



Information Sheet

Wheelchairs or Scooters: powered wheelchairs

There are so many different types of powered or motorised wheelchairs on the market that at times trying to select just one can be confusing and overwhelming. However, finding the right powered wheelchair can make all the difference to a person's life and independence.



Why choose a powered wheelchair over a manual wheelchair or scooter?

There are many reasons for deciding to use a powered wheelchair over other types of equipment.

Pushing a **manual wheelchair** might require too much strength, movement or energy for the user. Using a powered wheelchair takes less physical effort and, due to its increased weight and stability, may also be safer than pushing a manual wheelchair over steeper terrain. Sometimes a carer is not physically able to push a person in a manual wheelchair. In this case a powered wheelchair with the motorised controller mounted at the rear (attendant control) takes the effort out of pushing the wheelchair.

Scooters (gophers) are another popular mobility product; however, a powered wheelchair may be more appropriate in some cases. For example, powered wheelchairs are much more manoeuvrable than scooters, so if the device is required for both indoor and outdoor use a powered wheelchair may be a better choice. Powered wheelchairs generally only need one hand to operate them, whereas for safe operation scooters usually require two hands and good upper body movement. Scooters generally only come with basic seating whereas powered wheelchairs have a range of seating options that are more supportive and may be custom-made or modified to suit the user's specific needs. Scooter users are also required to dismount from their equipment to enter disability toilets or travel in access cabs. Powered wheelchair users may remain seated in their wheelchairs.

Powered wheelchairs are not suitable for everyone and they do require the user to have adequate visual, perceptual and cognitive skills to be used safely.

How they work

Powered wheelchairs generally have two twelve-volt batteries (dry, sealed cell), two motors and gearboxes that turn wheels on either side of the wheelchair

A controller, usually a joystick, determines the direction of movement, with buttons or dials to control the speed of travel and to turn the wheelchair on/off.

If the joystick is pushed only a little bit the wheelchair will move slowly, and if it is pushed more forcefully the wheelchair will move faster. In this way, the person using the wheelchair is in full control, even when they are travelling downhill.

When the joystick is released back to its neutral position, the electromagnetic brakes automatically engage, bringing the wheelchair to a stop.

Standard Features

All power wheelchairs have standard features including a frame (fixed or folding), seating upholstery, armrests and footrests. Smaller, more basic powered wheelchairs are available with folding frames which may be useful for storage or transportation. It should be noted that when disassembled the component parts are still very heavy.

Powered wheelchairs come with either an on-board or off-board charger that plugs into a power point to keep batteries topped up. The advantage of an off-board charger is that it can be replaced easily if lost or damaged. The advantage of an on-board charger is that you do not have to remember it when travelling. Batteries are rated in amp hours and this will, in combination with the efficiency of the motor, determine the distance the wheelchair can travel constantly before requiring recharging.

All powered wheelchairs feature a 'free wheel' mode that allows manual pushing of the chair. Brakes tend to be electromagnetic and automatically engage when the control is released. Some wheelchairs may have additional manual park brakes.

Rear-wheel drive, mid-wheel drive, and front-wheel drive

The terms rear-wheel drive, mid-wheel drive, and front-wheel drive refer to the position of the wheels to which the motors are attached (the drive wheels). When turning as sharply as possible, the wheelchair will pivot on a spot directly in between the drive wheels.

In **rear-wheel drive** wheelchairs the drive wheels are located at the very back of the chair. These wheelchairs are the least manoeuvrable of the three drive types; however, they do perform very well over uneven terrain and long distances, and are fairly easy to learn to drive. They may also be easier to transfer into and out of if the person is able to stand, as the front wheels do not extend in front of the seat frame and the leg rests can often be removed.

In **mid-wheel drive** wheelchairs, the drive wheels are located under the chair towards the centre, with smaller wheels (castors) in front and behind. These are the most manoeuvrable chairs and have the best turning circle in tight spaces. They are the most intuitive to learn to drive but may not perform quite as well over very uneven terrain. The two front wheels usually jut out in front of the frame of the wheelchair and mid-wheel drive wheelchairs usually have a single, flip up footplate making transfers more difficult for some people.

In **front-wheel drive** wheelchairs, the drive wheels are located at the front of the chair, with castors behind. This type of wheelchair is also very manoeuvrable but can be difficult to learn to drive. They have a tendency to "fishtail" and are harder to control when driving at higher speeds. Front-wheel drive wheelchairs are the best performers in sandy terrain.

Controls

The controls on powered wheelchairs can be programmed to suit the abilities of the individual. Programming adjusts the top speed of the wheelchair, how quickly it reaches that speed, how quickly it stops, how quickly it changes direction, and how sensitive the joystick is to movement. This means that if a person has problems with hand control, for example a tremor (a shaky hand), the wheelchair controls can be adjusted so that it responds in the desired way.

A range of controls is available to meet a person's specific needs. For a user with little or no hand movement, other types of joysticks or controllers such as chin controls, touch pads, foot controls, head controls, sip-n-puff controls or attendant controls are also available.

Travelling distance

Companies may claim that their powered wheelchairs can travel 20km or more on a full battery charge. However, how far a wheelchair can travel depends on many factors such as the size and condition of the batteries, the weight of the wheelchair, the load the wheelchair is carrying and the terrain in which it is being used.

All powered wheelchairs will have some an indicator to show the charge left in the batteries. In order to get the most out of the batteries it is generally recommended to charge them whenever not in use, regardless of how much charge is left in them, as they cannot be overcharged.

Seating

Powered wheelchairs may have a slung-style fabric seat and backrest, or a solid padded seating system. Seating can also be customised on some powered wheelchairs for people with complex postural support needs or pressure care. On some of the cheaper powered wheelchairs the seating, arm rests and leg rests options are limited. More expensive chairs usually come with a range of seating options that can generally be customised to suit the abilities of the user. The use of powered seating functions such as tilt in space, backrest recline, or elevating leg rests may also help with some of these issues, however they will increase the cost.

Armrests may be drop down, height adjustable, removable or flip back. Some are width adjustable. Desk length arm rests will enable closer access to tables.

Leg rest options may include fixed, swing away detachable, or elevating. Footplates may be once piece flip up, or two separate flip up, height adjustable footplates which may also be angle and tilt adjustable.

If extra postural support or pressure care is required, it is advisable to consult a health professional to ensure that the right seating, options and features are chosen.

Transportation

Some of the smaller and more basic powered wheelchairs can be folded in a manner similar to a manual wheelchair. The batteries must be removed first. These, and the remaining chair frame, are often quite heavy and a strong person is required to lift them into the boot of a vehicle. Boot size can also be an issue—some frames are too large to fit.

Some powered wheelchairs can be dismantled into components which make the parts lighter and easier to lift, but this can be an awkward and time-consuming process. With some powered wheelchairs, the backrests can be folded flat and/or the seat removed. Chairs can then be loaded into the back of a station wagon using portable ramps or a lifter installed into the vehicle. This eliminates any heavy lifting but can increase the cost. External carriers such as tow ball-mounted trailers may also be an option.

Contacting the Independent Living Centre

For further information or to make an appointment to visit the display please contact the Independent Living Centre.

The Independent Living Centre offers free advice on equipment and techniques to help you with everyday tasks.

Independent Living Centre
11 Blacks Road
Gilles Plains SA 5086

Phone: 1300 885 886 (SA & NT callers only) or 8266 5260

Fax: 8266 5263

Email: ilcsa@dfc.sa.gov.au

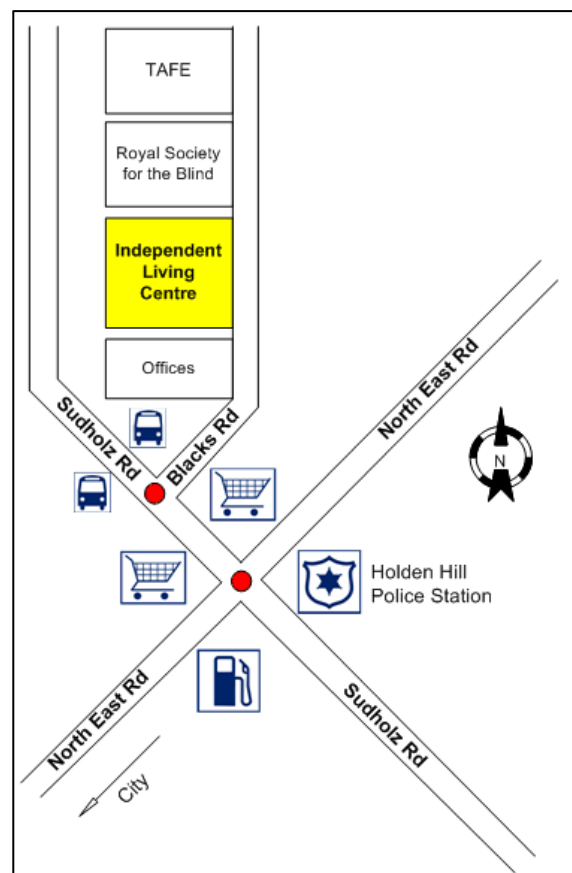
Website: www.sa.gov.au/disability/ilc

Accessible off street parking is available.

Bus routes:

From the city T500/T501 or
207/208 to Stop 28 Sudholz Road

Timetable information: 8210 1000



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Copies of this publication are available from the Disability Information Service

Tel: 1300 786 117 Email: disabilityinfo@dfc.sa.gov.au Website: www.sa.gov.au/disability Version: Aug 2011



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