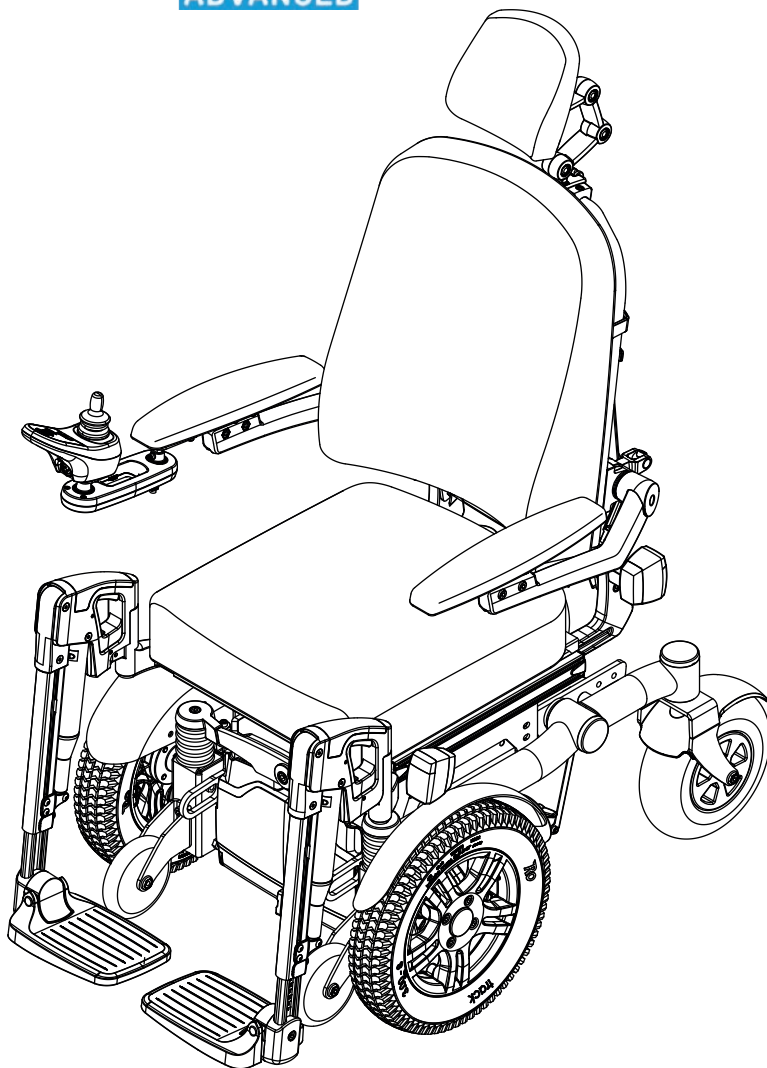


# USER MANUAL



# SANGO

ADVANCED



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# 1 Preface

## 1.1. About this manual

The user manual for this powered wheelchair consists of three separate booklets:

- The general user manual (this booklet)
- The manual for the controller
- The manual for the battery charger

Read through these user manuals carefully before using the wheelchair for the first time. The information they contain is essential for the safe use and proper maintenance (cleaning) of the wheelchair. If any of the manuals are missing on delivery of your wheelchair, please contact your dealer immediately.

A service manual for qualified specialists is also available.

## 1.2. Symbols used in this manual

### Warning

Follow the instructions given under warnings! Failure to exercise due care in following these instructions may result in physical injury, damage to the wheelchair or damage to the environment. Where possible, the warnings are given in the section that is most relevant.


### Section references


A reference to another chapter or section in this manual is given in parentheses enclosing the phrase 'see'. Example (see 2) or (see 2.4).

### Cross-reference symbol

Where required, this general manual makes reference to the other manuals. This is done in the following way:

 CONTROLLER Please refer to the user manual for the controller.

 CHARGER Please refer to the user manual for the battery charger.

 SERVICE Please refer to the service manual of the product (qualified specialists only).

If you have a visual impairment, you can find a PDF version of this user manual at [www.DIETZ-Power.com](http://www.DIETZ-Power.com).

You can also request a large-print paper version by contacting DIETZ-Power. Contact information can be found on the back cover of this user manual.

## 2 Safety

All of the very latest information relating to product safety and any product recalls can be found on our website at [www.DIETZ-Power.com](http://www.DIETZ-Power.com).

### **⚠ Warning**

Follow the instructions given under warnings! Failure to exercise due care in following these instructions may result in physical injury, damage to the wheelchair or damage to the environment.

### 2.1. Temperature

#### **⚠ Warning**

- Avoid any physical contact with the motors of the wheelchair at all times. When the wheelchair is in use, the motors are in constant motion and can reach high temperatures. Any physical contact with the motors could result in burns. After use, the motors cool down slowly.
- Ensure that the wheelchair is not exposed to direct sunlight for long periods of time when not in use. Some parts of the wheelchair (such as the seat, backrest and armrests) can become hot if exposed to the sun for too long. This may result in burns or skin sensitisation.

### 2.2. Moving parts

#### **⚠ Warning**

Wheelchairs contain moving and rotating parts (figure 1). Contact with moving parts may result in serious physical injury or damage to the wheelchair. You should avoid any contact with the moving parts of the wheelchair.

- A. Powered leg rests
- B. Swing-away controller arm
- C. Powered backrest adjustment
- D. Powered tilt adjustment
- E. Powered lift adjustment
- F. Wheels (turning and pivoting)



## 2.3. Electromagnetic radiation

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

### Warning

Despite testing, the following cannot be ruled out:

- electromagnetic radiation interfering with the wheelchair. For example mobile telephones, large medical devices or other sources of electromagnetic radiation
- the powered wheelchair interfering with electromagnetic fields. For example shop doors, burglar alarm systems in shops or garage door openers.
- in some configurations equipped with a R-net controller, where it is possible that extreme electrical discharge situations due to static electricity, may cause a fault message ('ISM over-current') flashing on the screen. If this occurs simply turn off your wheelchair for a few seconds and back on to clear the fault.



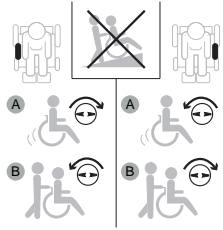




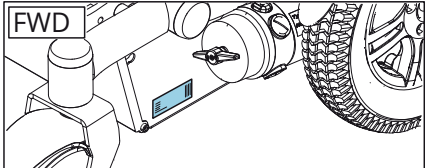
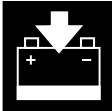

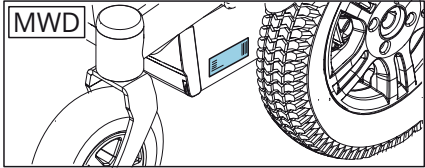
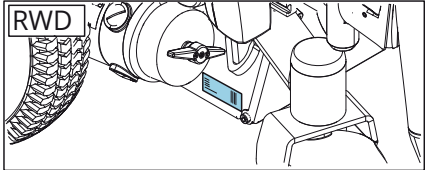
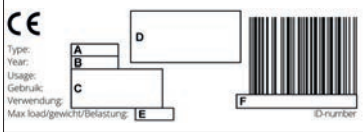
In the unlikely event of such problems arising, please notify your dealer immediately.

## 2.4. Markings on the wheelchair

### Warning

- The markings, symbols and instructions on the wheelchair are part of the safety features. They must not be covered up or removed. They must remain on the wheelchair and be clearly legible for the whole lifespan of the wheelchair.
- Immediately replace or repair any markings, symbols or instructions that become damaged or illegible. Contact your dealer in such cases.

### Symbols used on the wheelchair

 Consult the manual before use	 Securing point for transportation inside a vehicle
 <p>Freewheel switch</p> <ul style="list-style-type: none"> <li>• Drive position</li> <li>• Push position</li> </ul> <p> <b>Warning</b> Never set the freewheel switch to the 'Push' position when the wheelchair is on a slope.</p>	  <p> <b>Warning</b> (yellow-black) Pinch point hazard: Keep hands and fingers away from moving parts when adjusting the height and/or tilt angle of the wheelchair.</p>
<p>Location identification plate: on the batterybox at the right side</p> 	  <b>CONTROLLER</b> Battery charging point
 	<p>Identification plate</p>  <ul style="list-style-type: none"> <li>A. Type</li> <li>B. Year of manufacture</li> <li>C. Usage indoor or outdoor</li> <li>D. Manufacturer</li> <li>E. Maximum load in kg</li> <li>F. Identification number</li> </ul>

# 3 General description

Front-, mid- and rear-wheel drive wheelchairs and their major components (figures 2, 3 and 4)

- A. Drive wheels
- B. Castor wheels
- C. Freewheel switch
- D. Controller
- E. Battery
- F. Seat cushion
- G. Backrest
- H. Armrest
- I. Leg rest
- J. Headrest

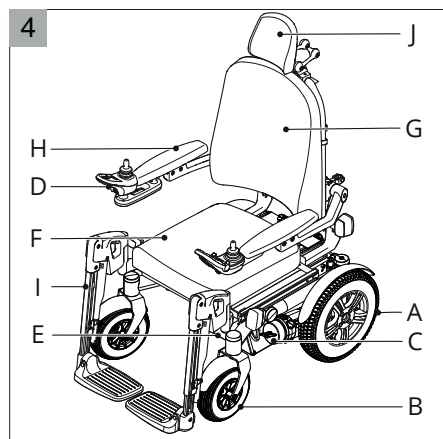
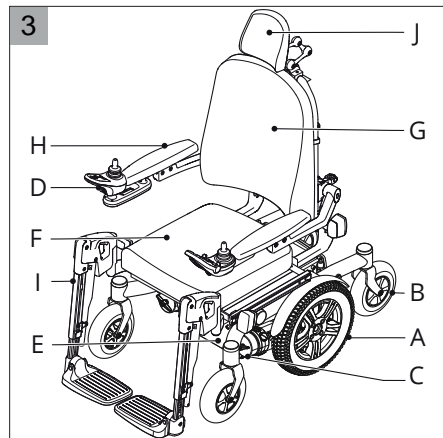
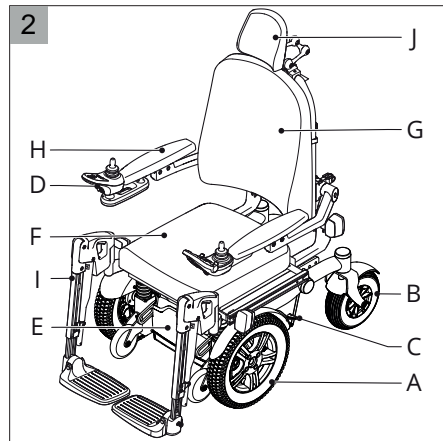
## 3.1. Configurations

Broadly speaking, the wheelchair is made up of an undercarriage with the SEGO seating system on top of it for excellent support for the head, torso, arms and legs.

The wheelchair is available as a front-wheel drive (FWD), rear-wheel drive (RWD) or mid-wheel drive (MWD) in different speeds (6 km/h, 10 km/h and 12,5 km/h).

### **⚠ Warning**

- No changes may be made to the technical specifications.
- Do not make any adjustments to the electrical circuit.
- Modification of the wheelchair or its component parts is not permitted.



### 3.2. The user

Driving a powered wheelchair requires the user to have cognitive, physical and visual abilities. The user must be capable of estimating the consequences of any action taken while driving the wheelchair and of correcting action where required. The wheelchair must not carry more than one person. The maximum user weight is 160 kg, unless otherwise stated on the identification plate (see 2.4). Any additional weight in the form of a bag, accessories or medical equipment must be added to the user's weight, with the resulting total weight not exceeding the maximum user weight.

The user must also be aware of the contents of this manual before using the wheelchair for the first time. The wheelchair user must also have received thorough instruction from the dealer before using public roads. A trainer/consultant must supervise the user's first experience of driving the wheelchair.

#### Warning

- The wheelchair user shall at all times be fully responsible for compliance with locally applicable safety regulations and guidelines.
- You must not drive the wheelchair while under the influence of any substances that may affect your driving ability.
- Your eyesight must be good enough to allow you to use the wheelchair in any particular situation safely.
- Do not seat more than one person in the wheelchair.
- Do not allow children to drive the wheelchair without supervision.

### 3.3. Operating environment

This wheelchair has been developed for both indoor and outdoor use (EN 12184 (2014) class B). When outdoors, drive only on paved roads, pavements, footpaths and cycle paths. Always adjust your speed to your surroundings.

#### Warning

- A wheelchair should be regarded as a replacement for the walking function. Users must therefore travel among pedestrians and not on streets with traffic.
- The use of the wheelchair on walk ways and roads may be subject to the applicable legal requirements of National Road Laws or Road Traffic Laws.
- Drive carefully on roads that are slippery due to rain, ice or snow!
- Prevent the wheelchair from coming into contact with seawater, as it is aggressive and has a corrosive effect.
- Prevent the wheelchair from coming into contact with sand. Sand can get into the moving parts of the wheelchair, causing unnecessarily rapid wear.
- When visibility is limited, the use of lights is compulsory.
- Exercise additional care when driving at high speeds. Adjust to a lower maximum speed when driving indoors, on pavements and in pedestrianised areas.
- Do not drive off of high obstacles.
- Do not use the wheelchair at temperatures below -10 °C or above +50 °C.
- Do not attach any weights to the wheelchair without consulting a specialist. You may otherwise influence the stability of the product.
- Do not use the wheelchair to push and/or pull any objects along.
- Do not open doors using the leg rests.
- Do not drive through puddles of water.

# 4 General procedures

Some parts can be removed without the use of tools. The wheelchair can easily be reduced in size. For example to transport the wheelchair (see 8).

## **⚠ Warning!**

The removal of parts might have adverse or beneficial effects on the wheelchair.

### 4.1. Seat cushion

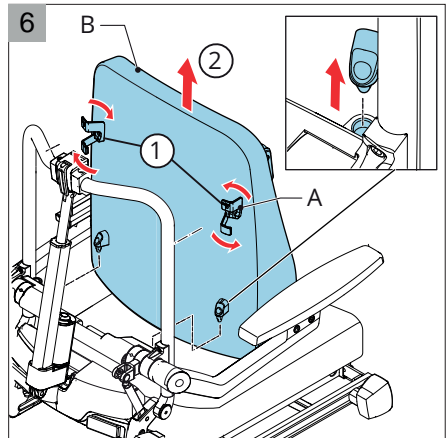
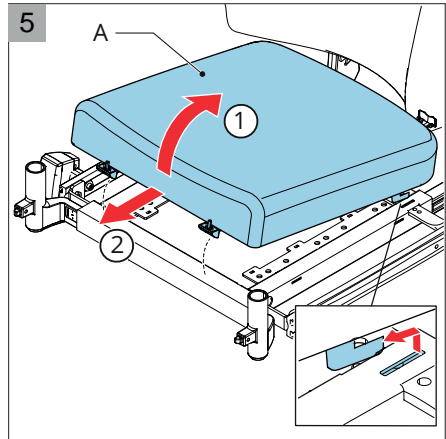
(figure 5)

To remove  
Pull the seat cushion (A) upwards and then forwards.

To replace  
Place the seat cushion on the chair and push it backwards and downwards.

## **⚠ Warning!**

The seat is not locked into place until you hear a click.



### 4.2. Back cushion

(figure 6)

To remove  
1. Loosen the clips (A).  
2. Pull the back cushion (B) upwards.

To replace  
1. Place the back cushion on the attachment points.  
2. Pull the back cushion backwards.  
3. Tighten the clips.



### 4.3. Leg rests

(figure 7)

To remove

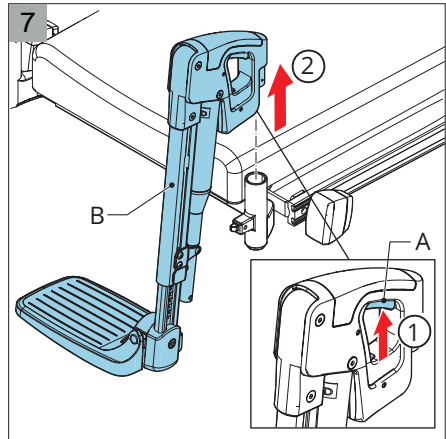
1. Press the handle (A) upwards to release the leg rest.
2. Remove the leg rest (B) by lifting it out of the bracket.

To replace

Place the leg rest in the bracket.

#### **⚠ Warning**

- The leg rest is not locked into place until you hear a click.
- Removing the leg rest may affect the stability of the wheelchair.



### 4.4. Headrest

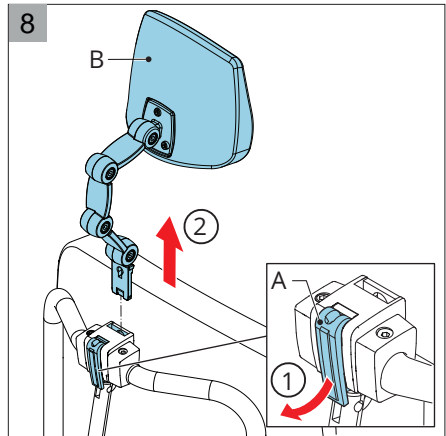
(figure 8)

To remove

1. Loosen the lever (A) by half a turn.
2. Remove the headrest (B).

To replace

1. Place the headrest in the desired position.
2. Lock the headrest in place by tightening the lever.



## 5 Wheelchair settings (qualified specialists only)


There is no such thing as an average wheelchair user. This is why DIETZ-Power wheelchairs can be adjusted to a specific user's individual situation.

We make a distinction between user adjustments and permanent settings.

- User adjustments can be made by the user himself/herself without the need for any tools.
- Permanent settings must be altered by a dealer, unless expressly stated otherwise.

### Warning

A number of permanent settings are described in the following paragraphs. Only qualified service technicians or dealers may alter these.

 SERVICE for more adjustments and replacement information

### 5.1. Tools

The following tools are needed to do the settings as described in this paragraph:

- Spanner, size 13
- Allen key, size 4, 5 and 6

### 5.2. Adjusting the centre of gravity (seat position)

The centre of gravity of the wheelchair can be moved/adjusted by moving the seat. There are a number of positions on the seat slide for this purpose (figure 9).

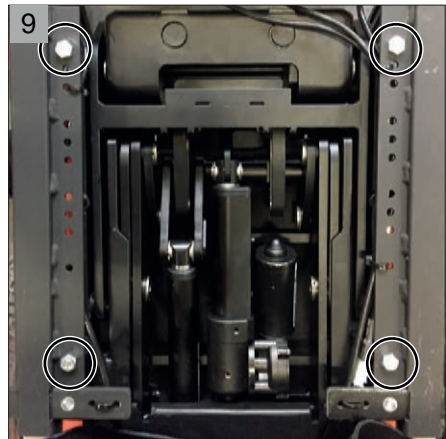
### Warning

Only change the position of the seat and the centre of gravity in order to compensate for specific user situations. One example might be compensation for a user with no legs.

Moving the centre of gravity:

- will have a negative effect on the handling of the wheelchair if not carried out correctly.
- will have a negative effect on dynamic stability if not carried out correctly;
  - For FWD do not position the seating frame in the most front position
  - For RWD + MWD move seating frame in most front position when Seat depth is maximum.
- should be made by professionals only.

If in any doubt, contact DIETZ-Power technical support department.



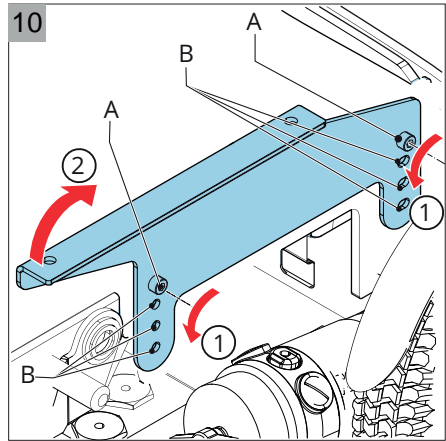
### 5.3. Seat height and seat angle setting

The seat height can be permanently adjusted according to the user's specific situation. All of the optional seat heights fall within the maximum safe slope of 6° (10.5%), as set out in EN 12184 (2014) class B. Lowering the seat height will have a positive effect on overall and dynamic stability.

1. Loosen the bolt (A figure 10).
2. Position the bolt in the hole (B) corresponding to the desired position.
3. Tighten the bolt.

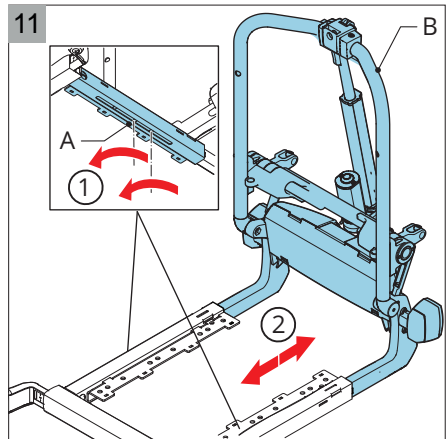
#### **⚠ Warning**

By increasing the seat height you also raise the centre of gravity. This has a negative effect on overall and dynamic stability.



### 5.4. Seat depth setting

1. Loosen the allen screws (A) on each side by one turn (figure 11).
2. Slide the seat frame (B) into the desired position.
3. Tighten the allen screws.

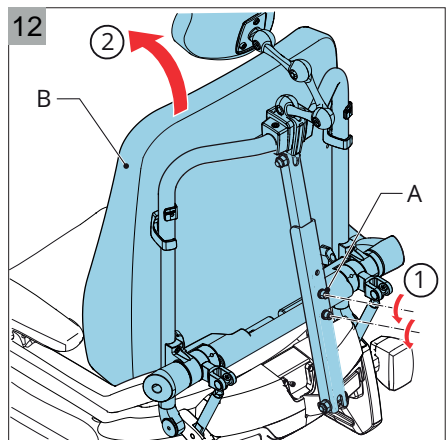


### 5.5. Seat width setting

The seat width can be adjusted by changing the leg rest and/or armrest width (see 5.8 and 5.9).

### 5.6. Backrest angle setting

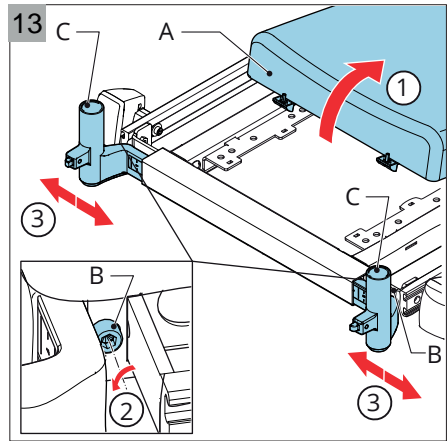
1. Loosen the two allen screws (A) by one turn (figure 12).
2. Adjust the backrest (B) to the desired angle.
3. Tighten the allen screws.



## 5.7. Leg rest settings

### Leg rest width (also affects seat width)

1. Remove the seat cushion (A figure 13).
2. Loosen the allen screws (B) by one turn.
3. Slide the leg rest bracket (C) into the desired position.
4. Tighten the allen screws.

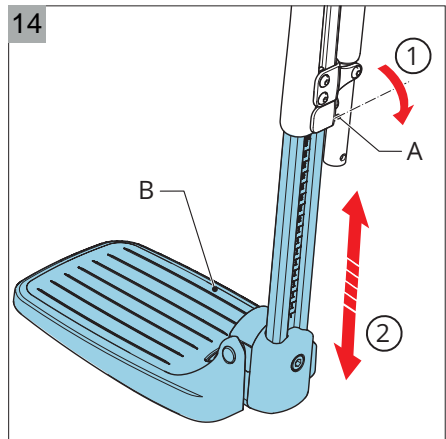


### Lower leg length

1. Loosen the allen screw (A figure 14).
2. Slide the footplate (B) into the desired position.
3. Tighten the allen screw.

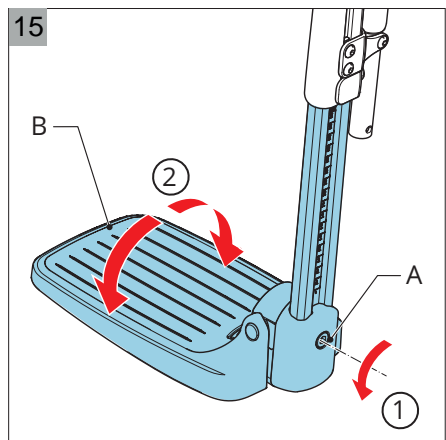
#### **⚠ Warning**

Ensure that there is enough space underneath the footplate for the wheelchair to drive over obstacles.



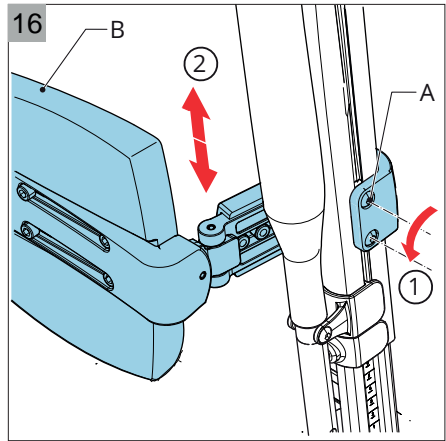
### Footplate angle

1. Loosen the allen screw (A figure 15).
2. Move the footplate (B) into the desired position.
3. Tighten the allen screw.



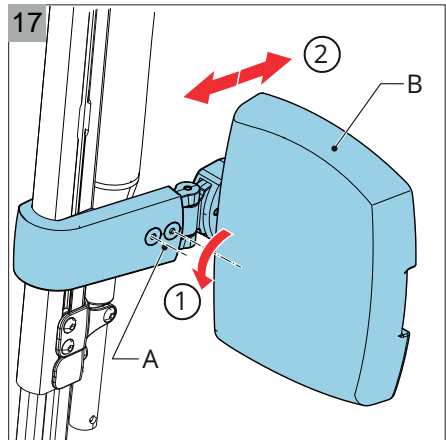
### Height of the calf support

1. Loosen the two allen screws (A) by a few turns (figure 16).
2. Slide the calf support (B) into the desired position.
3. Tighten the allen screws.



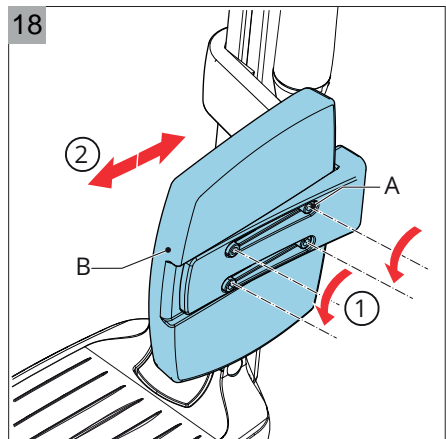
### Calf support depth (option)

1. Loosen the allen screws (A figure 17).
2. Position the calf support (B) in the desired position.
3. Tighten the allen screws.



### Calf support width (option)

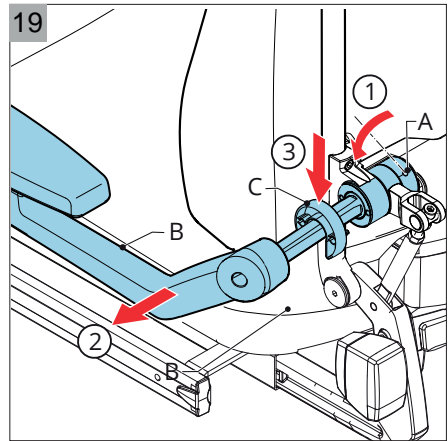
1. Loosen the 2 allen screws (A figure 18).
2. Move the calf support (B) into the desired position.
3. Tighten the allen screws.



## 5.8. Armrest settings

### Armrest width (also affects seat width)

1. Loosen the allen screw (A) by two turns (figure 19).
2. Slide the armrest (B) to the side.
3. If required, remove or position the spacer ring (C).
4. Slide the armrest back.
5. Tighten the allen screw.

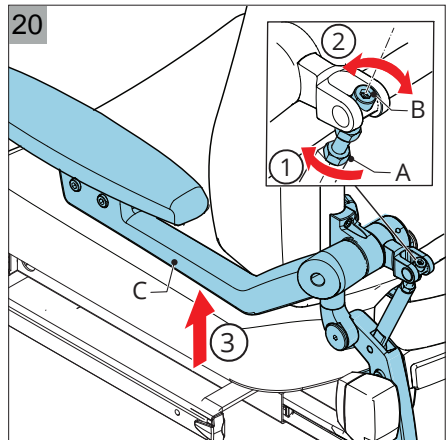


### Armrest height

1. Loosen the bolt (A + B figure 20).
2. Slide the armrest (C) into the desired position.
3. Tighten the bolt.
4. If required, adjust the armrest pad angle (figure 22).

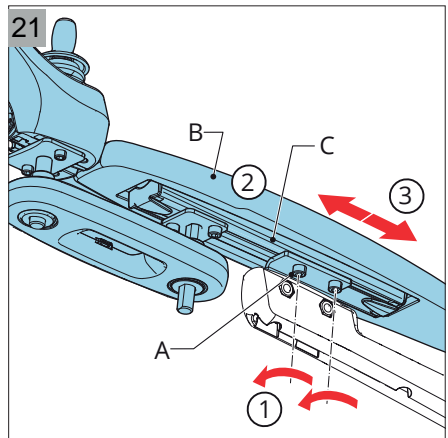
#### **⚠ Warning**

Ensure that the arms are well supported, without the shoulders being pushed upwards.



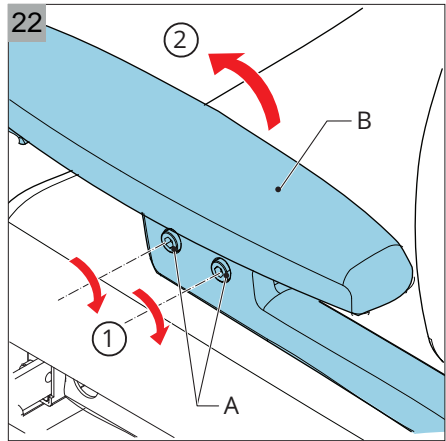
### Armrest pad width and depth

1. Loosen the two allen screws (A figure 21).
2. Slide the bolts with the armrest pad (B) into the other guide bar (C) to adjust the armrest pad width.
3. Adjust the armrest pad depth to the desired position.
4. Tighten the allen screws.



### Armrest pad angle

1. Loosen the allen screws (A figure 22).
2. Slide the armrest pad (B) into the desired position.
3. Tighten the allen screw.



## 5.9. Controller settings

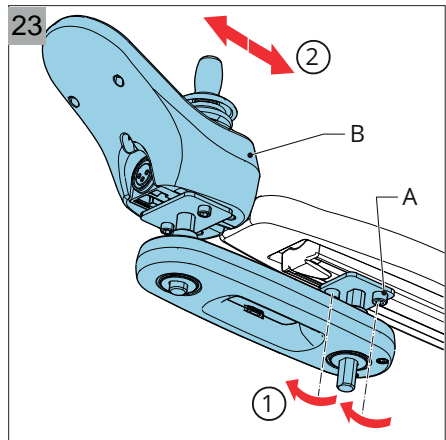
### Control system programme

#### **⚠ Warning**

Making incorrect adjustments to the control system parameters can lead to extremely dangerous situations. These adjustments only may be carried out by qualified specialists.

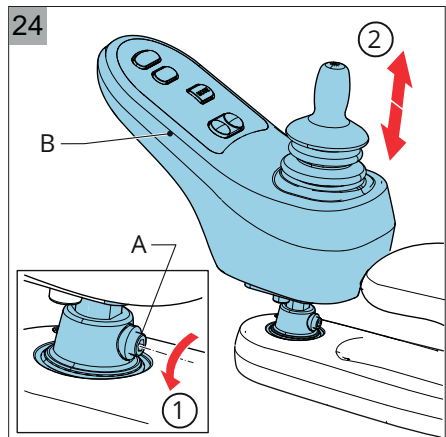
### Controller depth (option)

1. Loosen the allen screws (A figure 23).
2. Slide the controller (B) into the desired position.
3. Tighten the allen screws.



### Controller height (option)

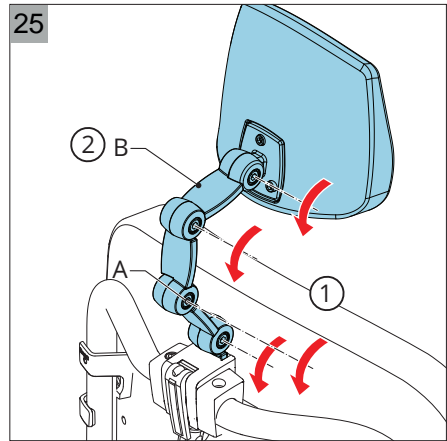
1. Loosen the allen screws (A figure 24).
2. Slide the controller (B) into the desired position.
3. Tighten the allen screws.



## 5.10. Headrest settings

### Headrest height and position

1. Loosen the 4 allen screws (A figure 25).
2. Adjust the segments (B) to the right position.
3. Tighten the allen screws.



## 5.11. The positioning belt (option)

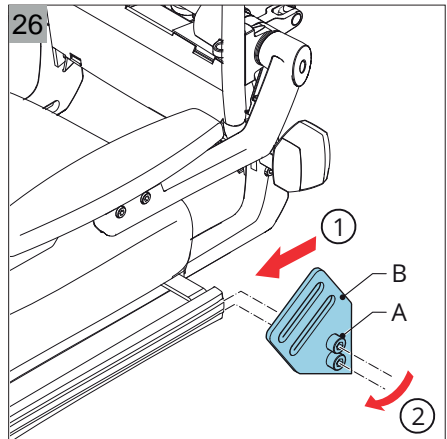
The wheelchair can be fitted with a positioning belt. This provides additional seating stability under normal use. The belt does not function as a safety belt for transportation purposes.

### **⚠ Warning**

- Ensure that the positioning belt is adjusted to the wheelchair user. The components of the wheelchair must not interfere with the belt, which should fit snugly across the upper legs.
- Ensure that the positioning belt is always clean and that its locking mechanism works properly. The belt and the locking mechanism can be cleaned using a damp cloth.
- If the positioning belt is placed above hip level (over the soft part of the belly) this may lead to an incorrect sitting posture and the user slumping in the chair.
- Never use the positioning belt as a safety belt during transportation.

### Mounting the positioning belt

1. Slide the bolts (A figure 26) with the belt bracket (B) into the guide.
2. Tighten the bolts.






# 6 Wheelchair adjustments

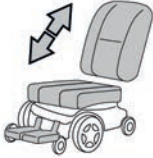
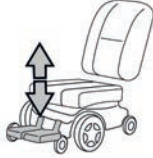
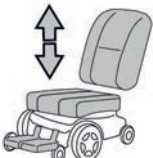

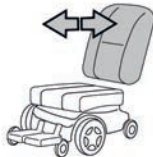
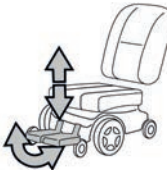
Wheelchair adjustments are those components that the user can adjust without the use of tools. The wheelchair may be fitted with powered and/or mechanical adjustment options.

## Warning

- The centre of gravity is affected when adjustments are made. Adjustments should therefore only be made when the wheelchair is on a flat surface.
- Powered adjustments involve parts of the wheelchair moving and/or rotating. Contact with such moving parts may result in serious physical injury or damage to the wheelchair. You should avoid any contact with the moving parts of the wheelchair.
- When adjustments are made, the standard size of the wheelchair increases. Make sure that the wheelchair does not block any escape routes.

## 6.1. Powered adjustments

 **CONTROLLER** how to operate the powered adjustments by use of the controller. The following powered adjustments are possible:

Adjustment		Neutral position	Adjustment		Neutral position
<b>Adjustable seat tilt</b>			<b>Adjustable footrest extended</b>		
	Entire seat will tilt forwards/backwards.	Upright		The legrest length will increase/decrease.	Close to the feet
<b>Adjustable seat lift</b>			<b>Adjustable footrest lift</b>		
	Entire seat will be lowered/raised.	Lowest position		The legrest angle will increase/decrease.	Vertical as possible
<b>Adjustable backrest recline</b>			<b>Footrest length compensating</b>		
	The backrest will tilt forwards/backwards.	Upright		The legrest length and angle will increase/decrease	Vertical as possible

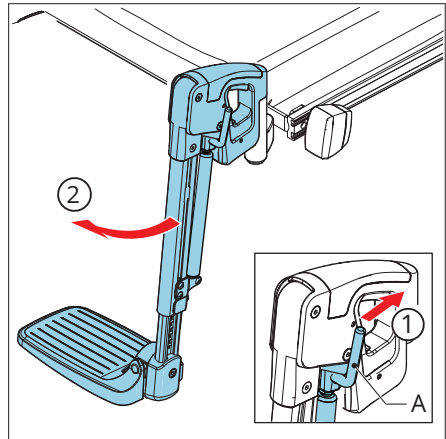
## 6.2. Mechanical adjustments

The following mechanical adjustments are possible:

### Comfort leg rest knee angle

The angles of the comfort leg rests can be adjusted independently of each other.

1. Push the lever (A) forwards (figure 27).
2. Raise your leg up or push your leg down.
3. Release the lever when in the required position.



### Swing-away controller arm

Push the controller arm to the desired position.

### Back frame (option)

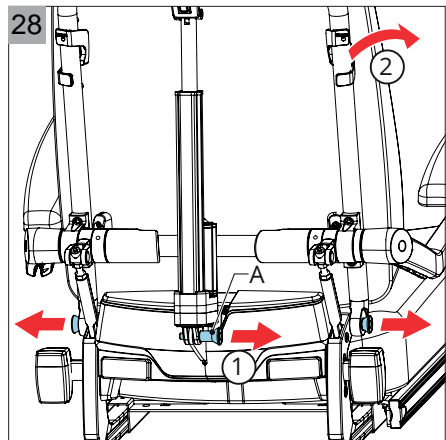
(figure 28)

To fold down

1. Remove the quick-release shafts.
2. Fold down the backrest.

Upright position

1. Open out the backrest to an upright position.
2. Replace the quick-release shafts.





# 7 Using the wheelchair

## 7.1. Checking the wheelchair

### Warning

Carry out the following checks before using the wheelchair:

-  CONTROLLER check whether the batteries are sufficiently charged: if they are, the green lights on the battery indicator will be on.
-  CONTROLLER check whether the lights and the indicators are working.
- Check whether the tyres are sufficiently inflated (see 9.3).
- Ensure that the freewheel switch is in the 'drive' position (see 7.6).

### Warning

When using the wheelchair:

- Take the length of your clothing into account. Before using the wheelchair, check to see whether any garments or accessories could come into contact with the wheels or any other moving and/or rotating parts and become entangled in them.
- Battery capacity is reduced in winter. When there is a light frost, capacity is around 75% of normal capacity. At temperatures below  $-5^{\circ}\text{C}$ , capacity is reduced by approximately 50%. This reduces the operating range.

## 7.2. Getting into and out of the wheelchair

Getting into and out of a wheelchair is also described as making a transfer.

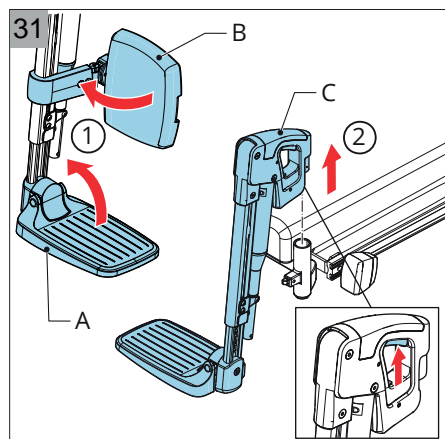
### Warning

Do not stand on the footplates when making a transfer. They are not designed to carry a person's full weight. Standing on them may also cause the wheelchair to tip over. Before making a transfer, ensure that:

- The controller is turned off
- The freewheel switch is in the 'drive' position (see 7.6)

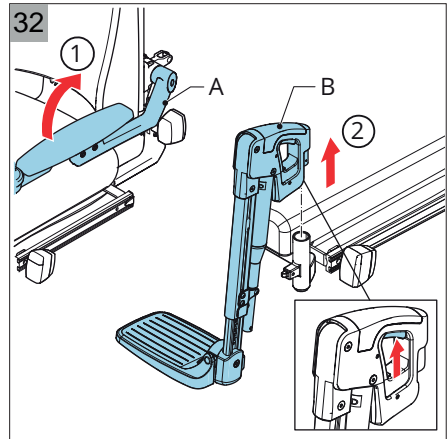
### Forward transfer

1. Flip up the footrests (A figure 31) and swing-away the calf supports (B) (if applicable).
2. If possible, swing-away the leg rests (C) or remove them from the bracket.
3. Sit down in the wheelchair




### Side transfer

1. Flip up the armrest (A figure 32).
2. If possible, swing-away the leg rest (B) or remove it from the bracket.
3. Sit down in the wheelchair



## 7.3. Driving the wheelchair

 CONTROLLER A controller is used for driving a powered wheelchair. There is a separate manual for the controller and this is supplied with the wheelchair. Read through all the user manuals carefully before using the wheelchair for the first time. The information they contain is essential for the safe use and proper maintenance (cleaning). If any of the manuals are missing on delivery of your wheelchair, please contact your dealer immediately.

### Warning

- As a wheelchair user, you are vulnerable when on the road. Remember that other road users may not always notice you.
  - Observe traffic regulations.
  - Avoid taking any deserted routes so that help is always on hand in any emergency situation.
  - Adjust your speed and driving style to the conditions.
  - To stop or to make an emergency stop, move the joystick to the neutral position or let go of it. The wheelchair will then brake automatically.
  - Never take corners at full speed. Reduce your speed when cornering.
  - Use the indicators when changing direction.
  - When driving:
    - Do not press the on/off button.
    - Do not suddenly start driving in the opposite direction.
- If you do, the wheelchair will stop abruptly and jolt. Not only is this unpleasant, it can also lead to the wheelchair tipping over.

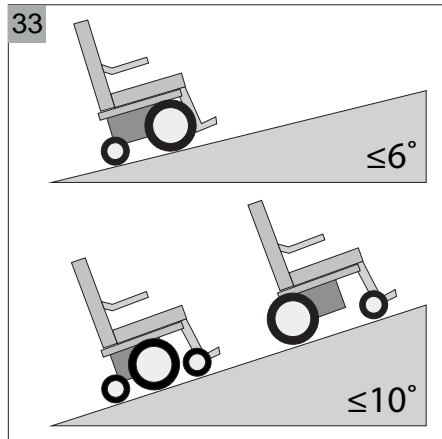
## 7.4. Driving on slopes or ramps

With all settings in the neutral position (see 6.1), slopes/ramps of  $\leq 6^\circ$  (10.5%) are deemed to be part of the standard user environment for the FWD without stability being affected (figure 33). For the RWD and MWD the applicable gradient is  $\leq 10^\circ$  (17.6%).

### Slopes or ramps outside the standard user environment

Driving on slopes/ramps that are steeper than the maximum safe slope may lead to safety risks in terms of stability. Driving on such slopes/ramps requires the user to practise extreme caution and full control.

Always drive carefully and never experiment! Follow the instructions given under warnings!



The stability and performance of the wheelchair depend on many variables. Wheelchairs are adapted to individual users. For this reason these variables will be different from one wheelchair to another. You should therefore ensure that your dealer provides you with sufficient information about how to use the wheelchair and that the dealer informs you whether the specific adjustments or adaptations for your situation will affect the handling of the wheelchair.

### **⚠ Warning**

- Always drive up and down slopes/ramps slowly, concentrating on what you are doing.
- Avoid any sudden, jolting movements.
- Avoid making an emergency stop on a slope/ramp.
- The braking distance on a slope can be considerably greater than on a flat surface.
- When on slopes/ramp, try to avoid changing direction as much as possible.
- Do not turn on a slope.
- Drive on slopes/ramps only when all adjustments (lift, tilt, recline) are in the neutral position.
- Never drive up or down a slope/ramp backwards.
- Do not drive on slopes/ramp with loose gravel or a sandy surface, as one of the drive wheels may slip or spin.
- Driving up or down a slope for long periods of time may result in the motor overheating.
- We always recommend an anti-tip device for driving down slopes in a FWD wheelchair.
- If you notice that your speed is being greatly reduced when driving up a slope, select a route that is less steep.
- Prevent the wheelchair from reaching high speeds when driving down slopes.

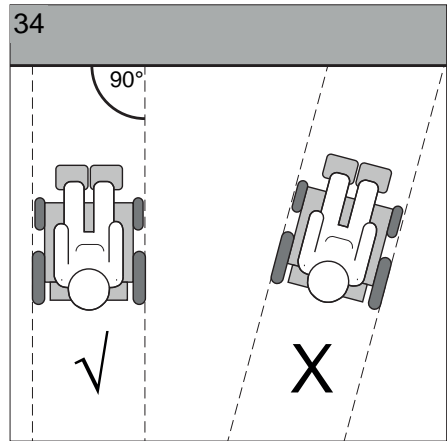
## 7.5. Obstacles

### **⚠ Warning**

- Never descend steps/a flight of stairs in a wheelchair.
- Do not drive off of obstacles higher than 50 mm.
- Always drive onto or off an obstacle in forward direction.
- Drive on slopes/ramps only when all adjustments (lift, tilt, recline) are in the neutral position.

### **Mounting pavements**

- Select the lowest section of the kerb.
- Position the wheelchair so it is facing the kerb, 20 cm in front of it. (figure 34).
- Move the joystick forwards. Drive onto the pavement without changing direction.
- Once the front wheels have mounted the pavement, you will need to maintain speed to get all of the wheels up onto it. If you are not able to mount the pavement, select a section where the kerb is lower.



### **Dismounting pavements**

- Select the lowest section of the kerb. If in any doubt, do not take any risks and choose a different route.
- Position the front wheels so that they are facing the kerb.
- Slowly move the joystick forwards. Drive off of the pavement as carefully and as slowly as possible without changing direction.

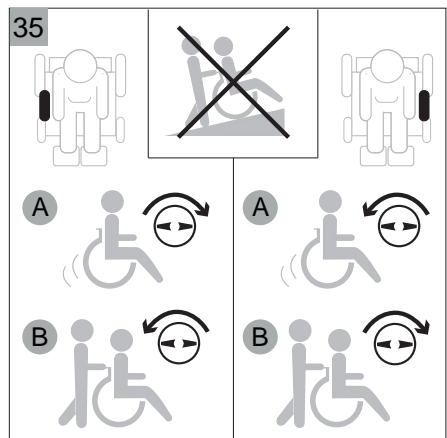
## 7.6. Pushing the wheelchair

The wheelchair can also be moved by pushing it. The motors need to be disengaged in order to make this possible. This is done using a freewheel switch, one for the left and one for the right motor (figure 35).

- 'Drive' position. The wheelchair can be moved by use of the controller, it cannot be pushed.
- 'Push' position. The wheelchair can be pushed, the controller cannot be used to drive the wheelchair.

### **⚠ Warning**

- The freewheel lever was developed for the attendants of wheelchair users. The freewheel lever must never be operated by the user himself/herself. It should be used only by an attendant.



- The automatic parking brake works only in the 'Drive' position.
- The freewheel lever must be set to the 'Push' position only if the wheelchair is to be actually pushed. Set the freewheel switch to the 'Drive' position immediately after pushing is finished.
- Never use the 'Push' position on a slope! When the freewheel lever is in the 'Push' position, the automatic parking brake is turned off. This could then result in the wheelchair rolling downhill accidentally.

## **7.7. Storage of the wheelchair after use**

When the wheelchair is not in use:

- It must be stored in a dry place where it will not be affected by the weather.
- Do not position the wheelchair in direct sunlight. Parts of the wheelchair could then become so hot that they could burn you.
- The ambient temperature for storage should be no lower than  $-20^{\circ}\text{C}$  and no higher than  $+65^{\circ}\text{C}$ .
- Disconnect batteries in case of longer storage without usage.

If you start using the wheelchair again after it has been in storage for a while, you must check it again (see 7.1).

# 8 Transport

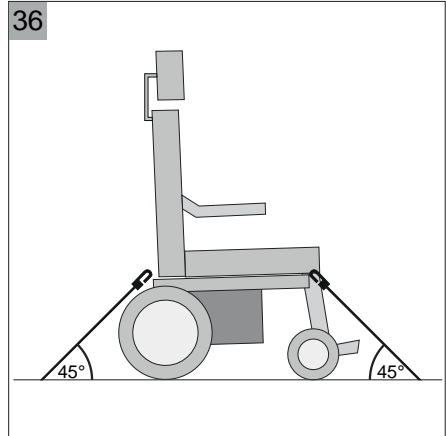
## 8.1. Transporting the wheelchair by road

Powered wheelchairs are too heavy to lift. Use suitable ramps for getting the wheelchair into a vehicle.

### **⚠ Warning**

Always take the following into account:

- Position the wheelchair in a forward-facing direction inside the vehicle.
- Any components that can easily be detached from the wheelchair must be removed (see 4). Store away any such components properly.
- The wheelchair should be secured only by using the particular provided securing points on the frame.
- No changes or replacements must be made to the anchorage points on the wheelchair, or to constructional elements or parts of the frame without consulting DIETZ-Power.
- Use a tiedown system approved to ISO10542 standards and suitable for the total weight of the wheelchair. The weight of the wheelchair will depend on its composition. A list of some of the options and how much they contribute to the total weight of the wheelchair can be found in the specification table (see 9). Always take the total weight of the wheelchair into account in order to ensure that the tiedown system is the correct one.
- The tiedown straps should be attached as close as possible to the wheelchair at an angle of 45 degrees (figure 36) and tightened securely in accordance with the instructions of the manufacturer of the tiedown system.
- The wheelchair should be inspected by a DIETZ-Power authorised dealer before re-use following involvement in any type of vehicle impact.



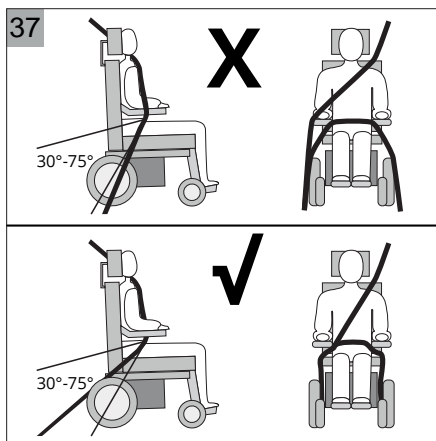
### **⚠ Warning**

Wheelchairs are not designed to function as seats inside a vehicle and do not provide the same level of safety as a normal seat, irrespective of how well they are secured inside the vehicle. DIETZ-Power recommends that wheelchair users transfer to a standard seat whenever possible. If this is not possible, then the following should be taken into account:

- This wheelchair is crashtested according to ISO 7176-19 (2009) considering a maximum passenger weight of 102 kg.
- Ask the vehicle operator whether the vehicle is suitable, insured and equipped for the transportation of a user seated in a wheelchair.
- Set all adjustments of the wheelchair in the neutral position (see 6.1).
- Ensure that the controller is turned off.
- DIETZ-Power recommends fitting and using the headrest during transportation.
- Any belt attached to the wheelchair will be purely for positioning purposes and should not be used or relied on for occupant restraint in a moving vehicle.
- It is vital that you are secured with a three-point seat belt attached to the floor and the wall of the vehicle during transportation.




- The three-point seat belt must be adjusted as tightly as possible consistent with user comfort, at an angle between 30° and 75° and should not be held away from the body by wheelchair components (figure 37).
- Both the pelvic and chest belts should be used to reduce the risk of head and chest injuries in the event of colliding with parts in the car.



## 8.2. Special transport

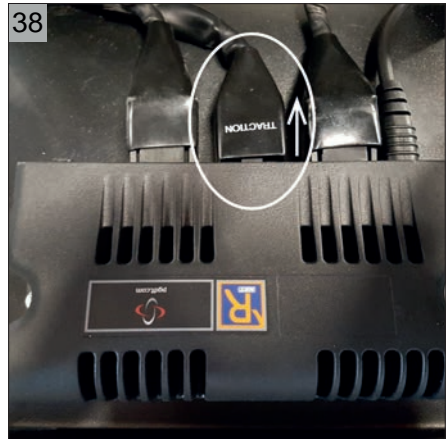
In addition to being transported by road, the wheelchair can also be transported by rail, sea or air. Its batteries may be transported in accordance with IATA regulations.

### **⚠** Warning

- Before travelling, contact the organisation providing transport. Your tour operator will be able to provide you with information about any special requirements/instructions.
- Take all the user manuals delivered with your wheelchair with you. For more information about
  - reducing the wheelchair in size (see 4).
  - driving or pushing the wheelchair (see 7.6).
  - the batteries in your wheelchair (see 9.2).
  - the dimensions and weight of the wheelchair (see 10).
  -  CONTROLLER for locking the controller (see 4).
- Ensure that all detachable components are mounted on your wheelchair properly or that they are packed separately and labelled so that they do not get lost during loading and unloading.

In some cases the power cable of the controller needs to be disconnected (see figure 38):

1. Loosen the two knobs of the cover between the wheels.
2. Remove the fuse cover.
3. Remove the fuse cable.



# 9 Wheelchair maintenance

Contact your dealer for information regarding specific adjustments, maintenance and repairs. Always state the wheelchair type, year of construction and identification number. These can be found on the identification plate (see 2.4). For the proper maintenance of your wheelchair, adhere to the following schedule:

Daily	Charge batteries after each use (see 9.2)
Weekly	Check tyre pressure and inflate tyres if necessary (see 9.3)
Monthly	Clean the wheelchair and its upholstery (see 9.1)
Annually	Have your wheelchair checked by your dealer once a year or, if under intensive use, once every six months. Take this manual with you and have the dealer fill in details on the schedule below.

Use only original DIETZ-Power parts for maintenance and repairs.

Model	Sango FWD / RWD / MWD										
Serial number											
Year	1	2	3	4	5	Year	1	2	3	4	5
Date						Date					
<b>Operation</b>						<b>Chassis</b>					
Horn						Parts tightened					
On/off switch						Condition					
Output plug						Controls					
Joystick						<b>Upholstery</b>					
Brakes						Seating system					
Programme configuration						Backrest					
						Armrests					
<b>Batteries</b>						<b>Electronics</b>					
Level						Cable condition					
Connectors						Connectors					
Discharge level						<b>Driving</b>					
<b>Wheels</b>						Forwards					
Wear						Reverse					
Pressure						Emergency stop					
Bearings						Turning					
Wheel nuts						Uphill/downhill					
<b>Motors</b>						Obstacles					
Wiring						Parking brake					
Connectors											
Noise											
Brakes											
<b>Remarks:</b>											

## 9.1. Cleaning the wheelchair and its upholstery

### Warning

- When cleaning the wheelchair, ensure that the controller is turned off. If the joystick is accidentally touched, this may cause the wheelchair to start moving or the powered options to be operated.
- Take care when using water because of the system being electronic.
- Clean the upholstery and the dirty parts of the wheelchair using a damp cloth and household soap. Then rub dry using a soft, dry cloth.
- Never use abrasive or aggressive detergents, as these may scratch surfaces.
- Do not use any organic solvents, such as thinner, benzine or white spirit.
- Do not chemically clean the upholstery.
- Do not iron or spin-dry the upholstery.

## 9.2. Batteries


The wheelchair is fitted with 'dry' gel batteries. The batteries are fully sealed and require no maintenance.

### Warning

- The use of 'wet' batteries is not permitted.
- Battery capacity is reduced in winter. When there is a light frost, capacity is around 75% of normal capacity. At temperatures below  $-5^{\circ}\text{C}$ , capacity is reduced by approximately 50%. This reduces the operating range.
- Ensure that the batteries are always well charged. Long-term non-usage of the batteries can damage them.
- Do not use the wheelchair if the batteries are almost flat and never drive until the batteries are completely flat. Doing so can seriously damage them and you would also mean running the risk of coming to a standstill.
- The batteries contain gel. Damaged batteries pose a serious threat to health. Always follow the instructions on the batteries.

### Charging

Technical specifications (see 10).

 CHARGER to check if the charger is suitable for use with the wheelchair batteries and for instructions on how to activate the battery charger.

 CONTROLLER for the right connection for the charger plug.

The contents of the manuals are vital in terms of the safe use of the wheelchair. If any of the manuals are missing on delivery of your wheelchair, please contact your dealer immediately.

Under normal use, the batteries will need to be charged every night. The battery charger indicates when the batteries are fully charged. Depending on how flat the batteries are, it can take up to 12 hours to fully charge them.

### Replacement

If the battery capacity is steadily decreasing and the wheelchair can only be used for very short trips, this means that the batteries have reached the end of their lifespan. They then need to be replaced. Consult your dealer.

### 9.3. Tyres

In order to ensure optimum performance of your wheelchair, it is very important to keep its tyres at the right pressure. The correct pressure can also be found on the side of the tyres.


Wheel	Maximum tyre pressure
8" castor wheel	2,5 bar
9" castor wheel	3,5 bar
10" castor wheel	3,5 bar
12" drive wheel	2,8 bar
14" drive wheel	3,5 bar

#### Warning

Never exceed the maximum tyre pressure.

If tyres are too soft, the handling of the wheelchair will be reduced. Propelling the wheelchair will also require more energy, resulting in a greater drain on the batteries. Driving with soft tyres also unnecessarily increases tyre wear.

#### Warning

 SERVICE for comprehensive details relating to tyre repairs (qualified specialists only). Before starting any repair work on the tyres, first fully deflate them.

### 9.4. Disposing of the wheelchair

The technical lifetime of the wheelchair is influenced by the extent to which it is used. Under normal use and with the prescribed maintenance, the expected technical lifetime of the wheelchair is approximately seven years. In order to derive maximum benefit from the lifetime of the wheelchair, ensure that it undergoes regular maintenance (see 9).



If your wheelchair is no longer required or needs to be replaced, it will usually be possible to arrange for your dealer to take it back. If this should not be possible, consult with your local authority to find out if it can be recycled or if the materials used in it can be processed in an environmentally friendly way.

Various plastics and metals were used in the manufacture of the wheelchair. It also contains electronic components that should be disposed of appropriately. The batteries constitute chemical waste.



# 10 Technical specifications



## 10.1. Standards and requirements

This product complies with the provisions of the Medical Devices Directive and therefore carries the CE mark. The wheelchair conforms to the following standards and requirements. This has been verified by independent test institutes.

Standard	Description	Weight of test dummy
NEN-EN 12182 (2012)	Assistive products for persons with disability - General requirements and test methods	160 kg
NEN-EN 12184 (2014) Class B	Electrically powered wheelchairs, scooters and their chargers - Requirements and test methods	160 kg
ISO 7176-19 (2009)	Wheeled mobility devices for use as seats in motor vehicles	102 kg

Standard	Description
EU directive 93/42/EEC	Applicable requirements as stated in Annex 2
ISO 7176-8	Requirements and test methods for static, impact and fatigue strengths
ISO 7176-9	Climatic tests for powered wheelchairs
ISO 7176-14	Power and control systems for electric wheelchairs - Requirements and test methods
ISO 7176-16	Requirements for resistance to ignition of postural support devices

## 10.2. Specifications operating force

	Min.	Max.	Unit
Joystick	2,5	3,5	N
Swinging away the controller	20	50	N
Electronic switches	2,1	3,5	N
Parking brake	34,77	44,27	N
Attaching the charger plug	7,8	13,9	N

### 10.3. Specifications product

<b>Manufacturer</b>	DIETZ-Power B.V. - Vlamovenweg 12 - 5708 JV Helmond
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<b>User weight</b>	max. 160 kg
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<b>Class</b>	B
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Model / type	Sango FWD		Sango RWD		Sango MWD		Unit
	min.	max.	min.	max.	min.	max.	
Overall length incl. leg rest	985	1680	980	1680	1070	-	mm
Overall width	615	700	615	700	615	700	mm
Overall height excl. headrest	1010	1340	1010	1340	1010	1340	mm
Transport length incl. leg rest	985		980		1150		mm
Transport width	615		615		615		mm
Transport height	650		650		650		mm
Total mass incl. batteries**	154,5		155		158,5		kg
Mass of the heaviest part	110		110,5		114		kg
Static stability downhill***	10 / 17,5		10 / 17,5		10 / 17,5		° / %
Static stability uphill***	10 / 17,5		10 / 17,5		10 / 17,5		° / %
Static stability sideways***	10 / 17,5		10 / 17,5		10 / 17,5		° / %
Theoretical distance range****	30		30		30		km
Dynamic stability uphill	6 / 10,5		6 / 10,5		6 / 10,5		° / %
Obstacle climbing*****	50		50		50		mm
Forward speed	6 / 10 / 12,5		6 / 10 / 12,5		6 / 10 / 12,5		km/h
Braking distance at maximum speed	1	2,9	1	2,9	1	2,9	m
Seat plane angle	0 / 4 / 8		0 / 4 / 8		0 / 4 / 8		°
Effective seat depth	420	560	420	560	420	560	mm
Effective seat width	420	540	420	540	420	540	mm
Seat surface height at front	390	480	390	480	390	480	mm
Backrest angle	90	120	90	120	90	120	°
Backrest height	520	570	520	570	520	570	mm
Footrest to seat distance	380	550	380	550	380	550	mm
Leg rest to seat surface angle	10	75	10	75	10	75	°
Armrest to seat distance	220	350	220	350	220	350	mm
Turning radius*****	620		815		420		mm
Safe slope	6/10,5		6/10,5		6/10,5		° / %
Ground clearance*****	60		60		60		mm
Seat cushion weight	1,6	3,4	1,6	3,4	1,6	3,4	kg
Backrest cushion weight	1,5	2,5	1,5	2,5	1,5	2,5	kg
Leg rest weight	2	4,2	2	4,2	2	4,2	kg
Headrest weight	2,5	2,8	2,5	2,8	2,5	2,8	kg
Measured sound level	63,2		63,2		63,2		dB



- \* Specifications were measured with 9» and 14» wheels, powered legrests and in most extreme positions (for min. most stripped version and max. most extended version)
- \*\* Measured with powered legrest, lift/tilt module and powered backrest.
- \*\*\* Measured with the powered adjustments in the neutral position. With the powered adjustments in the most extreme positions the specifications will be 9° / 15.8%.
- \*\*\*\* The following will have a negative impact on the operating range: obstacles, rugged terrain, driving up or down slopes, temperatures below freezing point and frequent use of powered options.
- \*\*\*\*\* Specifications mentioned are measured with the max user weight (160 kg).
- \*\*\*\*\* Measured without legrest. The turning radius for the MWD with central legrest will be 26 cm more.

## 10.4. Specifications batteries

<b>Battery capacity</b>	<b>68 Ah</b>	<b>78 Ah</b>	<b>Unit</b>
Battery dimensions (w x d x h)	258 x 168 x 175	258 x 168 x 210	mm
Battery weight, set	43	48,4	kg
Maximum charging current	8	12	A
Maximum charging voltage	24	24	VDC
Connector type	📖 CONTROLLER		
Insulation	Class 2 double insulated		

## 10.5. Electrical diagrams

- 📖 CONTROLLER for the battery diagram
- 📖 SERVICE for the electrical wiring diagram (see 5).


# 11 Warranty conditions

Dealers and/or users have statutory (legal) rights in relation to the purchase of consumer products. The warranty conditions applying to products/parts sold by DIETZ-Power B.V. are set out below. The warranty applies to any product/part that becomes defective or needs to be repaired or replaced as the result of a manufacturing fault or material defect within the stated warranty period.

Term	Definition
Manufacturer	The warranty provider: DIETZ-Power B.V. Vlamovenweg 12 5708 JV Helmond The Netherlands
Dealer	the other party with which DIETZ-Power B.V. enters into a Contract for the (re)sale of Products, on the basis of a distribution agreement or otherwise
User	the party by whom the Products are intended to be used;
Warranty period	Duration of the warranty
Product/part	The product or part supplied by DIETZ-Power B.V.
Option/accessory	Part supplied along with the original product as an add-on to the standard model.
Reserve part	Durable part bought after the original product was purchased.
Wear part	Part subject to natural wear under normal usage.

## 11.1. Warranty period

The warranty period starts on the date the manufacturer supplies the product/part to the dealer. The warranty period shall not be extended following repair.

Product/part	Warranty period
Frame/assembly, including supplied options and accessories	2 years
Drive system	1 year
Electronics, such as the controller and electronic components	1 year
Reserve parts	1 year from invoice date
Wear parts, including upholstery	40 days from invoice date
Batteries	 BATTERY
Tyres	no warranty

## 11.2. Warranty provisions

The manufacturer shall not provide any warranty if:

- the product has been passed on to a different owner. The warranty applies only to the first owner to whom the manufacturer supplied the product/parts. The warranty is not transferable and applies only to those models bought from the manufacturer;
- the product/part is damaged as a result of carelessness, an accident or improper use;
- the product/part has not been maintained in accordance with the maintenance instructions stated in the user manual;
- non-original parts have been used;
- the original type plate is no longer attached to the product;
- external/internal changes have been made to the product features. If a dealer wants to modify a product/part contrary to the instructions given in the user manual, the dealer must first consult with the manufacturer;
- force majeure, such as flooding or fire, is involved.

If the provisions stated provide no resolution, the manufacturer's decision shall be final.

## 11.3. Warranty procedure

If a defect is identified in a product or part and it needs to be sent to the manufacturer, the dealer must fill in the returns form in full. The returns form will be used as the guiding document for the whole warranty procedure.

Procedure for making claims under the warranty:

- If a product/part becomes defective or needs to be repaired or replaced, the user should contact his/her local dealer. The dealer can then make a claim under the warranty if required.
- On identifying the defect, the dealer informs the manufacturer immediately, providing full information relating to the nature of the defect affecting the product/part supplied by the manufacturer;
- If it is possible for the warranty claim to be dealt with by telephone or e-mail and the manufacturer deems the warranty claim to be legitimate, the dealer and the manufacturer consult with each other to determine whether the manufacturer will send a replacement product or part to the dealer free of charge. In such cases, the dealer must
  - destroy the defective product/part on the instructions of the manufacturer.
  - Alternatively, the defective product/part must be returned to the manufacturer. In the case of a return, the manufacturer shall be responsible for arranging and paying for transport;
- If it is not possible to deal with a warranty claim by telephone or e-mail, the dealer and the manufacturer consult with each other to determine:
  - whether the dealer should send the defective product/part back to the manufacturer. The manufacturer then assesses the product/part in question. If the manufacturer deems the claim to be justified, the product or part is repaired and/or replaced. The costs for returning the product/part to the dealer are to be borne by the dealer;

## 11 Warranty conditions

- whether the dealer should order a new product/part from the manufacturer. The dealer then receives an invoice detailing the shipping costs involved. The dealer arranges and pays for the defective product/part to be sent to the manufacturer. Once the manufacturer has received the defective product/part, it is assessed. If the manufacturer deems the warranty claim to be justified, the dealer receives a credit note for the new product/part ordered and the shipping costs involved.

If the warranty claim is deemed to be unjustified, the dealer is informed and the manufacturer makes an offer for the costs of replacement parts and/or provides an indication of the cost of repair. Once the dealer agrees to this, the product/part is repaired and/or replaced at the dealer's expense and returned at the dealer's expense. The dealer can also opt to have the product/part returned without repair at the dealer's own expense.

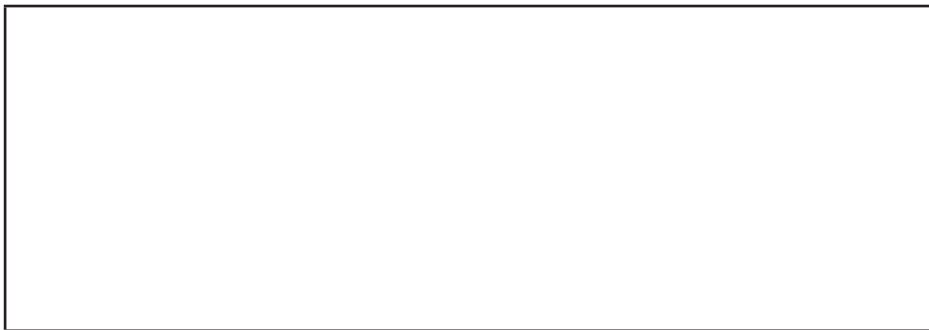
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If you have any questions, please contact your local dealer:



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If there is no authorised dealer near you, please contact DIETZ-Power.