

Service Series 2021



**BOSCH**  
Invented for life

# ALL YOU NEED TO KNOW ABOUT YOUR eBIKE

## FEEL THE FLOW

Bosch eBike Systems | EN  
[bosch-ebike.com](https://www.bosch-ebike.com)



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## Are you new to the world of eBiking?

We're going to change that! Different types of eBikes with different applications and equipment are currently available on the market. It is not surprising that you might still have lots of questions to begin with: Which eBike model is the right one for me? How sustainable is an eBike? What can the different displays do? What points do I need to think about when choosing a dealer?

This brochure contains useful tips and tricks that should help answer your initial questions about eBikes. The content of this brochure and much more can be found online at **[bosch-ebike.com/info/](https://www.bosch-ebike.com/info/)**, where new content is regularly added.

We hope you find this enjoyable reading!

Your Bosch eBike Systems Team



# 10 reasons why you should choose an eBike

eBiking is becoming increasingly popular. For young or old, for urban or sporty use, the eBike's electric power boost makes cycling more relaxing, so you can travel longer distances and reach your destination feeling fresher. What began as a niche movement has become a trend. There are currently approx. 5.4 million eBikes on German roads. Opting for an eBike is well worthwhile. To discover the many good reasons why you should choose an eBike and how eBikes connect people, read on.

## **1 Good for the environment**

eBikers are kind to the environment, especially if they use their eBikes on a daily basis. Half of all car journeys are five kilometres or less. According to the Environmental Protection Agency, the CO<sub>2</sub> emissions of a car are around 40 times higher than those of a bicycle with a battery-powered motor. So by using an eBike rather than a car for short distances, you are protecting the environment – and also travelling quietly and economically.

## **2 No more battling headwinds**

We've all experienced situations where we'd appreciate a little assistance cycling on steep ascents in a full-on headwind. An invisible hand to give you a gentle push and make starting on an uphill stretch or cycling on a steep ascent almost effortless. Making mountains no longer daunting and headwinds barely noticeable. The eBike makes it possible.

## **3 Keeps you fit, makes you mobile**

Are eBikes just for those who want to take it easy? Not at all! Despite the power support, eBikers still have to hit the pedals to get moving. And it is up to you to decide how much support you want or need from the electric drive. Studies have found that eBikers use their bikes more often and cover much longer distances than conventional cyclists. Whether you're in search of a comfortable or a sporty ride, there's no better time to get on a bike with power support.

## **4 Perfect for commuting**

Would you like to stay fit on your commute? Then the eBike is the best option for you. A glance at the statistics reveals that there are 30 million commuters in Germany and that nearly 25 million of them travel less than 25 km to work. Indeed, nearly every other German commuter travels less than 10 km to work. eBikes are ideal for distances of this kind.

## 5 Extra boost for athletes

Thanks to the even, adjustable support provided by the eBike drive system, an eBike is ideal for training or for getting back into cycling after an injury. Furthermore, the drive system prevents an excessive burden on knees and thigh muscles. This eases pressure on joints, tendons and ligaments.

**Would you like to be  
fit and healthy and  
improve your wellbeing?  
An eBike is a step in the  
right direction.**

## 6 Wheely good advice

Could you do without arguments and complaints? The mood can quickly turn sour when people with different fitness levels and expectations set out on a ride together. This is precisely the kind of situation where a small motor can make a big impact. The power support equalises differences in ability and makes people feel more connected. The result is an experience that everyone is happy to repeat again and again.

## 7 Easy on the wallet

eBikes are much less expensive than cars to buy and maintain. Fuel costs, insurance premiums, car tax or parking charges? Zero. The cost of fuel alone for a conventional petrol car is currently around €12 per 100 km. 100 km on an eBike costs around €0.25. Now that is a genuine saving. Are you ready to make the switch?

## 8 Fun factor

eBikes make cycling less work and more fun. With power support the eBiker can effortlessly sail past many other road users. The eBike is often the fastest mode of transport available in urban traffic over distances of up to and including 5 km – and over distances of up to 10 km eBikers can easily keep up with car drivers.

**The power support  
equalises differences in  
ability and makes people  
feel more connected.**

## How eBikes save you money:



## 9 Pure mobility

Multi-modal commuting? Not a problem with an eBike. eBike to the station, take the train and then either use public transport or rent a pedelec to your destination. With an eBike you are fast and flexible. You can cover distances more easily and increase the distances that you can travel. Power assistance gives you a real boost in the city. eBikers leave tailbacks behind them and don't need to worry about finding somewhere to park.

## 10 Something for everyone

The market is constantly innovating, with new models and variants being developed all the time. Pedelecs are capable of speeds of up to either 25 km/h or 45 km/h. There is an eBike to suit every type of rider – for urban and cross-country users, for leisure riders or for summiteers with sporting ambitions. When it comes to making a final decision, you really are spoilt for choice.



# Which eBike type am I?

Whether you're on a weekend trip, on the way to work, or out mountain biking: the extra boost from the electric drive makes life easier and ensures plenty of fun. The market is constantly coming up with new models and variants. Today, there is not a single category of bicycles that has not been electrified.

But which bicycle model is right for me? This is a frequently asked question when it comes to buying an eBike. Seeking advice before making a purchase is highly recommended. And test rides are a must. However, before visiting a specialist dealer, the following four points should be borne in mind: What are my needs as an eBiker? Where will I be using the bike? What distances will I typically travel? And does my eBike have to be internet-enabled? Decide for yourself ...

## ... according to your needs:

### Novice

For newbies, we recommend a city bike with the Drive Unit Active Cruise from Bosch eBike Systems. The mid-drive motor, which provides moderate and well-delivered support, has a favourable centre of gravity. The geometry of the city bike allows the cyclist to get on and off with ease. Furthermore, the seating position is relaxed and upright. For those who need a more powerful support on upward inclines, the Active Line Plus provides an additional 10 Nm of torque. The support delivered will enable you to reach your destination without breaking a sweat or exerting yourself too much, making it ideal for daily shopping trips.

### Urban stylist

Urban bikes are particularly stylish and elegant. Here, the Bosch PowerTube battery is often directly integrated in the frame. What's more, the Active Line – or optionally the Active Line Plus – provides “Street Flow” when riding in road traffic. The retro look is currently a major trend in eBike design. These eBikes can be adapted to the connectivity requirements of the various on-board computers, so that your eBike is not just cool, but also connected.

### Commuter

What would you choose? A powerful S-Pedelec, preferably equipped with Bosch's Drive Unit Performance Line Speed, which provides additional



support up to a speed of 45 kilometres per hour. Or a folding compact bike you can easily take with you on public transport or in the car. For a fully connected eBike experience, your smartphone and the COBI.Bike app transform the SmartphoneHub into an intelligent control centre for navigation, activities and other services. For safer parking in the city, the premium 'Lock' function of the Nyon and Kiox on-board computers (from model year 2021 onwards) offers additional protection against theft.

### Explorer

Trekking bikes offer greater comfort and are the perfect all-rounder for day trips or longer rides. Because they allow an upright seating position, you can explore new terrain in a relaxed way, while at the same time

staying fit. The versatile Active Line Plus supports riders with smooth, agile acceleration, delivering a natural riding sensation. With 65 Nm of torque, the Performance Line is a finely balanced, powerful alternative. The Nyon on-board computer lets eBikers explore the unknown without getting lost. They also have a personal fitness trainer by their side at all times to record and evaluate the riding data.

### Athlete

The eMountain bike is ideal for a personal eBiking style with that "Uphill Flow" feel. The Performance Line CX is perfect for sporty use in hilly terrain. The colour display on the Kiox has all the classic functions of an on-board computer, while at the same time giving you access to the digital world

via the eBike Connect smartphone app. Athletes can use it to record their fitness data and view this back in the portal or in the app. Navigation is also available with the Kiox from model year 2021 onwards.

### Load carrier

eCargo bikes have a permissible total weight of up to 250 kilograms. With a maximum torque of up to 85 Nm, the Cargo Line provides powerful drive at low cadences. This makes the eCargo bike the perfect companion when you have a lot to carry.





The Nyon on-board computer impresses with numerous functions and intuitive operation.

## ... depending on your area of use:

### In the city

Do you primarily ride on paved roads – going to work, shopping, to the swimming pool or to your local cafe? City bikes are the perfect choice for these areas of use. They offer an upright seating position. Trekking bikes are also designed for city riding. Those who commute by train can opt for a 20-inch compact bike with power assistance delivered by an electric motor. For this type of bike, Bosch

offers the Active Line. It is ideal for city traffic and provides gentle and reliable support. It is available for eBikes with derailleur and hub gear systems – the latter can also be optionally equipped with a backpedal function for additional riding comfort and safety.

### On cycle paths and dirt tracks

Do you enjoy long bike rides at weekends and while on holidays? Are you sporty and enjoys being outdoors, but prefer paved roads and paths? Touring pedelecs are the ideal solution. They feature sporty ergonomics and a luggage rack to comfortably transport provisions or a tent. The Performance Line is aimed more towards this type of sporty rider. It is ideal for eBikers who enjoy a powerful drive and who sometimes like to ride a little faster.

### Mountain trails

Do you like to ride off-road, away from the beaten track? Is no trail ever steep or challenging enough for you? Do you enjoy testing your boundaries? Then it makes sense to buy a high-quality eMountain bike equipped with a powerful drive such as the Bosch Performance Line CX. With direct response, a maximum torque of 85Nm and powerful support of up to 340 percent, it is among the highest-performing eBike drive systems on the market.

## ... according to the distances you travel:

Different battery capacities are available for different areas of use. All Bosch Drive Units are equipped with batteries with an energy content of 300 to 625 watt hours (Wh). A combination of two Bosch batteries delivers up to 1,250 Wh.

### Up to 20 kilometres

eBikers who generally only travel short distances, such as a trip to the baker's, to the chemist's or to visit the neighbouring town, can rely on batteries delivering around 300 Wh.

For off-road biking it makes sense to buy a high-quality eMountain bike equipped with a powerful drive such as the Bosch Performance Line CX.





## 20 to 50 kilometres

The distance that a battery will last depends not only on the battery power, but also on many other factors: support level, riding style, air resistance, rider weight, tyre pressure and, of course, the terrain. For commuters who ride their eBike to work every day, or eBikers who go on long rides and would like more flexibility, PowerPacks with 400 or 500 Wh are a great addition.

## More than 50 kilometres

For very long and steep rides or heavy loads, a particularly high-powered battery is worthwhile. For cyclists who want to ride even higher, further and with heavier loads, there is the DualBattery, which allows you to achieve double the range – up to 1,250 Wh – by combining two batteries. This means that even distances exceeding 200 kilometres are possible.



### **CALCULATE YOUR RANGE:**

[bosch-ebike.com/range](https://bosch-ebike.com/range)

## ... according to Internet capability:

### **Analogue**

Concentrate on what really matters and get all the key information with a click of a thumb. The Bosch Purion on-board computer provides maximum efficiency and precision. Intuvia, on the other hand, ensures easy and intuitive control of your eBike thanks to a separate control unit. The shift recommendation helps ensure that you are always in the right gear.

### **Digital**

The new Nyon on-board computer is your gateway to a fully connected eBike experience. It features navigation functions with simultaneous exchange of data on routes and activities via smartphone and the eBike Connect app. Kiox has all the classic functions of an on-board computer, while at the same time giving the eBiker access to the digital world via the smartphone app. It uses Bluetooth technology to automatically combine GPS



Kiox's colour display features impressively clean looks and intuitive operation.

data with riding data, thus ensuring that all information is always up to date. The Bosch SmartphoneHub transforms the pedelec into a fully connected eBike and an integral part of your digital lifestyle, with live weather forecasts, fitness tracking and music streaming. The smartphone and COBI.Bike app transform the SmartphoneHub into an intelligent control centre that can be used for navigation, recording activities and connection to other services – representing a major step in the direction of connected biking.

### **By the way:**

You can get help choosing the right eBike at

[bosch-ebike.com/en/service/ebike-advice](https://bosch-ebike.com/en/service/ebike-advice)



# Which eBike is the right one for you?

Which eBike suits you best depends on what you want to do with it. Are you mainly out in the city or are you interested in taking longer trips? Or maybe climbing steep mountain peaks is more to your taste?



## eCity bike

eCity bikes are the perfect way to avoid traffic jams and congested public transport in the city. Saddle up and reach your destination safely and stress-free with the benefit of electric support and a comfortable seating position as well as all the street equipment you could need.



## eMountain bikes

eMountain bikes can generally be divided into hardtail and full-suspension versions. The hardtail with its sprung front is characterised by low weight and efficient power transmission. In contrast, the front and rear suspension of the full-suspension version provides maximum traction.



## eTrekking bike

eTrekking bikes mean that even longer stretches on bike trips or excursions are no longer a problem. The sporty to upright seating position and touring equipment with mudguards, luggage rack and lights tick every box.









## eCargo bike

eCargo bikes combine the traditional features of a cargo bike with the electric drive of the future. Thanks to the electric support of the high-quality Cargo Line drives from Bosch, eCargo bikes are perfect for carrying heavy loads or ferrying kids in the city and are a practical alternative to a car.

# Full support on your handlebar

Find your perfect companion: with Purion, Intuvia, Kiox and Nyon as well as SmartphoneHub and COBI.Bike, Bosch has four on-board computers as well as two smartphone solutions in its portfolio – thus ensuring the right display for your every possible need and requirement.

	 <b>Purion</b>	 <b>Intuvia</b>	 <b>Kiox</b>	 <b>Nyon</b>	 <b>SmartphoneHub</b>	 <b>COBI.Bike*</b>
5 riding modes	●	●	●	●	●	●
Shift recommendation	○	●	○	●	○	○
Walk assistance	●	●	●	●	●	●
High resolution display	○	○	●	●	○	○
Integrated display	●	●	●	●	●	○
Splash-proof	●●●	●●●	●●●	●●●	●●●	●●●
Navigation	○	○	●*	●	●**	●
Fitness tracking	○	○	●	●	●**	●
eMTB mode	●	●	●	●	●	●
Compatible with eShift	○	●	●	●	○	○
Compatible with DualBattery	●	●	●	●	●	●
Third-party apps	○	○	●	●	●**	●
Theft protection	○	○	●	●	○	●
eBike Connect app	○	○	●	●	○	○
COBI.Bike app	○	○	○	○	●	●

\* Only in conjunction with a smartphone and the eBike Connect app.

\*\* Only in conjunction with a smartphone and the COBI.Bike app.



## eBike Connect app

You can access additional connectivity features relating to navigation and activity by connecting Kiox and Nyon to the eBike Connect smartphone app and to the [ebike-connect.com](http://ebike-connect.com) online portal.



## COBI.Bike smartphone app

Using your smartphone and the COBI.Bike app, you can transform the SmartphoneHub into a fully connected control centre that navigates, records activities and connects to other services and apps.



# The eBike is what drives us



03

There are plenty of reasons for choosing an eBike system from Bosch. But there's only one way to experience what epowered by Bosch really means: climb on, start pedalling and experience the flow.

# Bosch eBike Systems stands for...

## ... a perfectly coordinated system

Drive Unit, battery and display are designed as a single system and interact seamlessly. This results in maximum efficiency and comfort as well as a unique riding sensation.

## ... individual combination options

With a modular product portfolio, Bosch offers eBikers the ideal drive system for every requirement. Whether for use in the city or on the trail, on tour or for transporting heavy goods, a variety of possible combinations of Drive Unit, battery and display ensure an outstanding riding sensation.

## ... innovative solutions

From the first series-ready ABS for eBikes to the first fully connected on-board computer in the bicycle industry and the dynamic Performance Line CX: we develop solutions to promote our customers' mobility.

## ... connected biking

Our connectivity products add a digital dimension to the eBiking experience, making it even more comfortable, richer and more individual.

## ... maximum reliability

Our products stand for maximum quality and reliability. Our drive systems inspire people and offer technology "invented for life". Just what you'd expect of a product from Bosch.

## ... a comprehensive range of services

A product is only as good as the service behind it. Bosch eBike Systems trains retailers to become eBike specialists through intensive training courses. For satisfied customers and long-lasting riding enjoyment.

## ... a large selection of manufacturers

More than 70 renowned bicycle brands trust in products that are "epowered by Bosch" and install our drives in their bicycles. Everyone is sure to find the right eBike for their needs.



**VISIT THE WEBSITE**

[bosch-ebike.com/reasons-bosch](https://bosch-ebike.com/reasons-bosch)



A man with grey hair, wearing a dark blue polo shirt and a black vest with the Bosch logo, is standing next to a black eBike. He is smiling and looking towards the right. The background is a dark, industrial-looking space with other bicycles visible in the distance. A large white arrow points from the left towards the title.

# Choosing the right dealer

There are approximately 5.4 million pedelecs on German roads and the number keeps growing. The range of models on offer is also increasing. Good pre-sales advice is indispensable in finding the right eBike for your personal needs. However, as expert Bosch adviser René Gottschalk explains, not every dealer is the same. The expert who trains hundreds of eBike dealers a year answers our questions and reveals what to look for when choosing the right dealer.

## **What makes a good eBike dealer?**

**René Gottschalk:** For me, the first thing a good bike shop must offer is an environment where the customer immediately feels welcome. The next important thing is to have a good product selection, in other words the dealer must stock products and drive systems from different manufacturers. This enables prospective customers to test different models and compare them more effectively. The dealer's motivation and manner also play an important role. Do they show an interest, are they open, do they provide competent advice and take my wishes into account? The chemistry has to be right between the customer and the dealer. This is very important. Trust is an important precondition when buying an eBike.

## **What criteria should a good bike shop meet?**

**René Gottschalk:** The most important thing is that the dealer should be easy to reach. The sales floor itself should be brightly lit and tidy. If, after entering

a shop, you feel you want to turn around and leave immediately, then I'd advise you to do so. Customers immediately sense a welcoming atmosphere in the shop. Being allowed to look around in peace, while still getting answers to your questions at the same time – these are crucial points.

## **What service should a good dealer offer the customer before a sale is made?**

**René Gottschalk:** Customers should always be given the opportunity to test ride several eBikes. It is important that the potential buyer should get a feeling for the riding features, which differ depending on the model and drive system. There are several ways to achieve this: some dealers have their own test track in the yard, while others allow customers to rent the bike for a day or sometimes even a whole weekend. The last option in particular offers real advantages because the bike can be tested in-depth and under real conditions. This, however, is sometimes subject to a charge.



### What are the key questions to ask before buying an eBike?

**René Gottschalk:** The most important question is how the customer intends to use the bike. Do they want to go touring (with or without luggage), commute to work, take short excursions at the weekend or engage in sporting activities, such as mountain biking? This basic information will enable the dealer to assess the demands placed on the bike. Once the right bike has been found, the dealer needs to look closely at how the customer sits on the bike. An ergonomic seating position is essential for a comfortable and enjoyable riding experience. For this reason a dealer should carefully check whether the frame, handlebar and saddle height are appropriate and that the suspension fork is correctly adjusted.

### What points must the dealer make sure to clarify with the customer before a sale is made?

**René Gottschalk:** Dealers should explain all aspects of the eBike to the customer. Before buying, the customer should be aware of the options available, the benefits and drawbacks of the various models, and the right drive system. Different Drive Units are suitable for different requirements and applications. For example, Bosch offers five different drive systems. There are also some fairly classic criteria to keep in mind: some people like a hub gear system with backpedal brake, while others prefer a derailleur system. The dealer should also inform the customer about proper care of the bike and – most importantly for eBikes – the battery. The Battery Guide from Bosch provides all the most important information for the customer in a handy pocket-sized format.

### What service options should a good dealer offer the customer after a sale is made?

**René Gottschalk:** Good dealers offer their customers an initial eBike inspection. This means that the customer can return for a check-up after a couple of weeks. An approximate guide is about four weeks or 300 kilometres travelled. After the first check the dealer should then also determine the next service interval. The Bosch DiagnosticTool enables the dealer to do this with ease. Regular inspections are important to ensure that the customer gets the most out of their eBike. Ideally, the dealer should also offer a pick-up and return service.

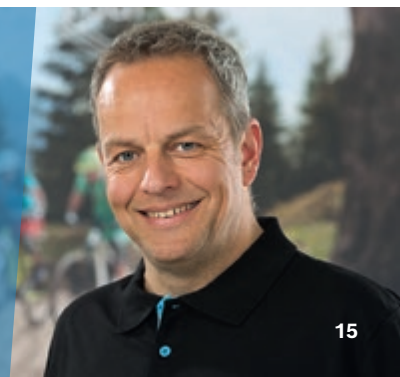


**FIND YOUR BOSCH eBIKE DEALER**

[bosch-ebike.com/dealers](https://bosch-ebike.com/dealers)

## René Gottschalk

*The 48-year-old has been in contact with bikes of all kinds since childhood because his parents had a bike shop. His entire professional career has also revolved around bikes. After many years working in the bicycle retail trade and as a sales representative for bicycle manufacturers, he spent ten years working as an independent sales representative in the bicycle industry. René Gottschalk has been a technical consultant with Bosch eBike Systems for over four years. He trains hundreds of dealers a year on all aspects of Bosch eBike systems, offering helpful and hands-on advice. For him personally, the eBike has become a frequently used alternative to the car, especially in city traffic.*





# Always there for our customers

Service is more than a promise. It's an attitude. Because Bosch eBike Systems knows that every product is only as good as the service behind it. That's why specialist dealers and workshop staff receive extensive training to turn them into eBike specialists, thus guaranteeing the best possible service. Whether you need personal advice, regular software updates or comprehensive all-round checks, all you need to do is climb in the saddle, enjoy the unique riding sensation – and leave the rest to us.

## Expert service near you

Our team of qualified specialist eBike dealers is always on hand to provide expert advice tailored to your specific requirements – even after you have purchased an eBike.

be read out and tuning can be detected. The diagnostic report shows the current status of the Bosch eBike components and – like a service log – records the work carried out on the eBike.

### DiagnosticTool

The dealer can use the DiagnosticTool, a professional diagnostics solution, to read out and update the eBike system data. In addition, individual configurations (for example, activating/deactivating walk assistance or the light function) can be made on the eBike. Software updates are used to install the latest features, providing the full range of functions of the eBike system. In addition, configuration data and error codes of the eBike components can



05



## Bosch eBike experts

in **15** European countries  
in **87** European cities



Approx. **70 bike brands**  
worldwide rely on components  
'epowered by Bosch'.



Our experts boast many years  
of Bosch eBike expertise and  
excellent advice.

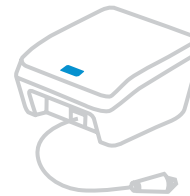


Around **13,000 participants**  
are trained Europe-wide at specialist  
retailer training courses from Bosch  
to deliver service support as well as  
professional and personal advice.

## DiagnosticTool



The DiagnosticTool, a professional diagnostics solution, enables  
the dealer to read out and update the eBike system data.



## CapacityTester

The CapacityTester can be used to determine  
the energy content of the eBike battery. The  
specialist dealer performs a comprehensive  
check.



## Retrofitting and software updates

Bosch eBike Systems offers a comprehensive and reliable after-sales service. Both new and older eBikes can be upgraded with a variety of accessories and retrofitting options.

### Update now

If you want to keep your eBike system up to date at all times you should perform regular software updates. This is the only way to make use of the continuously enhanced smart functions, the latest maps and continuously improved motor control.

The specialist dealer is available to provide advice and assistance when you need to update Drive Units or replace batteries. This allows the full range of eBike system functions to be used – and ensures that your eBike is always up to date.

## Drive Units

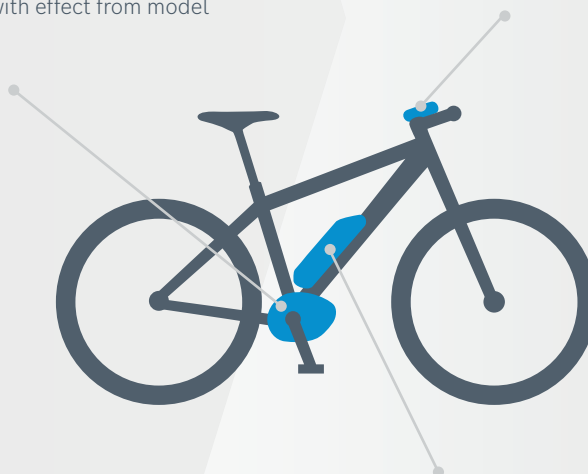


Software updates keep the Drive Units up to date and enable impressive increases in performance – for example in the Performance Line CX, whose maximum torque will be increased to 85 Nm with effect from model year 2021.

## Displays



The Intuvia, Kiox and Nyon on-board computers and the SmartphoneHub smartphone solution are available as retrofit kits. In addition, new functions and new maps can be downloaded via software updates.



## Chargers



The various Bosch chargers allow charging your battery as required. The Fast Charger reduces charging times, while the small, lightweight Compact Charger is ideal for longer eBike trips. Your specialist dealer will be happy to advise you on which charger is most suitable for your usage profile.

## Batteries



More power with a new, more powerful battery or a second battery? Bosch batteries can be purchased directly from specialist dealers.

## Repair – questions and answers

### **Which parts of the Bosch drive system can riders repair themselves?**

If an eBike fitted with a Bosch drive system develops a defect related to the Bosch eBike drive, a professional bicycle retailer specialising in eBikes is the right contact. These retailers will have the appropriate special tools, such as a software diagnosis tool, to identify the exact problem. Even ambitious bicycle repair enthusiasts may not be able to repair the defect and there is a significant risk that unprofessional repairs will compromise the safety of the overall system.

### **Battery repairs, cell replacement and “refreshing” the battery?**

“Some companies and internet-based service providers offer a battery repair, cell replacement or even a so-called battery ‘refreshing’ service. Is this a suitable solution for faulty batteries?” Bosch eBike batteries must never be opened – not even when a repair is carried out by a third party. Opening the battery always means interfering with the condition approved by Bosch and entails safety-related risks. Further important information about safety risks and dangers of battery repairs can be found in the Battery Guide from Bosch eBike Systems. A defective battery must always be replaced. Opening, modifying the batteries or other manipulation of the battery can even void warranty claims. Any questions about the battery should be directed first

to the specialist dealer, who will get in touch with the Bosch service department if necessary.

### **Can used batteries be used?**

When purchasing used batteries, always make sure that they have not been damaged by their previous owner. Damaged batteries are occasionally available online but they pose a significant risk and can lead to dangerous malfunctions. Sometimes illegal or stolen goods may be sold online.

### **Alternative replacement parts for the Bosch eBike system?**

“Low-cost spare parts for the Bosch system are sold online, but they are not manufactured by Bosch. Can these be used?” Bosch eBike Systems advises that only genuine Bosch parts should be used. The software and hardware used in Bosch eBike systems are perfectly adapted to one another in order to guarantee efficiency and safety.



**MORE FAQs**

[bosch-ebike.com/faq](https://www.bosch-ebike.com/faq)



## Test bench measurement R200

In order to be able to measure the range of eBikes in a standardised way for comparison purposes, Bosch eBike Systems, working in cooperation with ZIV (Germany’s bicycle industry association) and other companies from the bicycle industry, has developed the “standardised range test R200”. This will enable manufacturers, dealers and customers to compare the range of different eBikes on an objective basis.

### **Identical conditions for transparent values**

Previous test results for eBike range depended heavily on the rider and the external conditions (rider weight, tyres, air pressure, surface, weather, etc.). The R200 measurement method compares eBike performance with a uniform support factor of 200% (hence the name: R200). This means that the tested drive system supports an average rider performance of 70 watts with 140 watts, which corresponds to a medium to high support factor.

### **R200 provides practical comparison**

The result of the test is a specific indication of how many kilometres an eBike will cover under these standard conditions. However, manufacturers need to test each model individually using the R200 method. The operator simply enters the values from the list of requirements.



# 10 questions about the eBike battery

The battery is the energy source of the eBike. It provides the electric motor with the electric power needed for support while riding. It's hardly surprising, then, that people use a great deal of jargon when talking about eBike batteries. What are the differences between the batteries? What is the range of the battery charge? What points do I need to remember when placing the battery in storage? Tomas Raica, Head of Customer Applications at Bosch eBike Systems, provides information and tips.

## **What are the characteristics of lithium-ion batteries?**

**Thomas Raica:** Lithium-ion batteries are among the most modern and commonly used eBike batteries. Thanks to their high energy density they can store more energy and are relatively lightweight. We rely on lithium-ion technology for all of our Bosch eBike batteries.

## **How long does a battery last?**

**Thomas Raica:** Lithium-ion batteries are not only light, they also have a long service life. Bosch batteries are designed for lots of trips, miles and years of service. The intelligent, electronic Bosch battery management system protects lithium-ion batteries from excessive temperatures, overloading and deep discharge. However, an exact service life cannot be predicted, as this mainly depends on the type and duration of use.

## **How can you maximise the service life?**

**Thomas Raica:** To get the longest service life out of a battery, eBike owners should follow a few simple rules relating to protection, transport and correct storage. This means, for example, protecting the battery from direct sunlight and storing it in a dry environment at a temperature between 10 and 20 degrees Celsius. The best charge level for a battery is 30 to 60 percent. Ideally, charging should be done at room temperature. When being transported, it is important to always remove the battery from the eBike and place it in a safe location inside the vehicle.

## **How long does it take to charge a battery?**

**Thomas Raica:** With the Standard Charger, the PowerPack 300 requires approx. one hour for half a charge, while the PowerPack 400 and PowerTube 400

## Proper storage



### Location

Dry and out of the sun



### Temperature

10 – 20 °C



### Charge level

30 – 60 %



### Transport

Separately from the eBike

## The right charger



### Standard Charger

- ▶ Compact design and short charging times

### Compact Charger

- ▶ 40 % less volume than the standard charger

### Fast Charger

- ▶ Currently the fastest eBike charger in its class

require around 1.5 hours, the PowerPack 500 and PowerTube 500 two hours and the PowerTube 625 2.1 hours. A completely empty PowerPack 300 is fully charged in just 2.5 hours. PowerPack 400 and PowerTube 400 take 3.5 hours, PowerPack 500 and PowerTube 500 4.5 hours and the PowerTube 625 4.9 hours.

### What is the range of a single battery charge? What does the range of the battery depend on?

**Thomas Raica:** These are central questions for many eBikers that are impossible to answer in general terms. The margin of variation is wide. Sometimes a single battery charge will take you less than 20 kilometres,

while other times it will take you significantly more than 80 kilometres. A host of different factors influence the range: support level, riding style, air resistance, rider weight, tyre pressure and, naturally, the terrain. What is the surface quality like? Am I cycling on a paved road, dirt track or a woodland trail? Does my route include climbs and gradients or am I only covering level ground? All of these things influence the battery range. If you are planning a ride, it is worthwhile visiting [bosch-ebike.com](https://www.bosch-ebike.com). We have set up a “Range Assistant” there that can take various factors into account and provide guidance as to how many kilometres can be travelled under the given conditions.

### What points should be remembered in winter?

**Thomas Raica:** In most cases, cold conditions reduce the performance of the battery. During winter use at temperatures below zero, we therefore recommend charging and storing the battery at room temperature before inserting it in the eBike immediately before a ride. If the eBike is not in use for a long time, such as in winter, the battery should be stored in a dry, cool place and with 30 to 60 percent charge capacity.



### **What is the correct way to charge a battery?**

**Thomas Raica:** Bosch batteries with lithium-ion cells can be charged quickly at any time irrespective of their charge level. The integrated Bosch battery management system in conjunction with a Bosch charger protects the battery from overload while charging. Interruptions of the charging process do not harm the battery. One important piece of advice: eBike batteries should only be charged using the corresponding charger, as otherwise irreparable damage may result and any warranty or guarantee may be rendered void.

### **Even after 500 full charges, the battery still has a high capacity.**

### **How often can a battery be charged?**

**Thomas Raica:** Even after 500 full charges, the battery still has a high capacity. After this, 60 to 70 percent of the original battery capacity is still available. A test carried out by the ADAC in autumn 2015 demonstrated that an eBike battery from Bosch could be completely discharged and recharged 1,515 times before it had only 30 percent of its original capacity, rendering it almost unusable.

This means that the battery would have been sufficient for up to 57,000 kilometres – that is, for a distance one and a half times around the world.

### **Where can I have the battery repaired?**

**Thomas Raica:** High-quality lithium-ion batteries like those from Bosch are complex, finely tuned systems with a high energy content that require special expert knowledge and complex equipment to manufacture and repair. For this reason a defective battery must almost always be replaced. We recommend the following approach: first, the dealer should determine whether the battery is actually defective, for example, whether there is a fault in the electronics. The battery management system and DiagnosticTool enable the dealer to do this. If the battery is defective, it will be disposed of in accordance with safety regulations.

### **How should the batteries be disposed of?**

**Thomas Raica:** The dealer will ensure that a Bosch battery is disposed of in an environmentally sound way free of charge. Disposal is handled by Germany's GRS battery recycling system. Valuable materials are returned to the raw material cycle, thereby conserving resources.



### **Thomas Raica**

*Thomas Raica, a 54-year-old mechanical engineer, has been with Bosch for 24 years. As head of the Technical Customer Application department at Bosch eBike Systems his responsibilities include maintaining relations with bicycle manufacturers and collaboration with customers in the field of development. Away from his innovative career environment, Raica, a father of two, is a vintage car lover in his spare time. He is also a keen mountain biker and enjoys swimming.*

# The batteries at a glance



## **PowerPack 300/400/500**

No matter what you have planned, Bosch has exactly the right battery to meet your needs. PowerPacks 300, 400 and 500 offer excellent mileage, a long life-time, low weight, ergonomic design and easy handling. When installed as a frame battery, the PowerPack sits close to the centre of gravity of your eBike to ensure optimum weight distribution. The battery can be easily removed and charged at the nearest power socket.



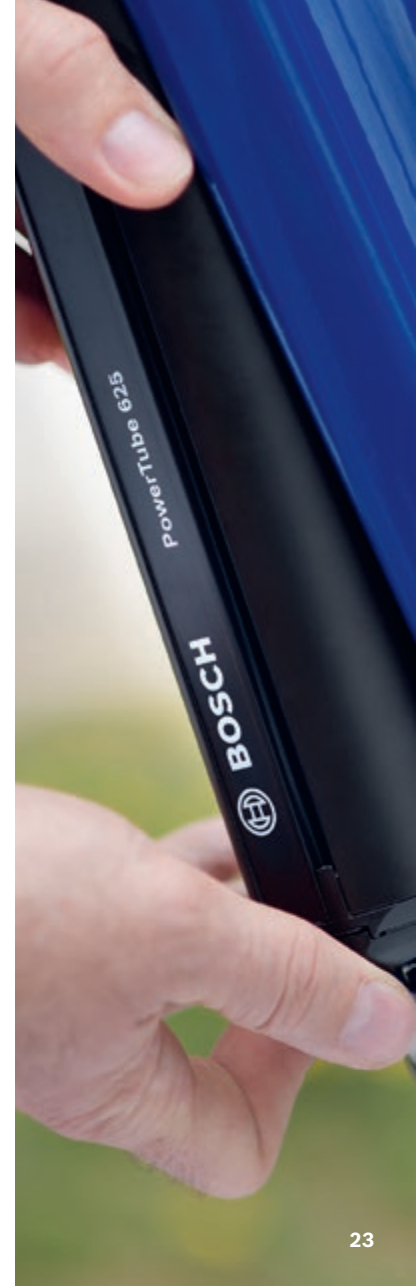
## **PowerTube 400/500/625**

With the PowerTube, Bosch sets new standards and presents a pared-back, timeless look coupled with sophisticated technology. Thanks to compact dimensions and minimalistic design, the 400, 500 or 625 Wh lithium-ion batteries, which can be fully integrated into the bike frame, open up new options for bicycle manufacturers. The battery can be installed either vertically or horizontally. It is concealed and perfectly protected by the frame. A convenient function means that the battery pops 2 centimetres out of the frame when unlocked, making it easier to take hold of. Recesses in the top surface are suitable for attaching bottle holders or design trims. The surface has an elegant, black anodised aluminium finish.



## **DualBattery**

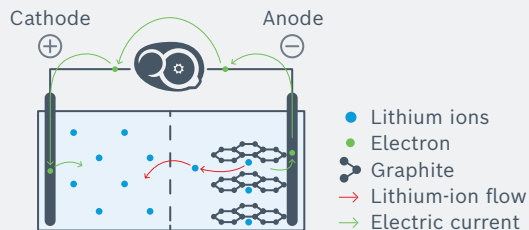
Keep on riding: DualBattery is the perfect solution for touring eBikers, long-distance commuters, eCargo bikers and eMountain bikers. The combination of two PowerTubes delivers up to 1,250 watt hours and can be installed using any battery combination from the manufacturer. DualBattery is also possible in combination with PowerPack. The system switches intelligently between the two batteries during both charging and discharging. DualBattery is suitable for long distances and heavy loads.



# 07

## The eBike battery

The battery is the energy source of the eBike. It provides the electric motor with the electric power needed for support while riding. How does a lithium-ion battery actually work? Where are they used? How powerful is an eBike battery? Our infographic has all the answers.



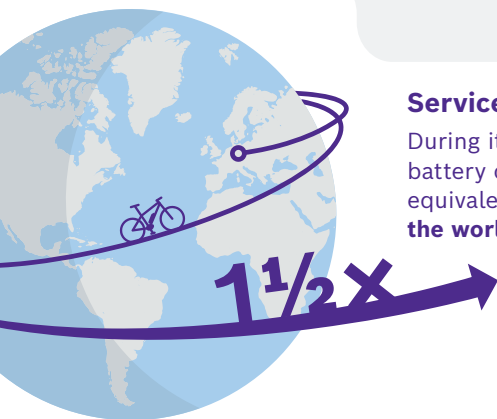
### How a lithium-ion battery works

While the eBike is **in motion** the electrodes move from the negative anode via the Drive Unit to the positive cathode. The lithium ions provide balance. The reverse process takes place when the battery is charged.

A Bosch eBike battery contains **40 lithium-ion cells** (PowerTube 625: 50 cells) and, depending on its specific ation, provides between approx. 300 Wh and approx. 625 Wh of energy.

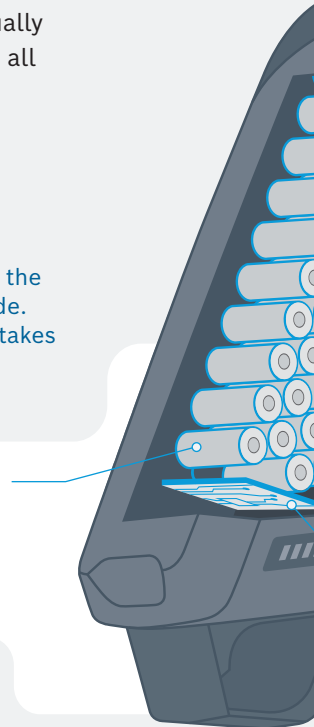
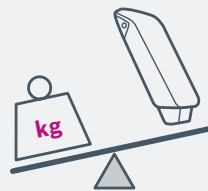
### Service life

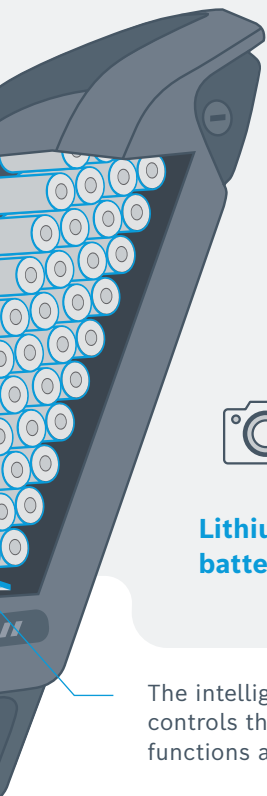
During its service life, an eBike battery can take you a distance equivalent to **1½ times around the world.**



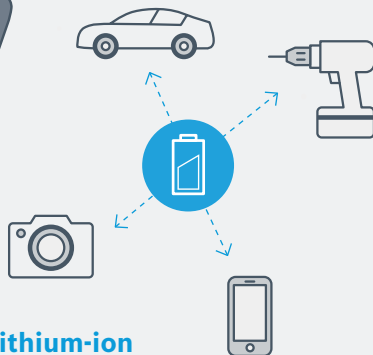
### Weight

Bosch batteries are among the **lightest eBike batteries on the market** and weigh between 2.5 and 3.5 kg.





### Lithium-ion battery applications

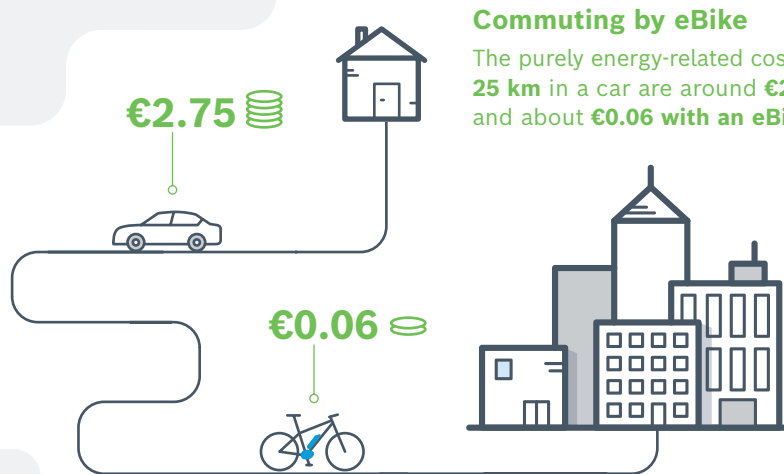


The intelligent **Bosch battery management system** controls the battery's recharging and discharging functions and protects the cells from overload.



### Recycling

Used eBike batteries will be accepted by most dealers free of charge and sent for **recycling**.



\* Petrol price: €1.35; Green energy: €0.30/kWh



Precious raw materials are **reused**.



That's why it is important to **take used and faulty batteries** back to the dealer.

Sources: ADAC battery test; Federal Environment Agency; Lithium-ion battery handbook



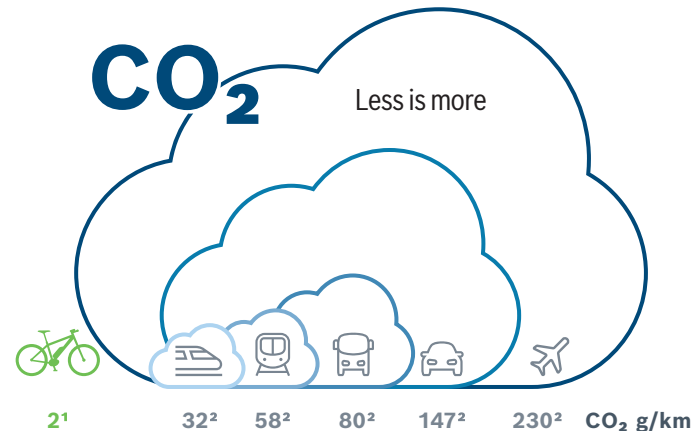
# 08

## Sustainability on board from day one

At Bosch we aim to create technology that is “invented for life”. Even during the development of a product, everything revolves around the question of how it can improve people’s quality of life, minimise environmental pollution and how we can reduce the consumption of resources even further in our work. Bosch eBike Systems is particularly committed to this aim.

### Sustainable mobility

The pedelec allows individual mobility that is healthy, environmentally friendly and fun. It is the pioneer of electromobility and a response to resource scarcity, climate change, urbanisation and rising emissions. Pedelects are an effective and efficient means of transport, particularly over short distances. People who ride eBikes get around faster, less expensively and with less environmental impact. At the same time the eBike expands the options available with the bicycle. Longer distances and greater altitude differences are easier to manage with electric support, with the result that pedelecs are being used more often and for longer distances. They also offer numerous benefits as transport solutions – eCargo bikes are practical, space-saving and enable fast, clean mobility.



<sup>1</sup> CO<sub>2</sub> emissions of a pedelec in use. Source: internal calculations

<sup>2</sup> CO<sub>2</sub> equivalents of emissions. Source: Federal Environment Agency



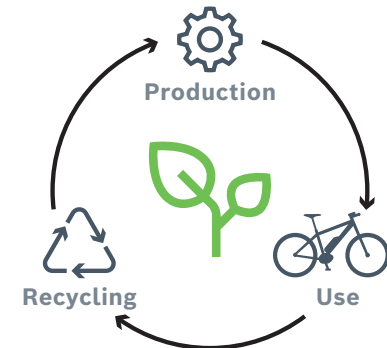
*“Why buy an electric bicycle? Most owners purchase their eBikes for recreational purposes (“leisure use”, 67 percent while outdoor exercise (66 percent) is also a popular reason among those surveyed. However, sustainability is another key factor, with 40 percent viewing the electric bike as a real alternative to cars and 35 percent as an alternative to public transport. The eBike also enjoys a green image among the general population – a total of 58 percent of those surveyed said that they associate electric bicycles in whole or in part with the issue of sustainability.”*

Source: <https://pedelec-elektro-fahrrad.de/news/e-bike-auf-dem-vormarsch-jeder-zweite-deutsche-will-elektro-fahrrad-fahren/581493/>

## Sustainable use of raw materials

The carbon footprint of an eBike is largely determined by the production, use and recycling of the battery. The longer an eBike is used and the more trips by other means of transport it replaces, the better for the environment. To ensure that valuable raw materials can be reused at the end of its service life, the battery must be properly recycled. Specialist dealers will take back used batteries and return them to the recycling system.

However, eBikers themselves can also help to minimise their carbon footprint. Correct handling and appropriate storage can significantly extend the service life of the battery.

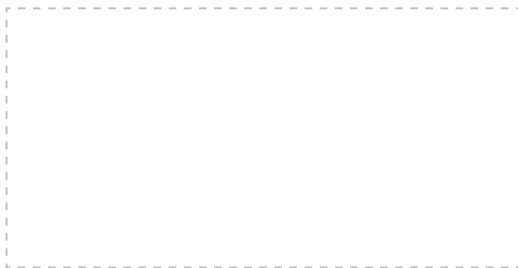


CO<sub>2</sub> neutral

### **Bosch aims to become completely carbon-neutral.**

From 2020, the more than 400 Bosch locations worldwide – from development and production to administration – will no longer have a carbon footprint. Of course this also includes all Bosch eBike Systems locations.

Always well informed –  
your Bosch eBike dealer



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