effect, the braking force is adjusted using the adjustment screw (see fig. 31, item 2).

- **Increase the braking force:** Back off the adjusting screw.
 - **Reduce the braking force:** Screw in the adjustment screw.
- 1) Loosen the counter nut (see fig. 31, item 1) and back off the adjustment screw until a scraping noise can be heard when the rear wheel is rotated.
 - 2) Screw in the adjustment screw (see fig. 31, item 2) until the scraping noise at the rear wheel disappears and the wheel runs freely.
 - 3) Tighten the counter nut (see fig. 31, item 1) until the adjustment screw is fixed.
- The braking force of both rear wheels must be adjusted equally.



6.5 Adjusting the back support

6.5.1 Adjusting the back support height

Depending on the back support system, the back support height can be adjusted by **25 mm**, **50 mm** or **75 mm**. The back support tube integrated into the rear frame allows the back support height to be adjusted in increments of **25 mm**.

- 1) Remove the back support pad (see fig. 32).
 - 2) **If necessary:** Loosen the rear side panel mounting on the frame (see fig. 33, item 1) and fold away the side panel.
 - 3) Remove the two back support tube mounting screws from the rear frame (see fig. 34, item 1).
 - 4) Set the desired back support height by shifting the back support tube.

INFORMATION: The back support can be moved upward only as far that the two mounting screws (see fig. 34, item 1) can still be screwed into the back support tube.
 - 5) Insert the mounting screws into the frame tube and tighten to **7 Nm**.
- Both back support tubes must be adjusted to the same height.

Properly reassemble all components upon completion of the adjustments. To adjust the back support upholstery: see page 21.





6.5.2 Adjusting the back support angle

⚠ WARNING

Missing anti-tipper

Tipping over, falling of the user due to missing safety devices

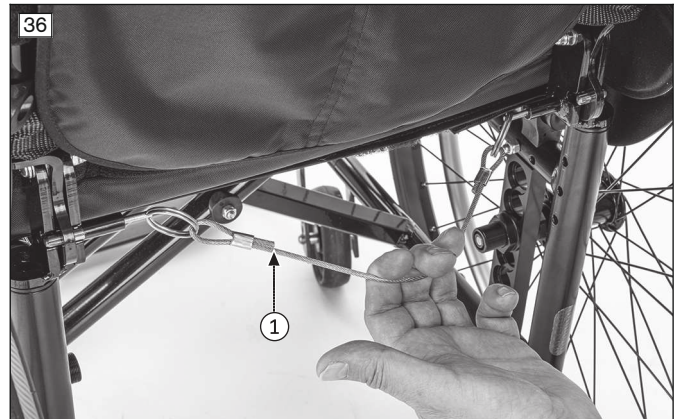
- ▶ If the back support is tilted far back and the wheelbase is short, 2 anti-tippers (one on each side) must be mounted and in a functional position; if the wheelbase is long, at least one anti-tipper must be mounted and in a functional position.
- ▶ Verify that the anti-tipper is securely fitted.

The product can be equipped with a fixed, angle-adjustable or folding back support, or with a Baxx back support.

Angle-adjustable back support

With this option, the back support angle is continuously adjustable from **90° to 120°** in increments of **10°** (see fig. 35).

- 1) Pull the cable of the back release mechanism until the locking pins release the angle adjustment (see fig. 36, item 1).
- 2) Move the back support to the desired position.
- 3) Release the cable. Ensure that the locking pins securely engage on both sides.



Folding back support

With this option, the back support can be folded down to the rear.

- 1) Press or pull the two release levers on the back support at the same time (see fig. 37, item 1).
- 2) Fold the back support down to the rear (see fig. 38; see fig. 39).
- 3) Fold the back support up again so the release levers securely engage on both sides.

Baxx back support (see fig. 40)

With an anatomically shaped rigid back plate made of aluminium, the back system enables the best possible positioning. Large openings in the back shells provide for a low weight and easy handling.

Detailed information regarding use, cleaning and maintenance can be found in the included instructions for use.



6.6 Adjusting the back support upholstery / seat upholstery

6.6.1 Adjusting the back support upholstery

6.6.1.1 Back upholstery, adaptable

INFORMATION

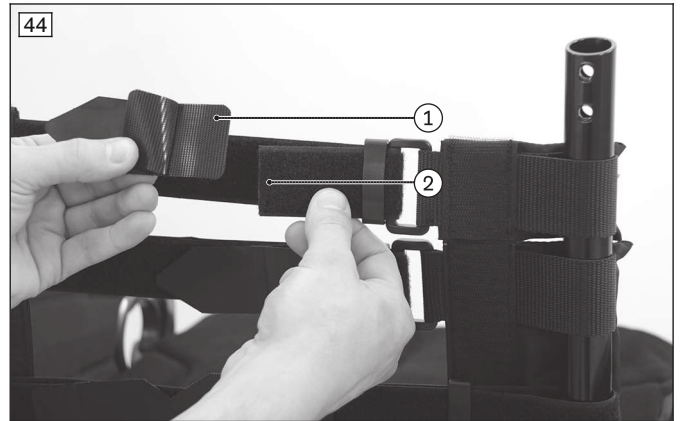
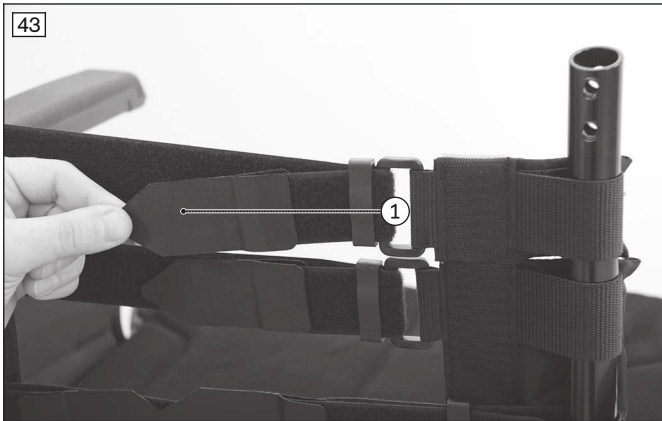
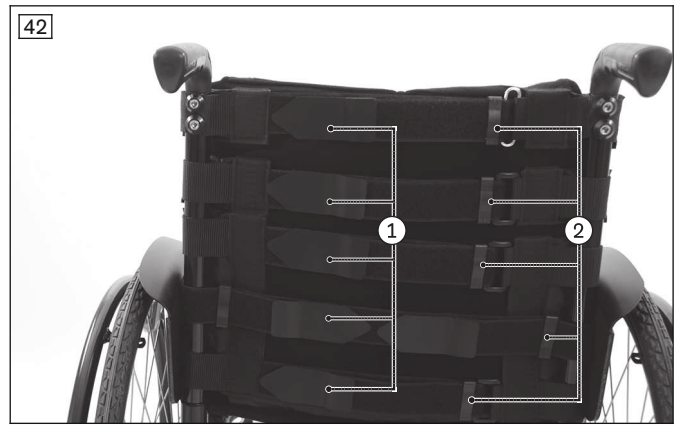
A well-adjusted back support facilitates a relaxed, long-term sitting position for the wheelchair user and reduces the risk of secondary damage and pressure zones. Do not build up too much pressure.

INFORMATION

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

The back support upholstery can be adapted in segments to the needs of the user (see fig. 41).

- 1) Remove the back support pad (see fig. 32).
- 2) Loosen the hook-and-loop fastener of the upholstery straps (see fig. 42, item 1; see fig. 43, item 1).
- 3) Fasten the upholstery straps with the desired tension using the hook-and-loop fastener.
If necessary, thread the upholstery straps in/out of the flaps to do so (see fig. 42, item 2).
- 4) If the upholstery straps are too long, they can be shortened. To do so, cut the end pieces from the upholstery straps (see fig. 44, item 1), trim the upholstery straps (see fig. 44, item 2) and reattach the end pieces.
- 5) Put on the back support pad and attach it with the hook-and-loop fastener. Make sure the fold lies flush over the upper edge of the back support (see fig. 45).



6.6.1.2 Back upholstery, standard

Removing the back support upholstery

- 1) Open the hook-and-loop closures on the back support upholstery (see fig. 46, item 1).
- 2) Loosen and remove the Allen screws between the back support upholstery and the back support tubes (see fig. 47, item 1).
- 3) Slide the back support upholstery up.
- 4) Loosen and remove the Allen screws on the back support tubes (see fig. 48, item 1).
- 5) Pull the back support tubes out of the back support upholstery.
- 6) Remove the back support upholstery.

Attaching the back support upholstery

- 1) Insert the back support tubes into the back support upholstery.
- 2) Attach the back support tubes. Tighten the Allen screws to **7 Nm**.
- 3) Tighten the Allen screws between the back support upholstery and the back support tubes to **2 Nm**.
- 4) Fasten the hook-and-loop closures on the back support upholstery.



6.6.2 Adjusting the seat upholstery

The seat upholstery usually does not need to be adjusted during the initial fitting. However, re-tightening the slack is possible. Corrections to the centre of gravity must be made by making changes to the settings on the frame, the axle unit and the caster wheels.

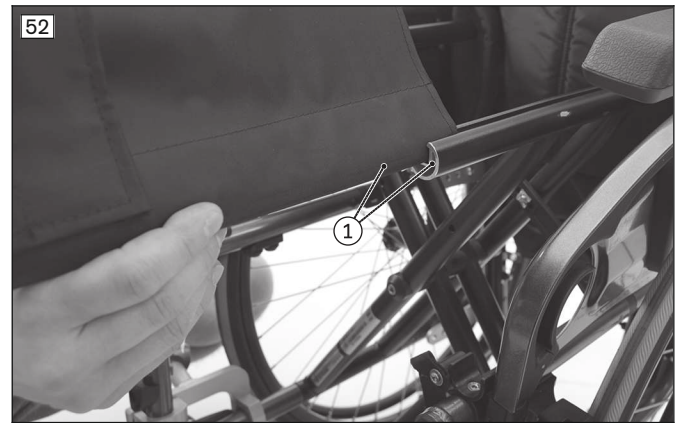
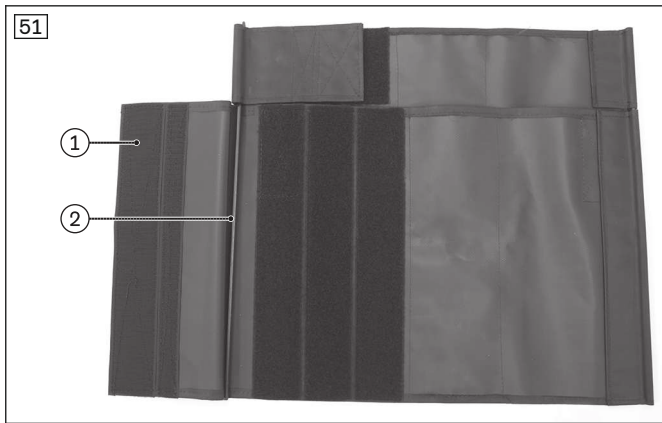
“Complete” (two-piece) seat upholstery and seat upholstery with storage compartments

> Prerequisites:

The seat cushion has been removed.

- 1) Remove the plugs (see fig. 49, item 1).
- 2) Slightly fold the crossbrace and pull the seat upholstery out of the crossbrace (see fig. 50).
- 3) Unfasten the hook-and-loop fastener on the underside of the seat upholstery (see fig. 51, item 1).
- 4) Tighten or loosen the seat upholstery. Close the hook-and-loop fastener again. Make sure the upholstery bars are inserted correctly (see fig. 51, item 2).
- 5) Slide the seat upholstery onto the crossbrace with the help of the upholstery bars (see fig. 52, item 1).
- 6) Replace the caps and insert them into the frame tubes using a soft-faced hammer.
- 7) Unfold the wheelchair. The crossbrace must be seated fully in the support guides as you do so.





6.7 Adjusting the leg supports

The distance between the footplates and the sitting surface influences sitting stability. The height adjustment acts on the pelvis and ischial bones.

6.7.1 Adjusting the lower leg length

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

Leg supports/foot plate bar on the Motus CS

- 1) Loosen the hexagon socket screw on the front frame (see fig. 53).
- 2) Adjust the lower leg length as needed (not illustrated). Ensure that the foot plate bar is inserted at least **40 mm** into the leg support holder.

INFORMATION: A mark on the foot plate bar indicates the minimum distance the foot plate bar must be inserted during installation.

- 3) Tighten the hexagon socket screw to **7 Nm**.



Leg supports/foot plate bar on the Motus CV

- 1) Loosen the hexagon socket screw on the leg support (see fig. 54).
- 2) Adjust the lower leg length (continuously adjustable) (not illustrated). Ensure that the foot plate bar is inserted at least **40 mm** into the leg support holder.

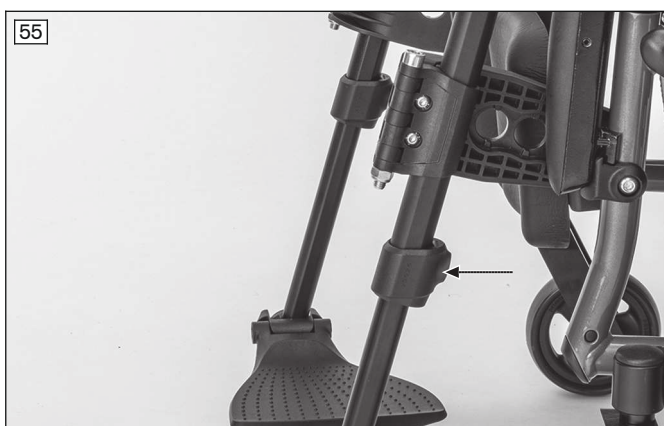
INFORMATION: A mark on the foot plate bar indicates the minimum distance the foot plate bar must be inserted during installation.

- 3) Tighten the hexagon socket screw to **7 Nm**.



"Elevating" leg support on Motus CV

- 1) Loosen the hexagon socket screw on the leg support (see fig. 55). Then the foot plate bar can be moved as needed.
- 2) Adjust the foot plate bar to the desired lower leg length.
- 3) Tighten the hexagon socket screw to **7 Nm**.



6.7.2 Adjusting the support angle

The leg support angle setting should be chosen so that the ankle is in a relaxed, comfortable position.

Single panel footplate

- 1) Loosen and remove the hexagon socket screw on the foot plate suspension on the left side (see fig. 56, item 1).
- 2) Turn the foot plate to the desired angle.
- 3) Tighten the hexagon socket screw to **8 Nm**.



Segmented plastic foot plate

- 1) Loosen the Allen screw on the foot plate suspension (see fig. 57).

- 2) Turn the foot plate to the desired angle.
- 3) Tighten the Allen screw to **6 Nm**.



Segmented aluminium foot plate

- 1) Loosen the Allen head screw on the footplate suspension (see fig. 58).
- 2) Turn the footplate joint to the desired angle (see fig. 59).
- 3) Tighten the Allen head screw to **8 Nm**.



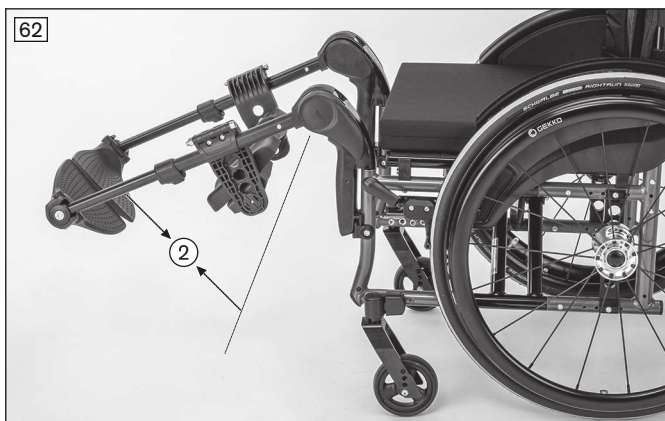
"Elevating" leg support on Motus CV

- 1) Loosen the Allen screw on the foot plate suspension (see fig. 57).
- 2) Turn the foot plate to the desired angle.
- 3) Tighten the Allen screw to **6 Nm**.

6.7.3 Adjusting the angle of the elevating leg support

The following steps also apply for the amputation leg support (see fig. 60).

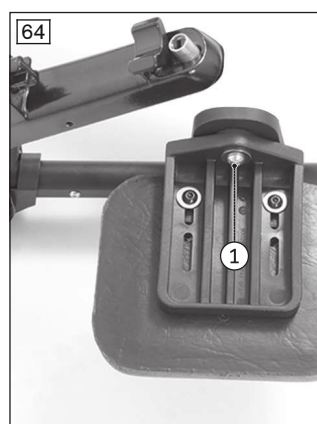
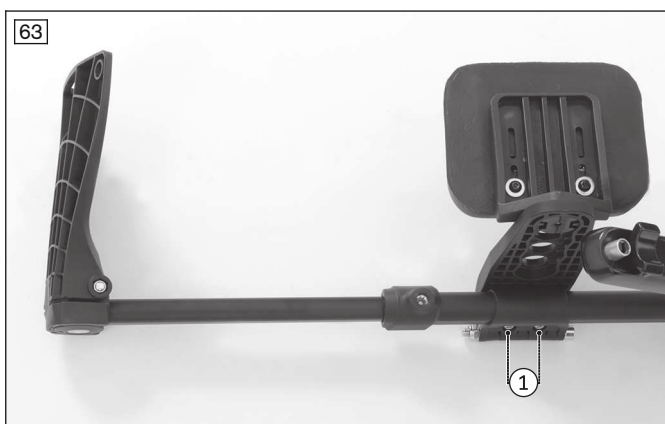
- 1) Turn the release lever upwards to the stop (see fig. 61, item 1).
Alternative: The leg support can also be elevated without operating the release lever.
 - 2) Simultaneously move the leg support to the desired angle (see fig. 62, item 2).
 - 3) Turn the release lever back.
- The leg support will automatically snap into place in the next free position.

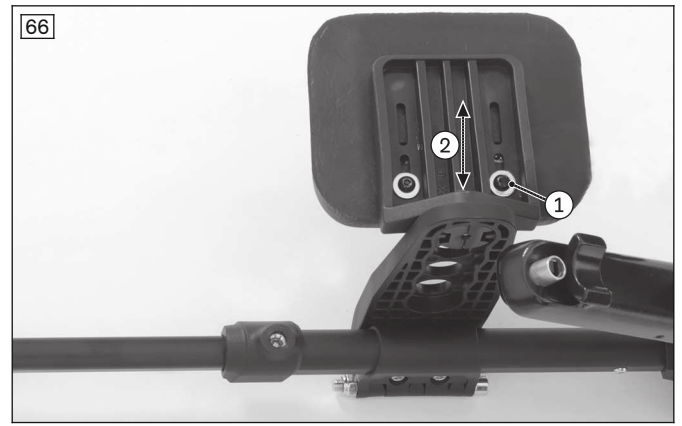
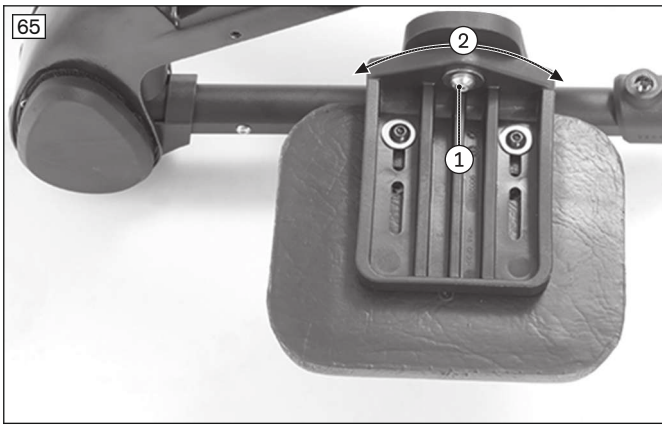


6.7.4 Adjusting the posterior lower leg pad on the elevating leg support

The posterior lower leg pad on this leg support is adjustable in height, depth, width and angle.

- 1) **Height adjustment:** Loosen the Allen head screws on the clamp brackets (see fig. 63, item 1). Slide the posterior lower leg pad to the desired height and firmly retighten the Allen head screws.
- 2) **Depth adjustment:** Loosen and remove the Allen head screw on the posterior lower leg pad: (see fig. 64, item 1). Move the posterior lower leg pad to one of the 4 possible positions (see fig. 64, item 2) and firmly retighten the Allen head screw.
- 3) **Angle adjustment:** Loosen the Allen head screw on the posterior lower leg pad (see fig. 65, item 1). Set the desired angle and firmly retighten the Allen head screw.
- 4) **Width adjustment:** Loosen the Allen head screws on the posterior lower leg pad (see fig. 66, item 1). Slide the posterior lower leg pad to the desired position (see fig. 66, item 2) and firmly retighten the Allen head screws.





6.8 Adjusting the side panels

Side panel with protection against cold, side panel with splash guard and protection against cold, carbon side panel with splash guard

The side panels have to be fine-tuned when the drive wheel position is changed.

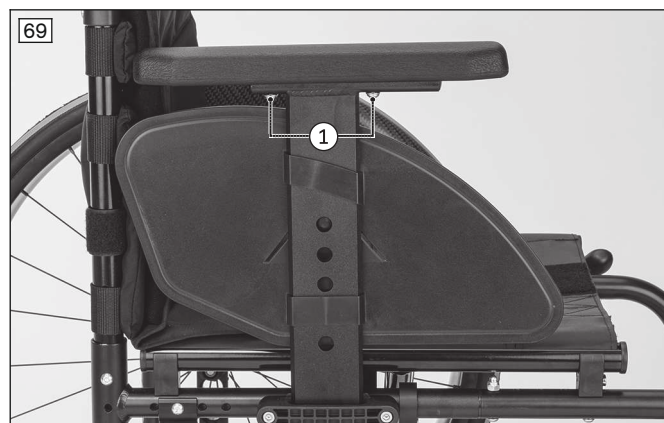
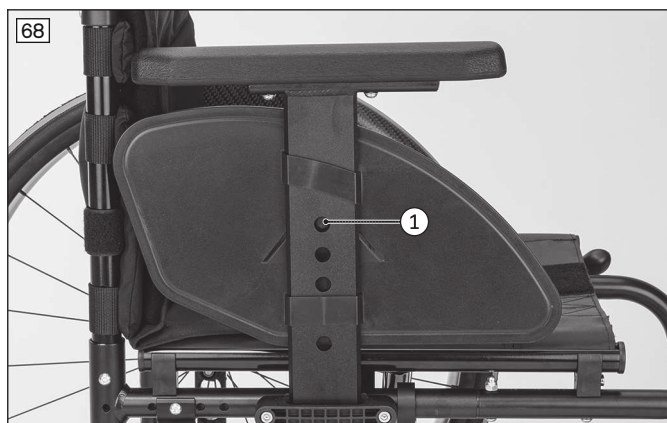
- 1) Remove the drive wheel.
 - 2) Loosen the mounting screws on the side panel (see fig. 67, item 1).
 - 3) Attach the drive wheel to determine the position.
 - 4) Adjust the position of the side panel (see fig. 67, item 2). Adjust the height so the top edge is about **25 mm** higher than the wheel surface to prevent pinching the fingers.
- INFORMATION: Align the side panels downward.**
- 5) Tighten the mounting screws.
 - 6) Attach the drive wheel and check the freewheel.
- After adjustment, the side panels have to be aligned the same on both sides.



“Plastic, plug-on” side panel

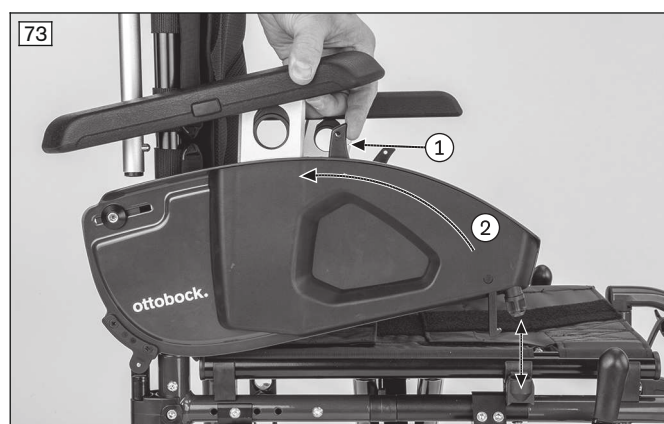
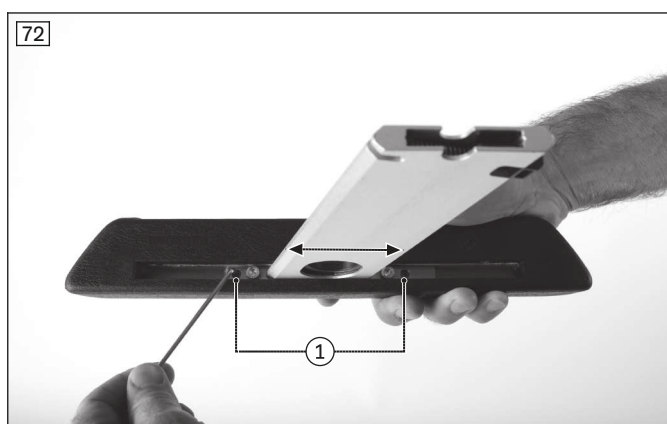
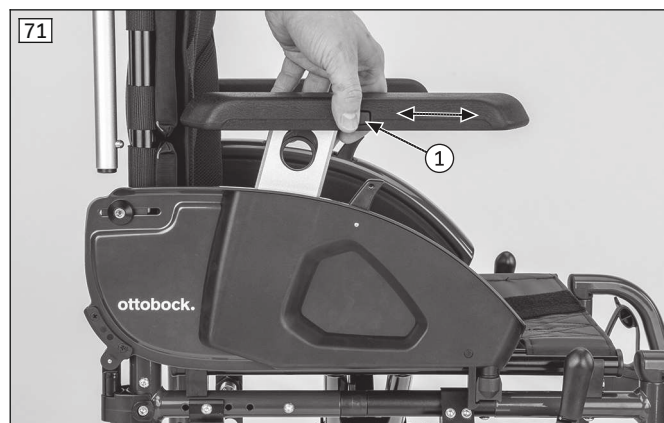
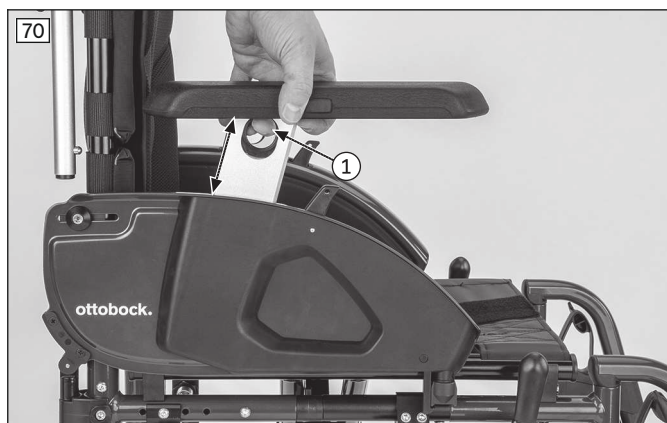
The height of the forearm support can be best adjusted when the side panel is completely removed.

- 1) **Height adjustment of the forearm support:** Use a ballpoint pen or screwdriver to press the countersunk locking button (see fig. 68, item 1). Move the forearm support to the desired position until the locking button re-engages. Then fully insert the side panel back into the mounting on the wheelchair.
- CAUTION! The locking button is intentionally counter-sunk to prevent accidental operation. Always use an object to press the locking button, never your fingers.**
- 2) **Depth adjustment of the forearm support:** Loosen the mounting screws under the forearm support, move the forearm support and re-tighten the mounting screws (see fig. 69, item 1).



Side panel with short arm pad, side panel with long arm pad and side panel with long, “depth-adjustable” arm pad

- 1) **Height adjustment of the forearm support:** Pull the release lever in the round opening of the side panel upwards and adjust the height (see fig. 70, item 1).
- 2) **Adjusting the depth of the long forearm support:** Loosen the hexagon socket screws under the forearm support and set the desired depth (see fig. 72, item 1). Firmly re-tighten the hexagon socket screws.
- 3) **Adjusting the depth of the long, “depth-adjustable” forearm support:** Press the release button in the forearm support and adjust the depth (see fig. 71, item 1).
- 4) **Removing the side panel:** Pull the side panel release lever back (see fig. 73, item 1) and fold the side panel up by about 90° (see fig. 73, item 2). Turn the side panel towards the back support (see fig. 74, item 1) and pull it out of the side panel mounting (see fig. 74, item 2).





6.8.1 Installing and adjusting the swivel unit and forearm supports

The swivel unit is mounted on the side panel of the wheelchair with a tube clamp. The channel forearm pad (modular arm support) is mounted on the moveable part of the swivel unit.

Assembly is described in more detail in the instructions for use supplied with the swivel unit – reference number 647H564=ALL_INT.

Adjusting the swivel unit with forearm support is described in more detail in the supplied instructions for use (user).

6.9 Adjusting the anti-tipper

⚠ WARNING

Incorrect installation of the anti-tipper/missing anti-tipper

Tipping over, falling of the user due to failure to observe the installation instructions and because of incorrect adjustment

- ▶ Depending upon the settings of the chassis, the centre of gravity, the back angle and 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.
- ▶ Verify that the anti-tipper has been installed and adjusted properly. Find the appropriate position with the assistance of a helper.

INFORMATION

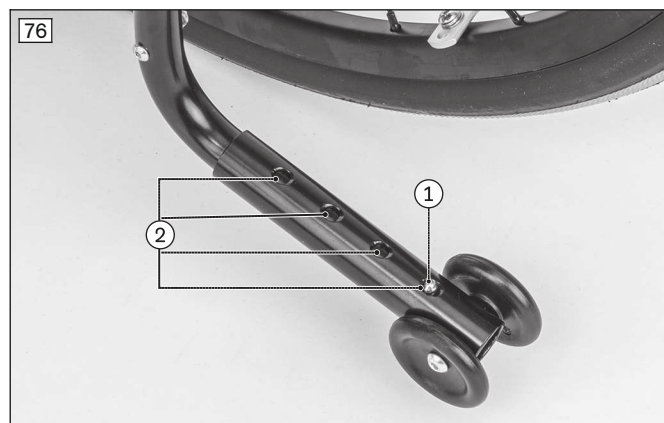
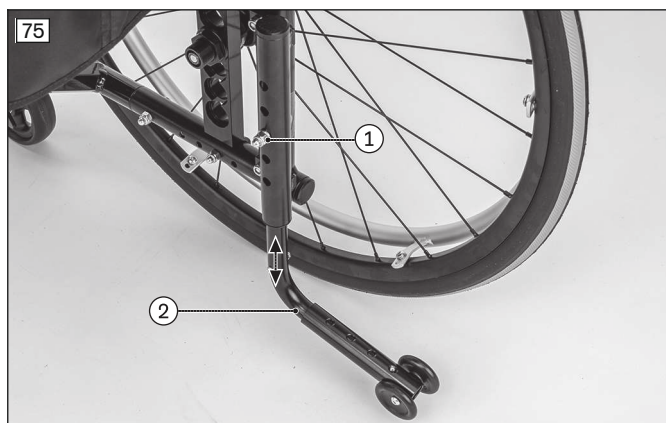
In order to adjust the anti-tipper correctly, it may be necessary to combine the steps to adjust the length and angle.

Adjusting the height of the anti-tipper

- 1) Remove the Allen screw between the anti-tipper tube and the adapter tube (see fig. 75, item 1).
- 2) Adjust the height of the anti-tipper by sliding it in the adapter tube (see fig. 75, item 2).
→ The distance between the anti-tipper rollers and the ground must be **50 mm** max.
- 3) Tighten the Allen screw to **7 Nm**.

Adjusting the length of the anti-tipper

- 1) Press the push-button on the lower tube section of the anti-tipper (see fig. 76, item 1).
- 2) Adjust the length of the anti-tipper (see fig. 76, item 2):
→ As a minimum, the anti-tipper rollers must project fully beyond the largest diameter of the drive wheel.
- 3) Allow the push-button to engage.



6.10 Adjusting the lap belt

⚠ CAUTION

Incorrect approach to the adjustment process

Injuries, malpositions, user discomfort due to adjustment errors

- ▶ The qualified personnel is responsible for the individual positioning and fitting of the belt system.
- ▶ Adjusting the belt system too tightly may lead to unnecessary pain or user discomfort.
- ▶ Adjusting the belt system too loosely can cause the user to slide into a dangerous position. In addition, the fastening snaps could open unintentionally if they slide against hard parts of clothing (e.g. buttons).

⚠ CAUTION

Lack of instruction

Injuries, malpositions, illness of the user due to incorrect information

- ▶ The qualified personnel is responsible for making sure that the user and/or attendant/nursing staff has understood the proper adjustment, use, maintenance and care of the belt system.
- ▶ In particular, ensure that the user and/or attendant/care staff knows how to quickly loosen and open the product to avoid delays in case of emergency.

Information on the settings can be found in the manufacturer's instructions for use accompanying each product.

6.11 Adjusting the tray

The tray slides onto the arm supports.

If the tray holder was not adapted to the arm support height, this can be done with the help of the enclosed instructions for use or assembly instructions.

7 Delivery

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?
- Are the drive wheels correctly positioned?
- Do the quick-release axles rotate freely and lock securely?
- Were the tyres correctly inflated?

INFORMATION: The correct tyre pressure is printed on the tyre sidewall. For drive wheels with high-pressure tyres, the minimum air pressure is 7 bar.

- Only after adjustment: Have the brakes (wheel locks) been adjusted correctly?
- Only after adjustments: Has the respective caster journal angle been adjusted vertically?
- Only after adjustments: Has the anti-tipper been adjusted correctly?

7.2 Transport to the customer

NOTICE

Use of unsuitable packaging

Damage to the product caused by transportation using incorrect packaging

- ▶ Use only the original packaging for delivery of the product.

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

7.3 Handing over the product

⚠ WARNING

Lack of instruction

Tipping over, falling of the user due to lack of knowledge

- ▶ Instruct the user or the attendant in the proper use of the product when handing it over.

The following steps must be performed for the safe delivery of the product:

- Conduct a sitting test with the user of the product. Pay special attention to proper positioning according to medical considerations.
- The user and any attendants must 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.
- **Depending on equipment:** The supplied instructions for use for accessories have to be handed over in addition.

8 Maintenance and repair

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

Further information on caring for the product and on maintenance/repair can be found in the instructions for use (user).

Detailed information on repairs can be found in the service manual.

9 Disposal

9.1 Disposal information

All components of the product must be disposed of properly in accordance with the respective national environmental regulations.

9.2 Information on re-use

⚠ CAUTION

Used seat padding

Functional and/or hygienic risks due to re-use

- ▶ Replace the seat padding if the wheelchair is to be re-used.

The product is suitable for re-use.

Similar to second-hand machines or vehicles, products that are being re-used are subject to increased strain. Features and performance must not change in a way that could impair the safety of users or third parties during the period of use.

The relevant product must be thoroughly cleaned and disinfected before re-use. Then have the product inspected by qualified personnel with respect to its condition, wear and tear, and damage. Worn and damaged parts as well as components that do not fit or are unsuitable for the user must be replaced.

Detailed information on replacing components as well as information on the required tools can be found in the service manual.

10 Legal information

All legal conditions are subject to the respective national laws of the country of use and may vary accordingly.

10.1 Liability

The manufacturer will only assume liability if the product is used in accordance with the descriptions and instructions provided in this document. The manufacturer will not assume liability for damage caused by disregarding the information in this document, particularly due to improper use or unauthorised modification of the product.

10.2 Warranty

Further information on the warranty terms and conditions is available from the manufacturer's service department.

10.3 Lifetime

Expected lifetime: **4 years**

The design, manufacturing and requirements for the intended use of the product are based on the expected lifetime. These also include the requirements for maintenance, ensuring effectiveness and the safety of the product.

11 Technical data

INFORMATION

- ▶ Much of the technical data below is given in mm. Please note that product settings – unless otherwise specified – cannot be adjusted in the mm range but only in increments of approx. **0.5 cm** or **1 cm**.
- ▶ Note that the values achieved during adjustment may deviate from the values specified below. The deviation can be **±10 mm** and **±2°**.

INFORMATION

- ▶ Some of the measurements indicated below are values that were theoretically determined.
- ▶ Note that not all adjustment possibilities can be used with all product versions. Furthermore, the adjustment combinations are limited by the compact frame geometry.
- ▶ Technical changes and tolerances are reserved by the manufacturer.

	Motus
Max. load [kg]	125/140
Total weight [kg] ¹⁾	From 11.6
Weight [kg] ¹⁾ (for seat width 380 mm, seat depth 400 mm; 5" full rubber caster wheels)	approx. 14
Transport weights [kg] ¹⁾ ; (for seat width 380 mm, seat depth 400 mm; 5" full rubber caster wheels)	Wheelchair without wheels: approx. 10.5
Seat width [mm] ²⁾	355 – 555
Seat depth [mm] ²⁾	360 – 540
Lower leg length [mm] (without cushion)	340 – 550
Max. overall height [mm] (for rear seat height: 520 mm; back support height: 500 mm; push handle)	1100
Min. tyre pressure [bar] ³⁾	7
Steering range approx. [mm] ⁴⁾ (for seat width 380 mm, seat depth 400 mm; passive wheelbase)	1080
Maximum permissible inclination [°]/[%] ⁵⁾⁶⁾⁷⁾	7 / 12.3

¹⁾ The specified weights vary according to the selected options and variants.

²⁾ In accordance with ISO 7176-5, 8.12

³⁾ Varies depending on tyre option; see the print on the tyre wall

⁴⁾ Turning range/diameter in accordance with ISO 7176-5, 8.11/8.12

⁵⁾ Also applies for parking with wheel lock engaged.

⁶⁾ Applies to all directions (upwards, downwards, sideways).

⁷⁾ In accordance with ISO 7176-1.

Additional information

Motus	Minimum	Maximum
Mass of the heaviest component [kg]	---	from 8 (with smallest seat width, smallest seat depth and lowest back support height)
Overall length [mm] ¹⁾	830	1110
Overall width [mm] (with standard drive wheels) ²⁾	520	720
Overall width [mm] (with drive wheels with drum brake) ²⁾	555	755
Length (folded) [mm]	805	1110
Width (folded) [mm]	320	355
Height (folded) [mm]	730	1090
Seat bottom angle [°]	1 – 15 (depends on seat height front/rear)	
Effective seat depth [mm]	360	540
Effective seat width [mm]	355	555
Front seat height [mm]	380	550
Rear seat height [mm]	360	520
Back support angle [°]	0 (vertical)	Up to 30
Back support height [mm]	300	500
Distance from leg support to seat [mm]	340	520
Distance from arm support to seat [mm]	210	300
Angle from foot plate to seat surface [°]	Fully adjustable	
Drive wheels	22" with front seat height < 410 mm or with rear seat height < 400 mm 24" with front seat height ≥ 410 mm or with rear seat height ≥ 400 mm	
Caster wheels	4", 5", 5.5", 6", 7"	
Permissible tyre type	Pneumatic, PU or solid rubber / 1", 1 3/8"	
Handrim diameter [mm]	507	520
Minimum turning radius [mm] ³⁾	520	---
Horizontal axle position [mm] ⁴⁾	33	106.5

¹⁾ With wheelbase extension: rear axle position + 73 mm

²⁾ Applicable to handrim attachment, narrow, and 0° drive wheel camber

³⁾ In accordance with ISO 7176-5

⁴⁾ Measured in reference to the middle of the back support

Front seat height [mm]

Caster fork	Wheel diameter				
	4"	5"	5.5"	6"	7"
Short	380 – 460	400 – 460	420 – 470	420 – 470	440 – 490
Long	460 – 530	470 – 540	440 – 540	440 – 550	450 – 550

Rear seat height [mm]

Drive wheel size	Setting range
22"	360 – 400
24"	400 – 520

Ambient conditions

Temperatures and relative humidity	
Temperature during use [°C (°F)]	-10 to +40 (14 to 104)
Transport and storage temperature [°C (°F)]	-10 to +40 (14 to 104)
Relative humidity [%]	45 to 85; non-condensing

12 Appendices

12.1 Required tools

The following tools are required for adjustments and maintenance work:

- Allen keys in sizes 3, 4, 5
- Allen key (DIN 6911) of sizes 4, 5 and 6
- Ring and open-end wrenches in sizes 10, 11, 19, 24 and 27
- Socket wrenches in sizes 10, 19 and 27
- Phillips head screwdriver (size: 2)
- Screwdriver (blade width: 2.5 mm)
- Torque wrench (measurement range 3–50 Nm)

12.2 Torque values of the screw connections

Unless otherwise specified, screw connections are tightened with the following torque values:

- Thread diameter M4: 3 Nm
- Thread diameter M5: 5 Nm
- Thread diameter M6: 8 Nm
- Thread diameter M8: 20 Nm

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