

E-BIKE OWNER'S GUIDE

Congratulations on your new e-Bike,
thank you for joining the electric revolution
and purchasing from us - it means a lot to us!

Good Rotations

We're sure that riding your new e-Bike will bring a smile to your face, along with years of riding pleasure and car-free transport.

Here are a few tips to help you get the most out of your bike and keep it running and riding well for years to come.

BEFORE YOUR FIRST RIDE

When you get a new electric bike (e-Bike), make sure to charge the battery fully before use. This helps condition the battery and gives it a start point from which to gauge the rest of its use.

If you bought your bike online, take it to a reputable bike shop to have it fully checked before riding.

If you bought your bike from us, you're ready to roll.

MANUAL

Most e-Bikes come with their own manual (printed or digital), which you should read carefully before riding your new e-Bike.



BATTERY

All the e-Bikes that we sell use high quality Lithium batteries. These are highly efficient energy storage devices that have a relatively long life and retain good performance over several years of consistent use, provided they are cared for properly.

POWER

There are a few terms you will come across when comparing batteries, which *can* cause some confusion:

Volts (V) – describes the energy potential of a battery - think of it as horsepower! Most e-Bikes in New Zealand are 36 Volt systems.



Lithium-Ion batteries do not need to be completely discharged before recharging

Amp Hours (Ah) – Describes the energy storage capacity of your battery. Some of our bikes have a choice of battery sizes.

Watt Hours (Wh) – A combination of Ah and V that also describes the total energy of your motor system and is a convenient way to compare the km range of bikes of different voltages.

To compare like with like we normally refer to the Watt Hours (Wh) of a battery. Think of Watt Hours as how much fuel you have in the tank - the higher the figure - the further you can travel. This figure will normally be between 400 Wh and 700+Wh. Bosch and Shimano systems use Watt Hours to describe the power of their batteries.

Some systems and brands will use Amp Hours as their unit of measurement. Typically this will be in the range of 10-22 Amp Hours. To calculate the Watt Hours from Amp Hours (Ah), simply multiply the Amp Hour (battery power) figure by the motor system Voltage (most commonly 36 or 48 Volts).

For example, a 36 Volt motor system powered by a 15 Amp Hour battery will give you (36 x 15) 540 Watt Hours.

Watt Hours give an idea of the performance you can expect, but there are other factors that will affect range, such as whether your bike has a speed limiter (Bosch and Shimano assist up to 25 km/h only), or a throttle. Using a throttle or going faster will use your battery up faster and reduce the distance you can travel.

CHARGING

Your battery is guaranteed for 2 years or a minimum of 500 full Charge Cycles, whichever comes first. A full Charge Cycle means filling the battery from 0% to 100% capacity - so topping the battery up from 75% to 100% four times would equal one full Charge Cycle (not four).

This doesn't mean that your battery will no longer work after 500 full charges or two years, in fact manufacturers claim that batteries should work for

BATTERY SYSTEM <i>Examples</i>	VOLTS (V)	BATTERY AMP HOURS (Ah)	SYSTEM WATT HOURS (Wh)
Bosch 400 Powerpack	36	11.1	400
Bosch 500 Powerpack	36	13.9	500
Shimano STEPS	36	11.6	418
Smartmotion (15.6 Ah)	36	15.6	561
Lekkie (13 Ah)	36	13	468

When using you bike in winter, it is best to store and charge you battery indoors

up to 9 years, or 1000 Charge Cycles. After 1000 cycles the battery will still work, but any battery will lose efficiency over time and eventually not be able to power your electric bike as far, or as powerfully uphill.

Some battery systems (Bosch and Shimano, for example) have advanced battery management systems that record many parameters of their use, and by plugging the battery into a diagnostic tool, we can see how many full charges your battery has had in its lifetime.

Lithium-Ion batteries do not need to be completely discharged before recharging – this is actually detrimental to their performance. For best performance and life of the battery, you should top up the battery after each use, rather than riding the battery until nearly empty and then charging.

RUNNING COSTS

A full charge of your battery will only cost you about 15 cents! And using your e-Bike as a car replacement around town could save you upwards of \$2000 a year in fuel costs alone (based on New Zealand 'around-town' driving an average of 10,000 km per year (www.energywise.govt.nz) for a small SUV).

RANGE & POWER

Your e-Bike has several power level settings, selectable from the handlebar mounted controls. The basic rule is,

the lower power setting that you use, the further you can go. On any ride you may choose lower power for the flat sections and only select high power for hills and headwinds. This will let you ride further and retain enough battery charge to complete your ride. Riding on lower power settings also means that you will be charging your battery less, which equals a longer battery life.

Higher power settings won't give you a higher top speed, it will just be easier to get to the top speed and the bike will have more 'grunt'.

At the minimum you can expect to get 40km range from your bike, and up to 100km+ if you are more cunning with the use of your power level settings.

Some e-Bike systems (Bosch and Shimano, for example) will calculate and display your available range in kilometers, based on your battery level and power setting.

COLD WEATHER RIDING

Cold weather will affect your battery performance. Bosch say it can be affected up to 30% in sub zero conditions.

When using your bike in winter, it is best to store and charge your battery indoors and fit it to the bike just before riding, for better battery life. If you ride a lot in cold conditions, you should consider purchasing an insulating cover for your battery.

An hour of charging will top up your range by up to 30%, and will only cost a few cents.

Likewise, batteries don't like extreme heat and we recommend to not park

your bike in summer sun (or in a hot car) for extended periods of time.

STORAGE & SAFETY



If you won't be riding your bike for a while, it is best to store your battery indoors where it won't be subject to extremes of temperature and will be out of the weather.

If storing your battery for a long period it is best to keep the battery partially charged. Storing the battery in a completely empty state runs the risk of damaging the cells. Storing the battery fully charged leaves the cells under full pressure, and for long periods this should be avoided. In general, about half a charge (50%) is ideal.

For very long periods, check the capacity at 6 months and top up if the battery charge has dropped below 50%. It is not recommended to keep your battery connected to the charger when stored, as this will keep the cells pressured unnecessarily.

Your battery is a high quality device, assembled in a purpose built facility. In general they are very safe and this is further ensured by an on board Battery Management System (BMS) which will shut the battery off to protect you and the motor if there is an imbalance in the battery cells or if operating temperature is exceeded.

A WORD OF CAUTION

You might have heard stories about Lithium Ion batteries catching fire. While this *can* happen (and only occurs when being charged), it is nearly always due to misuse, or if they are being charged with a charger that was not designed for the battery. Make sure you **only ever use the charger designed for your battery**, and replace the charger should it become damaged in any way.

We recommend always charging your battery in a room that has a smoke alarm.

Take your e-Bike for some practice rides in a quiet area to get used to the braking and weight distribution of your bike

TRAVELLING WITH E-BIKES

To take your bike on longer journeys you can transport your bike on a normal car bike rack, or an e-Bike specific rack.

HANG ON TO IT!

It is always advisable to remove your battery and transport it in your car (under the seat is a good place).

This removes the possibility of the battery flying off if it has not been secured properly, and is also better for the battery as it won't get knocked and will be protected from the weather and wind. If you are driving at 100km/h, the water and air travelling over the car is doubled to 200km/h, which is pretty much like jet washing your battery – not a good thing!

CHARGING ON THE GO

You can use inverters to charge your electric bike, for example from the cigarette lighter socket in most cars or motorhomes. It is advisable to have the car engine running when charging your bike as it could drain the car battery.

You can of course take your charger with you on your ride. If you stop at a café for example, an hour of charging will top up your range by up to 30%, and will only cost a few cents.

OVERSEAS TRAVEL

All airlines forbid the transport of e-Bike batteries in the hold or cabin. It may be possible to hire a battery in the country you are travelling to (soon available in Australia, for instance).



MAINTENANCE

Your e-Bike motor and battery are well sealed against the weather, and you can ride in rain with no problems. You should try and keep your motor and battery clean, as with other components on your bike, for best performance and lifespan.

CLEANING

Use a wet sponge or low pressure hose to clean dirt from your bike, but resist the temptation to use a high pressure hose as this can force water (and dirt) into casings and seals and cause malfunctions.



Any e-Bike with a motor size of 300 Watts or less does not require registration of any kind

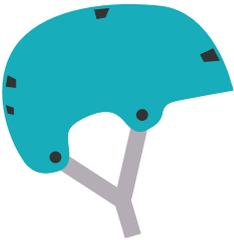
SERVICING

Most parts of your e-Bike are standard bicycle parts and need to be maintained just as you would your regular bike. To get the most from your battery and motor, make sure your tyre pressures are correct (low pressures can affect range considerably – up to 40%!) and that

your bike is in good running order. Any additional friction from badly maintained brakes and bearings will result in reduced range from your battery.

We recommend that you bring your bike in for a service approximately every 6 months if riding regularly. We have a full workshop - just call us to make an appointment!

RIDING



Riding an e-Bike is huge fun and we guarantee a big grin, but there are a few differences with a regular bike that you should be aware of before setting off on your first ride.

HANDLING AND BRAKING

Riding your e-Bike might be faster than you normally ride on a regular bike. Your e-Bike has the added weight of the motor and battery (approx 7-10kg) to bring to a halt, so look ahead to see what's coming next on the trail or road and give yourself ample time to slow down. Take your e-Bike for some practice rides in a quiet area to get used to the braking and different weight distribution of your bike. For example, a mid-motored e-Bike (Bosch, Shimano) with a frame mounted battery will feel different in balance to a hub motored

bike with a rear carrier mounted battery.

TRAFFIC

Car drivers are getting more used to seeing e-Bikes on the road but are not always prepared for your extra speed, especially when riding uphill. They may assume you are on a regular bike and pull out in front of you thinking that they have plenty of time. Best to err on the side of caution and assume that any car thinks you're on a regular bike.

We recommend the use of lights for extra visibility when riding in traffic (many urban e-Bikes have built in lights that run off the bike battery so you may as well use them!), and a loud bell is a good idea too, along with some bright clothing or helmet, especially with reflective material if riding at night.

Adding a mirror to your bike is very useful for riding in traffic, and saves craning your neck around to see who's coming up behind you - a quick glance down at your mirror is all it takes.

FITNESS

Riding an electric bike is great exercise. So if anyone accuses you of 'cheating' (they'll get over it!), you can let them

know that it's actually even better exercise than a regular bike, because you'll be riding more than you would a regular bike. It's easy to forget you are exercising, because it's fun and exhilarating, and you can escape for a 100km weekend adventure and replenish your soul, something that a lot of people would be stretched to accomplish on a regular bike.

E-BIKES AND THE LAW

E-bike legislation varies quite a lot between countries mainly in terms of what motor power and top speed are allowed for an e-Bike to still be classed as a bicycle legally, and therefore be allowed to ride wherever you can take a regular bicycle.

MOTOR SIZE

In New Zealand, we have a motor size limit of 300 Watts. Any e-Bike with a motor size of 300 Watts or less does not require registration of any kind, but users must wear a helmet - same as with a regular bicycle.

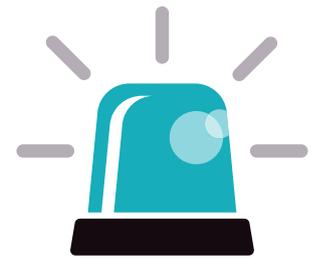
THE SMALL PRINT

The NZTA states: "NZTA defines a "power assisted cycle" as a bicycle that *"has an auxiliary electric motor with a maximum power not exceeding 300W and is designed to be primarily propelled by the muscular energy of the rider"*.

e-Bikes with motors over 300 Watts are legally classed as mopeds and need to be registered.

Many higher end e-Bikes come from Europe (and are subject to EU law), where the motor size limit is 250 Watts, and bikes must be 'pedelecs', meaning that they are pedal-assist systems, without an additional throttle.

There is also a speed limit of 25km/h at which point the motor must stop assisting the rider. New Zealand does not have the speed limit rule and throttles are allowed, but the market is leaning towards to European standard.



THANKS!

If you need more information or have any questions about riding and looking after your e-Bike, please don't hesitate to get in touch.

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