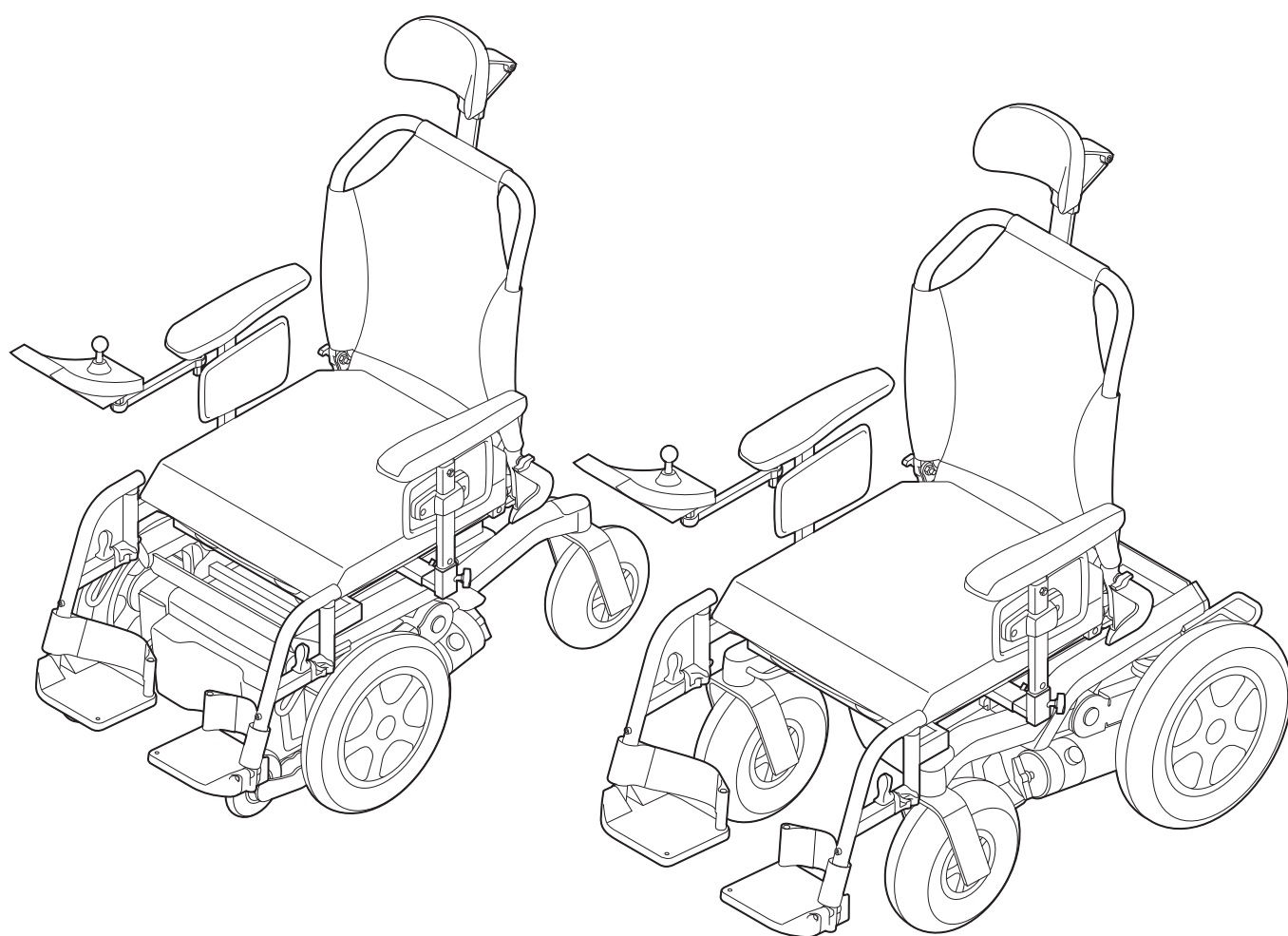


# PUMA 20



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# English

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2011-01

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# 1 Introduction

Congratulations on choosing a Handicare wheelchair. Handicare's high-quality mobility products are designed to enhance independence and make your everyday life easier.

## 1.1 This user manual

This user manual will help you to use and maintain your wheelchair safely. This entire user manual for this wheelchair consists of three booklets:

- The general wheelchair user manual (this booklet)
- The user manual for the seating system
- The user manual for the controller

When necessary this general user manual refers to other manuals as shown below:



Seating system: Refers to the user manual for the seating system.



Controller: Refers to the user manual for the controller.



Battery charger: Refers to the user manual for the battery charger.

**Read this entire user manual (all of the booklets) carefully before using the product.**

If one of the user manuals was not included with your wheelchair, please contact your dealer immediately.

In addition to this user manual, there is also a service manual for qualified specialists.

CONTACT HANDICARE IF YOU HAVE A VISUAL IMPAIRMENT.

## 1.2 Symbols used in this manual

---

### **Note!**

*Pointing out possible problems to the user.*

---



### **Caution!**

*Advice for the user to prevent damage to the product.*

---



### **Warning!**

*Warnings for the user to prevent personal injury.*

---

Not following these instructions may result in physical injury, damage to the product or damage to the environment!

## 2 Safety

---

### **Warning!**

*Always follow the instructions given next to the warning symbols! Not following these instructions may result in physical injury, damage to the wheelchair or damage to the environment. Where possible, the warnings have been placed in the applicable paragraphs.*

---

### 2.1 Temperature

---

#### **Warning!**

*Avoid physical contact with the wheelchair's motors. The motors are continuously in motion during use and can reach high temperatures. After use, the motors will cool down slowly. Physical contact may cause burns.*

*Ensure that the wheelchair is not exposed to direct sunlight for extended periods of time. Certain parts of the wheelchair, such as the seat, the backrest and the armrests, can become hot if exposed to the sun for too long. This may cause burns or skin irritation.*

---

### 2.2 Electromagnetic radiation

The standard version of your electric wheelchair has been tested for compliance with the applicable requirements regarding electromagnetic radiation (EMC requirements).

---

#### **Note!**

*It cannot be excluded that electromagnetic radiation emanating from mobile telephones, medical apparatus and other sources, may have an influence on the wheelchair.*

*It cannot be excluded that the wheelchair will interfere with the electromagnetic fields of, for example, shop doors, burglar alarm systems and/or garage door openers.*

---

In the unlikely event that such problems do occur, you are requested to notify your dealer immediately.

## 2.3 Moving parts

**Warning!**

Contact with the moving parts of the wheelchair should be avoided. A wheelchair has moving and rotating parts. Contact with moving parts may result in serious physical injury or damage to the wheelchair.

Moving/rotating parts (figure 1)

1. Wheels (turning and pivoting)
2. Electrical tilt adjustment

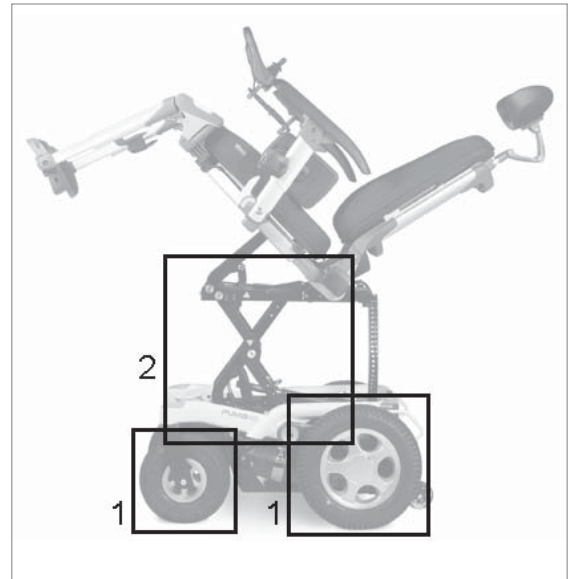


Figure 1

## 2.4 Markings on the wheelchair

### **Note!**

*Never remove or cover up the markings, symbols and instructions affixed to the wheelchair. These safety features must remain present and clearly legible throughout the entire lifespan of the wheelchair.*

*Replace or repair any markings, symbols or instructions that have become illegible or damaged immediately. Please contact your dealer for assistance.*

Markings used on the wheelchair (figure 2):

1. Check manual before using
2. Freewheel switch in 'Drive' mode. Freewheel switch in 'Push' mode. Never set the freewheel switch to 'Push' mode while the wheelchair is on a slope.
3. Battery charging connection
4. Attachment point for the tie-down system for transportation in a vehicle.
5. Risk of breakage! Use caution when swinging the controller aside in order to avoid anything becoming trapped.
6. Risk of pinching. Keep hands and fingers clear of the moving parts when adjusting the height and/or when adjusting the tilt of the wheelchair.
7. Identification plate
  - A. Model
  - B. Year of manufacture
  - C. Identification number
  - D. Indoor or outdoor use
  - E. Maximum load in kg

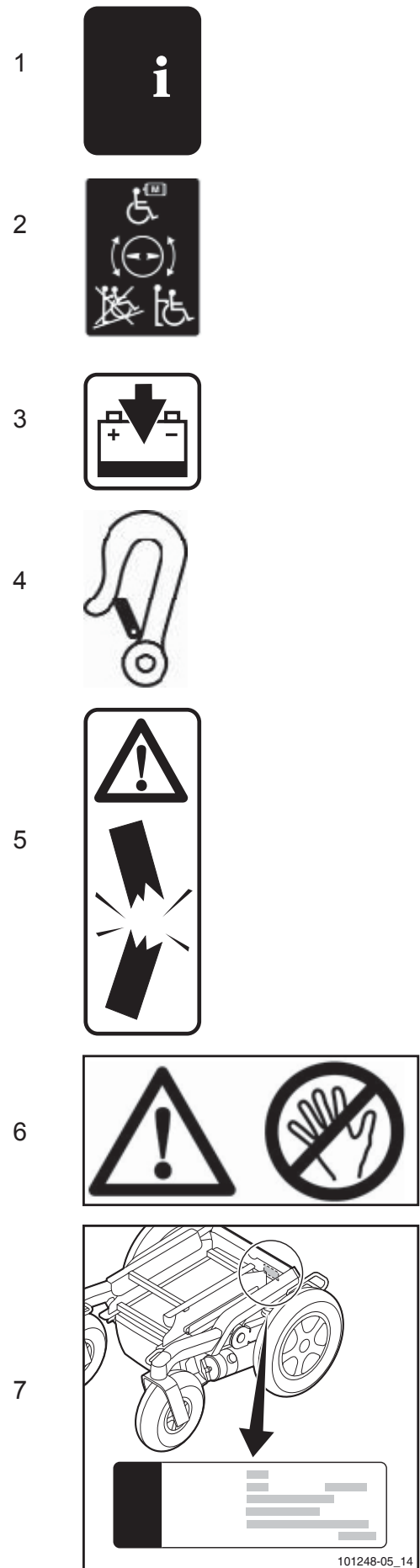


Figure 2

### 3 General description

Comfort is of paramount importance to many people who make use of a wheelchair. And this is exactly what this electrical driven wheelchair offers: an unknown degree of driving comfort. A distinctive feature is the unique independent suspension system, which absorbs not only shocks, but also vibrations.

#### 3.1 Main components

(figure 3 and 4)

1. Drive wheels
2. Castor wheels
3. Freewheel switch
4. Controller
5. Seat cushion
6. Backrest
7. Armrest
8. Legrest with foot support
9. Headrest

#### 3.2 Configurations

Generally speaking, the wheelchair comprises a chassis with a seating system on top. This special chassis makes it possible for the wheelchair to be configured as front wheel drive (FWD, figure 3) or rear wheel-drive (RWD, figure 4). The wheelchair is available in different speeds (6 km/h & 10 km/h).

In addition, the Puma 20 can be supplied with two different types of tyres (for indoor and outdoor use). This will have an effect on certain specifications.

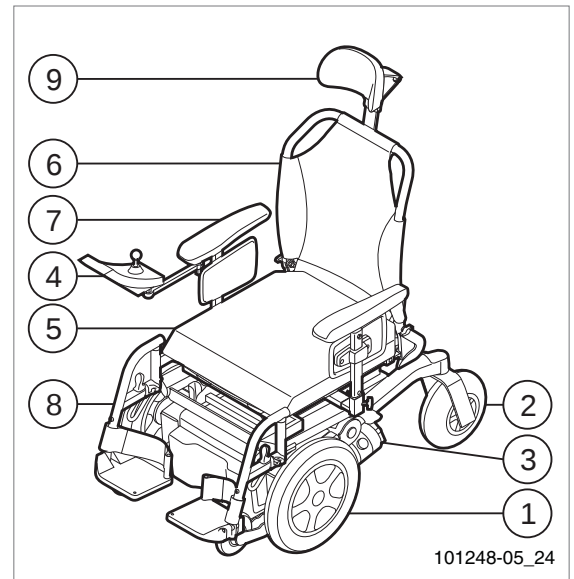


Figure 3

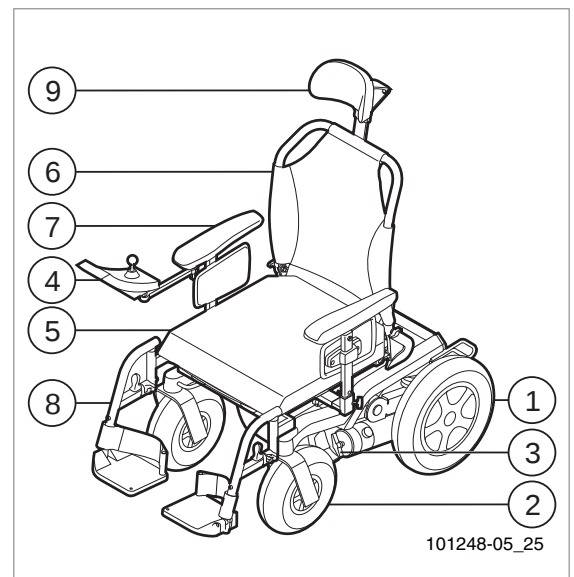


Figure 4

#### **Warning!**

*It is not allowed to change the technical specifications.*

*Do not make any changes to the electrical circuit.*

*Modifications to the wheelchair or to any parts thereof are not permitted.*

**⚠ Caution!**

*Parts of the wheelchair that are intended, for servicing or repair, to be removed without the use of tools (e.g. electronics and battery covers) can have an adversery effect on the electrical functioning of the wheelchair if they are missing or not placed back in the right position.*

**3.3 The user**

Driving an electric wheelchair requires a user to have cognitive, physical and visual skills. The user must be able to estimate and correct the results of actions taken when operating the wheelchair.

The wheelchair may not transport more than one person at a time. The maximum user weight is 136 kg unless otherwise indicated on the identification plate. Additional weight, such as rucksacks, accessories or medical apparatus, must be added to the user's weight to determine the maximum weight, which may not be exceeded.

The user must be familiar with the contents of the user manual before driving the wheelchair. In addition, the user of the wheelchair must have been given thorough instruction in using the wheelchair by a qualified specialist before he or she participates in traffic. The first sessions in the wheelchair should be held under the supervision of a trainer/advisor.

**⚠ Warning!**

*The user of the wheelchair is responsible for complying with the applicable local safety regulations and guidelines.*

*Driving the wheelchair under the influence of medicines that can affect your ability to drive is not permitted.*

*Driving the wheelchair without sufficient eyesight is not permitted.*

*No more than one person is to be seated in the wheelchair at a time.*

*Do not allow children to ride in the wheelchair unsupervised.*

**3.4 User environment**

This wheelchair has been designed for both indoor and outdoor use (EN12184 (2009) class B). When driving the wheelchair outdoors, drive only on paved roads, pavements, footpaths and bicycle paths. The speed must be adjusted to suit the environment.

When all of the adjustment options are set to standard position (see paragraph 3.5), a slope of  $\leq 10^\circ$  is deemed to be a normal user environment for an RWD model without there being any danger of instability. For an FWD model this is  $\leq 10^\circ$ . In the technical specifications, you will find this under 'maximum safe slope'.

**⚠ Warning!**

*Drive carefully on roads which are slippery as a result of rain, ice or snow!*

*Always turn on lights in cases of limited visibility.*

*Exert extra care when driving at higher speeds. Select a lower maximum speed when driving indoors, on pavements and in pedestrian areas.*

*Do not drive off of high obstacles.*

*Do not use the wheelchair if temperatures are below  $-10^\circ\text{C}$  or above  $+50^\circ\text{C}$ .*

*Do not attach any weights to the wheelchair without the approval of a qualified specialist. This may negatively affect the stability of the product.*

*Do not use the wheelchair for pushing and/or towing objects.*

*Do not use the legrests for opening doors.*

*Do not drive through puddles of water (ISO7176-9-IPX4).*

**Note!**

*Prevent the wheelchair from coming into contact with sea water: sea water is caustic and may damage the wheelchair.*

*Prevent the wheelchair from coming into contact with sand: sand can permeate into the moving parts of the wheelchair, causing unnecessary fast wear of these parts.*

---

### 3.5 Adjustment options

The wheelchair can be supplied with the following electrical and/or mechanical adjustment options (figure 5):

Electrical tilt adjustment

Standard position: not tilted

---

#### **Warning!**

*Use of the electrical adjustment options may influence the stability of the wheelchair. Use the adjustment options only when the wheelchair is on a flat surface.*

*Avoid contact with moving and/or rotating parts when making electrical adjustments. Contact with moving and/or rotating parts may result in serious physical injury or damage to the wheelchair.*

---



Figure 5

## 4 Wheelchair settings

The average wheelchair user does not exist. This is why Handicare wheelchairs can be adjusted according to the specific needs of the user.

In this, we make a distinction between wheelchair settings and wheelchair adjustment options. Settings are carried out only once and must be executed by qualified specialists, unless explicitly stated otherwise. Adjustment options can be carried out by the user. These adjustment options do not require the use of tools.

### 4.1 Seating system

The extensive settings with respect to the seating system allow for optimum support of the body (📖 Seating system). The following setting options are possible:

1. Seat depth and seat width
2. Backrest angle
3. Armrest height
4. Lower leg length

### 4.2 Seat height

Depending on the specific circumstances of the user of the wheelchair the seat height can be set. Every optional seat height lays within the 10° (17.6%) maximum safe slope of according to EN12184 (2009) ClassB. Lowering the seat height has a positive influence on the (dynamic) stability.



#### **Warning!**

*Increasing seat height has a negative effect on dynamic stability.*

### 4.3 Centre of gravity setting

The wheelchair's centre of gravity (figure 6) can be adjusted within the seating system (📖 Seating system).



#### **Caution!**

*Changing the wheelchair's centre of gravity may negatively influence the wheelchair's driving characteristics and/or its dynamic stability.*

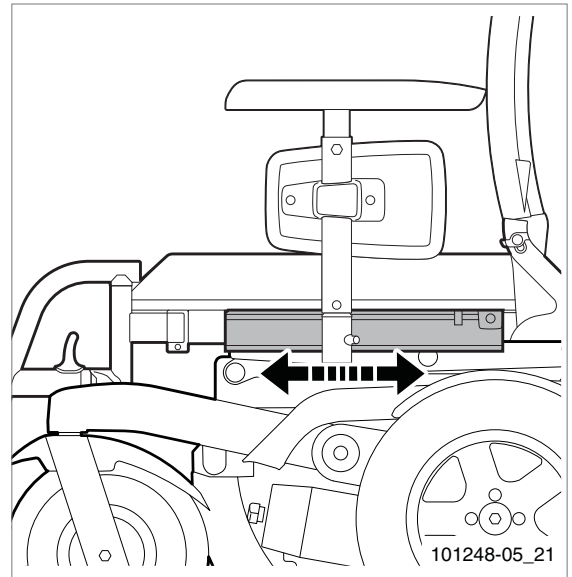


Figure 6

In case of doubt, contact the technical support department at Handicare.

## 4.4 Controller height and depth

( Seating system)

## 4.5 Control system programme

---

This wheelchair is equipped with a control system that can be programmed by adjusting settings within the system. This is a specialized job that needs training and can only be adjusted with professional software. It's not possible and allowed for end users to adjust these settings.

### **Warning!**

*The incorrect setting of the parameters for the control system may result in very dangerous situations.*

*Settings must be made by qualified specialists.*

---

## 5 Use of the wheelchair

### 5.1 Checking the wheelchair before use

Before driving check that:

1. The tyres are sufficiently inflated (see § 6.3).
2. The batteries are sufficiently charged. The green lights on the battery indicator must be on.  
( Controller)
3. The lights and the indicator lights are working properly. ( Controller)
4. The freewheel switch has been set to 'drive' (see § 5.6).

#### **Note!**

*Before use, always check to see whether clothing or accessories could come into contact with wheels or other moving and/or rotating parts in which they could become entangled.*

*The capacity of batteries is reduced in winter. During a period of light frost, the capacity is roughly 75% of the normal capacity. At temperatures below -5°C this will be roughly 50%. This will reduce the wheelchair's range.*

### 5.2 Getting in and out of the wheelchair (transfer)

( Seating system)

Before a transfer is made, ensure that:

#### **Warning!**

*The controller has been switched off.*

*The freewheel switch has been switched to 'drive' (see § 5.6)*

#### **Warning!**

*Do not stand on the footrests. Putting your full weight on the footrests may lead to wheelchair damage and to hazardous situations, including the wheelchair tipping up.*

#### **Forwards transfer**

##### **Flip up the footplate (figure 7)**

1. Flip up (A)

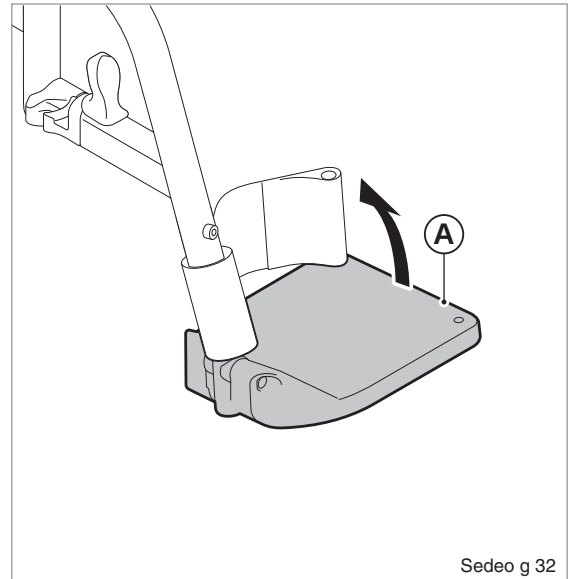


Figure 7

Sedeo g 32

### Swinging back and/or removing the standard legrest (figure 8)

1. Push (A) forwards and keep (A) pressed.
2. Swing (B) to the side.
3. Remove (B).

### Sideways transfer (figure 9)

#### **Note!**

Some versions of the controller will need to be swung aside.

### Removing the armrest assembly

1. Loosen (A) by two turns.
2. Remove (B)

## 5.3 Driving the wheelchair

#### **Note!**

Bear in mind that other road users may not always notice you.

Observe the traffic regulations in force.

Avoid out-of-the-way routes so that help can be found quickly when needed.

Adjust your driving style and speed to the circumstances.

Electric wheelchairs are driven by means of a controller. There is a separate user manual for the controller and this was included with this wheelchair (📖 Controller).

1. Switch on the controller.
2. Set the maximum speed limit.
3. Move the joystick in the direction in which you would like to go.
4. Moving the joystick even further forwards will cause the wheelchair to drive faster.

### Curves

#### **Note!**

Never take curves at full speed. Decrease your speed before taking a curve.

Use the indicators when changing direction.

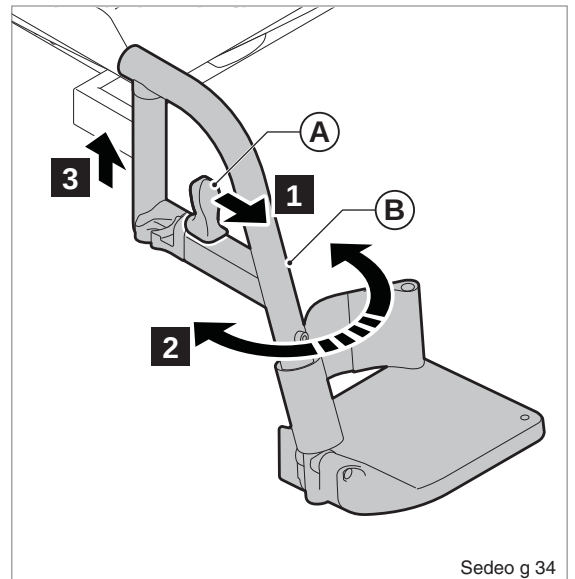


Figure 8

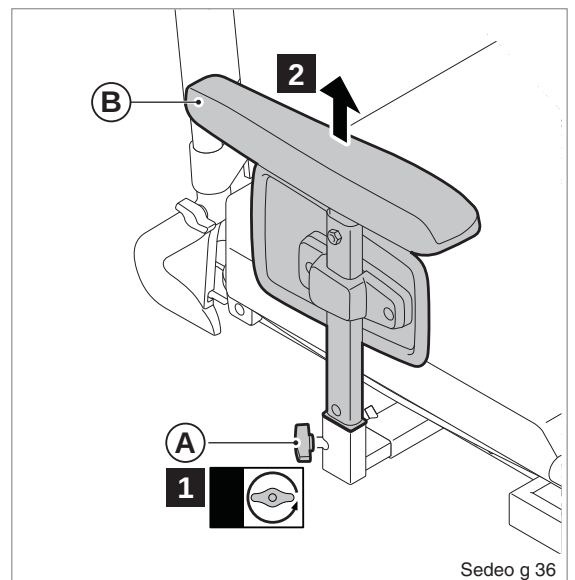


Figure 9

### Braking/Emergency stop

To brake, move the joystick to the neutral position or release completely. The wheelchair will then brake automatically. An emergency stop can also be made by releasing the joystick. Stopping distance:

- 6 km/h: 1 meter
- 10 km/h: 2 meter

### **Warning!**

*When driving avoid the following:*

*Do not push the on/off button.*

*Do not change to driving in the opposite direction suddenly.*

*In such cases, the wheelchair will come to an abrupt standstill with a sudden jolt. Not only is this uncomfortable, it could lead to the wheelchair tipping over if on a slope.*

### Driving on a slope

When all of the adjustment options are set to the standard position (see chapter 3.5), a gradient of  $\leq 10^\circ$  (17.6%) is deemed to be a normal user environment for an RWD wheelchair without there being any danger of instability. For an FWD model this is  $\leq 10^\circ$  (17.6%). This information can be found in the technical specifications under 'maximum safe slope'.

### Slopes steeper than the normal user environment

Driving on slopes with a gradient greater than the maximum safety limit may lead to safety risks with respect to stability. This requires great care and complete control on the part of the user. Always drive carefully and never take unnecessary risks! Follow the instructions given by the warnings!

The stability and performance of a wheelchair depend on a number of variables. Wheelchairs are adapted to the needs of individual users. This is why variables will differ from wheelchair to wheelchair. You should therefore ask your dealer to inform you about how to use the wheelchair and whether the specific settings and adjustments for your own situation can

influence the driving characteristics of the wheelchair.

### **Warning!**

*When driving on a slope, always drive carefully and with the utmost concentration.*

*Avoid sudden, jerky movements.*

*Avoid making emergency stops on a slope.*

*Avoid changing direction on a slope whenever possible.*

*Do not turn on a slope.*

*Only drive up a slope with all the adjustment options set to the neutral position.*

*Never drive in reverse on a slope.*

*Do not drive on slopes with loose gravel or a sandy surface, as one of the driving wheels could slip/spin.*

*Do not drive on slopes for extended periods of time in order to prevent the motor from overheating.*

*When driving down a slope forwards in an FWD wheelchair, use an anti-tip mechanism.*

*If you notice a significant decrease in speed when driving up a slope, take a route which is less steep.*

*Prevent the wheelchair from gaining too much speed when driving downhill.*

## 5.4 Obstacles

### Driving up a kerb

1. Choose the place where the kerb is at its lowest.
2. Drive straight up to the kerb at a right angle to it (20 cm in front of the kerb).
3. Move the joystick forwards. Drive up the kerb without changing direction.
4. Maintain speed until all of the wheels are on the pavement. If mounting the pavement is not possible, find a place where the kerb is lower.

### Driving down a kerb

1. Choose the place where the kerb is at its lowest.
2. Drive straight down the kerb with your front wheels at a right angle to it.
3. Move the joystick slowly forwards. Drive down the kerb carefully and as slowly as possible without changing direction.



### **Warning!**

*Never drive down steps or off of obstacles higher than 60 mm in a wheelchair.*



Figure 10

## 5.5 Adjustment options

The wheelchair can be supplied with the following adjustment options which can be made by the user without the use of tools:

### **Mechanical adjustment options (📖 Seating system)**

1. Manually elevating legrests
2. Swing-away joystick holder
3. Headrest

### **Electrical adjustment options (📖 Controller) (figure 10)**

1. Electrical tilt adjustment

## 5.6 Pushing the wheelchair

The wheelchair can also be moved by pushing. In order to do so, the motors must be disengaged using a freewheel switch. This feature was developed for the attendants of wheelchair users.

The freewheel switch has two positions:

1. The 'Drive' position (figure 11A).
2. The 'Push' position (figure 11B).

### **Warning!**

*The freewheel switch should only be operated by the attendant and never by the user.*

*Never set the switch to 'push' on a slope! When the freewheel switch is set to 'push', the automatic parking brake is deactivated. This makes it possible for the wheelchair to roll down the slope.*

*The automatic parking brake only works if the switch is set to the 'drive' position.*

*When the chair is no longer being pushed, the freewheel switch should be set to 'drive' immediately.*

## 5.7 Transport of the wheelchair (without occupant)

*Parts of the wheelchair that can easily be detached should be removed when transporting the wheelchair (figure 12) ( Seating system).*

1. Remove the seat
2. Remove the legrests
3. Remove the armrests
4. Fold down the backrest

Store these parts securely. Use suitable ramps for wheeling the chair in and out of the vehicle. Once the wheelchair is in the vehicle, it must be secured with an ISO 10542 approved tie-down system that is suited to the weight of that particular wheelchair including any options (Chapter 8).

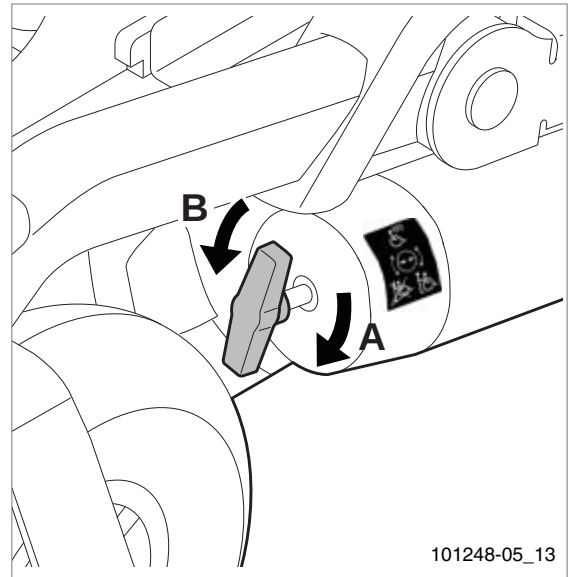


Figure 11

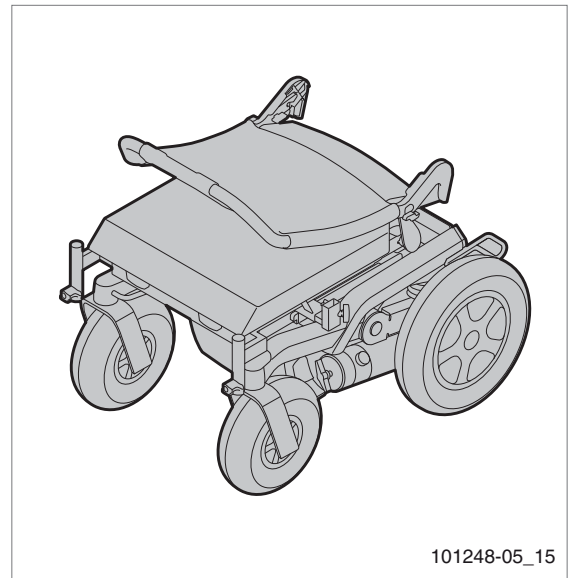


Figure 12

## 5.8 The wheelchair as a passenger seat in a car

### **Note!**

*This wheelchair is crashtested according to ISO 7176-19 (2008) with a maximum passenger weight of 136 kg.*

Wheelchairs are not primarily designed to be used as car seats and cannot offer the same degree of safety offered by standard car seats, no matter how securely they have been tied down in the vehicle concerned. Due attention should be paid to the following points when a transfer from the wheelchair to a standard car seat is not possible.

The wheelchair can be used as a passenger seat in a car or bus by using a 4-point integrated transport tie-down system that has been approved to ISO 10542 standards. Make sure that this restraint system is suitable to the total weight of the wheelchair. The weight of a wheelchair depends on its configuration. The specifications (chapter 8) give an overview of several options and their share in the total weight. Always weigh the total chair to make sure that the right restraint system is used.

The system requires tie-down rails to be mounted in the car. The chair must then always be strapped to the four tie-down points (figures 13).



### **Warning!**

*Transfer to a regular car seat if possible*

*Use for the fixation of the occupant a 3 point occupant restraint system. Always follow the instructions of this system.*

*Always ask the transporter for confirmation that the vehicle is suitably designed, insured and equipped for transporting a person in a wheelchair.*

***The wheelchair must be positioned in the vehicle so that it is facing forwards.***

***The wheelchair has been dynamically tested in a forward-facing orientation with the test dummy restrained by both pelvic and shoulder belts (e.g. a shoulder belt as part of a three-point belt restraint).***

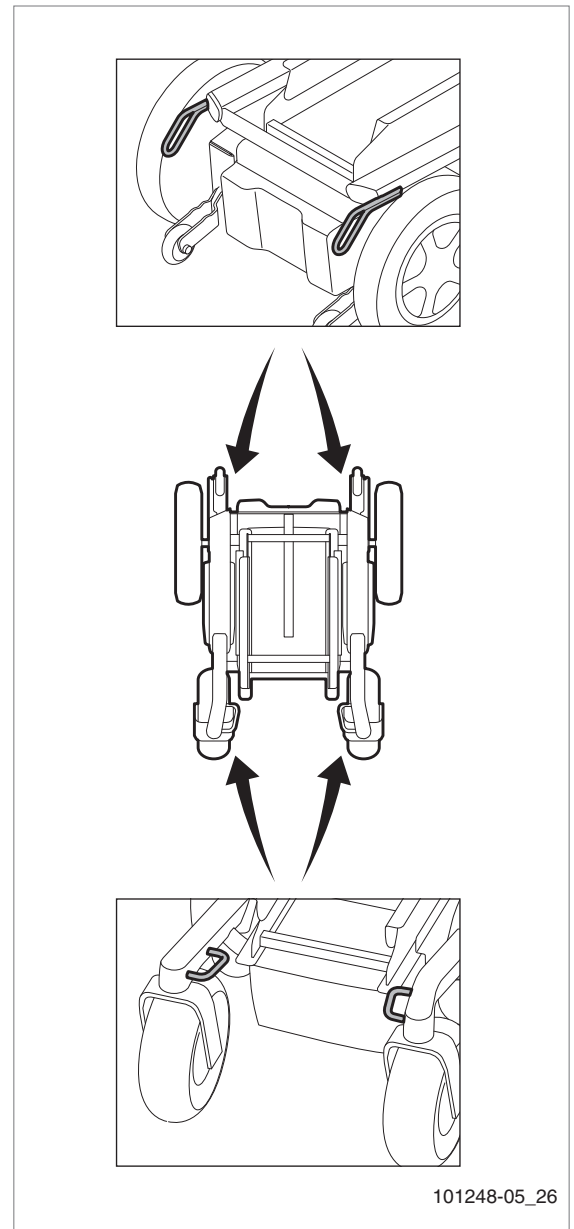


Figure 13

*Both pelvic- and shoulder-belt restraints should be used to reduce the possibility of head and chest impacts with vehicle components.*

*Wheelchair mounted trays should:*

- 1. be removed and secured separately in the vehicle*
- 2. be secured to the wheelchair but positioned away from the occupant with energy-absorbing padding placed between the tray and the occupant.*

*Set the wheelchair in the standard position (chapter 3.5) and use the headrest if the wheelchair is fitted with one.*

*The chair must always be switched off when being transported.*

*Support and positioning equipment must not be used as seat belts if not labelled as being in accordance with the requirements of ISO 7176/19*

*Gel-filled batteries only should be used.*

*No changes may be made to the tie-down points/car restraining points on the wheelchair, or to the design of the frame without consulting the manufacturer.*

*The wheelchair should be inspected by a Handicare's representative before reuse following involvement in any type of vehicle collision.*

*Care should be taken when applying the occupant restraint to position the seatbelt buckle so that the release button will not be contacted by wheelchair components during crash.*

---

The wheelchair has been tested in accordance with ISO 7176-19 (2008) with Q-strait Q195 and Q-strait QE5-6343 (>75 kg)

## 5.9 Fastening the seat belt

### ⚠ Warning!

Use the three-point seat belt in order to reduce the risk of head and chest injuries in the event of the wheelchair colliding with parts of the car.

The wheelchair should always be inspected by a representative of the manufacturer following any kind of collision.

Use the seat belt as follows:

- Position the belt across the hips as tightly as possible at an angle between 30° and 75°. The other part of the belt is positioned to sit across the chest and shoulder (figure 14).
- The seat belt should fit as tightly as possible and must not be twisted.
- Ensure that the seat belt is not obstructed from having contact with the body by wheelchair parts, such as armrests or wheels (figure 15).

Trays fitted to the wheelchair which do not comply with safety requirements must be:

- Removed and secured separately in the vehicle.
- Secured to the wheelchair, with shock-absorbing padding placed between the tray and the user.

In order to prevent injury in the event of a collision, secure wheelchair accessories to the wheelchair or remove them from the chair and secure them in the vehicle.

## 5.10 Storage after use

When the wheelchair is not in use, it must be stored in a dry place where it will not be exposed to weather conditions.

### Note!

Do not place the wheelchair in direct sunlight. Under such circumstances parts of the wheelchair can become so hot that they can cause burns. During storage, the ambient temperature should not be lower than -20°C or higher than +65°C.

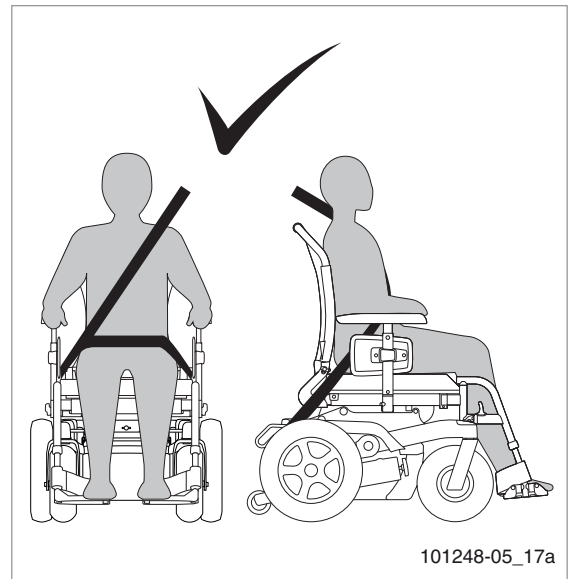


Figure 14

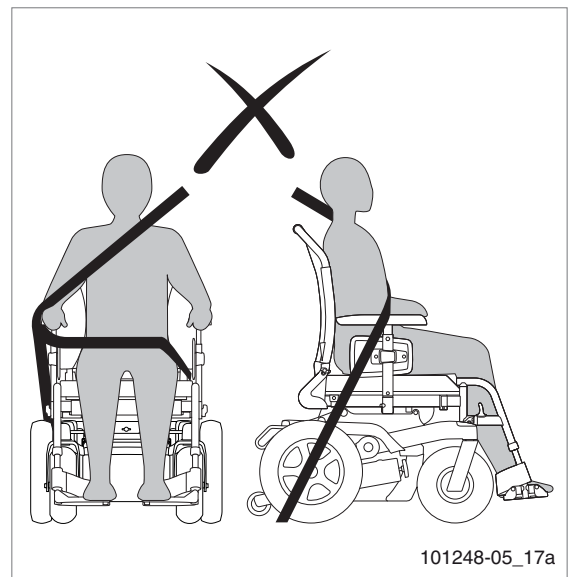


Figure 15

## 6 Maintenance of the wheelchair

The wheelchair's lifespan is dependent on it being well maintained.

For information concerning specific settings, maintenance or repair work, please contact your dealer. Always be sure to mention the model, year of manufacture and identification number provided on the identification plate of the wheelchair when contacting your dealer.

### Note!

*The wheelchair should be serviced by your dealer once a year or, in the case of intensive use, every six months.*

### 6.1 Maintenance plan

|          | Task                                                       | Chap. |
|----------|------------------------------------------------------------|-------|
| Daily    | Charge the batteries after each use                        | 6.2   |
| Weekly   | Check the tyre pressure and inflate the tyres if necessary | 6.3   |
| Monthly  | Clean the wheelchair                                       | 6.4   |
| Annually | Have wheelchair serviced by dealer                         | -     |

### 6.2 Batteries

The wheelchair uses two 12V 'dry' gel batteries in series. These batteries are fully sealed and require no maintenance.

### Note!

*Do not use 'wet' batteries.*

*Take into account the fact that the wheelchair's range is reduced at low temperatures. During a period of light frost, the capacity is roughly 75% of the normal capacity. At temperatures below -5°C this will be roughly 50%.*

### Charging the batteries (📖 Battery charger)

Consult the user manual for the battery charger to determine whether it is suitable for the batteries in use. See chapter 8.

- Switch off the wheelchair's controller.
- Plug the battery charger's charging plug into the charging connector on the controller.
- Activate the battery charger. Consult the user manual for the battery charger.

Charge the batteries if the wheelchair is not being used for an extended period of time. The batteries should be charged every night under normal use. The battery charger's display will indicate when the batteries are fully charged. Depending on how depleted the batteries are, it may take up to 12 hours to fully charge the batteries again.

### Maintaining the batteries

### Note!

*Ensure that the batteries are always fully charged. Not using the batteries for an extended period of time can damage them.*

*Do not use the wheelchair if the batteries are almost depleted and never completely deplete the batteries. This can seriously damage the batteries and you may run the risk of coming to an unintended standstill.*

### Replacing the batteries

If the capacity of the batteries is continually decreasing so that the wheelchair can only be used for short trips, then this means that the batteries are reaching the end of their lifespan. The batteries will then need to be replaced. Please contact your dealer for assistance.



### Warning!

*Batteries contain acids. Damaged batteries are a serious health hazard. Follow the instructions on the batteries at all times.*

## 6.3 Tyres

To ensure that your wheelchair functions properly, it is essential that the tyres are kept at the correct pressure. The correct pressure is indicated on the side of the tyre.

### Tyre pressure

| Puma 20          |              |
|------------------|--------------|
| Castor wheel 9"  | 3.5 bar max. |
| Castor wheel 10" | 3.5 bar max. |
| Drive wheel 13"  | 2.8 bar max. |
| Drive wheel 14"  | 2.1 bar max. |

Tyres that are too soft will have a negative effect on the wheelchair's performance. Moving the wheelchair will require more energy, making more demands on the batteries. Furthermore, wear on the tyres when driving with soft tyres is unnecessarily high.

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**Note!**

*Never exceed the maximum tyre pressure*

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### Drive wheel tyre repair

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**Note!**

*Tyres should only be replaced by a qualified specialist. For an extensive description of tyre repairs, please refer to the service manual available to qualified specialists.*

*Before tyres are repaired they must first be fully deflated.*

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## 6.4 Cleaning the wheelchair

Please consult the user manual for the seating system for information about cleaning the seating system ( Seating system).

**Caution!**

*Ensure that the controller is switched off while cleaning. If the joystick is accidentally touched, the wheelchair can start to move or the electrical options can be operated accidentally.*

*Take care with water in view of the electronic system*

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### Removing dry dirt

First, wipe the dirty parts clean using a wet sponge. Preferably use clean water or a mild soap solution. Wipe the parts dry using a soft dry cloth.

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**Note!**

*Never use abrasive or aggressive cleaning agents. These can scratch the wheelchair. Do not use organic solvents such as thinner, benzene or white spirit.*

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## 6.5 Decommissioning the wheelchair

Under normal use and with prescribed maintenance, the wheelchair's expected lifespan is approximately seven years.

### The environment



If your wheelchair has become superfluous or needs to be replaced, it can usually be taken back by your dealer in consultation. If this is not possible, please ask your local authority about the possibilities for recycling or environmentally friendly disposal of the materials.

Various different plastics and metals were used in the manufacture of the wheelchair. Furthermore, the wheelchair contains electronic components that should be disposed of as electronic waste. The batteries should be disposed of as chemical waste. A disposal fee is not applied to wheelchairs.

## 7 Troubleshooting

If the wheelchair is not working as it should, check the following points.

- Check whether the batteries are charged.
- Turn the wheelchair off and then back on again.
- Check whether the battery plugs are all securely in place.
- Check whether the freewheel switch is in the DRIVE position.
- Check the position of the speed regulator.

If the problem has not been resolved:

- Consult the troubleshooting section of the manual for the controller ( Controller).

If, after taking all of the above steps, the problem still persists, contact your dealer.

## 8 Technical specifications

### 8.1 CE declaration and requirements



This product complies with the COUNCIL DIRECTIVE 93/42/EEC of 14 June 1993 concerning medical devices. The product also meets the following requirements and standards. This has been verified by independent test organizations.

| Standard                           | Definition/description                                                                                                                               | Test dummy weight |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|
| <b>EU guideline 93/42 EEC</b>      | Requirements as stated in Appendix 1 apply                                                                                                           | n/a               |
| <b>NEN-EN 12182</b>                | The EN 12182 requirements as stated in NEN-EN 12184 (2009): Technical aids for disabled persons - General requirements and test methods October 1999 | 136 kg            |
| <b>NEN-EN 12184 (2009) Class B</b> | Electrically powered wheelchairs, scooters and their chargers - Requirements and test methods October 2009                                           | 136 kg            |
| <b>ISO 7176-8</b>                  | Requirements and test methods for impact, static and fatigue strengths July 1998                                                                     | n/a               |
| <b>ISO 7176-9</b>                  | Climatic tests for electric wheelchairs IPX4                                                                                                         | n/a               |
| <b>ISO 7176-14</b>                 | Requirements and test methods for power and control systems for electrically powered wheelchairs 1997                                                | n/a               |
| <b>ISO 7176-19 (2008)</b>          | The Puma 20 meets the crash test requirements as described in ISO 7176-19 (2008)                                                                     | 75 kg             |

### 8.2 Technical information

| Batteries                                   | Max.                                     | Unit       |
|---------------------------------------------|------------------------------------------|------------|
| <b>Maximum battery dimensions</b>           | 260 x 172 x 210<br>(10.25 x 6.75 x 8.25) | mm<br>inch |
| <b>Battery capacity</b>                     | 40 / 60 / 74 GEL; 50 AGM                 | Ah         |
| <b>Maximum permissible charging voltage</b> | 24                                       | V          |
| <b>Maximum charging current</b>             | 12                                       | A (rms)    |
| <b>Connector type</b>                       | Controller                               |            |
| <b>Insulation</b>                           | Class 2 double insulated                 |            |

| Model                                            |           | Puma 20 Lite                                                      |             |
|--------------------------------------------------|-----------|-------------------------------------------------------------------|-------------|
| Class                                            |           | B                                                                 |             |
| Description                                      | Unit      | FWD                                                               | RWD         |
| Total length including legrests                  | mm (inch) | 1160 (45.7)                                                       | 1095 (43.1) |
| Total width 13" drive wheels                     | mm (inch) | 610 (24)                                                          |             |
| Total width 14" drive wheels                     | mm (inch) | 655 (25.8)                                                        |             |
| Total weight without batteries:                  | kg (lbs.) | 77,6 (12.2)                                                       |             |
| Batteries 40 Ah (C20) (set of two)               | kg (lbs.) | + 28,4 (4.5)                                                      |             |
| Batteries 50 Ah (C20) (set of two)               | kg (lbs.) | + 29,6 (4.7)                                                      |             |
| Batteries 60 Ah (C20) (set of two)               | kg (lbs.) | + 34,6 (5.5)                                                      |             |
| Batteries 74 Ah (C20) (set of two)               | kg (lbs.) | + 45,8 (7.2)                                                      |             |
| Electrical tilt adjustment                       | kg (lbs.) | + 6,5 (1)                                                         |             |
| Puncture-proof drive wheels (set of two)         | kg (lbs.) | + 2 (0.3)                                                         |             |
| Transport weight of the heaviest part            | kg (lbs.) | 77,6 (12.2)                                                       |             |
| Maximum safe slope                               | ° (%)     | 10 (17.6)                                                         |             |
| Static stability                                 |           |                                                                   |             |
| Downwards                                        | °         | 15                                                                |             |
| Upwards                                          | °         | 15                                                                |             |
| Sideways                                         | °         | 15                                                                |             |
| Reversing distance                               | mm (inch) | 1200 (47.2)                                                       | 1700 (66.9) |
| Turning radius (ISO 7176-5)                      | mm (inch) | 600 (23.6)                                                        | 850 (33.5)  |
| Distance range* 74 Ah (C20) approx. (ISO 7176-4) |           |                                                                   |             |
| 6 km/h                                           | km (mi.)  | 34 (21.1)                                                         |             |
| 10 km/h                                          | km (mi.)  | 29 (18)                                                           |             |
| Climbing capacity for obstacles (outdoor)        | mm (inch) | 60 (2.4)                                                          | 80 (3.1)    |
| Maximum speed forwards                           | km/h      | 6 / 10                                                            |             |
| Seat angle adjustment                            | °         | 0 - 6                                                             |             |
| Effective seat depth                             | mm (inch) | 420 / 440 / 460 / 480 / 500<br>(16.5 / 17.3 / 18.1 / 18.9 / 19.7) |             |
| Effective seat width                             | mm (inch) | 420 - 510 (16.5 - 20.1)                                           |             |
| Seat height (excl. cushion)**                    | mm (inch) | 405 / 430 / 455 / 480 / 505<br>(15.9 / 16.9 / 17.9 / 18.9 / 19.9) |             |
| Seat height (incl. cushion)**                    | mm (inch) | 465 / 490 / 515 / 540 / 565<br>(18.3 / 19.3 / 20.3 / 21.3 / 22.2) |             |
| Backrest angle                                   | °         | 92 / 97 / 102 / 107                                               |             |
| Backrest height                                  | mm (inch) | 480 (18.9)                                                        |             |
| Lower leg length                                 | mm (inch) | 360 - 460 (14.2 - 18.1)                                           |             |

\* The following aspects have a negative effect on the distance range: obstacles, rugged terrain, driving on slopes, exposure to temperatures below freezing point and frequent use of electronic adjustment options.

\*\* Seat height incl. load, 0° seat angle and 13" drive wheels

### 8.3 Electric wiring diagram

The electric wiring diagram varies according to the type of controller used ( Controller).

## 9 Warranty

### 9.1 Provisions of warranty

In the warranty and liability provisions the following terms are defined as follows:

- **Product:** The manual or electric wheelchair or scooter manufactured and supplied by Handicare.
- **Customer:** The person who directly obtains a product from Handicare.
- **Dealer:** The person who supplies a product obtained from Handicare to third parties.
- **User:** The person who uses a product manufactured by Handicare.

Irrespective of what has been determined concerning warranty conditions in the general terms and conditions applicable to the product, the following shall in any case apply with regard to the warranty:

1. Except insofar as described otherwise in the provisions below, Handicare guarantees the product for its suitability for the purpose for which the product is intended - all of these points as described in this manual - and for the quality of the material of which the product is made and the manner in which the product is manufactured.
2. Repairs or replacement of parts of the product that may be necessary as a result of faults that are based on qualitatively faulty material or manufacturing errors shall be carried out free of charge, as long as such faults occurred within one (1) year of the date of delivery of the product to the Customer. The parts to be replaced must be shipped post-paid to Handicare. Disassembly or assembly of these parts shall be at the expense of the Customer. Therefore the following cases shall not be eligible for free repair or replacement as referred to in the previous sentence:
  - A. Repair or replacement that is necessary in connection with faults that arise after one (1) year from the date of delivery of the product to the Customer;
  - B. Repair or replacement that is required in connection with faults due to improper or careless use of the product or that are based on the product being used for

another purpose than the one for which it is intended, in which regard it shall apply that if the Customer is a Dealer, this Dealer shall indemnify Handicare against possible claims from Users or other third parties for faults based on an incorrect or careless use of the product;

- C. Parts that are subject to wear, and the need for repair or replacement of the parts is the actual consequence of normal wear.
3. Irrespective of that stipulated under 2, as far as an electric product is concerned it shall apply that, with regard to the battery that forms part of the product, warranty is only given in case of faults or non-functioning of the battery that are demonstrably the direct consequence of material or manufacturing errors. A fault or non-functioning of the battery as a result of normal wear is not covered by the warranty as referred to in these warranty provisions. Similarly not covered by the warranty are faults or non-functioning that are the consequence of improper or unprofessional use of the product or the battery that is part of the product, including the incorrect charging of the battery and the failure to carry out timely and proper maintenance, in which context it shall also apply that if the Customer is a Dealer, this Dealer shall indemnify Handicare against possible claims from Users or other third parties that are based on the above-mentioned improper or unprofessional use of the product or the battery that is part of the product.
4. The warranty conditions as stated in the above provisions shall in any case become null and void if:
  - A. Handicare's guidelines for the maintenance of the product have not, or have insufficiently, been followed;
  - B. A necessary repair or replacement of parts is based on neglect, damage or abuse of the product or a use of the product for another purpose than the one for which it was intended;
  - C. Parts of the product have been replaced by parts of another origin than those which Handicare uses and/or parts of the product have been replaced without the

permission of Handicare.

5. The warranties as stated in provisions 1 to 3 also become null and void in the case of re-use by a new user within the warranty period and when such re-use necessitates adaptations to the product and those adaptations were not carried out on the instructions of and/or at the order of Handicare.
6. To retain rights under the above delineated warranties, the Customer must, in the case of damage or other calamities, contact Handicare as quickly as possible and provide Handicare with as much information as possible. The possibility of taking recourse to the above-mentioned warranty conditions shall in any case become null and void for the Customer after 20 workdays following the date of the claim incident or the calamity forming the basis for recourse to the guarantee.
7. The replacement of a part or the repair or the reconditioning of the product within the period a warranty period shall not extend the warranty period.
8. Handicare gives no warranty on repair to or reconditioning of the product carried out other than under order of and/or on the instructions of Handicare. If repairs and/or reconditioning are carried out by or on behalf of a Customer, the Customer shall indemnify Handicare with respect to claims made by third parties which, in the broadest sense of the word, result from such repairs or reconditioning.

## 9.2 Liability provisions

Irrespective of what is determined regarding liability in the general terms and conditions applicable to the product, the following shall in any case apply with regard to liability:

1. Taking into consideration the following provisions, Handicare shall only accept liability for loss due to death or physical injury that is the result of a defect in the product for which Handicare is responsible and for damage to another object that is the private property of the user of the product, as long as said loss is the direct result of a fault in the product.
2. Handicare accepts no other or further liability than delineated under 1. In particular Handicare accepts no liability for consequential damage, in any form whatsoever.

Dealer:

Serial number:



**handicare**

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