



CE

Avantgarde XXL 2

EN Instructions for use (qualified personnel)	3
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1 Foreword

INFORMATION

Date of last update: 2023-12-20

- ▶ 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

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.

2.1 Indications for use

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

2.2 Indications, contraindications




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. All manufacturer specifications and all applicable legal provisions must be complied with. Please contact the manufacturer's service department for further information (see for addresses www.ottobock.com).

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.


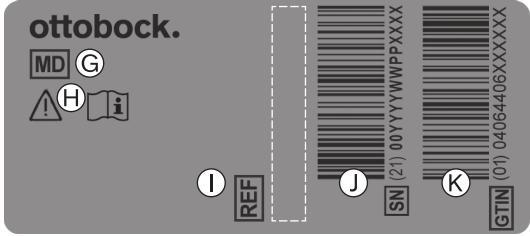
3.2 General safety instructions

- ▶ When carrying out work, use only tools that are suitable for the conditions at the workplace and for which safety and the protection of health are assured when used as intended. Observe the specifications in the section "Required tools".
- ▶ Whenever you work on the product, secure it so that it cannot tip over or fall down. Use a clamping fixture to secure the product whenever you work on it at a workbench.
- ▶ Modification of the size and position of the caster wheels and of the drive wheel size can lead to wobbling of the caster 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").

3.3 Nameplate

The product can be clearly identified by the information on the nameplate. In case of enquiries and orders for spare parts and accessories, the product's serial number in particular must be kept ready.

The nameplates are found on the frame.

Label	Meaning
	A Name of the product
	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 = Production Identifier

⁴⁾ UDI-DI to GS1 standard; UDI = Unique Device Identifier, DI = Device Identifier

4 Delivery

4.1 Scope of delivery

The scope of delivery includes:

- Preassembled wheelchair
- Two drive wheels (installed or included)
- Options according to the order (installed or included)
- 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 24.

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

- ▶ Before you start using the wheelchair for the first time, check the chosen wheelchair settings with the support of qualified personnel.
- ▶ 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.

- 1) Attach the drive wheels to the quick-release axle mountings. The quick-release axles must not be removable after releasing the push-button.
- 2) Loosen the safety strap by means of the push-button and unfold the wheelchair.
- 3) **If necessary:** Insert the leg supports into the retainer. 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.
- 4) Fit the seat cushion.

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 adjustments and maintenance tasks as well as the torque values for screw connections are listed in the section "Appendices" (see page 27).

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

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.

⚠ 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 moving the drive wheel adapter in the frame.

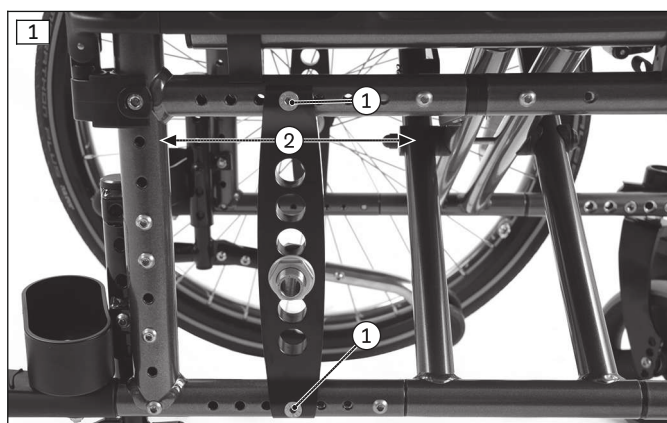
Changing the drive wheel position has the following effects:

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

Position of drive wheel	Effects
	<ul style="list-style-type: none"> 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 can be installed at 6 depth positions in the drive wheel adapter (see fig. 40, item A – F).

- 1) Remove the wheels.
- 2) Loosen the hexagon socket screws on the drive wheel adapter (see fig. 1, item 1).
- 3) Move the drive wheel adapter to the desired bore hole (see fig. 1, item 2).
- 4) Check the depth setting. Both sides must be positioned exactly the same. Readjust if necessary.
- 5) Tighten the hexagon socket screws on the drive wheel adapter to **10 Nm** (see fig. 1, item 1). Put on the protective cap.
- 6) **If necessary:** Readjust the height and alignment of the caster attachment device as well as the wheel locks (see information at the start of the section).



6.2.2 Adjusting the drive wheels vertically

The vertical position of the drive wheels can be changed by vertically moving the quick-release axle receiver bushing in the drive wheel adapter.

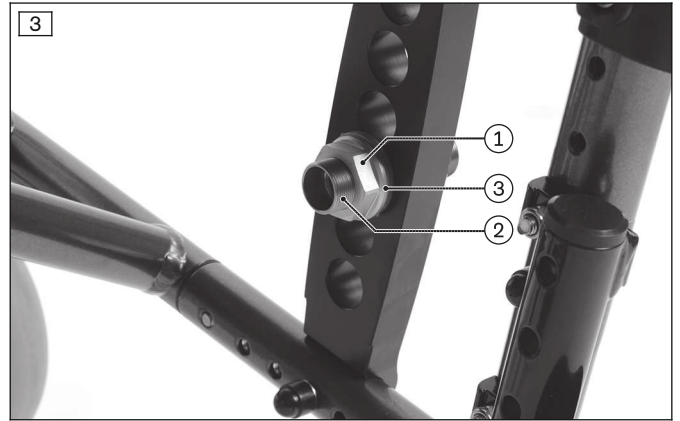
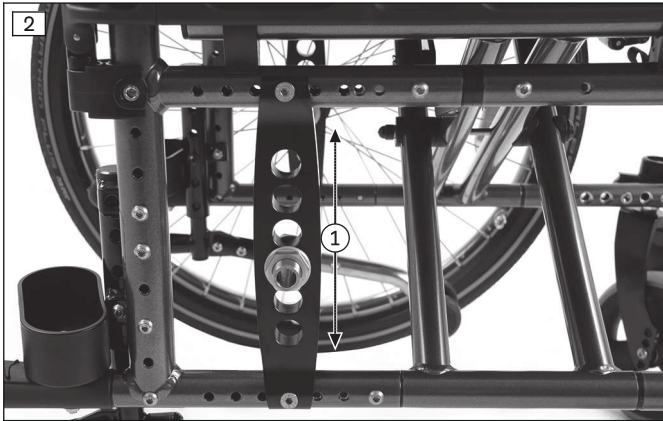
Changing the drive wheel position has the following effects:

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.

With the help of the quick-release axle mounting, the drive wheel can be installed at 6 height positions in the drive wheel adapter (see fig. 2, item 1; see fig. 40, item 1 – 6).

- 1) Remove the wheels.
- 2) Loosen and remove the hexagon nut (see fig. 3, item 1) from the quick-release axle mounting (see fig. 3, item 2) on the inside of the drive wheel adapter.
- 3) Remove the Nord-Lock wedge-locking washer (see fig. 3, item 3)
- 4) Remove the quick-release axle mounting together with the remaining hexagon nut and insert it into the drive wheel adapter in the desired position.
- 5) Slide on the Nord-Lock wedge-locking washer (see fig. 3, item 3) and firmly retighten the hexagon nut (see fig. 3, item 1).

- 6) **If necessary:** The horizontal distance between the drive wheel and side panel can be adapted by adjusting the quick-release axle mounting. To do so, the distance is continuously adjustable with the help of the counter nut (not shown).
- 7) Tighten the hexagon nut and counter nut on both sides of the quick-release axle mounting to **50 Nm** (see fig. 3, item 1).
INFORMATION: Once changed, the left and right quick-release axle mountings must both have the same vertical position in the drive wheel adapter.
- 8) **If necessary:** Readjust the height and alignment of the caster attachment device as well as the wheel locks (see information at the start of the section).



6.2.3 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. 4, item 1) in or out.



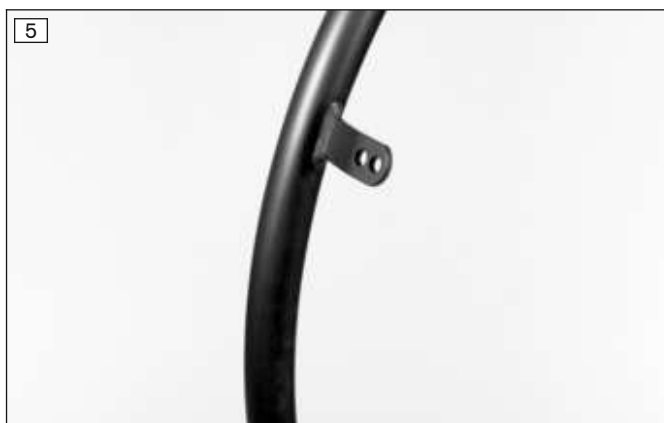
6.2.4 Adjusting the handrims

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**.

- 1) Loosen/remove the handrim screw connection from the rim (see fig. 6).
- 2) Tightly screw the handrims onto the rim in narrow or wide installation position.



6.3 Adjusting the caster wheels

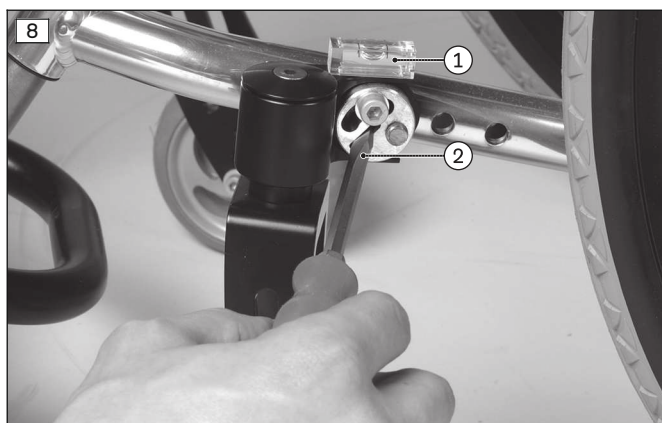
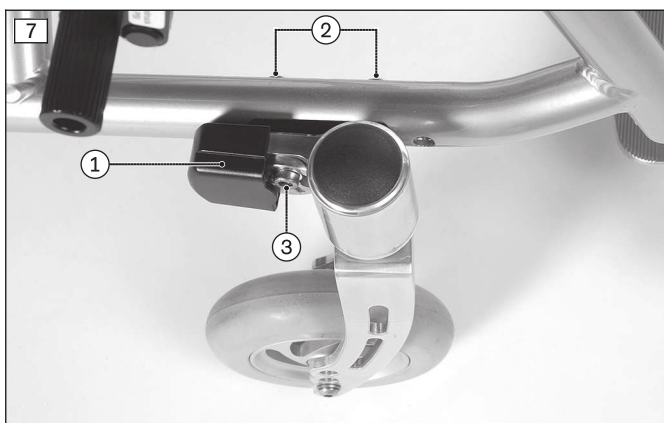
6.3.1 Adjusting the caster journal angle

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) Remove the caps from the caster wheel adapters (see fig. 7, item 1).
- 2) Slightly loosen the Allen head screws on the inside of the frame (see fig. 7, item 2).
- 3) Slightly loosen the Allen head screw on the eccentric (see fig. 7, item 3).
- 4) Position the assembly aid (spirit level) (see fig. 8, item 1).
- 5) Adjust the positive/negative caster to **90°** on the eccentric disc using a large flat screwdriver (see fig. 8, item 2). The assembly aid (spirit level) must be in the centre position.
- 6) Tighten the Allen head screw on the eccentric to **8 Nm** (see fig. 7, item 3).
- 7) Tighten the Allen head screws on the inside of the frame to **23 Nm** (see fig. 7, item 2).

→ 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

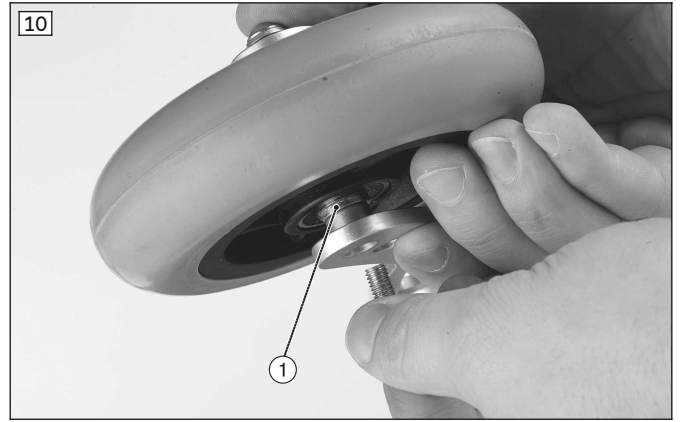
Please note that horizontally shifting the caster fork on the frame is not intended. The resulting change in the wheelbase can result in an increased tipping tendency.

The seat height/inclination can be subsequently adjusted by changing the position of the caster wheels in the caster forks or using different wheel sizes.

Please refer to the installation matrix in the section "Technical data" for permitted positions and combinations of drive wheels and caster wheels.

- 1) Unscrew the screw connection of the threaded axle (see fig. 9).
- 2) Remove the threaded axle/spacers.
- 3) Remove the caster wheel.

- 4) Insert the threaded axle with the first spacer bushing offset in one of the four bore holes.
 - 5) Install the caster wheel.
 - 6) Slide the 2nd spacer bushing on (see fig. 10, item 1).
 - 7) Tighten the threaded axle to **8 Nm**.
- Once adjusted, the left and right caster wheels must have the same vertical position in the caster fork.



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 after the drive wheel has been repositioned or during fine adjustment.

6.4.1 Adjusting the knee lever wheel locks

- 1) Loosen the Allen head screws in the T-nut on the underside of the frame (see fig. 11, item 1).
 - 2) The knee lever wheel lock is continuously adjustable in the slotted hole (see fig. 11, item 2).
 - 3) When the wheel lock is disengaged, the gap between the tyre and wheel lock bolt must not exceed **5 mm** (see fig. 12).
 - The distance between the wheel lock bolt and the drive wheel must be **1–5 mm** in the unbraked condition.
 - 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.
 - 4) Tighten the Allen head screws to **10 Nm**.
- After adjustment, the left and right knee lever wheel locks must both have the same braking force.



6.4.2 Adjusting the knee lever wheel lock for user and attendant

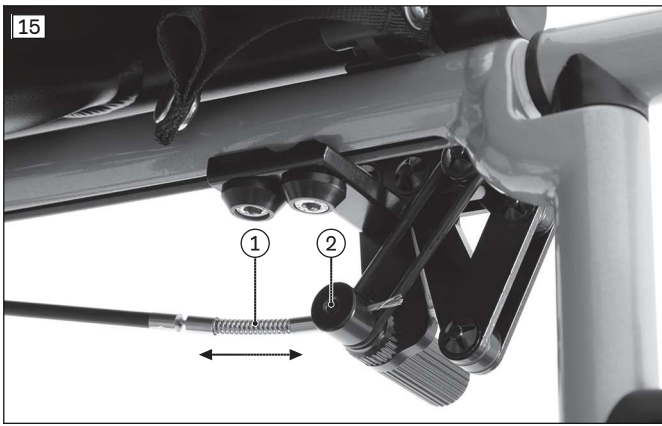
Presetting (as needed)

- 1) Loosen the hexagon socket screws between the knee lever wheel lock and the threaded stud in the frame tube (see fig. 13).
- 2) Adjust the knee lever wheel lock by sliding it.
When the wheel lock is disengaged, the gap between the tyre and wheel lock bolt must not exceed **5 mm** (see fig. 14).
→ The distance between the wheel lock bolt and the drive wheel may be **1 – 5 mm** when the wheel lock is not engaged.
- 3) Evenly tighten the hexagon socket screws in the threaded stud to **8 Nm**.

Fine adjustment

- 1) Separate the Bowden cable mounting from the wheel lock bolt (see fig. 15, item 2).
- 2) Adjust the Bowden cable in the spring (see fig. 15, item 1).
- 3) Clamp the Bowden cable again by tightening the mounting.
→ It must be possible to operate the wheel lock evenly and easily on both sides.
→ 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 sleeve (not shown).





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

INFORMATION

To adjust the wheel lock bolt 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 between the knee lever wheel lock and the threaded stud in the frame tube (not illustrated, similar process: see fig. 13).
- 2) Adjust the knee lever wheel lock by sliding it.
When the wheel lock is disengaged, the gap between the tyre and wheel lock bolt must not exceed **5 mm** (similar illustration: see fig. 14).
→ The distance between the wheel lock bolt and the drive wheel may be **1 – 5 mm** when the wheel lock is not engaged.
- 3) Evenly tighten the hexagon socket screws in the threaded stud to **8 Nm**.

Fine adjustment

- 1) Separate the sleeve from the wheel lock bolt (see fig. 16).
- 2) Slide the sleeve onto the Bowden cable (see fig. 17).
- 3) Clamp the Bowden cable by tightening the nut (see fig. 16).
→ 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 (not illustrated).



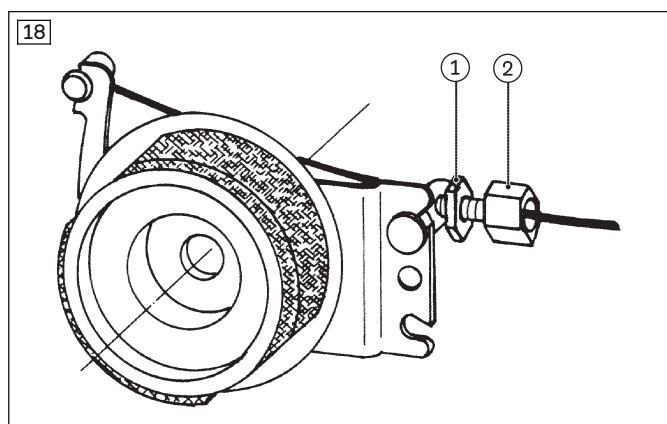
6.4.4 Adjusting the braking force of the drum brake

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. 18, 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. 18, 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. 18, item 2) until the scraping noise at the rear wheel disappears and the wheel runs freely.
 - 3) Tighten the counter nut (see fig. 18, 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

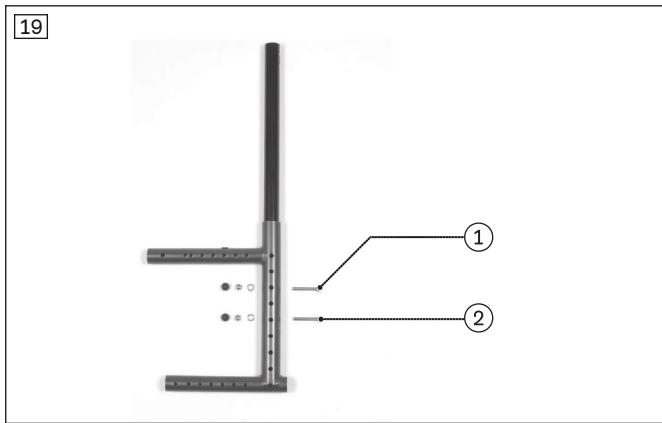
With the “Back, height-adjustable/adaptable” option, the height of the back support tube can be adjusted. Adjustment can be made within the hole matrix at intervals of **25 mm** over a range of **100 mm**.

The adjustment range is determined by the selected back support size:

- Standard back support: 250 – 350 mm, 300 – 400 mm, 350 – 450 mm, 400 – 500 mm.
- Ergo back support: 300 – 400 mm, 350 – 450 mm, 400 – 500 mm.

1) Preparation:

- Remove the drive wheels and secure the wheelchair by jacking it up.
 - Remove add-on components attached to the back support tubes that are in the way (for instance anti-tipper or desk side panel mounts with height-adjustable forearm support).
- 2) Loosen and remove the upper and lower screws on the rear frame tube (see fig. 19, item 1/2).
 - 3) Loosen and remove the screw on the clamp bracket of the side panel on each side (not illustrated).
 - 4) Slide both back support tubes to the desired height (see fig. 19). Both back support tubes must be set to the same height (see above for adjustment range).
 - 5) Install and firmly tighten the upper and lower screws on the rear frame tube (see fig. 19, item 1/2). The back support tube always has to be attached with 2 screws per side.



6.5.2 Adjusting the back support angle

⚠ WARNING

Incorrect use of back support angle adjustment

Falling, tipping over due to shift in centre of gravity

► Note that adjusting the back support angle shifts the centre of gravity. If necessary, install an anti-tipper in addition.

Angle-adjustable back support

The inclination of the back support to the seat bottom can be adjusted from **-9° to +15°** in 6° increments:

- 1) Slightly loosen the hexagon socket screw on the positioning joint on both sides (see fig. 20).
- 2) Position the back support unit at the desired angle.
- 3) Tighten the hexagon socket screw on the positioning joint to **10 Nm** on both sides.



6.6 Adjusting the back support upholstery / seat upholstery

6.6.1 Adjusting the back support upholstery

INFORMATION

A well-adjusted back support provides lasting comfort 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 different versions of the adjustable back support upholstery can be adapted in segments to the needs of the user.

- 1) Remove the seat cushion.
- 2) Pull the back support pad up and off the hook-and-loop fastener on the back support upholstery.

- 3) Loosen the respective upholstery straps and use the hook-and-loop fastener to fasten them with the desired tension (example: see fig. 22).
- 4) Put on the back support pad and attach it to the hook-and-loop fastener on the back support upholstery.
- 5) Put on the seat cushion and secure it with the hook-and-loop fastener.



6.6.2 Adjusting the seat upholstery

The seat upholstery usually does not need to be adjusted during the initial fitting. However, the tension can be changed.

INFORMATION

You can slightly correct the centre of gravity by making small changes to the dip of the seat upholstery. However, larger 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.

- 1) Remove the seat cushion and slightly fold the crossbrace.
- 2) Loosen the hook-and-loop fastener on the underside of the seat upholstery.
- 3) Adjust the seat upholstery tension.
- 4) Close the hook-and-loop fastener.
- 5) Unfold the wheelchair. In doing so, the crossbrace must seat fully in the support guides.



6.7 Adjusting the leg supports

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.

Adjusting the height of the angle-adjustable leg support and segmented leg support

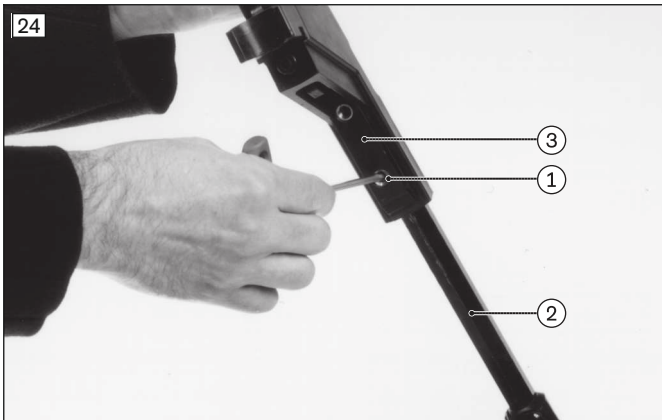
- 1) Loosen the set screws on the locking mechanism (see fig. 24, item 1).
- 2) Adjust the lower leg length (continuously adjustable). Ensure that the foot plate bar (see fig. 24, item 2) is inserted into the swivel segment (see fig. 24, item 3) by at least **40 mm**.

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

- 3) Tighten the set screws on the locking mechanism to **8 Nm**.

Adjusting the height of the amputation leg support

- 1) Open the Allen head screws and move the leg support to the desired height (see fig. 25).
- 2) Tighten the Allen-head screws.



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.

- 1) Loosen the Allen head screws on the rear foot plate suspension by several turns (see fig. 26).
- 2) Turn the foot plate to the desired angle.
- 3) Tighten the Allen head screws to **10 Nm** (see fig. 26).



6.7.3 Adjusting the lateral heel blocks

The width of the adjustable lateral heel blocks can be adapted to the requirements of the user.

- 1) Remove the protective cap respectively from the Allen head screw on the slotted hole and loosen the mounting screw (see fig. 27).
- 2) Adjust the heel blocks as desired by sliding them in the slotted hole.
- 3) Tighten the Allen head screws and install the protective caps.



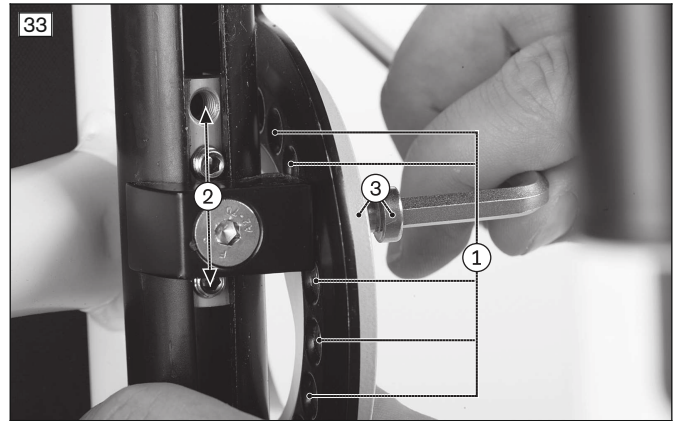
6.8 Adjusting the side panels

6.8.1 Adjusting the “standard” and “clothing guard” side panels

If the drive wheel position is changed, fine adjustment of the side panels is necessary. The clothing protector (see fig. 28) can be adjusted continuously to the position of the drive wheels.

- 1) Remove the drive wheel.
- 2) Loosen the mounting screw between the side panel and slide block (see fig. 29, items 1/2).
- 3) Loosen the bolt in the adjustment groove of the backrest tube from the inside (see fig. 30).
- 4) If necessary, slightly loosen the slide block on the bottom of the frame (see fig. 31).
- 5) Unscrew and remove the cover from the adjustment disc (see fig. 32).
- 6) Push on the drive wheel to determine the position.
- 7) Adjust the position:
 - Front: align the correct hole on the adjustment disc with the mounting point on the slide block (see fig. 33, item 1).
 - Drive: Adjust the angle (see fig. 30).
 - Slide block: If necessary, adjust the depth position (see fig. 33, item 2).
- 8) Screw on the cover of the adjustment disc (see fig. 32). The marks on the disc help to find the position. Ensure that the side panel can be fastened to the slide block through the cover (see fig. 33, item 3).
- 9) Securely retighten all the screws.
- 10) Push on the drive wheel and ensure that it can rotate freely.
 - After adjustment of both side panels, both drive wheels must rotate freely without scraping noises.





6.8.2 Adjusting the forearm support height

Adjusting the armrest height is described in more detail in the included instructions for use (user).

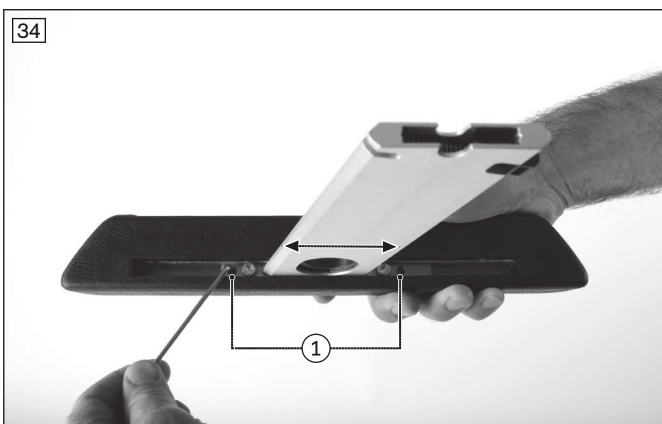
6.8.3 Adjusting the forearm support depth

Adjusting the forearm support depth with long forearm support, “depth-adjustable”

Adjusting the forearm support depth with the long forearm support, “depth-adjustable”, is described in more detail in the enclosed instructions for use (user).

Adjusting the forearm support depth with long forearm support

- 1) Loosen the hexagon socket screws under the forearm support and set the desired depth (see fig. 34, item 1).
- 2) Firmly re-tighten the hexagon socket screws.



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

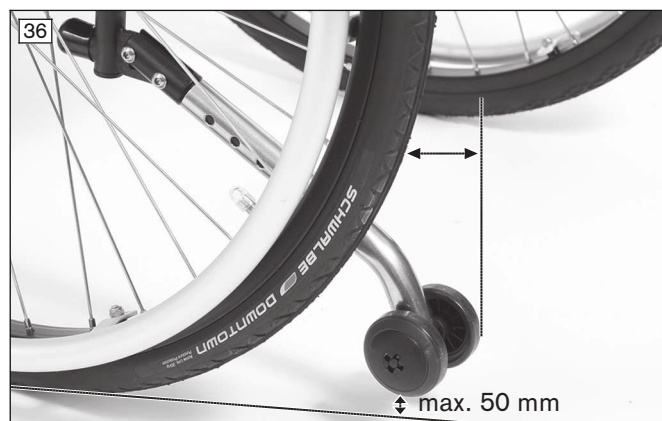
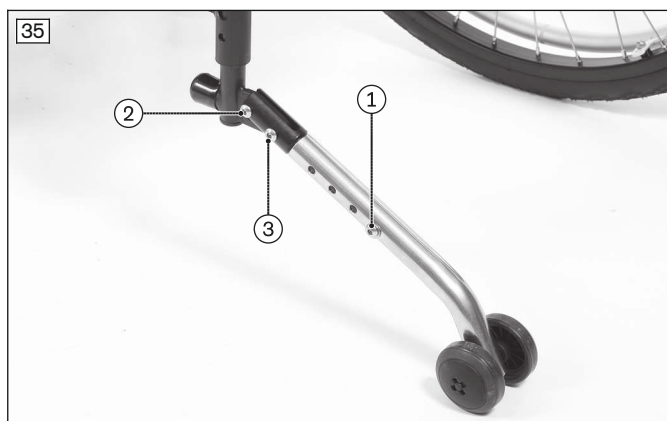
- ▶ Depending upon the settings of the chassis, the centre of gravity, the back angle and the experience of the user, the use of an anti-tipper may be necessary.
- ▶ For a small wheelbase and a backrest that is tilted far back, an anti-tipper may need to be installed on both sides, depending upon the user's experience.
- ▶ Verify that the anti-tipper has been installed and adjusted properly. Find the appropriate position with the assistance of a helper.

Adjusting the length of the pivot arm

- 1) Remove the Allen head screw on the pivot arm (see fig. 35, item 1).
- 2) Adjust the length of the pivot arm.
- 3) Bolt down the pivot arm. The outer edge of the anti-tipper roller has to project beyond the largest diameter of the tyre (see fig. 36).

Adjusting the angle of the pivot arm

- 1) Remove the Allen head screw between the anti-tipper tube and the angle adjuster (see fig. 35, item 2).
- 2) Loosen the second Allen head screw on the angle adjuster (see fig. 35, item 3).
- 3) Set the angle of the pivot arm.
- 4) Bolt down the pivot arm. The max. distance between the anti-tipper rollers and floor is **50 mm** (see fig. 36).



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 Installing and adjusting the head support

⚠ CAUTION

Incorrect settings

Hitting components due to violent head movements of the user

- ▶ Do not position yourself behind the head support during adjustment, but at its side.

Installing the mounting kit

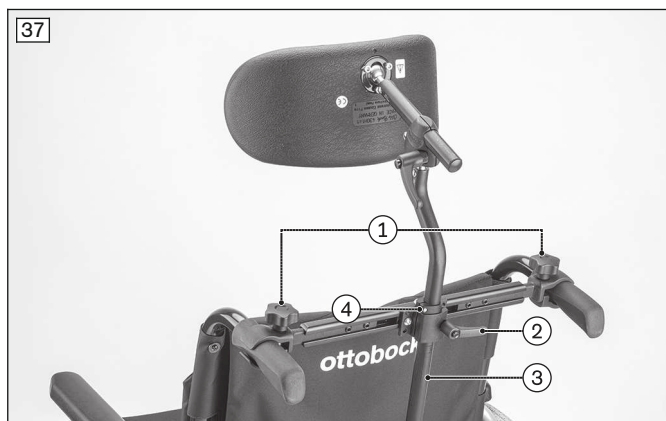
- 1) Adjust both push handles so they are parallel and at the same height (not illustrated).
 - 2) Install the mounting kit to hold the head support on the push handles using the clamping jaws and star handles (see fig. 37, item 1).
- Installation is described in more detail in the supplied instructions for use – reference number 647G367.

Attaching the head support

- 1) Open the clamp bracket on the mounting kit (see fig. 37, item 2).
- 2) Insert the adjustment tube of the head support into the clamp bracket (see fig. 37, item 3).

Adjusting the head support

- 1) **Height adjustment:** Loosen the clamping lever and adjust the head support height (see fig. 38, item 1).
- 2) **Sideways adjustment:** Loosen the mounting screws on the clamping plate and adjust the head support sideways (see fig. 38, item 2).
- 3) **Depth adjustment:** Loosen the clamping lever and adjust the head support depth (see fig. 38, item 3).
- 4) **Angle adjustment:** Loosen the mounting screws on the head support and adjust the angle (see fig. 38, item 4).
- 5) Once all settings have been adjusted, firmly close the clamping lever and tighten the mounting screws.
- 6) Position the stop on the adjustment tube and tighten (see fig. 37, item 4).



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?
- **For pneumatic tyres:** Is the tyre pressure correct (see tyre sidewall for information)?
- 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 qualified personnel that adapted this product or 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.

	Avantgarde XXL 2
Max. load [kg]	180
Transport weights [kg] ¹⁾	Frame: from 11.3 24" drive wheel: from 1.3 (including quick-release axle)
Min. tyre pressure [bar] ²⁾	7
Permissible tyre type – drive wheels	Pneumatic tyres, PU tyres
Permissible tyre type – caster wheels	Solid rubber, pneumatic tyres, soft caster
Maximum permissible inclination [°]/[%] ³⁾⁴⁾⁵⁾	7 / 12.3

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

²⁾ Varies according to tyre option; see the marking on the tyre wall.

³⁾ Also applies for parking with wheel lock engaged.

⁴⁾ Applies to all directions (upwards, downwards, sideways).

⁵⁾ In accordance with ISO 7176-1.

Additional information

Avantgarde XXL 2	Minimum	Maximum
Weight [kg] ¹⁾	14 ²⁾	17 ²⁾
Overall length with leg supports [mm]	790	1140
Overall width [mm]	695	850
Folding size, length with leg supports [mm]	790	1140
Folding size, width [mm]	320	380
Folding size, height [mm]	700	1053
Seat bottom angle (difference between front/rear seat height) [°]	approx. 15	
Effective seat depth [mm]	400	560

Avantgarde XXL 2	Minimum	Maximum
Effective seat width [mm]	460	620
Front seat height [mm]	460	530
Rear seat height [mm]	410	530
Back support angle (in reference to perpendicular to the seat bottom) [°]	-9	+15
Back support height [mm]	250	500
Distance from leg support to seat [mm]	320	550 ³⁾
Distance from arm support to seat [mm]	245	340
Angle from leg support to seat bottom [°]	Angle-adjustable (as needed)	
Handrim diameter [mm]	470	560
Minimum turning radius [mm] ¹⁾	550	740

¹⁾ In accordance with ISO 7176-5.

²⁾ The specified weights vary according to the selected options and variant.

³⁾ Restriction due to normative ground clearance requirements; individually larger by customer request, maximum depending on seat height, foot plate and foot plate angle setting.

Front seat height [mm]

Caster fork	Item (see fig. 39)	Wheel diameter		
		140 mm	7"	8"
Short	4	---	---	---
	3	---	---	---
	2	450	---	---
	1	470	490	---
Long	4	470	490	---
	3	480	500	510
	2	495	515	525
	1	505	525	535

--- = Combination not possible.

All information without seat cushion at 0° seat inclination.

The front seat height depends on the selected wheel size, caster fork and mounting position. Please refer to the seat height table!

Seat inclination: 100 mm maximum seat height difference between front seat height and rear seat height (equalling a seat inclination of about 15°).

Without indication of the desired seat inclination, it will be factory-set at approx. 4°.

Rear seat height [mm]

Mounting position (see fig. 40)	Drive wheel size/tyres	
	24"	26"
1	400	420
2	425	445
3	445	465
4	470	490
5	490	510
6	510	530

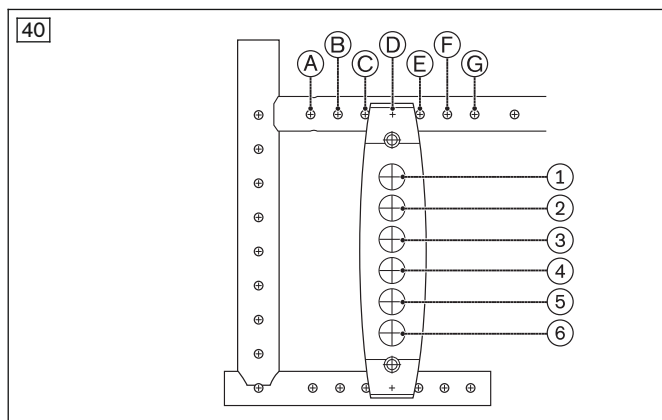
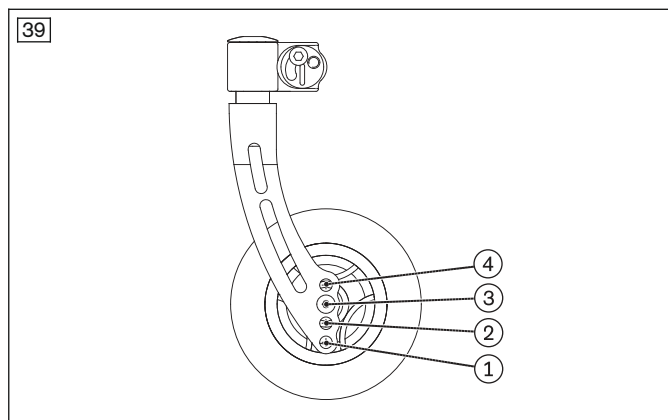
All information without seat cushion at 0° seat inclination.

The rear seat height depends on the selected wheel size, caster fork and mounting position. Please refer to the seat height table!

Seat inclination: 100 mm maximum seat height difference between front seat height and rear seat height (equalling a seat inclination of about 15°).

Important notice: The axle can be adjusted horizontally between the front and rear axle position in 7 different positions (A through G; see fig. 40). Position A allows a passive centre of gravity. The most active

centre of gravity is reached in position G. Unless otherwise specified, the drive wheel position will have the standard setting of D/4.



Lower leg length [mm]

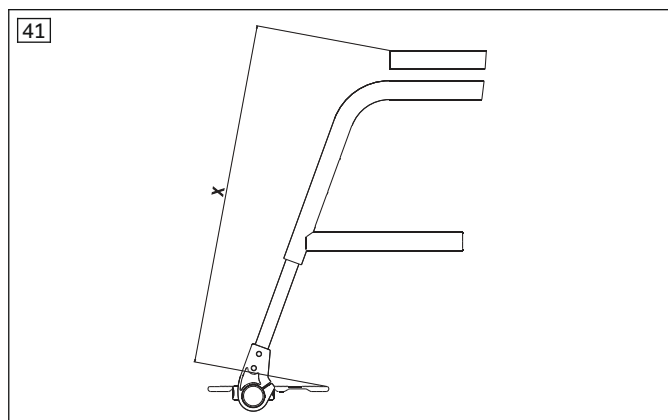
Measured from front edge of the seat upholstery to rear edge of the foot plate

(see fig. 41; lower leg length minus thickness of seat cushion used)

	Foot plate bar, short (230 mm) Specification for seat depth 380 mm		Foot plate bar, long (320 mm) Specification for seat depth 420 mm	
	Min.	Max.	Min.	Max.
XXL 2	320	460	390	550

--- = Combination not possible.

All specifications for narrow handrim installation (in case of wide installation: +20 mm).



Overall length [mm]

Seat depth	Drive wheel size				
	Lower leg length	24"		26"	
		Maximum Minimum	Front axle position	Rear axle position	Front axle position
400	550	850	955	875	980
	320	790	895	815	920
420	550	870	975	895	1000
	320	810	915	835	940
440	550	890	995	915	1020
	320	830	935	855	960
460	550	910	1015	935	1040
	320	850	975	875	980

Seat depth	Drive wheel size				
	Lower leg length	24"		26"	
480	550	930	1035	955	1060
	320	870	975	895	1000
500	550	950	1055	975	1080
	320	890	995	915	1020
520	550	970	1075	995	1100
	320	910	1015	935	1040
540	550	990	1095	1015	1120
	320	930	1035	955	1060
560	550	1010	1115	1035	1140
	320	950	1055	975	1080

Between the front and rear axle position, the axle can be adjusted horizontally in increments of **15 mm** (see rear frame component, item A, B, C, D, E, F, G; see fig. 40).

Overall width [mm]

Seat width	Standard side panel/clothing guard	Side panel with forearm support (height-adjustable)	Drive wheel with drum brake
500	695	720	730
520	715	740	750
540	735	760	770
560	755	780	790
580	775	800	810
600	795	820	830
620	815	840	850

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 key 4 – 6 mm
- Ring and open-ended wrenches in sizes 10, 12, 19 and 24
- Set of screwdrivers
- Torque wrench (measurement ranges 5 – 50 Nm)
- Mounting aid: spirit level
- Tyre lever
- Tyre pump

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: 10 Nm
- Thread diameter M8: 25 Nm

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