

Help choosing the right manual wheelchair for you.

Components

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- **Seat** - dimensions, weight (page 2)
- **Backrests** - dimensions, fold backwards/forwards, pushing handles, adjustable height (page 3)
- **Tyres** - pneumatic, puncture-proof, solid (page 3)
- **Drive wheels** - type, size (page 4)
- **Footrests** - fixed, swing-away, detachable, one piece, elevating (page 4)
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Frame

- Materials

- **Steel** provides great strength and is cheap, however it is also very heavy which impairs manoeuvrability.
- **Aluminium** is a bit more expensive but also a lot lighter and is therefore easier to manoeuvre.

- Design

- **Folding frame** is very useful for storage and transportation as it has a cross brace mechanism underneath the seat material, which allows it to fold flat. The downside to this design for very active users is that it is harder to manoeuvre due to the folding mechanism.
- **Compact folding frame** has the same advantages and disadvantages as a Folding frame, and it can be folded even smaller.
- **Rigid frame** is not as easy to transport as the folding kinds but is lighter and so is better suited to an active user because there isn't the same amount of energy loss through the frame design.

Seats

- The user must be properly assessed in order to have the correct seat size for good posture, stability and comfort.
- The best situation is for the user to fit the seat comfortably: if the fit is too snug, pressure sores can develop, while too wide a seat will encourage poor posture. A seat that is not deep enough will force too much weight onto the user's buttocks, instead of distributing it through the length of the thighs. Too deep, and the user may not obtain the intended support from the backrest, as well as perhaps developing pressure points behind the knees.
- **Sagging seats** are always a problem, as they make the user's legs roll together, causing discomfort, and possibly leading to pressure sores. Some wheelchairs have a facility to tighten the seat canvas, otherwise a firm crescent-shaped cushion can counteract the sag.
- **Lightness of weight** is an important consideration as it is almost always an advantage for both the active user and carer.

- If the user can't sit upright unaided, a **specialist seating system** may be required, rather than the standard wheelchair seat. It is important to get a proper assessment for this.

Backrest

- Dimensions

- The angle and height of the backrest affect the posture of the the user, and therefore their comfort if the chair is used for prolonged periods of time.

- Type

- **Folds backwards/forwards backrests** facilitate storage and transportation.
- **Pushing handles** are mainly part of the backrest but some are an optional extra.
- **Adjustable height pushing handles** are practical for anyone who is pushing the chair as they can be adjusted so as to reduce backache.

Tyres

- Type

- **Pneumatic tyres** absorb shocks better than solid ones but have a higher risk of punctures.
- **Puncture-proof tyres** need less maintenance because they are filled with a jelly-like substance.
- **Solid tyres** provide a rougher ride but are hard-wearing.

Drive wheels

- Type

- **Detachable drive wheels** help to reduce the size and weight during transportation and storage.

- Size

- **The size** of the wheels determines the ease of propulsion - the larger the wheels, the less effort is required.

Footrests

- Type

- **Fixed footrests** can be cumbersome when transferring to and from the chair.
- **Swing-away footrests** solve the problem of the fixed types as they can be moved out of the way to help transferring.
- **Detachable footrests**, like detachable wheels reduce the size and weight of the chair during transportation or storage.
- **One piece footrests** make the frame more rigid but can also impede transferral to and from the chair.
- **Elevating footrests** as the name suggests are useful for users who require their legs to be kept straight or raised for longer periods.

Armrests

- Type

- **Desk-style armrests** allow the user to access a normal work surface but do not support the arms very much.
- **Adjustable height armrests** allow the user to set them up so that they provide the maximum amount of support.
- **Fold-up-fold-down/swing-away armrests** can be a good alternative to detachable ones, which can be mislaid, for someone who requires a sideways transfer from their chair.
- **Detachable armrests** are good for reducing the bulk of the wheelchair during storage and transportation.

Active user wheelchair

- **Active user wheelchairs** were originally designed for use in sport, but as they are very light and adjustable, they can suit older and frailer users who find a standard wheelchair hard work.
- **Key features** include: frames that are available in a range of sizes; quick-release wheels; multiple axle positions; rear wheels that can be moved forwards, which means that the chair can not only be propelled with much less effort, but the front castors can also be lifted from the ground more readily, making it easier to negotiate kerbs and other obstacles.
- **Cambered wheels** - wheels that are set at an angle to the vertical make it easier both to steer a straight course, and to turn the chair. A camber of up to 5° gives the benefit of easier manoeuvrability, without making the width of the chair so great that it become difficult to get through doors and narrow passageways.
- **Backrests** on active user wheelchairs may be lower in height than on standard chairs, providing just enough support for the lumbar region, while leaving the arms completely free to propel the chair without hindrance. Some active user chairs have an angle-adjustable backrest, for greater support.
- **Materials** - aluminium alloy is much lighter than steel, although a bit more expensive. Greatest lightness and strength is provided by carbon fibre or titanium, but these materials are a lot more expensive, and can be hard to repair - although they won't corrode.

Lever-propelled wheelchairs

As their name suggests these chairs have a hand lever on one or both sides which the user push and pull in order to propel the chair forward and steer. The two lever design allows the user to build up more momentum by push and pulling each lever alternatively.

Similarly to one-arm-drive wheelchairs this design requires more strength and coordination than a standard chair. Rough ground and slopes are difficult to negotiate. Finally brake lever extensions might be required for the 'weaker' side.

One-arm-drive wheelchairs

These wheelchairs can be manoeuvred using only one hand as the left and right wheel axles are linked. On one wheel, there is a double handrim which propels the chair forward. When the user just uses one of the rims it turns the chair.

This mechanism creates extra weight and the user needs extra strength and coordination to use such a system. Slopes and hills are very difficult to negotiate. Another problem to face is the position of a brake on the 'weaker' side which requires the user to stretch across to operate.

Wheelchairs for someone with a lower limb amputation

Following amputation of all or a part of someone's leg means that their centre of gravity will be modified. This means that they might tip over backwards in a wheelchair.

To get proper balance, a wheelchair with its wheels set further back is needed.

Wheelchairs with an elevating seat

The seat height can be adjusted so that the user can reach higher levels. On other designs the seat can be angled so as to help the user stand up. This is done by a powered or mechanical mechanism lifting the back of the chair to allow the user to place his feet flat on the ground.

It is possible to replace the existing seat so that a normal wheelchair can be adapted. Once again, this mechanism adds a significant amount of weight to the chair.

Low-seat wheelchairs

These wheelchairs are designed to enable the user to propel and steer the chair using their feet. However this type of chair is heavier and so an attendant-assisted chair might be a better choice, as they are lighter.

If only one foot can be used to propel the chair then one footrest will be required and maybe an extra support to stop the foot slipping sideways. No footrests are required if the user uses both feet for propulsion.

Both feet need to be positioned firmly on the floor to help manoeuvrability. This however, inhibits good posture and compromises may need to be made to stop the user slipping forward, such as a trunk or pelvic support.

If the chair is mostly for indoor use then a castor type chair is a good idea. This design has a low seat and is lighter than a standard wheelchair.

Comfort Wheelchairs

The term "Comfort Wheelchairs" is a fairly general term to describe wheelchairs which are more comfortable than normal ones. The added comfort comes from extra padding and contours, and sometimes a reclining feature. The added comfort is to the detriment of the manoeuvrability of the chair as there is extra weight involved.

Comfort wheelchairs are especially useful for people whose disabilities are not accommodated by standard wheelchairs.

Wheelchairs with a reclining backrest

This feature is useful for -

- anybody who has weak muscles in the upper body or a stiff spine or hip and cannot sit up.
- anybody who cannot stay in the same position all the time.
- anybody who has trouble breathing
- anybody who, because of their treatment, needs to be in a reclining or semi-reclining position. The user must also bear in mind that some chairs only offer a semi-reclining feature.

- Space

With the chair in the reclined position and the legs elevated the chair is very long and therefore unwieldy. The space in the house needs to be taken into consideration for manoeuvring such a chair.

- Propulsion

- Even if they are equipped with self-propelling wheels, these chairs are too heavy for the user to propel and so will need someone to push them.
- In the reclined position, negotiating kerbs is almost impossible.

- Reclining mechanism

If the reclining mechanism can be user-operated, the user will need to have good upper body strength because this design requires the user to sit up before moving the backrest. If it is carer operated, you need to check whether the user has to get out of the chair before the backrest can be moved.

- Legrests

Some legrests can be operated by the user so that they can sit up with their legs straight. The majority are attendant operated.

- Transporting in a car

Due to the high backrest and weight of these chairs it is virtually impossible to transport them in a car.

Wheelchairs with a tilt-in-space seat unit

With this type of design the seat and backrest angles are fixed so that they can be tilted backwards.

This feature is useful for people with particular seating needs to do with poor torso and head control. That said, it is important to seek advice from a wheelchair service, so that the user's individual needs can be properly met.

Stand-up Wheelchairs

An occupant-controlled mechanism flattens the seat and backrest vertically, helping the user towards a standing position.

There are several advantages: greater independence is achieved through being able to reach high objects, for example, and the psychological advantages of interacting with others at the same level can be considerable. At the same time, circulation and digestion may be improved by the ability to change position, and pressure points can be eased.

Negative factors - a long-term wheelchair user may find that their legs aren't strong enough to support their body weight. Also, the stand-up mechanism makes the wheelchair heavier, and more difficult to push and to transport.

It is important to get good advice before trying this type of chair.