HD rehab

HD motion

User Manual | English

This user manual is available in PDF format at hdrehab.com.

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THANK YOU FOR CHOOSING A WHEELCHAIR FROM HD REHAB,
WE HOPE IT WILL SERVE YOU WELL

WE MANUFACTURE QUALITY OF LIFE

HD Rehab helps people achieve an improved quality of life. Our products help make the lives of users, their families, and caregivers easier, safer, and more comfortable.

HD Rehab offers assistive products for people living with disability. Our primary product is wheelchairs, which we have been designing, developing, and manufacturing for over 50 years. We accept no compromises in quality. Precision, safety for user and caregiver, function, and design are our guiding principles. We are confident that you will feel the difference compared to any other wheelchair.

GLAD TO BE FLEXIBLE

Whether you are a user, a family member, or a caregiver we welcome your requests and opinions. Our designers and developers work closely with the production team at our facility on the island of Lidingö in Stockholm. Our creative employees use their specialist knowledge, experience, and inventiveness to find solutions for the unique needs of each individual.

1. WARRANTY

The warranty is only valid if the product is used as directed and the service and cleaning instructions are followed.

THE WARRANTY COVERS:

Frame	5 years against defects in materials, manufacturing and/or assembly.
Leg-/arm-/headrests	Two years against defects in materials, manufacturing and/or assembly.
Upholstery	Two years against defects in materials and faults in manufacture.
Gas springs	Two years against defects in materials and faults in manufacture.

WARRANTY & LIMITATION OF LIABILITY

HD Rehab assumes no liability for damages arising out of the following:

- That the instructions in the manual were not followed.
- Incorrect installation or setup by a third party other than HD Rehab.
- Unauthorized modifications or adaptations.
- Use of spare parts from other manufacturers than HD Rehab
- Use by persons weighing more than the maximum user weight stated on the wheelchair.
- That the wheelchair is adjusted to an inappropriate position or setting for the user.

2. GENERAL INFORMATION

HD Motion is a class 1 CE labelled medical device.

2.1 Intended use

The HD Motion wheelchair is a manual wheelchair designed for youth who can propel themselves to a certain extent. It can also be used if the user does not propel them self. HD Motion can also in some cases be used by small adults. See *Prescriber information* (doc.nr. 96715-1) for more information.

HD Motion is intended for users in need of much comfort and support when seated. The seat and back on both models can be tilted in various positions to give the user a varied position during activity and rest. A varied seat position is very important. Note that prolonged sitting without a position change can lead to discomfort and harmful pressure.

Prescription by a medical professional is required before beginning to use a HD Motion. This applies to new wheelchairs as well as when a used chair changes users. Note that a new prescription may be needed if a user's disability or body size changes, or if new needs arise. Check this regularly. All prescription, adjustment, and monitoring of the wheelchair must be carried out by qualified personnel.

Where the wheelchair has several users, each patient's specific needs must be taken into account. If the wheelchair is to change users the covers of the back and seat cushions must be washed or replaced. Washing instructions are found on the cushion covers.

HD Motion in standard configuration is built to withstand the challenges and strains that arise in everyday situations and environments. In cases where extra durability is required the wheelchair can be made in a reinforced version. When using a drive motor, when frames are reinforced, and/or with other special adaptations, and with hard use the lifetime is limited to 5 years. Care and maintenance should be done more frequently in these cases.

The wheelchair is approved for use as a seat during transportation in vehicles.

2.2. General safety aspects

HD Motion is intended for use both indoors and outdoors. Before using the wheelchair, it is important that users and carers are familiar with how the chair works and should be used.

Test the driving characteristics and features.

- Read the whole manual and have it available. Note that deviations may occur especially if the wheelchair is specially equipped or adapted. The wheelchair can also be equipped with accessories and equipment from other suppliers.
- From a safety perspective, it is important that the maintenance instructions (see Section 6) are followed. A good rule is to keep the wheelchair clean and periodically test the controls and brakes.
- Be careful with all cables so that they do not get damaged. Particularly, when the chair has been transported it is good to do a further check to note that no cables have been damaged.
- If damage is detected or any component found to be missing the wheelchair must be taken out of service until this is fixed.
- The wheelchair should be operated and used judiciously to avoid unnecessary risks.
- The wheelchair should not be operated by other children.
- If the wheelchair is exposed to external heat sources such as sunlight, some parts may become hot. Pay attention to this so that no user is harmed.
- Be aware that certain items of clothing are not suitable as they may get caught in the wheels. Be especially careful with scarves and similar items that can tighten around the user's neck if caught.
- Sitting for long periods entails certain risks, e.g. circulation disorders such as thrombosis (blood clots). This applies primarily to adult users. If such a problem is suspected, gather information regarding symptoms and contact medical care. A varied seating position is important.

CUSHIONS

- Seat cushions made of foam have a limited lifetime depending on use. Cushions should be checked regularly and replaced as needed for the safety and comfort of the user. This helps avoid harm such as pressure sores. If harm is suspected, gather information regarding symptoms and contact medical care. See also Section ***6. Maintenance and care.***

POSITIONING AIDS

- All use of positioning aids such as positioning belts or chest harnesses must be assessed by the care provider according to healthcare regulations.
- There is a risk of the user sliding forward in the wheelchair and becoming caught in a chest harness. A harness must always be used in combination with a positioning belt. See also Section 4.5.
- Always read the user manual from the manufacturer of the positioning aid.

RISK OF TIPPING

- Do not hang bags, oxygen bottles, or other items on the seat back.
- Some users have involuntary movements, or are very active, and want to grab hold of solid objects (e.g. door frames). Use caution with these users and ensure that you are aware when their behaviour can tip the wheelchair. Avoid parking near fixed objects.

RISK OF PINCHING

- As the wheelchair has many different configuration options the caregiver must be alert to the user's position in the chair, to avoid the possibility that the user could be pinched. The risk of pinching is small under normal circumstances.
- Keep in mind that the user cannot always communicate that a pinching injury is occurring.

LIFTING

This advice is general since there are many different lifting aids available.

- When lifting in and out of the wheelchair be very attentive that the user's arms and legs do not get caught. Fold in the footrests or remove them so that they do not get in the way. Follow the lifting aid instructions carefully.
- Training is often required to operate the lifting aid.

CE MARKED ACCESSORIES, CUSTOMIZING

- HD Rehab has a number of CE-marked accessories that are authorized for use with the wheelchair while maintaining the CE marking. There are also combination agreements covering accessories from other manufacturers that are approved for use with HD Motion while maintaining the CE marking. Accessories that have not been approved may not be used.
- Any change to the wheelchair or use of accessories that are not certified and CE-marked by HD Rehab is a special adaptation and a transfer of liability occurs. Specially adapted wheelchairs do not retain CE marking and the warranty is void. Always consult HD Rehab if unsure about what applies. Help is available for special adaptations for individual users.

DAILY FUNCTIONAL CHECK

To ensure that the wheelchair works as it should, a daily function test should be performed before the user is positioned in the seat. See section ***6.1 Daily functional check***.

REPLACEMENT PARTS AND SERVICE

If the wheelchair is in need of replacement parts or service contact the reseller.

SAFETY NOTICES AND PRODUCT RECALLS

Information regarding any safety notices and product recalls can be found at hdrehab.com.

WARNINGS

In addition to these general safety aspects there are warnings and notices contained in each section in the manual. They are marked with a warning triangle as follows:

⚠ | - Here is the warning.

2.3 Tests

Wheelchair tests and crash test have been carried out for HD Motion at RISE Research Institutes of Sweden, Borås, Sweden (ISO 7176-19:2008 and EN 12183:2014, and ISO 7176-19 respectively). Resistance to ignition tests have been carried out at Swerea IVF, Mölndal, Sweden (ISO 7176-16:2013, EN 1021-1, and EN 1021-2). More information and certificates are found at hdrehab.com.

2.4 Wheelchair identification

Manufacturer, production year, serial number (SN), and article number (REF) in text and in bar code format are printed on the front cross tube of the wheel frame, see Figure 1.

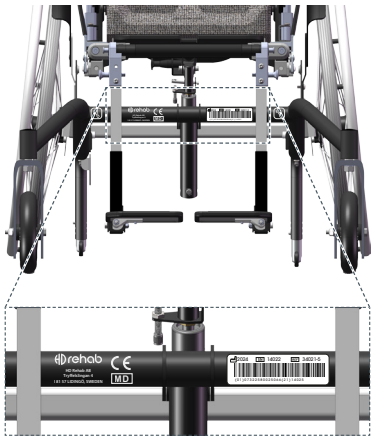

Figure 1. Labels for wheelchair identification

2.5 Wheelchair parts

1 Wheel frame
2 Seat frame
3 Back frame
4 Back system
5 Drive wheel
6 Castor
7 Caregiver brake
8 User brake
9 Push bar
10 Tip protector
11 Leg rest
12 Foot rest
13 Armrest, side support
14 Fender

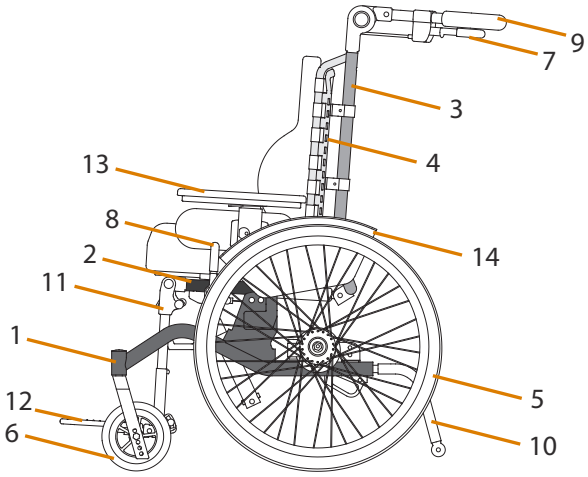

Figure 2. The parts of the wheelchair

2.6 Delivery inspection

ALWAYS DO THE FOLLOWING ON DELIVERY:

- Check that the wheelchair does not have any visible damage.
- Report any shipping damage to the transport company immediately.

Follow the unpacking instructions that come with the delivery. This may be supplemented with further instructions depending on the how the wheelchair is equipped.

2.7 Symbols and markings

The following markings are on the wheelchair. For more detail see document *Labelling*, doc.nr. 96764-1.

Model label. Shows that the model is HD Motion, as well as the wheel size, the seat width, and frame length of the wheelchair.

CE-marking. Shows that the wheelchair is a CE marked medical device and who the manufacturer is. SN stands for Serial Number and REF for Reference (article) number.

Parking brake. Shows how the sleeve on the brake lever is moved to activate the parking brake.

Transport attachment. Marks the anchor points for transport.

Max user weight. Shows the maximum user weight for the wheelchair.

Attention required. Wheelchairs with alternate configuarations or are equipped with accessories that carry increased or different risks are marked with this symbol.

3. FUNCTIONS AND SETTINGS

3.1 Brakes

HD Motion is equipped with combined service- and parking- disc brakes that can be activated by both the caregiver (1 in Figure 3) and the user (2 in Figure 3).

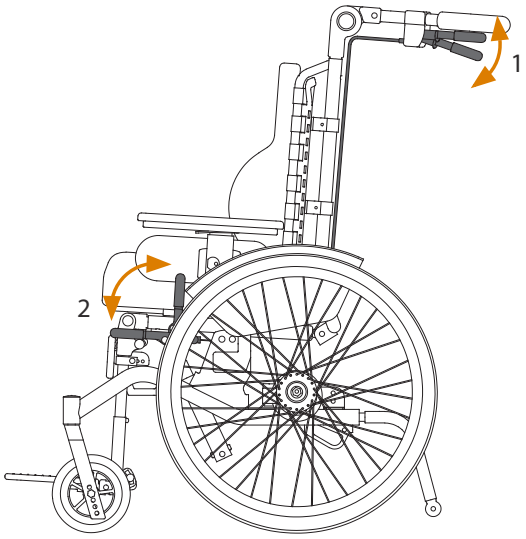

Figure 3. Caregiver brakes and user brakes

CAREGIVER BRAKES

The caregiver brake handles are located under the push bar (1 in Figure 4). The brakes are activated by pushing the handles up towards the push bar. Holding the brake handles slightly pressed achieves a braking effect, for example when moving downhill.

The parking brake is activated by pressing the brake handles up towards the push bar and then moving the locking sleeve (**a** in Figure 5) forward so that the brake handle is locked in place, see Figure 5.

NOTE: Make sure the locking sleeve is pushed forward sufficiently so that it sits securely.

NOTE: Always use both left-hand and right-hand parking brakes together.

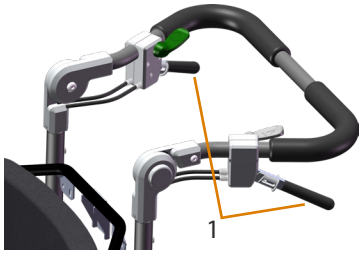

Figure 4. Brake handles

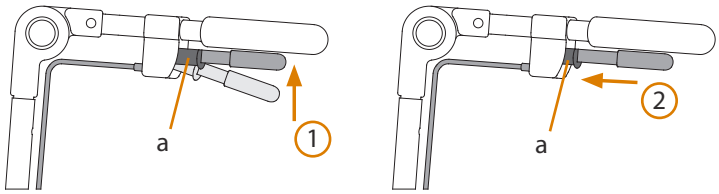

Figure 5. Parking brakes

USER BRAKES

The user can engage the brakes by moving the brake levers forward from the wheels. The brakes are released by moving the brake levers back towards the wheels.

Adjustment of the wheel lock must be performed by qualified personnel; instructions are in the technical manual.

⚠ - Parking brakes are not suitable for use when the wheelchair is on a surface that slopes more than 7°.

⚠ - Adjustment of the disc brakes should only be done by a qualified technician.

3.2 Wheels

HD Motion 22 in standard configuration is equipped with 22" drive wheels. Alternately 20" or 24" drive wheels can be used. Hand rims are stainless steel as standard, alternately plastic-coated for better grip. Hand rims can be assembled in different positions, see Info Sheet *Wheels,* doc.nr. 96904-1. Cambered wheel mounts are standard, giving the drive wheels a 6° camber. Alternately the drive wheels can be mounted straight, without camber.

HD Motion 16 is equipped with 16" drive wheels. Drive wheels for HD Motion 16 are always mounted straight.

Tyres for both HD Motion 22 and 16 are puncture-proof PUR. Pneumatic tyres are available as an alternative for both models.

Castors are 150mm as standard, alternate versions are available.

Note: Cambering, wheel size, and type of tyre all affect driving characteristics to some degree.

Figure 6. Wheel removal

REMOVING THE WHEEL:

- Press the release button (1, Figure 6) in the hub, pull off the wheel.

MOUNTING THE WHEEL:

- Insert the axle (2) in the wheel mount housing (3), see Figure 6.
- Press the quick-release button (1) on wheel hub.
- Press the wheel so that the three pins on the hub fit in to the three holes in the brake disc.
- Release the quick-release button and check that the wheel is secured by pulling on it.

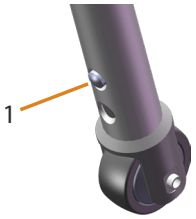

Figure 7. Tip protector with 2 positions set by snap lock

- Make sure the release button has slid out and the wheel is fixed.
- Be careful not to allow the user's hands to go in to the wheels.
- Be aware that certain items of clothing are not suitable as they may get caught in the wheels. Be especially careful with scarves and similar items that can tighten around the user's neck if caught.
- If pneumatic tyres are equipped the recommended air pressure is indicated on the tyres (normally 300 kPa).

3.3 Tip protectors and Tip pedal

Tip protectors are standard equipment on HD Motion and should always be used. The tip protectors can be set in two positions by means of a snap lock, see Figure 7. The snap lock is released by pushing it in (1, Figure 7). It is also possible to temporarily turn up the tip protectors if necessary when pushing the wheelchair, see Figure 8.

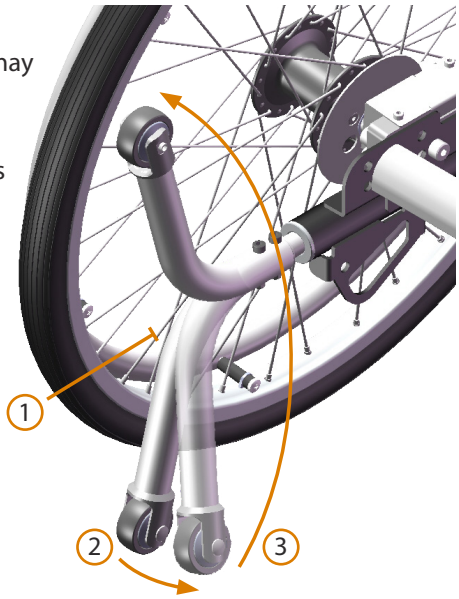

Figure 8. Turning up tip protector

TURNING UP THE TIP PROTECTORS, FIGURE 8

1. Using hand or foot, push in on the tube of the tip protector.
2. The tip protector is thus released and turns inward (2).
3. Turn up the tip protector to the rest position.

The tip protector is returned to the active position by turning it down with hand or foot.

- Always ensure that the tip protectors are turned all the way down and are in the locked position.

HD Motion can be equipped with a tip pedal (Figure 9). The tip pedal is used as a steadying point for the foot when the wheelchair is tipped up on the drive wheels. See also section 5.5 *Driving technique*.


Figure 9. Tip pedal

3.4 Push bar

HD Motion is equipped with an adjustable push bar with a large range upwards and downwards. Adjusting upwards allows the caregiver to set it to a comfortable position. It can even be set to a suitable position if the wheelchair is driven in a reclined position (see Figure 11). Adjusting the push bar all the way down allows the caregiver to come close to the user from behind in a care situation (see Figure 12).

HEIGHT ADJUSTMENT OF THE PUSH BAR:

- Push the buttons (Figure 10) on both left and right side and move the push bar to the desired position.
- Release the buttons and check that the push bar has clicked in to a locked position.
- Check that brake and control cables run freely and are not damaged. The cables should run along the tubes of the back frame.

Figure 10. Push bar release buttons

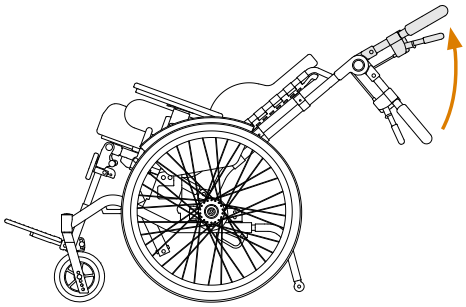

Figure 11. Push bar up

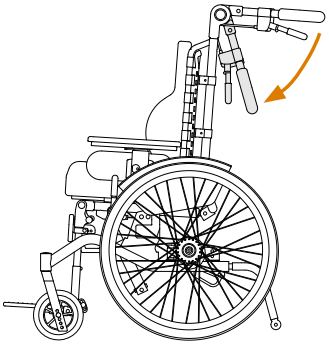

Figure 12. Push bar down

⚠ - The caregiver must never push the wheelchair in an uncomfortable position. Hands must be able to easily grasp the push bar and operate the brakes and tilt/recline controls.

3.5 Cushions and covers

Seat and back cushions are attached with velcro and are easily removable and interchangeable.

⚠ - Check cushions according to the maintenance directions. Worn out cushions can cause pressure ulcers.

POSITIONING THE SEAT CUSHION

- Align the cushion over the seat plate and place it straight down. The back of the cushion is labelled. The underside is black and smooth.
- Check that the cushion is secure.

REMOVING THE SEAT CUSHION:

- Grasp the front edge of the cushion and pull straight up.

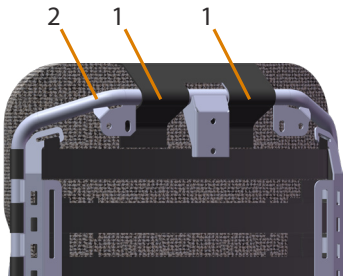

Figure 13. Straps fastened around Flexi frame

POSITIONING THE BACK CUSHION:

- Attach the straps (1 in Figure 13) at the top of the cushion around the Flexi back's tubes (2) with velcro as shown (If a solid back is used the velcro attaches to the back of it). Securing the cushion vertically reduces the risk of the cushion sliding down when moving in to and out of the wheelchair.
- Push the cushion forward and press firmly against the back (Figure 14).
- Check that the cushion is placed correctly and sits securely.

REMOVAL OF BACK CUSHION:

- Take hold of the lower edge of the cushion and pull up.
- Loose the straps at the top.

REMOVABLE COVER

Both the seat and back cushion covers are fitted with a zipper for easy removal and replacement. Washing instructions are on the label.

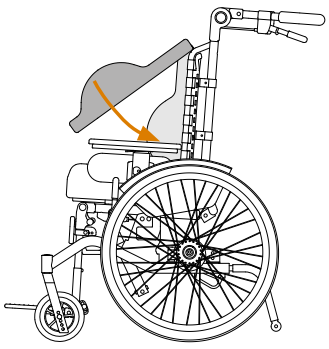

Figure 14. Setting cushion

3.6 Seat tilt and Back recline

Figure 16 shows the wheelchair in back reclined and seat tilted positions.

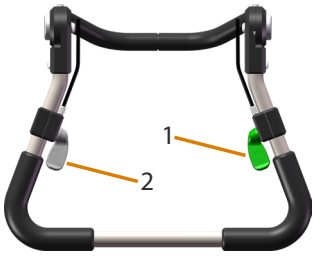

Figure 15. Controls for seat tilt (1) and back recline (2)

- The controls should be handled with moderate force and should always be used one at a time, **never** both at the same time.
- Never hang items on the levers.

SEAT TILT

The seat tilt is controlled by the green lever on the right side of the push bar, **1** in Figure 15. As standard, the seat can be tilted continuously between 0° and 30°.

A gas cylinder provides supporting force when tilting backward. Note that the seat will feel heavy to tilt forward if no one is sitting in the wheelchair.

OPERATING THE SEAT TILT:

- Grip the push bar with both hands.
- Release the lock by pressing the green lever down gently, hold it down.
- Push on the push bar to set the desired seat tilt, release the green lever.

BACK RECLINE

The back recline angle is controlled by the gray lever on the left side of the push bar, **2** in Figure 15. As standard the back can be reclined continuously between 90° and 120°.

A gas cylinder provides supporting force when tilting forward. Note that this means the back will feel heavy to recline backward if no one is sitting in the wheelchair.

OPERATING THE BACK RECLINE:

- Grip the push bar with both hands.
- Release the lock by pressing the gray lever down gently, hold it down.
- Push on the push bar to set the desired back recline angle, release the gray lever.

- Risks exist for some accessories when adjusting recline angle, for example pinching towards the table when raising the back. Similar risks also appear for belt, pommel and hemiplegic armrest.

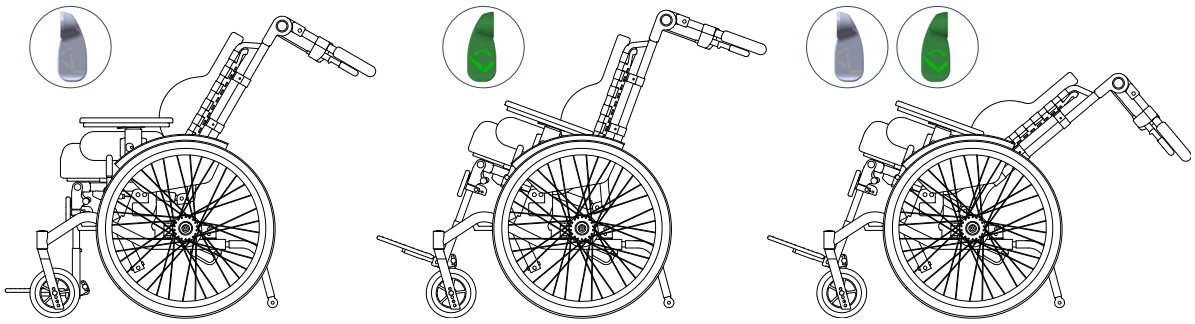

Figure 16. Three positions: Max back recline, max seat tilt, and both recline and seat in max position

3.7 Backrest Height

The backrest height can be adjusted approximately 6 cm in the tracks where the back support is secured. This requires a 10mm spanner. The procedure is the type of back support (Flexi-back or Solid back).

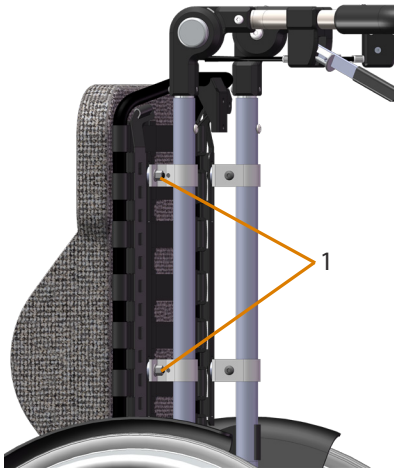

Figure 17. Nuts for height adjustment

HEIGHT ADJUSTMENT OF THE BACKREST:

- Loosen the two nuts on each side a few turns (1 in Figure 17).
- Push the backrest up or down to the desired height.
- Tighten the nuts securely.
- Check carefully that all cables are whole and in place.

3.8 Setting the Flexi-back

Guide for setting the Flexi-back:

1. *Before the user sits in a wheelchair;*

a. Loosen the straps thoroughly.
b. Make sure the back cushion is properly positioned in the seat. See instructions in ***3.6 Cushions and covers***.
c. Loosen the nuts for height adjustment of the Flexi-back.

2. *Positioning the user;*

a. When lifting the user into the chair, tilt the seat unit backward. In many cases it can be helpful to recline the backrest slightly.
b. Position the user fully in to the wheelchair, between the side tubes of the frame. This is required in order to form the Flexi-back properly to the user's back

3. *With the user sitting in the wheelchair;*

a. Set the backrest at the desired height.
b. Adjust the velcro straps to support the user's back.
c. Tighten the nuts for the seat back height adjustment.

3.9 Adjustable seat width

HD Motion is width-adjustable in 3 positions. Seat width is determined by the position of the armrest mounts, see Figure 18. Table 1 show the nominal seat width for each model.

Table 1 - Seat width in each position [cm]

Model	Inner position	Middle position	Outer position
HD Motion sw 30	28	30	32
HD Motion sw 34	32	34	36

SETTING THE SEAT WIDTH:

- Remove the seat cushion and armrests.
- Unscrew the two screws that secure the armrest mount (Figure 18).
- Move the armrest mount to the desired position. **NOTE**: The mount is not symmetric inside, the flat side faces inward.
- Set the washers in place and tighten the screws.
- Repeat the same steps with the other armrest mount. **NOTE: Right-hand and left-hand armrest must always be in the same position**.
- Check carefully that all screws are securely tightened.
- If the wheelchair is equipped with a belt mount it takes the place of the washers.

Seat width can in some cases be adjusted with the user sitting in the wheelchair, but extra attention is required.

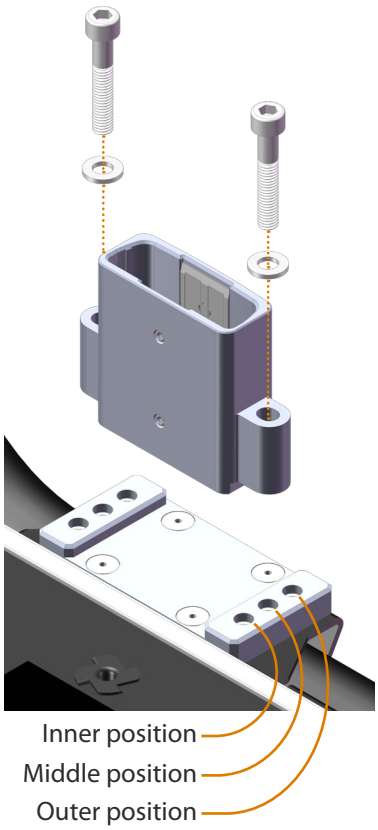

Figure 18. Armrest mount (left side)

⚠ - Adjustment of wheelchair seat width is to be done only by qualified personnel.

3.10 Adjustable seat depth

The depth of the seat plate can be continuously adjusted in a 6,5 cm range. It is secured by two knobs under the seat.

SETTING SEAT DEPTH:

- Loosen the two knobs a few turns (Figure 19).
- Slide the seat plate to the desired position.
- Firmly tighten the two knobs.
- Check that the seat plate is securely locked.

The seat plate can be pulled out, for maintenance reasons, by removing the knobs completely.

Figure 19. Seat plate knobs

3.11 Positioning of leg rests

The leg rest unit can be adjusted 6 cm in five positions.

POSTIONING THE LEG RESTS:

- Remove the two bolts (Figure 20) that secure the leg rest unit to the seat frame. The same procedure applies to both Separate leg rests and Centre leg rest.
- Pull out or push in the telescoping rods on each side to move to the desired position.
- Check from underneath to see that the holes in the telescoping rods line up with the holes in the seat frame
- Tighten the screws in place

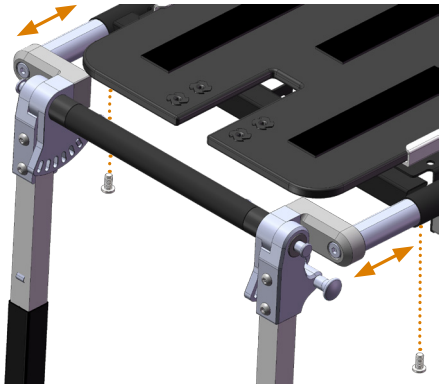

Figure 20. Bolts for leg rest unit

⚠ - When adjusting the leg rest unit position check that the seat plate is in a suitable position and adjust if necessary

3.12 Armrests

Armrests are placed in mounts on each side of the seat (Figure 21). They can be adjusted in height and depth.

Components, see Figure 22:

1 Armrest pad
2 Side support
3 Locking button
4 Locking lever

Figure 21. Armrests are inserted into the brackets on each side of the frame

HEIGHT ADJUSTMENT:

- Push the button (3 in Figure 22) and hold it in.
- Set the desired height. The post is marked with 1 cm intervals.
- Release the button and pull lightly on the armrest pad so the lock snaps in place.

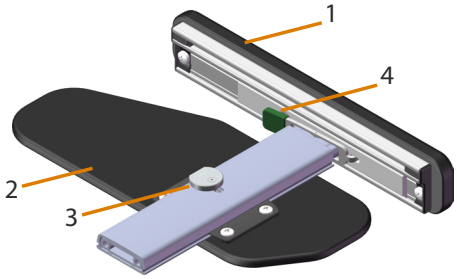

Figure 22. Armrest components

DEPTH SETTING:

The armrest pad can be adjusted to nine depth settings.

- Press the locking lever (4 in Figure 22) and set the desired position.
- Release the locking lever.
- Make sure the armrest pad is locked in position by pulling lightly on it.

⚠ - If the armrest pad is adjusted backward when the back is reclined it is possible for the back to be blocked by the armrest and unable to be tilted up. Check and move the armrest pad forward when necessary.

- With the seat width at the widest setting and the armrest pads adjusted backward it is possible for them to rub against the fenders when the seat is tilted backward. The wheelchair must never be driven in this configuration.

3.13 Leg rests

CENTRE LEG REST

Centre leg rest can be angled between 80° and 140° in 7 positions. The one-piece footrest can be adjusted in height and angle. The footrest can also be folded up against the leg rest tubes to make it easier to get in-to and out-of the wheelchair (see Figure 24).

Components, see Figure 23:

1 Locking knob, leg rest angle
2 Central tube
3 Leg rest tubes
4 Footrest tubes
5 Footrest plate
6 Snap lock, footrest
7 Knob, footrest angle

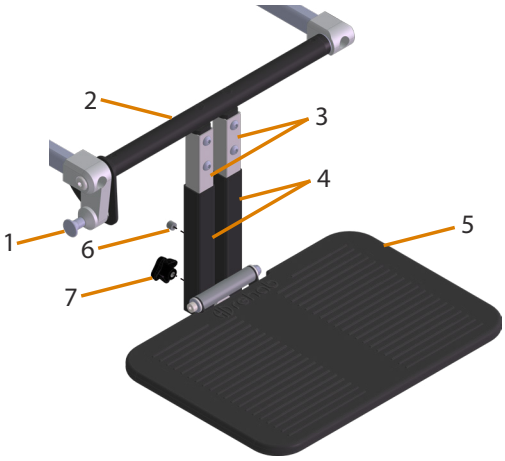

Figure 23. Centre leg rest components

The foot plate can be supplied with slots for use with accessories such as foot straps or ankle holders.

NOTE: When using these accessories instructions from the manufacturer must be followed.

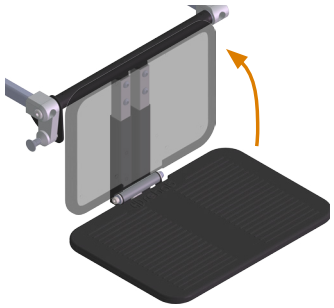

Figure 24. Folding up footrest

HEIGHT ADJUSTMENT OF ONE-PIECE FOOTREST:

- Push in the snap lock (6 in Figure 23) and move the footrest tubes to the desired position.

ANGLE ADJUSTMENT OF ONE-PIECE FOOTREST:

- Turn the knob (7 in Figure 23) until the footrest reaches the desired position.

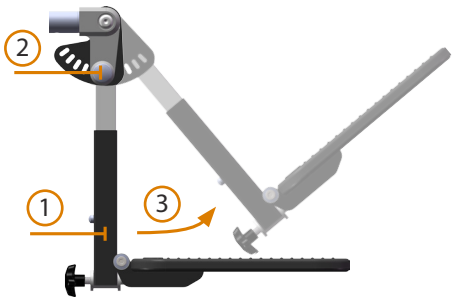

Figure 25. Angle adjustment

ANGLE ADJUSTMENT OF CENTRE LEG REST:

- Grip the footrest tubes near the bottom (1 in Figure 25).
- Pull the knob (2) on the right hand side and move the leg rest to the desired position (3).
- Release the knob and push the leg rest lightly in either direction so that the locking pin snaps in place.

LOCKING OF FOOT PLATE:

The foot rest can optionally be equipped with a locking mechanism to prevent the foot plate from folding up unintentionally. The lock is controlled with the same knob that adjusts the foot plate angle.

The knob is marked with a pin (Figure 26) to indicate when the footrest is unlocked. When the pin points straight up (or straight down) the foot plate can be folded up. Rotating the knob 90° sets a locked position.

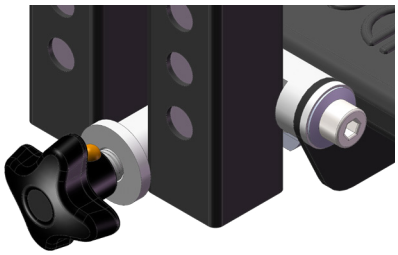

Figure 26. Lockable foot plate

The wheelchair can alternately be equipped with a foot box (Figure 27). Adjustments are done in the same manner as a one-piece footrest, however the foot box cannot be folded up against the leg rest tubes and the amount of angle adjustment is limited.

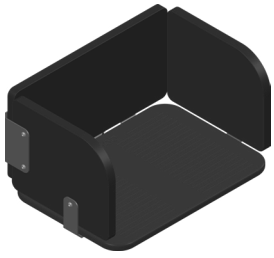

Figure 27. Foot box

SEPARATE LEG RESTS

Separate leg rests can be angled between 80° and 140° in 7 positions. The footrests can be adjusted in height and angle. The footrests can also be folded up to the side to make it easier to get in-to and out-of the wheelchair (see Figure 29).

Components, see Figure 28:

1 Release button for leg rest removal
2 Locking knob, leg rest angle
3 Leg rest pin
4 Leg rest tube
5 Footrest tube
6 Footrest plate
7 Snap lock, footrest
8 Screw, footrest angle

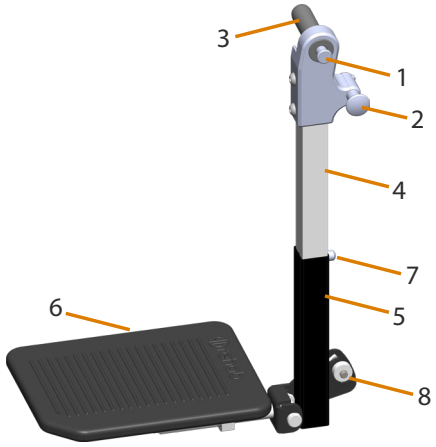

Figure 28. Separate leg rest components

The foot plate can be supplied with slots for use with accessories such as foot straps or ankle holders.

NOTE: When using these accessories instructions from the manufacturer must be followed.

Figure 29. Folding up footrest

HEIGHT ADJUSTMENT OF SEPARATE FOOTRESTS:

- Push in the snap lock (7 in Figure 28) and move the footrest tube to the desired position.

ANGLE ADJUSTMENT OF SEPARATE FOOTRESTS:

- Loosen the bolt (8 in Figure 28), 10 mm spanner.
- Move the footrest plate to the desired angle.
- Tighten the bolt securely.

ANGLE ADJUSTMENT OF SEPARATE LEG RESTS:

- Grip the footrest tube near the bottom (1 in Figure 30).
- Pull the knob (2) and move the leg rest to the desired position (3).
- Release the knob and push the leg rest lightly in either direction so that the locking pin snaps in place.

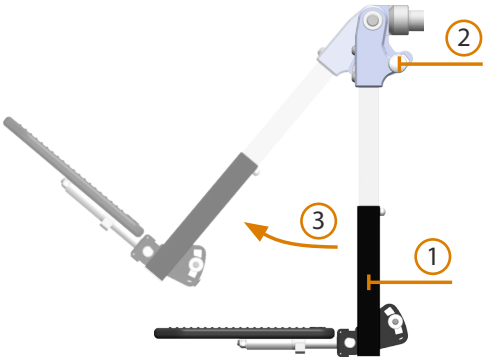

Figure 30. Angle adjustment

REMOVAL OF SEPARATE LEG RESTS:

- Grip around the leg rest joint (1 in Figure 31).
- Push in the release button (2).
- Pull the leg rest away from the leg rest mount (3).

MOUNTING SEPARATE LEG RESTS:

- Align the leg rest pin in the seat frame.
- Push in on the release button and push the leg rest in to the seat frame.
- Release the button and push the leg rest lightly in either direction so that the locking pin snaps in place.

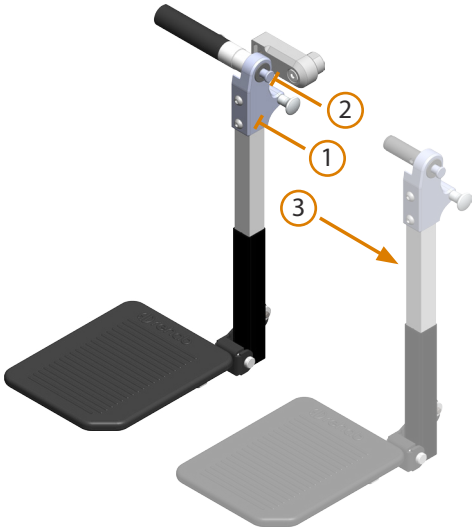

Figure 31. Removal of leg rest

4. ACCESSORIES

The following sections briefly describe the accessories that are available for HD Motion. They are all CE-marked and approved for use with the wheelchair.

More information about each accessory is available on the respective information sheet.

Instructions for installing each accessory are found on the respective accessory assembly instructions.

- Never use accessories that are not approved for HD Motion. The wheelchair is then considered a specially adapted product. Read more in ***2.2. General safety aspects***.

4.1 Headrest

The headrest consists of two parts, a cushion and a mount. The cushion is available in a larger and a smaller version. The headrest can be equipped with one or two removable side supports to improve lateral stability.

Components, see Figure 32:

1 Cushion
2 Mounting profile
3 Bracket (attached to backrest)
4 Knob, profile position
5 Link plates
6 Nuts, link plate adjustment
7 Bolts, lateral adjustment
8 Side support
9 Bracket, side support
10 Knob, side support position
11 Nut, side support angle
12 Screw, side support cushion angle in/out
13 Nut, side support cushion angle up/down

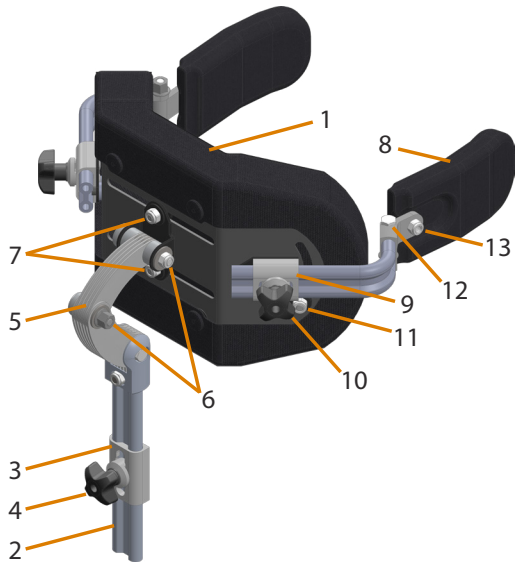

Figure 32. Headrest components

The mounting profile is placed though the bracket (3 in Figure 32) and then secured in place by tightening the knob (4 in Figure 32). The cushion can be adjusted forward and back by loosening the link plate nuts (6 in Figure 32), then tightening the nuts again after adjusting.

LATERAL ADJUSTMENT:

Teadrest can be adjusted laterally to suit the user.

- Loosen the bolts (7 in Figure 32)
- Move the headrest to the desired position, tighten the bolts.

ADJUSTMENT OF SIDE SUPPORTS:

The depth of the side support is set using a knob (10 in Figure 32). The angle of the side support can be adjusted up and down by loosening the nut (11 in Figure 32) in the side support bracket. Adjusting the angle of the side support cushion inwards or outwards is done by loosening the screw (12 in Figure 32), and it can be angled up and down by loosening the nut (13 in Figure 32).

- Do not hang things on the headrest, it will increase tipping risk.
- For users with particular/involuntary movements there is a risk of getting caught between the headrest and the wheelchair. An individual assessment must be done to determine what type of headrest is suitable for the user.

4.2 Bag hook

The bag hook has a fixed position on the left or right side of the back frame.

Maximum load on each hook is 5 kg. The total load when two hooks are used should also not exceed 5 kg total as the tipping risk increases significantly.

Exercise caution when using bag hooks that nothing on the wheelchair is damaged, particularly the cables.

Figure 33. Bag hook

4.2 Thoracic support

The thoracic support is mounted by inserting the profile (1 in Figure 34) in the thoracic support mount (2) on the backrest. It is secured at the desired position with a knob (3). **Note**: Do not tighten too hard, the knob and mount can be damaged.

Thoracic support is available with or without Swing-away function. With Swing-away the cushion can easily be swung off to the side by pushing the button (4). **Note**: If the user presses heavily against the support the button is difficult to push.

The removable cover is attached with velcro. Washing instructions are on the label.

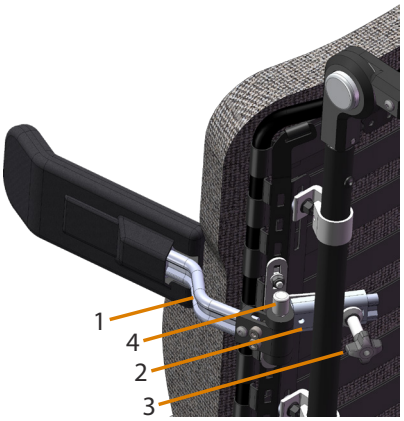

Figure 34. Thoracic support

SETTINGS

The thoracic support can be adjusted in height and depth to create a good fit against the body. Some models also allow adjustment of the shape of the cushion. See the Thoracic support user manual for details.

- Note that the use of the thoracic support requires careful adjustment to ensure the user receives good support and that the thoracic support does not cause pressure that can lead to injury.
- Avoid placing the thoracic support near the armpit as the area is generally considered to be intimate and pressure sensitive.

4.3 Tray table

The tray table is intended as a general resting surface for smaller items, and in some cases can help to position the user by providing support for the arms.

Mounting is done by placing the table tray on the front of the armrests, then pushing it in until it clicks in place on the mounting pins that are attached below to the armrest pads. See Figure 35.

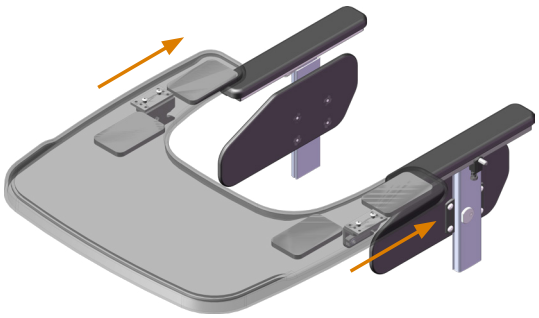

Figure 35. Mounting tray table

To remove the tray table, grasp around both sides and push the locking levers up (see Figure 36), then pull the tray straight out.

When the tray table is not in place the mounting pins should be turned in to avoid being in the way (see Figure 37).

The mounting pins can be adjusted in depth by moving them along the rails under the armrest pads. Loosen the bolt (10 mm spanner), move the pin to the desired position, then tighten.

Keep in mind that both armrests must be set at the same height and depth for the tray table to sit securely.

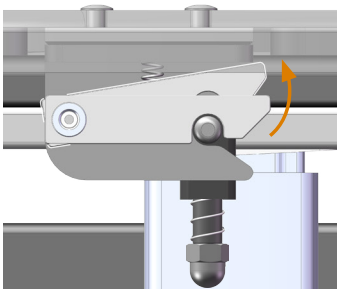

Figure 36. Releasing tray table

- When using a tray table there is a risk of pinching when the back is raised from a reclined position. Be aware of this.
- The tray table is not intended for heavy loads.
- Restrictions might exist regarding the use of a tray table if it interferes with the user getting out of the wheelchair. Be aware of regulations.
- Do not sit on the tray table.
- The tray table is set up according to the width of the wheelchair. When changing the seating width the mounts on the tray table must also be adjusted. See the Assembly instructions doc.nr. 96805-1 *Tray Table*.

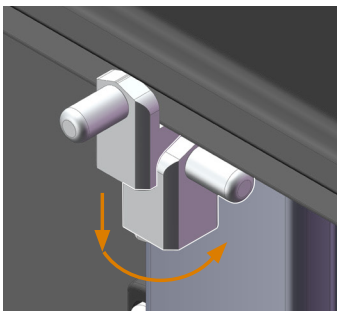

Figure 37. Turning in mounting pin

4.5 Knee spacer & Leg spacer

Knee spacer is seen in Figure 38. Components:

1 Cushion
2 Draw strap with locking pin
3 Mounting profile
4 Mount

A Leg spacer version is also available. The same mount is used for both versions.

To attach the spacer pull down on the draw strap and push the mounting profile in to the mount to the desired depth. Then release the draw strap and lightly push the spacer forward or back until the locking pin snaps into place.

SETTING HEIGHT:

- Open the cover of the spacer cushion.
- Loosen the screw with a hex key.
- Move the spacer on the profile to the desired position and tighten the screw.

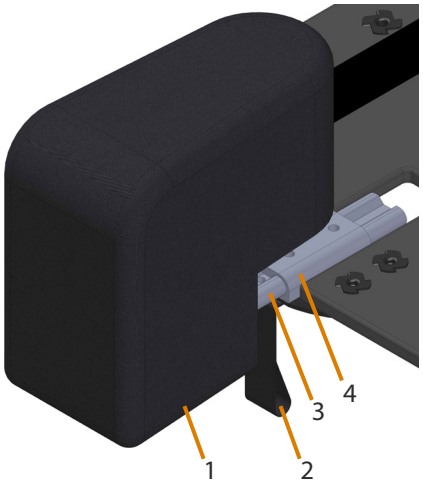

Figure 38. Knee spacer components (seat plate also shown)

4.6 Mounts for belts and harnesses

If there is a risk that the user can slide out of the wheelchair a positioning belt and harness can be used. HD Motion can be equipped with belt mounts at the thighs (1 in Figure 39) and hips (2), and mounts for harnesses (3 and 4).

Always follow instructions in the manual for the belt in use.

MOUNTS FOR 2-POINT BELTS

2-point belts are attached to two belt mounts, one on each side. The mounting points can be at the thighs or at the hips, depending on the needs of the user. It is important that the mounts be placed correctly so the user is well positioned. They should be installed by qualified personnel. The belt mounts at the thighs are adjustable 6 cm in 7 positions.

MOUNTS FOR 4-POINT BELTS

4-point belts are attached to four belt mounts, two on each side. It is important that the mounts be placed correctly so the user is well positioned. They should be installed by qualified personnel.

MOUNTS FOR HARNESSES

Harnesses are attached to two adjustable mounts at the top of the back, together with the two mounts secured in the lower holes on the sides of the backrest system. It is important that the mounts be placed correctly so the user is well positioned. They should be installed by qualified personnel.

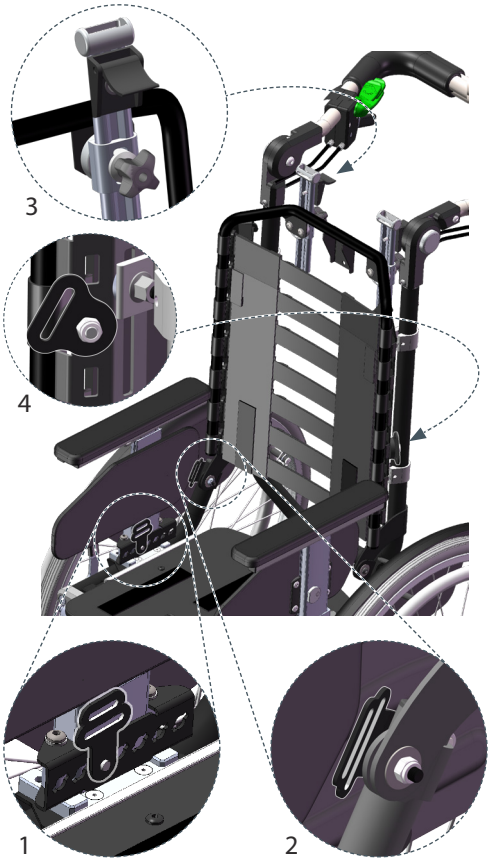

Figure 39. Belt and harness mounts

- There may be local restrictions on use of belts.
- Individual information about the use of a belt must be received from the prescriber for each user.
- Be alert when using of positioning belt or harness. There is a risk of the user sliding down in the chair and getting stuck in the belt if it is incorrectly installed or poorly fastened. This can lead to impaired blood or oxygen supply and risk of the user choking.
- Always make sure that the belt is securely fastened when in use.
- If possible, tighten the belt with the user in an upright position. If the belt is tightened when the back is reclined there is a risk of pinching when the back is raised up.
- Be aware of loose belts, they can get caught in the wheels and cause a sudden stop or pinching.
- A harness is always used in combination with a positioning belt.

5. TRANSPORT

5.1 Vehicle transport with user seated in wheelchair

When transporting in a vehicle HD Motion must be fixed in place with a 4-point belt system (Figure 40) and the user must use the vehicle's 3-point safety belt. Both must be approved per ISO 10542-2. All transportation must be done with the wheelchair facing forward, see Figure 41.

When affixing, the rear tension devices are attached to the intended anchor points on the wheel frame, see Figure 43. The front tension devices are attached around cross bar of the wheel frame, see Figure 42. These attachment points are marked with the symbol described in section ***2.7 Symbols and markings***.

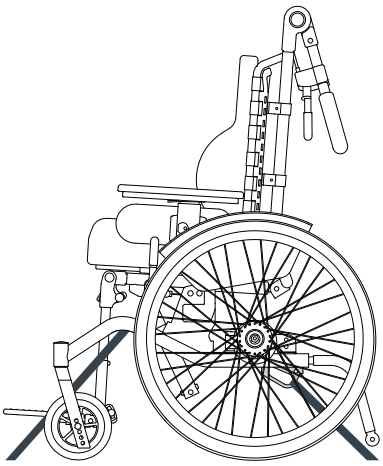

Figure 40. Wheelchair fixed in place with belt system

⚠ - No other attachment points than those specified may be used.

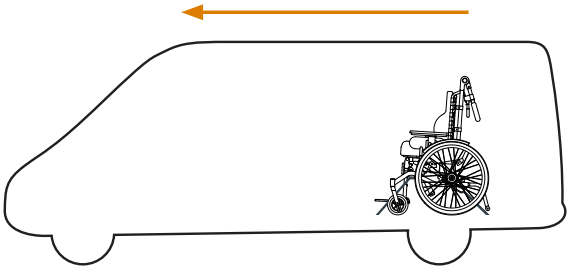

Figure 41. All transport must be forward-facing

Figure 42. Front anchor point

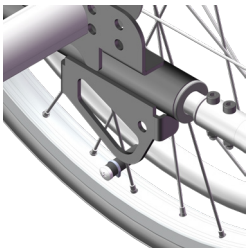

Figure 43. Rear anchor point

THE FOLLOWING MUST BE CONSIDERED BEFORE TRANSPORT:

- Tray table, thoracic support, and other accessories must be removed.
- The headrest must be used.
- The seat of the wheelchair should be tilted 5-10° back and the backrest should be slightly reclined (approximately 100°).
- The wheelchair leg rests must be angled down as much as possible.
- Do not use excessive tension. Tensioners should only be tightened so that the wheelchair is stable. Any rocking is not to be offset by tightening the straps tighter. Excessive tension creates excessive stress on the wheels and frame and can damage the wheelchair.
- The user must always use the vehicle's 3-point safety belt. Any positioning or safety belts that are mounted on the wheelchair and are usually used by the patient may not be used as substitutes for seat belts when travelling in vehicles.

HD Motion has been crash tested according to ISO 7176-19 section 5.2, which means that it has been tested and passed the requirements of a standard test. The test simulates a frontal collision at 48 km/h with a test dummy weighing 59 kg. The standard specifies minimum requirements for what the wheelchair must withstand regarding transport in a vehicle.

As an actual incident is likely to be different from than the exact conditions in testing, HD Rehab cannot take any responsibility for the outcome of an accident in which HD Motion is involved.

5.2 Weight of removable components

Wheel 22" (1 pc)	1,8 kg	One-piece foot rest	1,8 kg	Seat cushion	ca 0,5 kg
Armrest (1 pc)	0,8 kg	Separate leg rest (1 pc)	1,2 kg	Back cushion	ca 0,7 kg

5.3 Folding the wheelchair for transportation

FOLDING OF WHEELCHAIR

- Tilt the seat unit to its most forward position.
- Remove the armrests and any accessories such as thoracic support and pommel, as well as cushions.
- Remove the leg rests (optional).
- Grasp the push bar with one hand and pull the locking pin, (1 in Figure 44). The gas spring (2) will then drop down from the mount (3) and the back can be folded forward against the seat, see Figure 45.
- Fold the push bar down against the back.
- The driving wheels may be removed to make the wheelchair smaller.

REASSEMBLY AFTER FOLDING

- Fold the push bar up.
- Raise the back.
- Pull the locking pin (1), and fit the gas spring in the mount.
- Release the locking pin and see that it passes through the gas spring mounting hole and both plates of the bracket (3 in Figure 44).

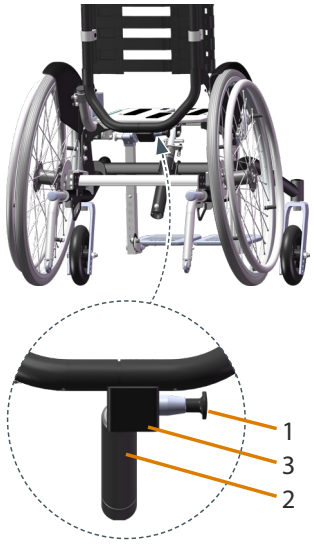

Figure 44. Locking pin for folding back rest

CHECKLIST AFTER TRANSPORTATION:

- Make sure the locking pin (1) goes fully through the bracket (Figure 44).
- Check that the wheels are securely fastened.
- Make sure the tip protectors are positioned correctly.
- Check the most important functions; brakes, seat tilt, and back recline.

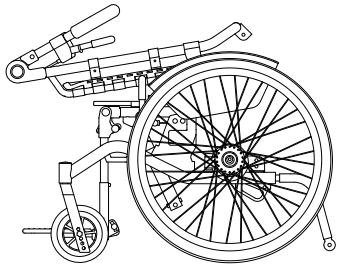

Figure 45. Folded wheelchair

- If the pin is not properly mounted, the bracket can break and the user can be suddenly tipped backwards.
- If the seat width is set to the widest position there is a risk of the Flexi back straps wrapping around the seat plate when the chair is folded. Check for this and be careful when folding the wheelchair up again.

5.4 Transferring in and out of the wheelchair

Transferring in and out of the wheelchair can be done in different ways depending on the user's ability to actively participate. It can be done with a lift (Figure 46), with help of one or two caregivers (Figure 47), or independently (Figure 48).

- The brakes must be locked before transferring in or out.
- Remove or fold in leg rests fully so they do not hinder. If needed foot plates can be folded up.
- Seat tilt and back recline may need to be adjusted per the particular needs of the user.
- Caregivers need to be mindful of their ergonomic positioning when assisting.

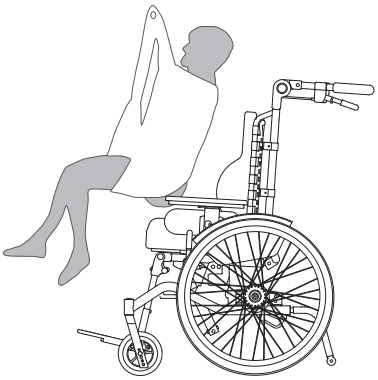

Figure 46. Transfer with lift

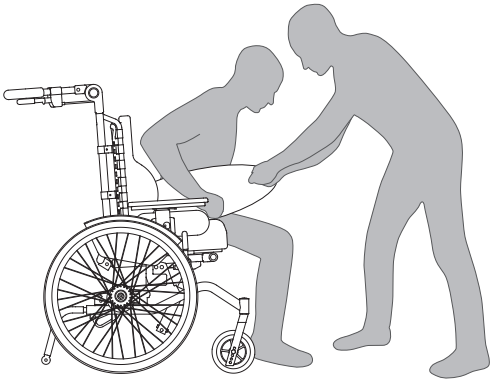

Figure 47. Transfer with assistance

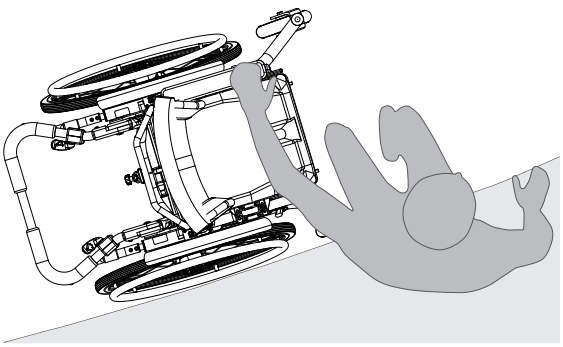

Figure 48. Independent transfer

5.5 Driving Technique

SLOPED SURFACES

When a user drives the wheelchair independently up a slope the wheelchair is balanced by the user leaning forward. When driving down a slope the user leans backward to balance the weight. Speed is controlled by using the hand rims.

On steeper slopes the wheelchair should be driven by a caregiver. Tip protectors must always be turned to the active position.

- Steep surfaces should be avoided due to the increased tipping risk.
- Surfaces that are wet, slippery, or uneven increase the risk of the wheelchair slipping or tipping.
- The wheelchair should not be turned on a sloped surface due to the increased tipping risk.
- When driving down a slope ensure that the user cannot slide out of the wheelchair (Figure 49).

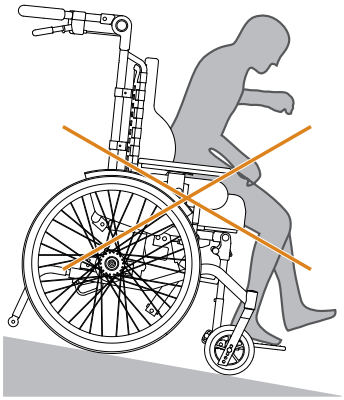

Figure 49. Sloped surface

CURBS / OBSTACLES - UPWARD WITH CAREGIVER

Tip the wheelchair up on the rear wheels by pushing down on the push bar. If the wheelchair is equipped with a tip pedal (Figure 10) it can be used as a pushing point for a foot. Place the castors on the higher surface, lift on the push bar and roll the wheelchair up. See Figure 50.

- As caregiver remember to use a good ergonomic position.
- In some cases it may be necessary to turn up the tip protectors, remember to turn them down again after moving.
- With a heavier user, tilt the seat back before tipping the wheelchair up. This reduces the amount of force required of the caregiver.

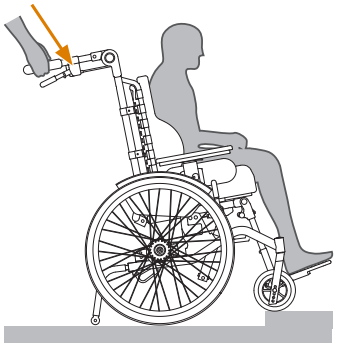

Figure 50. Curb

CURBS / OBSTACLES - DOWNWARD WITH CAREGIVER

Back the wheelchair carefully down the edge. Balance with the push bar until the castors have reached the lower surface.

- As caregiver remember to use a good ergonomic position.
- In some cases it may be necessary to turn up the tip protectors, remember to turn them down again after moving.

STAIRS

Moving from one floor to another always comes with risk of injury for the user and the caregivers. The preferred choice is therefore to use an elevator. When there is no elevator, a ramp should be used. If there is no ramp and stairs must be used, two caregivers should move the wheelchair and user.

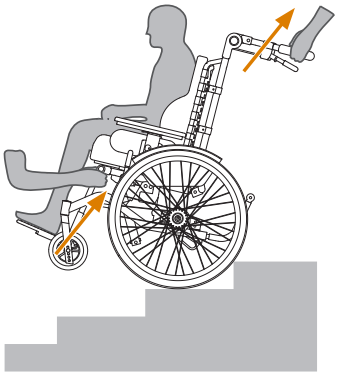

Figure 51. Stairs

UP STAIRS WITH CAREGIVERS - BACKWARDS

Before the wheelchair is moved up stairs the tip protectors must be turned up. The wheelchair is balanced up on the back wheels. The caregiver behind the wheelchair lifts and pulls on the push bar. The caregiver in front of the wheelchair supports and lifts on the seat frame such that the wheelchair carefully glides over each step. The caregivers must be careful with their positioning to avoid injury. Return the tip protectors to the active position after moving. See Figure 51.

DOWN STAIRS WITH CAREGIVERS - FORWARD

Turn up the tip protectors. The wheelchair is balanced up on the back wheels. The caregiver behind the wheelchair rolls the wheels down each step and holds back on the push bar. The caregiver in front supports with hands on the frame such that the wheelchair carefully glides down each step. Return the tip protectors to the active position after moving.

- The wheelchair is not to be moved on an escalator.
- Never lift on the armrests or other unsecured parts.

6. MAINTENANCE AND CARE

For best safety and long life the wheelchair should be kept clean and tidy. Any faults and failures must be addressed immediately. Estimated lifetime is 10 years at normal use with the same patient during the whole lifetime; assuming maintenance is carried out according to the instructions. How the chair is used affects the need for maintenance; hard wear, patients with particular movements, and much outdoor use require more maintenance and shorten the lifetime. Table 2 shows how the maintenance should be carried out.

Table 2. **Activity**	Ongoing as necessary	1-2 times per year	At least every 3rd year
Cleaning of painted and coated surfaces and plastic parts	x		
Cleaning of cushion covers, see label in the cover	x		
Check of cushions and belts	x		
Checking all nuts and bolts		x	
Check of castor wheels		x	
Check of tip protectors		x	
Check of chassis		x	
Check of brakes		x	
Check of seat tilt and back recline functions		x	
Check of the back locking pin		x	
Check and maintenance of accessories (Functionality, lockings, markings)		x	
Total reconditioning			x

EXPLANATIONS FOR TABLE 2

COATED AND SURFACE TREATED SURFACES AND PLASTIC PARTS

- Wash/wipe with regular all-purpose detergent or disinfecting agents. No caustic agents.

SCREWS AND BOLTS:

- Check that the nuts and bolts are tight, tighten any that are loose.

CASTOR WHEELS:

- Check that the link wheels spin freely and do not have any visible damage. Remove any debris.

TIP PROTECTORS:

- Check that the tip protectors have no visible damage and are operating normally.

CHASSIS:

- Inspect the chassis for cracks, warping, and other defects. Notify authorized personnel if damaged.

BRAKES:

- Check that the brakes work firmly (both operator and user brakes).
- Contact a qualified technician if adjustment is needed.

TILT AND BACK RECLINE FUNCTIONS:

- Check that the controls are easy to use and that the levers do not have any damage.

BACK LOCKING PIN:

- Check that the locking pin is intact and sits properly. Make sure the knob is tightly screwed on.

CUSHIONS & BELTS:

- Cushions wear out and become compressed, check to see if any need replacing.
- Check that cushions are still appropriate for the user with regards to their size and weight.
- Check that belt attachments, locking mechanisms, and velcro are working properly.
- Check that belts/harnesses are still appropriate for the user with regards to their size and weight. Prescription may need to be changed and settings adjusted, e.g. if the user has grown, diagnosis has changed, or other changes have occured for the user.

ARMRESTS, SIDE SUPPORTS AND CALF SUPPORTS:

- Wipe with damp cloth or with disinfectant.

ALUMINUM PROFILES with telescoping function can be lubricated with petroleum jelly or food grade grease.

6.1 Daily functional checks

To ensure user safety a daily functional check of the most vital parts should be carried out as follows:

- Test the brakes (both caregiver brake and user brake),
- Check the seat tilt and back recline functions.
- Check that the wheels and cushions are properly positioned and are well maintained and clean.
- Check that the tip protectors are in the appropriate position.

6.2 Long term storage

The wheelchair should be cleaned before storing long-term. Store in a dry, frost-free environment between 0 and 30°C. Cushions should be wrapped. When returning the wheelchair to service read through the user manual and check that all functions are working properly.

6.3 Recycling and disposal

HD Motion can be largely recycled. Instructions for disassembly and recycling are available in *Disposal Instructions*, document number 96735-1.

7. TECHNICAL DATA - MEASUREMENTS

Measurement in [cm] unless otherwise noted	Seat width 30 Short frame K	Seat width 30 Long frame L	Seat width 34 Short frame K	Seat width 34 Long frame L
Maximum user weight [kg]	75	75	75	75
Seat width	28 / 30 / 32	28 / 30 / 32	32 / 34 / 36	32 / 34 / 36
Seat depth (Solid back, with back cushion)	29 - 35,5	38 - 44,5	29 - 35,5	38 - 44,5
Seat depth (Solid back, without cushions)	33,5 - 40	42,5 - 49	33,5 - 40	42,5 - 49
Seat height with / without seat cushion	46,5 / 42	46,5 / 42	46,5 / 42	46,5 / 42
Backrest height Extra-short backrest, w/o cushions	42 - 48	42 - 48	42 - 48	42 - 48
Backrest height Short backrest, w/o cushions	48 - 54	48 - 54	48 - 54	48 - 54
Backrest height Long backrest, w/o cushions	54 - 60	54 - 60	54 - 60	54 - 60
Back width, Flexi-back or Solid back	34	34	38	38
Armrest height Standard, from seat plate	22 - 30	22 - 30	22 - 30	22 - 30
Armrest height Low, from seat plate	18 - 23	18 - 23	18 - 23	18 - 23
Armrest height Angle Adjustable, from seat plate	24 - 30	24 - 30	24 - 30	24 - 30
Armrest pad - length x width	28 x 5	28 x 5	28 x 5	28 x 5
Leg rest length short, seat plate to footrest	19 - 25	19 - 25	19 - 25	19 - 25
Leg rest length standard, seat plate to footrest	23 - 35	23 - 35	23 - 35	23 - 35
Leg rest length long, seat plate to footrest	35 - 47	35 - 47	35 - 47	35 - 47
Leg rest angle [°]	80 - 140	80 - 140	80 - 140	80 - 140
Footrest angle Separate leg rests [°]	80 - 120	80 - 120	80 - 120	80 - 120
Footrest angle Centre leg rest [°]	70 - 125	70 - 125	70 - 125	70 - 125
Footrest plate length - Separate / One-piece	18 / 21	18 / 21	18 / 21	18 / 21
Push bar height	75 - 130	75 - 130	75 - 130	75 - 130
Total width 22" drive wheels, 6° camber	63	63	67	67
Total width 16" or 22" drive wheels, not cambered	62	62	66	66
Total length, separate leg rests fully in, drive wheels in mid position, push bar 90°, seat 0°, back 90°	90	99	90	99
Total length, no leg rests, drive wheels in mid position, push bar folded down	74	74	74	74
Total height, back 90°, seat 0°, push bar 90°	103	103	103	103
Total height, back and push bar folded, w/o cushions	68	68	68	68
Seat angle [°]	0 - 30	0 - 30	0 - 30	0 - 30
Seat angle alternative [°]	-5 - 25	-5 - 25	-5 - 25	-5 - 25
Back angle [°]	90 - 120	90 - 120	90 - 120	90 - 120
Total weight with caregiver brakes, cushions, Separate leg rests, Standard armrests [kg]	24,5	25	25,5	26
Transport measurements (collapsed, with brakes, w/o drive wheels, leg rests, armrests, seat cushion, and back cushion)				
Width	63	63	67	67
Length	82	82	82	82
Height	62	62	62	62
Weight [kg]	16	16,5	17	17,5

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