

Ride your eWorld

Bosch eBike Systems Magazine 2018



BOSCH

Invented for life



More relaxed commuting

One in two commuters travel less than 10 kilometres to work. The eBike is often the fastest mode of transport.

All the fun of the trail

The new eMTB Mode raises the Uphill Flow experience to the next level. For a natural, intuitive riding sensation and optimum control.

The ABS revolution

With the first ever first standard anti-lock braking system for pedelecs braking distances can be reduced and many rollovers and falls avoided.

City slickers: why eBikes are an integral part of the urban lifestyle.



Street Flow

That feeling of freedom in discovering the city anew. Getting around in a fast, healthy and sustainable manner – on the way to work, out shopping or with the family. Bringing greater quality to daily life and discovering the city streets with the eBike. That is the Bosch eBike Street Flow. bosch-ebike.de/streetflow

Expand your life
#streetflow

In the flow

How do we want to live today and in the future? What opportunities does digital networking offer? How are our needs and way of life changing? And what effects does all this have on the development of our cities and our mobility?

These questions and issues have always been significant for society and face us with new challenges today. One thing is clear: mobility is in transition. Urban space has become scarcer and more sought after than ever. The need for security is gaining ever greater significance. The desire to move around in a healthy and intact environment is increasing. People, vehicles and infrastructure are becoming ever more closely networked and digitalisation already shapes our interactions profoundly.

A new form of mobility is making inroads into our daily lives, becoming both a part and an expression of our changing attitudes towards life: more needs-oriented, diverse and multi-modal. Moving, like our cities, our time – right in the flow of the street.

At Bosch eBike Systems, we are developing future solutions relating to the bicycle and place the requirements of each and everyone at the centre of our activities. As a pioneer and innovator, we make use of the latest technologies and are already working today on the networked world of tomorrow.

The eBike is an important component of this modern mobility. It offers a completely new form of transport which is flexible, sustainable and stands for a healthy, carefree lifestyle with a high fun factor. It is one of the most agile, comfortable and smartest modes of transport of our time.



In the present, fourth edition of the Bosch eBike Systems magazine, the focus is on three main topics, all of which relate to mobility and the new eBike lifestyle. In the **“Inside The City”** feature, we report on the eBike within the urban environment: getting around the city flexibly, fast and in a relaxed manner – that is pure Street Flow (page 6). **“Getting Outdoors”** stands for that special riding sensation in open nature, on trips or on the eMountain bike in Uphill Flow (page 24). **“Forward Thinking”** deals with the mobility of tomorrow. One important aspect: safety. This includes, for example, the first production-ready anti-lock braking system for eBikes (page 40).

I hope that you enjoy reading and are inspired by this edition.

Yours,
Tamara Winograd
Marketing and Communications Manager
Bosch eBike Systems



Ride your eWorld

Inside The City

Towns and cities are places for making encounters. They shape people and society. eBikes are an important part of urban mobility.

FOR MORE INFORMATION VISIT bosch-ebike.com

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People who ride their eBike to work avoid wasting time in long traffic jams, getting where they want quickly and keeping fit at the same time. A report on a new way of life.

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Uphill Flow offers the fun of the trail at its purest. The new eMTB Mode raises the Uphill Flow experience to the next level.

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Christoph is a freelance IT consultant. He takes us on an eBike tour of his favourite spots in Munich, which aims to become the cycling capital of Germany.

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Youtuber Anna and her friend Katy, along with their children, test eBikes in their everyday lives and take a tour through the English county of Dorset.



Forward Thinking

How will we live, work, move around in the future? There are so many things we are having to rethink. A look into the future.

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With the first ever first standard anti-lock braking system for pedelecs braking distances can be reduced and many rollovers and falls avoided.

44 ABS will be standard on high-end eBikes

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Mobility connects people, urban centres and ideas. A new multi-mobile era is set to transform our cities.

52 Functional and stylish

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What began as a niche movement has become a trend. There are three million pedelecs on German roads.

60 We're working for you

Bosch eBike Systems has many commitments – from supporting projects and initiatives, to trade fairs and events.

More relaxed commuting

In Germany, there are some 30 million commuters.
One in two of these travel less than 10 kilometres to work.
Over these distances, the eBike is often the fastest mode of
transport. It therefore makes sense to rethink habits.



 **WATCH THE VIDEO**
bosch-ebike.com/streetflow

Swing past Big Ben and take
a relaxing spin through London's
West End: the eBike guarantees
riding enjoyment

More riding enjoyment

eBike riding in both urban and rural settings is becoming even more comfortable



The new Bosch Active Line provides eBikers with moderate support at a torque of up to 40 Nm - ideal for everyday use.



With a maximum torque of up to 50 Nm, the Bosch Active Line Plus ensures smooth acceleration and "extra" riding enjoyment.



The PowerTube 500 combines modern design with high-quality Bosch technology, for eBikers who are committed to a clean and timeless look.

Julia has been commuting by eBike on an almost daily basis for more than two years now, travelling from her home in London's Crouch End district to her office near Tower Bridge. The 9.5 kilometre journey usually takes her about 35 minutes. German by birth, she has been working as a computer analyst in the British capital since 2004.

London, a city with a population of 8.6 million, is set to become a bike city. The city authorities have plans to invest around 1.3 billion euros in infrastructure and political initiatives to quadruple bicycle traffic. The plans include a 37-kilometre network of cycle highways, called "Cycle Superhighways", with quieter "Quietways" and more than 10,000 rental bicycles. According to a study, the number of inner-city bike trips already rose by 133 percent between 2000 and 2015, reaching 670,000 daily. eBikes may become an important factor here in the future. On its website, Transport for London gives eBikes the thumbs up for their suitability for commuting, environmental friendliness, speed and performance.

A change in attitudes is vital. Already more than 50 percent of the world's population lives in cities. This figure will have risen to 75 percent by 2050. The city is the living concept for the future. Ideas are developed in these dynamic centres. This is where change is initiated. This is where trends are set. However, cities also face a number of big challenges: air pollution, water and energy supply shortages, lack of space, and congested streets. The list goes on and solutions are badly needed.

Electromobility can make a contribution to sustainable city development and a liveable urban environment. Pedelecs in particular offer enormous opportunities as a means of transport. They help save resources as well as reducing emissions and noise.

In Copenhagen, the undisputed bicycle capital of the world, 63 percent of residents now cycle to work or school. Only nine percent use cars (see page 48). Since the 1970s, parking space for cars has been consistently reduced at a rate of three percent year on year in order to provide more space for bicycles.

The German government is also increasingly moving towards pedal power. The "National Cycling Plan 2020" was launched four years ago. The idea: to make cycling more attractive to people by means of a comprehensive package of measures and ▶

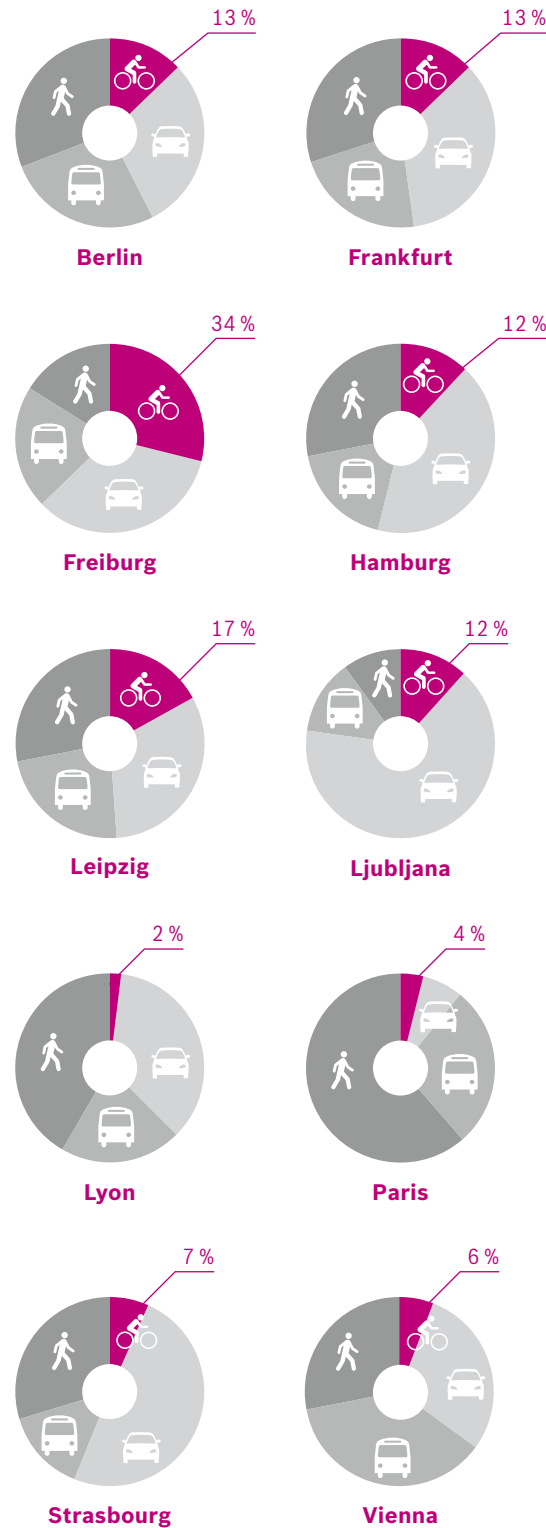


Easily accessible: the new "in" place for Londoners in the district of Shoreditch (above). Just around the corner: an eBike trip along Redchurch Street, right next to Shoreditch High Street Station (below)



Where will you find the most bicycles?

Which modes of transport are the most popular with living in cities? And what is the proportion of bikes?



Sources: Cyclecities; Greenpeace; Civitas; ECF; Transform



Convenient commuting along the shores of Hamburg's Inner Alster, opposite the Hotel Vier Jahreszeiten



On the bike with power assistance: over the Kornhausbrücke bridge and along the Zollkanal to the Speicherstadt district

improved infrastructure, particularly for commuting to work. The government aims to increase the proportion of cycle traffic to 15 percent by 2020 (currently 12 percent). But are the measures being implemented sufficient? Although the political will exists to promote more bicycle traffic, things are not developing as hoped, according to the ADFC (General German Bicycle Club) for example.

The ADFC points to the Netherlands as a model. Cycling has been massively encouraged there since the 1980s and bicycles now represent a 27 percent share of all traffic. This is thanks, for example, to access restrictions for cars, higher parking charges and, above all, an integrated network of cycle paths. Ever more charging stations and secure parking facilities are also currently being built.

A study has shown that most car commuters in Germany could also switch to bikes. After all, 82 percent of commuters in the country cover less than 25 kilometres on their daily commute to work, while one in two travels less than 10 kilometres to work. These distances do not pose any problem, especially by eBike.

It is important to cycling commuters that cycle paths be sufficiently safe and attractive. For example so-called protected bike lanes, i.e. wide cycle paths along the main traffic routes, physically separated from cars and exclusively dedicated to cyclists. If all of these elements are in place, the motivation to switch to bicycles like the eBike comes naturally,

as London-based computer analyst Julia explains: "I do it for purely practical reasons. It helps me keep fit and saves money. The underground is expensive," explains the fortysomething German. It is also a good way to break up the day, she explains, "I get to work feeling better when I travel by eBike and I'm somehow more relaxed when I get home again in the evenings."

So it's not just about saving time and money, but also about quality of life and health: The fact is that the average adult spends 11.5 hours every day sitting down. People don't get enough exercise, particularly if they have an office job (see the interview on page 56). Pedelects are perfect for commuters who want to increase their stamina and fitness as an incidental benefit.

Moreover, people who opt for an eBike instead of a car are benefiting not just themselves, but also the environment. Based on an average fuel consumption of eight litres per 100 kilometres for all commuter cars in Germany, this yields a consumption of almost 70 million litres of petrol per day. This results in 156,000 tons of CO₂. Pedelects therefore offer enormous savings potential.

And this is becoming more and more important because the city as the centre of life and as a meeting place is increasingly becoming the centre of focus. The reason for this is that we are all rediscovering our cities.



Boris Palmer is the Mayor of Tübingen and "Germany's most bicycle-friendly person of 2015"

"Competing with the car"

You use an eBike to get to work. Why?

At first, I tried travelling by car, but after two years I decided to get rid of it. I replaced it with an S-Pedelec. It's the fastest way to get around the city, I'm in the fresh air and can even get some exercise if I want. In Tübingen, a city with seven hills and an altitude differential of 200 metres, I also need to be able to get about in a suit without breaking into a sweat. In winter I sometimes take the bus.

How many kilometres do you cover by bike each year?

2,000 kilometres by S-Pedelec and up to 4,000 kilometres by conventional bike.

As the town's mayor, you're currently planning a "bicycle transport infrastructure". What does that mean?

The starting point is that bicycle traffic is often moved onto pavements, or else you have to share the road with cars and feel unsafe. There are occasional sections of good cycle paths, but these are usually few and far between. Our aim is for people to be able to get about safely and quickly by bicycle. This means we need to close the gaps. These are bridges or tunnels at rivers, mountain chains, railway lines or main roads. The electrification of two-wheeled transport will solve air quality and traffic congestion problems.

Ten years ago, Tübingen approved a plan to reduce CO₂ emissions by 70 percent. Where are you today?

We've reached 25 percent - a good level for Germany. But it's not enough.

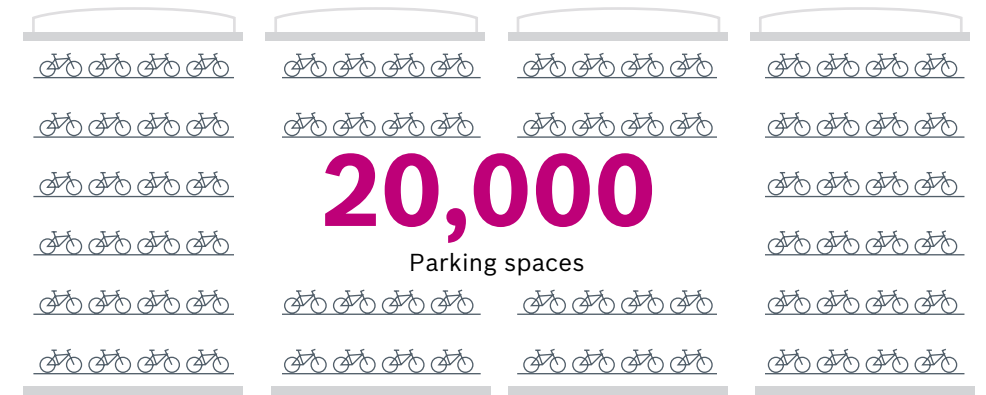
You're an advocate of the high-speed pedelec. Is there a particular reason for this?

Look at what eBikes are mostly used for: leisure. This is due to the fact that commuting distances have grown and that it takes too long to cover ten kilometres at a maximum speed of 25 kilometres per hour. The S-Pedelec allows you to compete with the car. Out of town, you can travel at 35 to 40 kilometres per hour, you don't have to look for a parking space and you'll be at least as fast as a car. That's what we really need. Persuading commuters to switch from their cars to suburban train services is expensive and takes decades. S-Pedelects could solve the problems overnight. Bringing commuting by bike up to speed: that's my objective!

Mobility in numbers

From CO₂ emissions and charging stations to parking times: electromobility is already changing urban spaces. Some **facts and figures**.

In the Dutch city of Utrecht, four multi-storey parking garages are being built for bicycles, with a total of 20,000 parking spaces. This is a world record! One of the garages is already finished.



For distances of up to **9 kilometres** the eBike is fastest Modes of transport in urban areas.

45% of all eBikes sold in Germany belong to the "City/Urban" category.

80% the time an average car spends parked at home, **16%** parked elsewhere. It only spends **4%** of the time actually in transit on the road, including traffic jams.

Around half of the **30 million commuters** in Germany travel less than **10 kilometres** to work.

The number of bike sharing programmes in German cities has risen from **68** (2007) to **850** (2015).

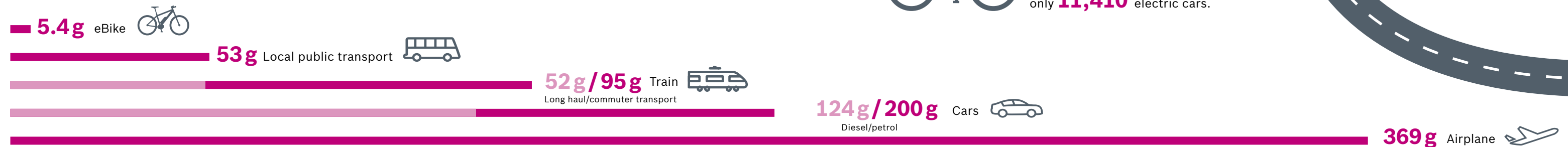
40% of eBike journeys are made for job-related reasons.

7,407 Charging stations in Germany

The number of publicly accessible charging stations for electric vehicles rose in the second half of 2016 alone by **12%**.

How much CO₂ is produced by which mode of transport?

Figures in g/km per person



In 2016 a total of **605,000** eBikes were sold in Germany, compared to only **11,410** electric cars.



LOCAL LIFE
MUNICH

A big city with cyclists at heart

Christoph is a freelance IT consultant in Munich who commutes a lot. Congested streets, stuffy subway trains, delays. Not any more. He has started using a pedelec. The 31-year-old sees his eBike both as a company vehicle and as a piece of leisure and sport equipment. With his company vehicle he cycles to appointments with clients and meetings with partners – no sweating, no traffic jams, no looking for a parking space. Munich has big plans. The city's goal is to be Germany's "Cycling Capital". To achieve its goal, the Bavarian capital on the banks of the river Isar started a major campaign in 2010. Today Munich's cyclists make up 18% of the city's road users. Compared to European "cycling strongholds" such as Amsterdam or Copenhagen, where cyclists account for more than 60% of road users, the Bavarians have some catching-up to do. The members of the "Radlhauptstadt München" initiative are aware of this and are making efforts to establish cycling as an essential ingredient of the Munich identity and lifestyle. Their slogan is: "Munich is beautiful – more so while cycling!" To live up to it, the initiative offers a series of activities ranging from flea markets for cyclists and cycling nights to bicycle safety checks.

Moreover, the city invests in the expansion, signposting and safety of bicycle routes. Today, Munich is the city with the longest network of dedicated cycle lanes in Germany.

Munich has also recognized the benefits of electromobility, particularly over short distances. January 2017 saw the introduction of a revised subsidy programme for electromobility, "Munich e-Mobil" to the tune of 11.6 million euros. Now, in addition to companies, private individuals are also being offered a subsidy to the purchase e-Bikes or cargo bikes and for the construction of charging stations. ◀



Christoph's eBike



Performance Line Cruise

The Performance Line Cruise supports the eBiker powerfully, directly and dynamically with a maximum torque of up to 63 Nm. Ideal for extended sporty tours, for riding to work or for enjoying nature.



PowerPack 400

Modern Bosch lithium-ion batteries impress with their high energy density, excellent mileage, long lifetime and simple handling.



Nyon

The Nyon all-in-one on-board computer combines navigation, eBike control and riding data in a single device.



LOCAL LIFE MUNICH

Christoph's favourite haunts

WATCH THE VIDEO bosch-ebike.com/munich



1

The Aroma Coffee Shop

Christoph starts his day relaxing with a glass of freshly pressed juice. The Aroma in the Glockenbach neighborhood is quiet on weekday mornings. Here, Christoph makes his first few phone calls while enjoying a ham and cheese toastie.



2

The Eisbach

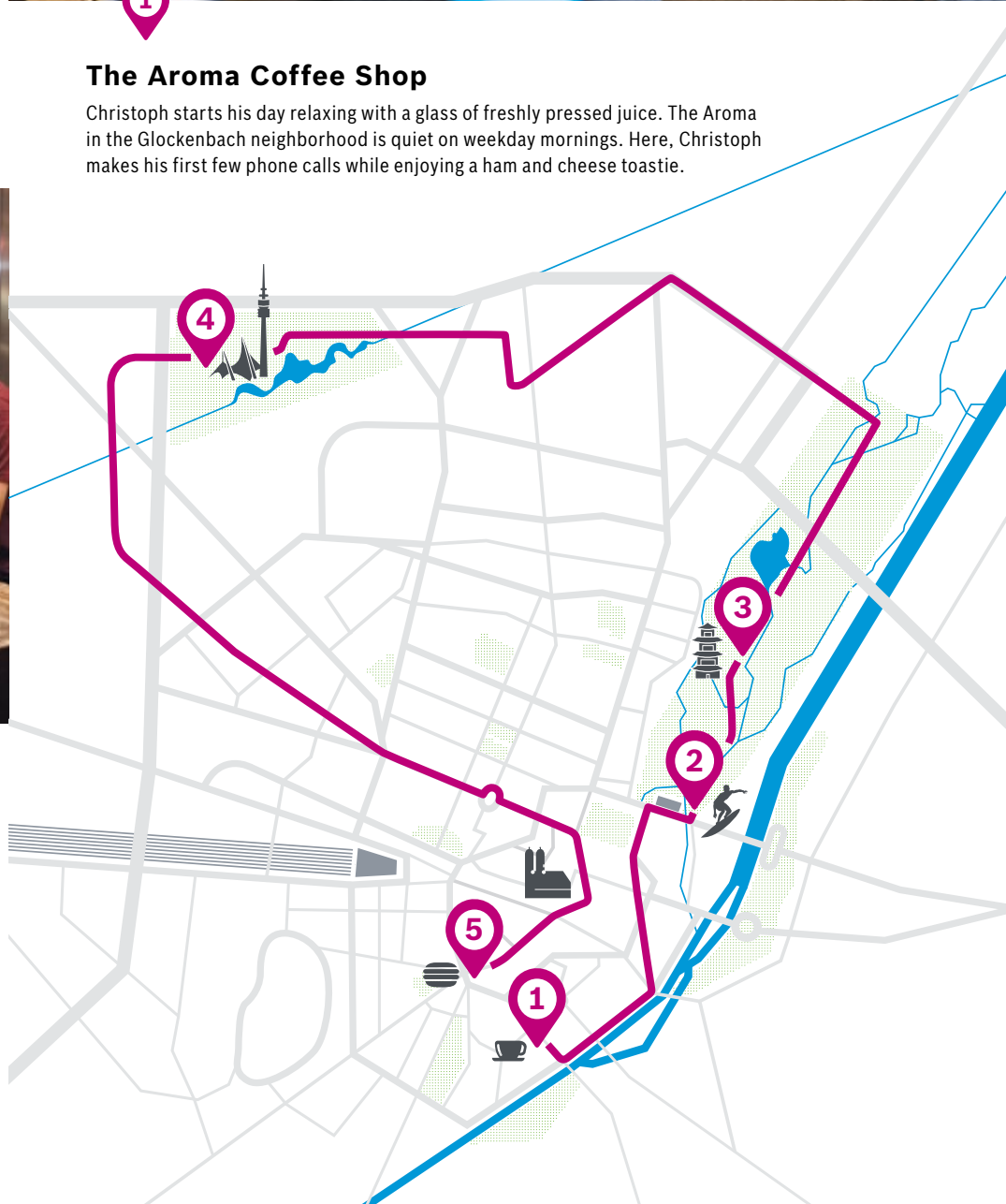
Munich's wildwater surfing spot is a place to marvel at – ideal for a break after your client appointments. The surfers ride the Eisbach wave, directly behind the Haus der Kunst art museum.



5

The M.C. Müller

After a day spent eBiking, there is nothing like a hamburger and French fries. A very trendy spot serving tasty food: The M.C. Müller – a hamburger joint and club rolled up in one.



3

The Chinese Tower

If you want to meet for an open-air lunch with friends or business partners, this is the place to come: the beer garden at the Chinese Tower. It is a fabulous place shaded by chestnut trees in the English Garden, Munich's famous park.

4

The Olympiapark

For some more exercise at the end of a day, Christoph meets his friend Sebastian in the Olympia Park. On their eBikes, they go on a leisurely tour of the 850,000 sqm grounds.



Munich at a glance



Population: 1.5 million



Number of daily commuters: approx. 500,000



76 hours – the average time people spend in traffic jams each year if they commute by car in Munich.



Almost 900,000 parking tickets are issued in Munich on average each year.



There are 60 cycle paths in Munich – more than in any other German city.



Length of bicycle lane network: 1,200 kilometers



By 2021, cyclists are expected to account for 25% of inner-city traffic.



80% of all Munich's inhabitants own a bicycle; almost half use it at least once a week.



Roman Bieri works as a caretaker at the "Sunnige Hof" housing cooperative in Zurich



Since 2015, the Stuttgart police have had their own eBike unit. A total of 16 officers patrol the streets



The ÖAMTC breakdown assistants are just as reliable on their eBike as their colleagues are in their cars

eBikes at work

Manoeuvrable, fast, efficient – eBikes are far more than just comfortable sports equipment. Businesses are also increasingly discovering the potential of using **pedelecs as company vehicles.**

Vienna. Melting pot of cultures. A cosmopolitan city. Many drivers' jaws drop when they see a "Yellow Angel" from the Austrian Automobile, Motorcycle and Touring Club (ÖAMTC) arriving on a bicycle in the city centre. "Every year we go on more than 800 call-outs by eBike and, at around 86 percent, the number of motorists who can continue their journey is the same as for those that we help by car," reports Gerhard Samek, Head of the ÖAMTC breakdown service in Vienna. "The advantages in the inner city are self-evident." Congested streets elicit nothing more than a smile for the eBike breakdown assistants. They simply

ride straight past them, make use of cycle paths, or take a short cut through the narrowest of alleyways. The eBike with yellow trailer can be parked anywhere without causing any additional traffic holdups on the busy streets.

Stowing the extensive equipment that every eBike breakdown assistant needs to carry was a challenge. The solution: pack the tools, starter booster and testing equipment into a box and mount it on a suitable trailer. The payload transported by the rider in Vienna weighs 70 kg, which means that the electrical support is a great help. "In the end, we opted for the drive that best supports our riders

during their work – and that was the Performance Line from Bosch," says Samek, explaining the choice in favour of the dynamic Bosch drive.

The breakdown assistants in the Danube metropolis are in keeping with the latest trend: At Deutsche Post (the German Post Office), mobility on two wheels is already firmly integrated into the work activities. Around 15,900 bicycles are used for letter deliveries every day – 9,600 of which have an electric drive. And the numbers are growing. On average, post delivery staff cover some 13 km a day and carry up to 50 kg of mail. The post office eBikes therefore need to be sufficiently robust, manoeuvrable and low-maintenance. The logistics experts from UPS and DHL are also working on transferring more and more deliveries onto the eBike.

Amazon requires lighter loads, but significantly higher speed and flexibility from its riders in Berlin. Anyone placing an order here as part of the new "Prime Now" service receives delivery of their order within one hour. Often by bicycle.

The partner companies Go! and Interkep operate a total of twelve eBikes. "Customers are delighted when a cyclist brings the Prime Now bags," says Stephan Eichenseher from Amazon. "The riders don't need to look for a parking space, they simply ride up to the front door. This is of course an advantage in the case of deliveries within a hour." The load space of Amazon's eCargo bikes

has a capacity of 200 litres, which means that up to five deliveries can be made per trip. According to Amazon, the objective is to carry out as many deliveries as possible using eBikes. For this purpose, the mail order company has set up dedicated charging stations at several locations around the city. Small and medium-sized enterprises, clinics and cultural institutions are increasingly taking advantage of the benefits of eBikes.

In the Hessian state capital of Wiesbaden, for example, the Kiezkaufhaus online outlet delivers hand-picked products from more than 20 specialist stores. The items on offer include bread, fruit, vegetables, drinks and spices, as well as books, handicraft items and toys. The customer can browse the stores online and place their purchases in a digital shopping basket. The retailers then receive a list and put the order together. The orders are then delivered by eCargo bikes, which are charged using green energy. If orders are placed by 2 p.m., they are delivered on the same day.

There is no doubt: eBikes help to reduce traffic and protect the environment. The potential is considerable: A study by the Polytechnic University of Milan reveals that three eCargo bikes could in fact replace a delivery van for the daily transport of goods in town and city centres.

For many residents, this would go a long way towards finally improving the quality of life in the urban environment. ◀



Running errands becomes an experience

Katy and I have been best friends for twelve years.

We have known one another since we were teenagers. Many things in our lives happened concurrently: getting married, buying a house, raising a family. Katy and her husband Fred have two daughters, Tilda aged 4 and Ivy, a one-year-old. Guy and I have three sons, Rocco aged 10, Diggory aged 7, and Ozzy aged 5.



Anna's eBike



Intuvia on-board computer

Anna and Katy use the Intuvia on-board computer. This easy-to-operate display will help you reach your destination in a relaxed style. Intuvia provides important information such as the time and range at a glance.



Performance Line Cruise

The Performance Line Cruise supports the eBiker powerfully, directly and dynamically. On the way to kindergarten with the kids or out shopping with the cargo bike. Perfect for anyone who wants to run more errands with their bike.



DualBattery

DualBattery 1000

DualBattery is the ideal solution for eBikers who need more battery capacity: A combination of two Bosch PowerPacks delivers up to 1,000 Watt hours (Wh), depending on the battery type, for long journeys, steep inclines and heavy loads.

Katy's eBike



Active Line

Whether in the city with a bike trailer or for a trip to the beach: the Active Line provides a safe and reliable riding experience up to 25 km/h.



500

PowerPack 500

The PowerPack 500 makes every excursion a pleasure thanks to its high energy density and excellent mileage.

MY LOCAL LIFE DORSET

When motherhood came, Katy and I moved with our husbands from London to the South of England to raise our children on the wonderful Dorset coast. It was then that we decided to start a joint project: starting “Heymummytv,” a YouTube channel all about parenting, families, and kids. It is interesting, inspiring and lots of fun.

For our everyday mobility, we have always used minivans. Simply because we believed, until recently, that cars are the most practical means of transportation for our five children. Certainly, more time spent out in the fresh air, getting around more by bicycle, that would be great. But so far it has seemed absolutely unrealistic to us, since Ivy, Tilda and Ozzy cannot cycle yet.

Then we got this request from Bosch: “Wouldn’t you like to test eBikes for a week - a self-experiment of sorts?” And we quickly made up our minds: Yes, we would. And we looked forward to it. Would the eBikes meet our requirements? Would they do for the rides to work or for taking the kids to school? Can you use them for shopping and running errands? How will pedelecs fit into our leisure? Can we use the bikes for family trips to the beach or to the park? We tested the eBikes in our everyday life: seven days of cycling together with our children.

Bottom line after this week: We did quite a few things and we were really active. Running errands became an experience. If you are looking for a panacea, eBikes are not it. If you want to make things easier, they fit the ticket. No congestion, no nagging, no time spent looking for parking! eBikes are a great choice for parents who want to get about easier and allow their kids to discover the world out there. Katy, the children and I have made up our minds: the eBikes are staying!



1

At Anna's

We get up to an early start. My boys must get to school. Instead of the car we take the bikes. The two big boys ride their own, Ozzy with me on the eCargo bike. My boys are bursting with energy: for them it is the best way to start their day. They are out in the fresh air, they get exercise before they will have to spend the morning sitting still, concentrating, and learning.



2

Coast Surf Café

The boys are at school, now we have some time for ourselves. At the Coast Surf Café I meet up with Katy and Ivy. Over a cup of tea, we are discussing the next installment for our YouTube channel and the things that are on our minds. We never run out of topics. We're girls!



3

Favourite Playground

At lunchtime, we are all together again. Katy and I have picked up Tilda and Ozzy and spend some time at the playground. This local park is the perfect place for children to play. There are swings and seesaws, slides and climbing areas – the ideal place for children to run off steam.



5

Patisserie Mark Bennett

Spending a lot of time in the open air gives you an appetite. I buy my bread for dinner at Mark Bennett's Patisserie. He is a master baker and the bakery has been in the family for three generations. With our shopping loaded we head home.



4

Bournemouth Beach

The beach at Bournemouth is wonderful. Soft sand, clean water and an uncluttered view of the sea. It is really the most beautiful place to recharge your batteries and let the sun warm your face. You snack on “Fish & Chips”.



WATCH THE VIDEO bosch-ebike.com/dorset



Simply forgetting time and the world

Uphill Flow offers the fun of the trail at its purest.
The new eMTB Mode raises the experience to the next level –
conquering peaks with the best possible support.

A tranquil moment after the
exhilaration of Uphill Flow,
when everything went
smoothly and perfectly

 **FOR MORE INFORMATION VISIT**
bosch-ebike.com/uphillflow



The pleasure of moving effortlessly through the natural environment. To forget time and the world, while still staying focused. At one with our instincts – uphill with the eMountain bike (eMTB). That's what Uphill Flow is all about.

The term was coined some years ago by Claus Fleischer, Managing Director of Bosch eBike Systems, and professional eMTB rider Stefan Schlie. It describes the unique experience of cycling uphill with up to three times your own strength.

Mountain biking with electric support is now widely accepted, even among genuine athletes. There have been some remarkable consequences: year after year, bicycle manufacturers are setting new sales records. Specialist dealers are catering to new, sometimes significantly younger prospective customers, and even competitive athletes are using electrically driven mountain bikes – whether for training, as a compensating factor on tours or to extend their own technical boundaries. A new kind of sport is establishing itself, with longer circuits and sections that would not be possible without an electric motor. Not to mention that feeling of flow, when everything simply goes smoothly and is just right.

During its development activities, Bosch takes inspiration from professional cyclist Stefan Schlie. The runner-up Trials World Champion is a valuable source of impetus and ideas. He is just one of a number of well-known professionals who are fans of ultimate fun on the trail – each in his own very personal way. Former World Cup rider Greta Weithaler, for example, who has inspired many women to take up biking with power assistance during her “Women's Camps”. Ace enduro rider René Wildhaber enjoys solo adventures in Switzerland on his eMTB. German champion André Wagenknecht can talk from experience about topics such as training and rehabilitation. They all show what is possible with the latest technology. Gary Fisher, the inventor of the mountain bike is also convinced: “The eBike is really one of those great inventions that works for us humans.” The ambassadors for this new experience continue to share their knowledge and enthusiasm on group tours and at festivals and trade fairs.

15 percent of all eBikes sold in 2016 were mountain bikes. Economic success and acceptance in the MTB scene are closely linked to the

technical developments at Bosch eBike Systems. The Performance Line CX is a drive that has been specially designed for the demands of eMountain bikes. This drive is now optimally supplemented by the new eMTB mode, which guarantees a natural and more intuitive riding sensation and maximum control – through adaptation of the software.

eMTB Mode replaces the previous Sport Mode and switches between the Tour and Turbo riding modes. With a maximum torque of up to 75 newton metres (Nm), the motor dynamically supports the rider's own pedal power by between 120 and 300 percent. Without requiring any gear shifts, the motor always provides optimum support for eMountain bikers, even at low cadences. Starting on steep slopes is problem free and off-road riding is made significantly easier.

The degree of support depends on the pedalling pressure. It starts when slight pressure is applied to the pedal, according to requirements and when greater pressure is exerted on the pedal, the drive provides maximum thrust virtually without delay. As soon as the pressure is taken off the pedal, support is gently reduced.

The response from the bicycle industry has been impressive: “I think this is the greatest development to date,” says Scott Product Manager Andreas Ziegler. “Now the riding mode really does adapt to the power of your legs.” John Riley, Director Global Mountain Bike at Trek, comments: “The bikes are increasingly getting closer to the riding experience of a conventional mountain bike. I think that eMTB Mode is the next logical step in bringing the riding sensation and experience even closer to that of a traditional bike.”

The success story of the eMountain bike is not only measured in technical achievements. New technologies require infrastructure, trust and responsibility.

With its Uphill Flow campaign, Bosch aims to educate people and establish a trail etiquette in order to ensure a friendly coexistence in a natural setting. Aiming to make the flow feeling available to even more people, the company launched two projects in 2017: a special race format, the eMTB Challenge, as well as the construction of the first Bosch eBike Uphill Flow trail, which is specifically designed for mountain bikes. ▶



Fair on trails!

From warning hand signals to the person behind you when you encounter oncoming traffic and friendly greetings to fellow road users, through to consideration for nature, trail etiquette should always be an indispensable element on any eMTB tour:

- 1 Always keep to the trails when riding
- 2 Don't leave any traces behind you
- 3 Keep your eMountain bike under control
- 4 Respect others
- 5 Show consideration for animals
- 6 Plan ahead

The Performance Line CX is a drive that has been specially developed for the demands of eMountain bikes. It has now been optimally complemented by the eMTB Mode



Why is eMountain biking the new way of cycling?

Bosch enthusiasts will tell you:



“I love technology myself, especially when it works for me. And the eBike is really one of those great inventions that works for us humans.”

Gary Fisher, mountain bike legend



“The eMountain bike makes it possible for people who may not previously have had the confidence, to try out this sport.”

Greta Weithaler, Ex-World Cup rider



“After their first ride, the greatest eMTB opponents suddenly come back with a huge grin on their faces.”

André Wagenknecht, German Enduro Champion



eMTB Mode guarantees a natural, intuitive riding sensation and maximum control.

The eMTB Challenge is not an ordinary MTB race with electric tailwind, but rather a completely new and separate format. With a length of 30 kilometres and an altitude difference of around 1,000 metres, the trail can be completed with a single battery charge and the mix of uphill, downhill and orienteering sections provides a real challenge for riders. Above all, the no-feet zones – technical passages that have to be completed without letting your feet touch the ground – demand a great deal from participants. This was tested for the first time in Riva del Garda and Willingen, and professionals, hobby bikers and the media were all highly enthusiastic. Even freeride legends like Niels-Peter Jensen had great fun.

Diddie Schneider proved to be the perfect partner for implementation of the idea of the world's first Bosch eBike Uphill Flow trail, which was opened in the Bavarian Forest in May 2017. In order to achieve variety and fun for the various levels of difficulty, specific elements were incorporated into the trail in addition to the distance variants. These include numerous berms, switch-backs and changes of direction that are guaranteed to bring a smile to any rider's face, particularly with an appropriately powerful drive unit like the Performance Line CX. Similar trails are currently being created in the French-Swiss tourist destination of Portes du Soleil, as well as in the South Tyrolean community of Val Gardena, Italy.

No doubt, the variety of offerings linked to the eMountain bike is increasing, as are the opportunities to experience the joys of Uphill Flow as a rider. The eMTB is increasingly becoming the benchmark in the sporting field, but also a facilitator and a source of fun in everyday life. ◀



With a maximum torque of up to 75 Nm, the motor dynamically supports the rider's own pedal power by between 120 and 300 percent in eMTB mode.



“For me, the adventure lies in setting off, arriving and the tranquility. And then the long descent the next morning. The eMountain bike supports me all the way.”

René Wildhaber, Enduro pro



“For me, Uphill Flow means action, experiencing nature, fitness and a new form of mobility and freedom.”

Stefan Schlie, runner-up Trials World Champion

What you need to build an Uphill Flow trail

The world's first Bosch eBike Uphill Flow trail was opened on the Geisskopf mountain in the Bavarian Forest in May 2017, with plenty of features to enjoy.

[WATCH THE VIDEO](https://www.bosch-ebike.com/uphillflowtrail)
bosch-ebike.com/uphillflowtrail



Machine days
75 days



Amount of wood used
150 m² of wooden planking, 400 rm



Amount of sand used
30 truckloads of crusher dust from regional sources



Height
280 m



Length
3 km

You can't get much higher!

Four German men plan to cycle the Nevado Ojos del Salado, the world's highest volcano **on their eMountain bikes**. This will take them to an altitude of 6,893 metres above sea level. But is this an impossible task?

 FOR MORE INFORMATION VISIT
bosch-ebike.com/chile

Pushing ever further: Sebastian Gerl, the sports scientist on the Chilean expedition, at the handlebar and master craftsman Pitt Schmidt at the saddle really give it their all



Far from civilisation: the high-altitude tour in Chile crosses rocky terrain and plains to the volcano and includes camping

"My aim is to move people - not just literally on the bike, but also emotionally," says expedition leader Mike Fuchs

Berlin native Mike Fuchs is a man of courage. A photographer and adventurer, he has a real weakness for snow and ice. He has already spent time within the polar circle, camping at minus 45 degrees. He has also been on some of the world's highest mountains, including the 7,134 metre high Lenin peak in Kyrgyzstan and the Denali in Alaska. Most of the time he travels on foot or by sledge.

In 2014 he felt like going on an eBike expedition. "Right from the start I found the altitude more exciting than the distance," says Fuchs. A friend told him about this volcano in Chile. It is located in the Atacama Desert and, at 6,893 metres, is the highest volcano on earth. It is possible to travel a significant distance up this mountain, named Nevado Ojos del Salado, which translates as "Snowy Mountain of the Salty Eyes", by four-wheel drive. So why not do the same by eMountain bike? Despite two attempts, no one had ever reached this summit by bicycle.

As the initiator and leader of the expedition, Mike Fuchs assembled an unusual team: diaSports scientist Sebastian Gerl, master craftsman and type 1 diabetic Pitt Schmidt, who was accompanied by diabetes expert Jörg von Hübbernet.

To begin with they trained on the slopes of the Black Forest. The eMountain bikes have extra-thick tyres, a reinforced front fork and a high-torque Performance CX motor from Bosch eBike Systems, plus the dual battery technology, also from Bosch, with a maximum capacity of 1,000 watt hours - in other words two rechargeable PowerPack 500 batteries combined.

"The aim is always to achieve the perfect symbiosis of man and technology," explained Fuchs before the start of the tour. "We believe that research and progress in mobility will help us to

achieve the impossible." The foursome started out on their quest at the start of 2017.

They spent eleven days acclimatising high up in the mountains, then moving on to the Chilean west coast and from there inland again on 13 January. They covered 360 kilometres, first on paved roads, then on gravel tracks and steep mountain trails.

There were plenty of challenges along the way: the extremes of heat and cold, crossing a dry desert which also sometimes serves as a terrain for the Dakar Rally, sections on which the roadway is made of corrugated iron, and up to 4,500-metre high mountain passes, a shortage of water and, in addition, an escort car that got stuck at an altitude of 5,200 metres owing to technical difficulties. In between there were thunderstorms with hail and sleet and ice-cold nights under canvas or out in the open.

"I think our expedition has shown just what eBikes are capable of," Mike Fuchs would say later. "The highlight for us as a team was that you can ride around so easily at an altitude of more than 5,000 metres. Even steep gradients didn't intimidate us."

Up to 130 kilometres and altitude differences of 2,500 metres per day were covered by three members of the team, with the fourth man driving the car as medical backup.

The closer they came to the foot of the Ojos del Salado, the more inhospitable the Andean landscape. A barren plateau in every conceivable earth tone. There was no real civilisation, not to mention other cyclists, within a radius of 280 kilometres.

At the highest camp on the volcano, 6,000 meters above sea level, it began to snow heavily. Fuchs and Gerl helped a climber, who was caught out by the snowfall in the middle of the South American summer, and took him with them to the camp.

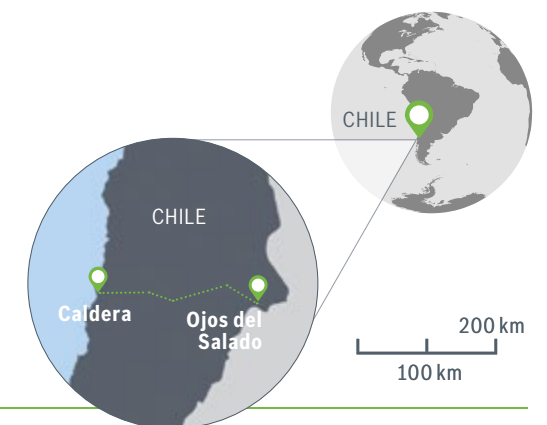
Finally, the day arrived when they would attempt to reach the summit. It was now or never. At first, the sun still shone, but progress was nonetheless only made with difficulty. Dark clouds began to gather again towards midday.

Three climbers returning from the peak reported that the volume of snow at 6,600 metres meant there was no way through. "We slowly began to realise that we wouldn't make it to the top," explained Fuchs. After a long deliberation, the men decide to break camp and descend from an altitude of 6,250 metres, making sure to take some photos of the summit. They were happy nonetheless, particularly because the bikes and materials had proven to be so resilient.

As a courageous photographer and adventurer, Mike Fuchs is already planning a new eBike expedition. This time he's planning to explore the frozen wastes of the Antarctic.

"Right from the start I found the altitude more exciting than the distance. Our aim was to achieve the impossible."

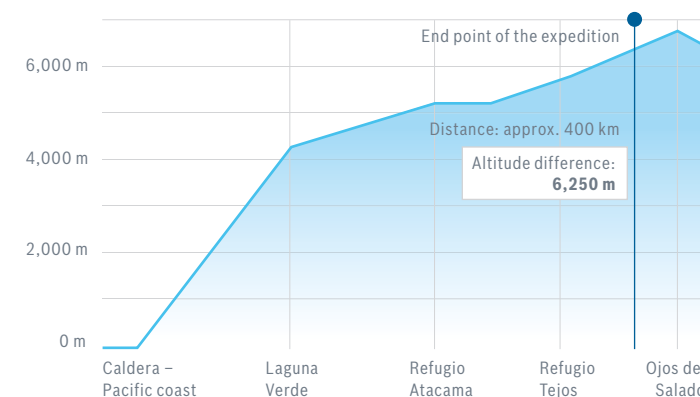
Mike Fuchs



eBiking on a volcano

Onwards and upwards

A distance of more than 400 kilometres with an altitude difference of more than 6,000 metres.



World record: No one has reached greater heights on an eBike than Sebastian Gerl, Mike Fuchs and Pitt Schmidt (left to right)

Suddenly the smile returns

She won World Cup mountain bike races, but then simply gave up competitive sport. What the South Tyrolean **Greta Weithaler**, who today organises training camps for women, has to thank the eBike for is revealed in her personal report.

I'd like to tell you a story. Not a grand or special story. But one that I believe is worth writing down.

It began many years ago when my father taught me to ride a bike on the road in front of our house. I really wasn't very good at it and kept stubbornly using my feet as a brake.

A bumpy start to my cycling career. But things changed: my hobby became a passion, and the

passion soon became my main purpose in life. Training, competitions, training. Region-wide, Italy-wide, worldwide. Cycling was my guiding star, my everyday life revolved around it – with great success. I was fascinated by both aspects of the competitive sport because while the training and events placed restrictions on me and challenged me, cycling also gave me a certain freedom.

FOR MORE INFORMATION VISIT
bosch-ebike.com/womenscamp

“I realised how easy everything was if you don't make it complicated for yourself.”

Greta Weithaler

And, to be honest, I can't exactly remember when this changed – or why.

When I look back at that time today, I see more than victories, successes or great pictures on Instagram. I see a dark evening after school in winter, 15 degrees below zero, wind, and a mountain in front of me, which I climb time and again on my skis. I see that I couldn't eat anything on the morning before a race because I was so excited and nervous, and I also see the critical look of a girl in the mirror and the anxiety about not being good enough.

I stopped. I put my bike as far back as possible in the garage and didn't touch it again. I didn't want anything to do with cycling. But I was missing something. A year passed before I knew what. And another year, during which I got used to the idea and started having fun again. The decisive factor was an encounter, an experiment, a moment. I'd never sat on an eMountain bike before. On a beautiful, sunny autumn afternoon, I tried one out on a trail outside my front door. And then something happened in me, something that I'd been fighting for two years: The joy returned, the fun and the fascination. I was smiling again while riding my bike.

New opportunities opened up for me, downhill and now, suddenly, uphill as well – so different from cross-country, and yet so similar. I was able to go mountain biking again.

Today, I'm still really enthusiastic about this form of biking and share my experience as a guide and riding skills trainer at “Women's Camps”. Here, I notice one thing above all: no matter whether they are full-time mothers, career women or female students – as different as they may be, all the women have one thing in common: when they sit on an eBike for the first time, the reaction is always the same – they smile.

They smile because an eBike is simply fun. Because they can also ride up trails, because they get up the mountain faster and usually on a level playing field at my training camps. These new possibilities surprise many women. Everything's so simple and relaxed. Genuine Uphill Flow, in other words. And that's where the real fun lies.

I don't want to put forward any stereotypes, but in sports in particular, women are often weaker than men. And in my experience, the eBike as a leveller is really interesting and appealing to women in particular. All of a sudden, they are able to cycle together with their partners again without it being a struggle. Returning to the world of cycling

after the birth of a child is also a big topic. Hitch the child trailer to the back of the eBike and a beautiful Sunday is simply guaranteed! Moreover, the eBike gives you greater self-confidence once you have overcome your own prejudices. Women can ride stretches they would never have thought possible before. What do we women do differently to men on the eBike? We're simply much more sensitive, encourage each other and are maybe a little more considerate towards one another.

We also like to stop and have a “Ratscherle” – which means “a brief chat” in South Tyrolean – and



Former professional cyclist Greta Weithaler gives women tips on eMountain biking technique at “Women's Camps”

we enjoy ourselves more. This enjoyment factor is particularly evident on an eBike tour.

I also get the impression that we women are more sensitive to our own needs, are good at assessing our limits and can simply get off or just say no.

With all these new possibilities, the eBike gives us an amazing amount of self-assurance, both uphill and downhill. Suddenly you can say: “Hey, I can get up there, even though it's a technical uphill section, and I would never ever have considered riding up something like that.”

This care-free aspect of eBiking, not having to worry whether you can physically manage a particular tour, is always a big topic among us women. It means that fun is guaranteed, so we get on our bike and spend time outdoors in nature much more often.



ON TOUR

A perfect vacation on two wheels

For many people relaxation and exercise are part of their holidays.

In particular, cycling is becoming increasingly popular.

Bosch eBike Systems supports projects that ensure riding enjoyment with electric support.

Combining exercise and relaxation: For more and more people this is what really makes a perfect holiday. "On your bike!" is the motto.

The latest statistics of the German ADFC cycling association reflect this trend: 5.2 million Germans went on a bike tour lasting several days in 2016. 20 million people undertook a total of 150 million cycling day trips. In Germany alone cycling tourism accounts for a turnover of EUR 9.2 billion per year.

It is hard to think of any other type of holiday experiencing such dynamic growth. And the popular choice is increasingly an eBike. Last year, 13 percent of all touring bikes in Germany were already equipped with electric support. The length of an average leg on a ride is now 65 kilometres. This is probably due in no small measure to electric motors.

But what is it that is encouraging more and more people of various age groups to choose pedelecs? Hans-Peter Engelhart is head of the tourist information office in Münsingen in the Swabian Jura. In May 2016, the town opened a mobility centre, where visitors can rent eBikes almost exclusively.

The reasons: "We're offering our visitors seven recommended bike tours of various lengths in ►



Ilka and Gerhard (seen here in Florence) frequently planned trips together with the children in the past. Today, they tend to travel as a couple using eBikes

FOR MORE INFORMATION VISIT
bosch-ebike.com/tourism

The right equipment



Full power ahead

When you are on the road, you may want to have a handy charger with you, such as the Bosch Compact Charger. Weighing only around 600 grams, it fits into any rucksack or saddlebag.

Always on the right track

Getting lost can spoil the mood of any trip. That's why it is always a good idea to take a reliable guide with you on tour. Nyon, the eBike on-board computer from Bosch allows you to plan routes comfortably on the computer. While you're on the move, Nyon not only navigates, but also reliably records fitness data.

Your first aid kit

No biker should ride without: plasters, bandages, disinfectant and disposable gloves (the latter come in handy for repairs as well). Depending on the region and season, pack: sun lotion, mosquito repellent and a cooling gel.

Security first

Effective theft protection: U-locks are classics and among the most secure bike locks according to tests.

Repair kit for your bike

You should always have patches, an air pump, spare tubes, a cloth and a mini tool with the appropriate attachments with you.

Protective headgear

In-mould helmets offer good protection. During manufacture, the shock-absorbing hard foam is injected directly into the outer shell. Buyers should make sure the helmet comes with the correct test seal: DIN EN 1078 (CE).

Face the rain

Before going on a biking trip, make sure you get a rain suit (jacket and trousers) or a large rain cape. With the protection they offer against light rain you can cycle on without problems.



The two pensioners actually live near Lake Constance. Their journeys by bike and motorhome bring a lot of new discoveries in Tuscany

and around the Lauter valley. All are mountainous, which accounts for the particular charm of our local countryside. On conventional bikes, only the most athletic cyclists could manage the tour to Lichtenstein Castle, for instance. With an eBike, the playing field is much more level. This way, more people can explore our region's natural beauty, history and local cuisine." As head of the tourist office, Engelhart believes that navigation devices make this type of low-impact tourism even more accessible. Mounted on the handlebar, the Nyon on-board computer knows the way to the next stopover and, if you so desire, will guide you to a POI or a rustic restaurant with a view.

All the eBikes at the Münsingen mobility centre are equipped with Bosch systems, comprising a drive unit, rechargeable battery and Nyon on-board computer. This is no coincidence. Bosch eBike Systems supports a number of projects promoting sustainable leisure and holiday mobility. For example in South Tyrol, where ten bike hotels offer eBikes featuring Bosch drives. One of these is the Steineggerhof. Its owner, Kurt Resch, offers his guests an eMTB testing centre. "Interested parties can rent full-suspension eBikes equipped with a Bosch drive system and the navigation features of the Nyon all-in-one on-board computer from Bosch. If you want, you can plan your route in advance, track your ride data and analyse it after the tour," explains Resch.

There is also a partnership with the French/Swiss Portes du Soleil alpine region for the development of tourist eMountain bike services.



The eBikes allow them direct access to the historical centre of Florence: here, the pair stop off at the All'antico Vinaio panini shop for some delicacies

Spring 2017 marked the start of construction work on four uphill flow trails for eMountain bikers.

There is another cooperative project in South Tyrol with Val Gardena: Guests mostly come to the region for sporting activities. eMountain bikes are in particularly high demand here. Christina Demetz, press officer for Val Gardena, has observed that when couples go on a tour, the women often prefer a bike with electric support: "This allows them to enjoy a beautiful tour together, even if one of them is in better physical shape than the other. Especially the younger generation is much more relaxed in that regard." eBikes also offer another advantage: "We're a green valley and we want to encourage our guests to leave their cars in the car park. In this respect, eBikes are doing us a big favour."

To make this low-impact form of mobility available as widely as possible, Bosch supports the specialist German retailer association ZEG (Zweirad-Einkaufs-Genossenschaft) and its network of eBike rental stations. Since spring 2016, pedelecs with Bosch drive systems have been available at 670 rental stations throughout Germany and Austria, whether at specialist hire companies, hotels, boarding houses, holiday apartments or tourist information points. The number of rental pedelecs will gradually be increased to up to 3,500 units. This provides the ideal opportunity for people to set off on an eBike exploration tour.

They'll be joining people like the two retirees in the photos, Ilka and Gerhard, who are discovering magnificent regions like Tuscany in Italy by motorhome and eBike.

Reliable transport



By car

If you are transporting your eBike on a car bike rack, you should make sure to remove the on-board computer and eBike battery to avoid any damage to the devices.

When transporting eBikes by car, there are some basic rules eBikers should follow: Most electric bikes weigh between 20 and 28 kg including the battery. The dimensions of eBikes are also often bigger than conventional bikes without electric motors.

This results in a number of key limiting factors for carrier systems, such as for the total permissible weight of the rack or for undersized mounts and rails, for example.



Shipping

If the eBike is being transported by commercial users or third parties (for example by air cargo or shipping company), special packaging and labelling requirements apply, which must be followed.

Rechargeable batteries may only be shipped by private users in an undamaged condition. Open contacts should be covered and the battery should be packaged in a way that prevents it from moving around.



By Train

In most cases, pedelecs can be transported by train.

Be aware that some stations may have steps to negotiate.



Flying

The transport of eBikes and their batteries is not permitted in passenger aircraft.

Shipment by air freight is a possible alternative.

The ABS revolution

More efficient braking for eBikes. A world-premier from Bosch makes it possible. With the first ever first standard anti-lock braking system for pedelecs **braking distances can be reduced and many rollovers and falls avoided.**



Without ABS, forceful application of the front-wheel brake can have fatal consequences.



Without ABS, slippery road conditions and loose or wet riding surfaces poses a risk of falling.



Front-wheel ABS

Wheel speed sensors monitor the speed of both wheels. If extreme braking threatens to lock the front wheel, the eBike ABS from Bosch regulates the brake pressure to optimize riding stability and steering of the eBike – especially under slippery road conditions. Harmonious and sensitive braking behavior significantly improves control, stability and safety.



Rear-wheel lift control

In conjunction with Bosch eBike ABS, rear wheel lift control ensures that the rear wheel stays on the ground. This reduces a rider's likelihood of flying over the handlebars. Bosch eBike ABS is particularly effective when the front wheel brake is applied forcefully on high-grip surfaces. Bosch eBike ABS enables more active and efficient use of front wheel brakes.

Safety comes first: The anti-lock braking system at a glance

The anti-lock brake system (ABS) from Bosch reduces the risk of eBikers flying over the handlebars or skidding. The ABS consists of the system control unit (1), a separate indicator light (2) and the wheel speed sensors (3) combined with newly developed CMe ABS brakes (4/5) from Magura. The set weighs around 800 grams. The ABS is automatically enabled above a speed of six kilometres per hour.



The Bosch eBike ABS is a technical innovation that enhances the safety of eBike riding.



-  1
ABS control unit (with housing)
-  2
ABS indicator light
-  3
ABS wheel speed sensors
-  4
Magura brake lever
-  5
Magura ABS sensor disc with brake disc

It's one of those moments that leave you in a cold sweat: Forced to brake suddenly on gravel or a slippery surface, your front wheel skids out from underneath you. Or unexpected, abrupt braking maneuvers on high-grip asphalt cause the rear wheel to lift, throwing the rider over the handlebars. Bosch eBike Systems has now developed a solution that reduces the risk of this happening.

In two studies, Bosch accident research experts analyzed almost 6,000 cycling accidents in Germany. Their key finding: The right braking performance can prevent up to 25 percent of such accidents, or mitigate their consequences. The number of accidents with serious injuries would also be reduced.

Another significant finding: In one out of five of the cycling accidents studied, the rider fell from the bike prior to the actual collision. Many of these falls were caused by incorrect or deficient braking behavior.

These risks could be greatly mitigated if a revolutionary new technical solution were universally used: the first production-ready anti-lock brake system for eBikes. With this new development, it is possible to prevent locking of the front wheel and limit lifting of the rear wheel on pedelecs. Bosch eBike ABS will initially be available from autumn 2017 for select fleet partners, and then launched for general purchase for trekking and city eBikes equipped with Bosch drive systems as of autumn 2018. Claus Fleischer, CEO of Bosch eBike Systems, is convinced that, "The introduction of such a system can sustainably increase traffic safety" (see the interview with Fleischer on Page 44).

Bosch relied on the company's own in-house experience and expertise to develop this efficient innovation: In the late 1970s, the company brought the world's first fully functional ABS for cars to market, and has been manufacturing Bosch anti-lock braking systems for motorbikes since 1995.

Now, Bosch is introducing the system for eBikes, taking elements of motorbike ABS and adapting them to the specific riding and braking behavior of pedelecs. Brake manufacturer Magura is involved in a partnership role. DEKRA, a vehicle inspection company that has accompanied and scrutinized the development work right from the start, believes that the new ABS will help to significantly enhance safety in comparison to conventional bicycle braking systems.

Another expert with extensive experience in analyzing cycling accidents is Siegfried Brockmann, Head of the German Insurers' Accident Research (UDV). According to his assessment, pedelecs have been involved in "a conspicuously high number of accidents on downhill gradients, which could indicate that their brakes were not operated correctly". As to using an anti-lock braking system on eBikes, he says, "The fundamental rule is that the front wheel can deliver the higher braking force of the two wheels. Yet, most riders don't dare squeeze as hard as they can for fear of overbraking the front wheel and causing a fall. Hence, depending on their speed, cyclists making optimum use of ABS will come to a stop several meters earlier."

In the Bosch ABS, high-resolution sensors on the wheels monitor the speed and instantly detect any locking of the wheels. If braking threatens to lock the front wheel, for example if the brakes are applied too forcefully on a slippery surface, the control unit installed beneath the handlebars regulates the brake pressure within milliseconds, and the rider retains control over the eBike.

In turn, if the sensors detect that the rear wheel is lifting off, the ABS control unit briefly regulates the braking pressure acting on the front wheel and the rear wheel drops, quickly regaining contact with the ground. "This diminishes the risk of eBikers flying over the handlebars," says Fleischer. There is a demand for safety-relevant products. ▶



The ABS indicator light shows that the braking system is active.

The number of people riding pedelecs is growing by the year. In Germany alone, more than three million bicycles with electric support are already on the road. For Fleischer, one thing is certain: “Safety for eBike riders and their environment is a decisive factor for sustainably establishing this modern form of mobility on the market.”

According to accident researcher Brockmann, it is also important to obtain sound advice and take an extensive test-ride when purchasing an eBike, not least due to the heavier weight of these vehicles. In view of the new technologies for eBikes, such as ABS, Brockmann feels that it would make sense, for example, for road safety organizations to offer rider training – the idea being that correct braking in hazardous situations can be learned. However, the infrastructure in cities also needs to be better tailored to cycling. As Brockmann explains, “While every city wants more people to cycle rather than drive, they’re doing too little to implement the suitable infrastructure for safely accommodating bicycles traveling at various speeds.”

3 Recommendations from the accident researcher

Siegfried Brockmann is Head of the German Insurers' Accident Research (UDV). His tips:

- ▶ Obtain sound advice and take various pedelecs out for trial rides before purchasing an eBike.
- ▶ Take advantage of rider training courses.
- ▶ The infrastructure in cities needs to be better geared to cyclists.

“ABS will be standard on high-end eBikes.”

Claus Fleischer, Managing Director of Bosch eBike Systems, on the development from the first cable brakes through to ABS for eBikes, and the scepticism towards electronic aids.



Claus Fleischer has been the head of Bosch eBike Systems product division headquartered in Reutlingen since 2012. He has been working for Bosch since 1995.

Why has Bosch developed an ABS for eBikes?

In recent years we've collaborated with a number of institutes to study bicycle and pedelec accidents in depth. Our analysis reveal that many accidents are initiated by braking maneuvers which result either in the bike skidding out of control on loose surfaces or the rider flying over the handlebars on firm surfaces. This is why we decided to develop a special ABS – because by doing so we can prevent 25 percent of such accidents. We have already gained decades of experience through developing anti-lock braking systems for cars and motorbikes. And the good thing is that pedelecs already have the electricity needed to power the ABS electronics on board.

Are eBikes more prone to accidents?

The relative risk is the same as that of bicycles. What's being communicated to the general public are the rising absolute figures, which makes sense, because it's not only the number of electric bicycles on the road that's growing, but also the distances they travel – their actual mileage. Riders on eBikes travel two to three times more frequently and for significantly longer periods than cyclists without an electric drive. This is why our we are deliberately targeting our ABS product to those vehicle models for which it makes sense: city, touring and trekking bikes fitted with 28-inch wheels. It's often been elderly cyclists who fall, perhaps because they're no longer quite as confident on the bike as they used to be and they also can't react to protect themselves as quickly.

Does ABS make cycling safer or easier?

Braking systems introduced in recent decades have actually made cycling both easier and safer. Just think back to the first cable brakes, and then

hydraulic and disc brakes. The available braking force has increased significantly. ABS will now serve to further enhance the means of controlling that braking force – particularly in those moments when a rider may be inattentive or have to react quickly. It also ensures greater stability.

How long did it take to develop the system?

It took three years from the initial idea to the predevelopment stage, and then two more to production maturity. We've been working on ABS for eBikes since 2012.

There will initially be an introductory phase involving only fleet partners for ABS. Who are these partners?

They can be rental firms or tourist regions. We're already conducting successful talks with the bicycle manufacturers who will be installing our ABS in future. It's important for us to use this one-year introductory phase to prepare dealers for our innovation, with training courses, for example. Interested end-customers will then be able to purchase eBikes with ABS in stores as of August/September 2018.

Does the ABS work with all brands of brakes?

We've developed our product in collaboration with Magura, who's designed a braking system specifically for ABS. The hydraulic brakes and electronic braking system have to be precisely matched and coordinated. For the 2018/19 model year, this will be the only combination offered.

Your object is, after all, to raise the safety standard of eBikes to a whole new level. Will it

really be possible to do so moving forward?

I wouldn't like to rule out a continuing rise of the innovation curve. Our engineers at Bosch will come up with enough new ideas. As is evident from the development of ABS for cars and motorbikes, I can well imagine that there's still room for improvement in terms of integrating the components and improving the ergonomics and performance of the ABS.

Does ABS for eBikes have the potential to become a mass phenomenon?

Yes, it certainly has. The analogies to cars and motorbikes demonstrate that such products start as special equipment serving the premium segment before at some point going into series production as options in the lower price class and then eventually being required by law. I really believe that it will become standard equipment on high-end pedelecs. I imagine that in a few years' time, most city and trekking eBikes will be equipped with ABS.

Will the same hold true for eMTBs?

While I don't want to rule that out, there's a longer road ahead for that. The eMTB is aimed at a different target group, a very athletic and enthusiastic segment.

“Bosch is the market leader in eBike systems and motorbike ABS. They make a really great fit.”

Claus Fleischer

Athletes as a rule take a rather more sceptical view of electronic aids. They need a bit more time to become convinced of the usefulness and benefits of such technology. That's the psychological aspect. Then there's the technical one to consider. A 28-inch touring bike doesn't undergo as much dynamic shifting of its center of gravity as, say, a full suspension mountain bike. In distinction to a car, the rider is a relevant factor in the total vehicle weight. And that has to be taken into account in the ABS algorithm.

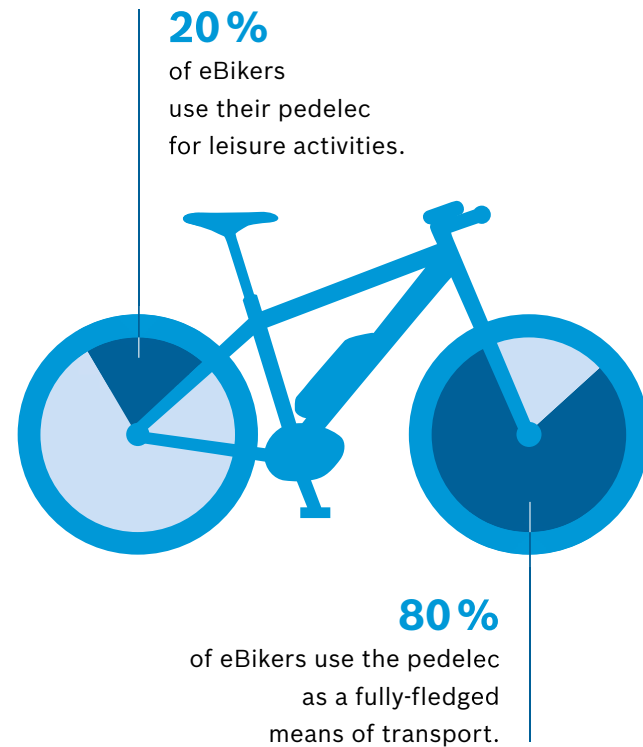
Were you aware that the electric motor would at some point need an electric brake when Bosch eBike Systems was founded?

Not in 2009, but by two years later, we definitely did. Which makes sense: Bosch is the market leader in eBike systems and motorbike ABS. They make a really great fit.

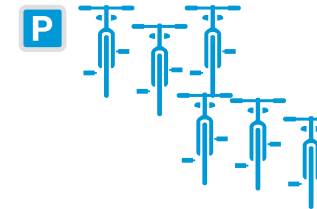
The eBike world in numbers

How many eBike models are there on the German market? How many kilograms can cargo bikes carry? And which is the fastest mode of transport for distances up to five kilometres in urban traffic?

Key facts at a glance:



A car parking space can fit **6-8** bicycles.

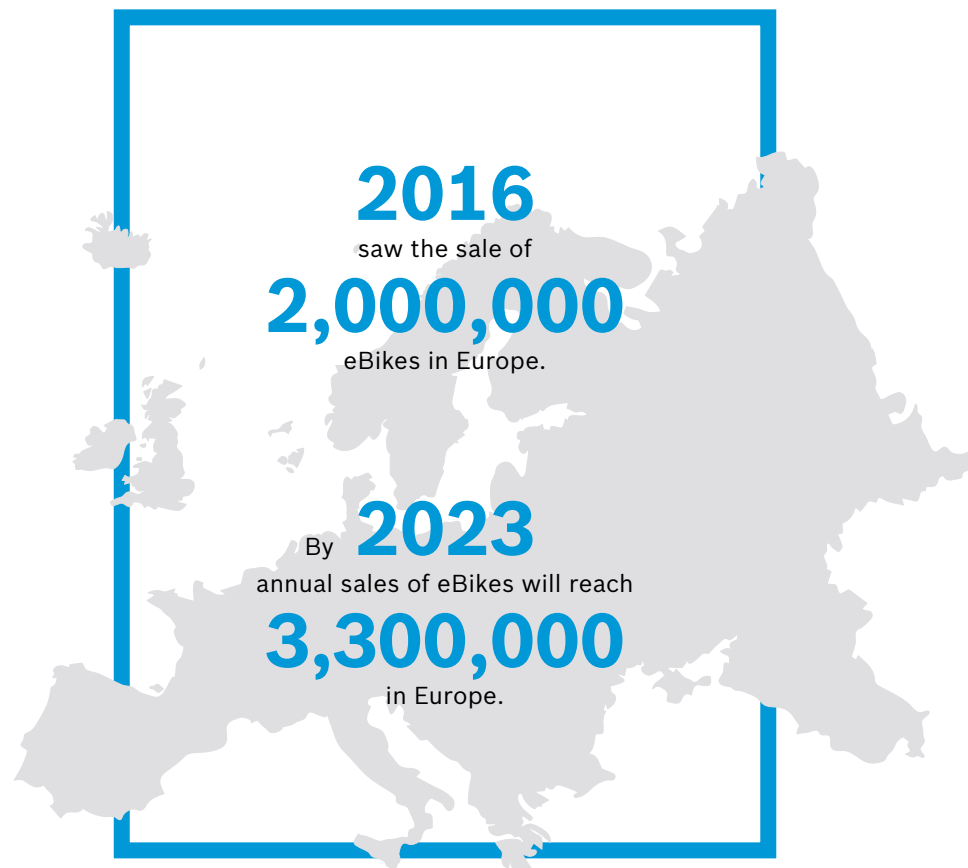


Every second trip by car is shorter than **5 kilometres.**

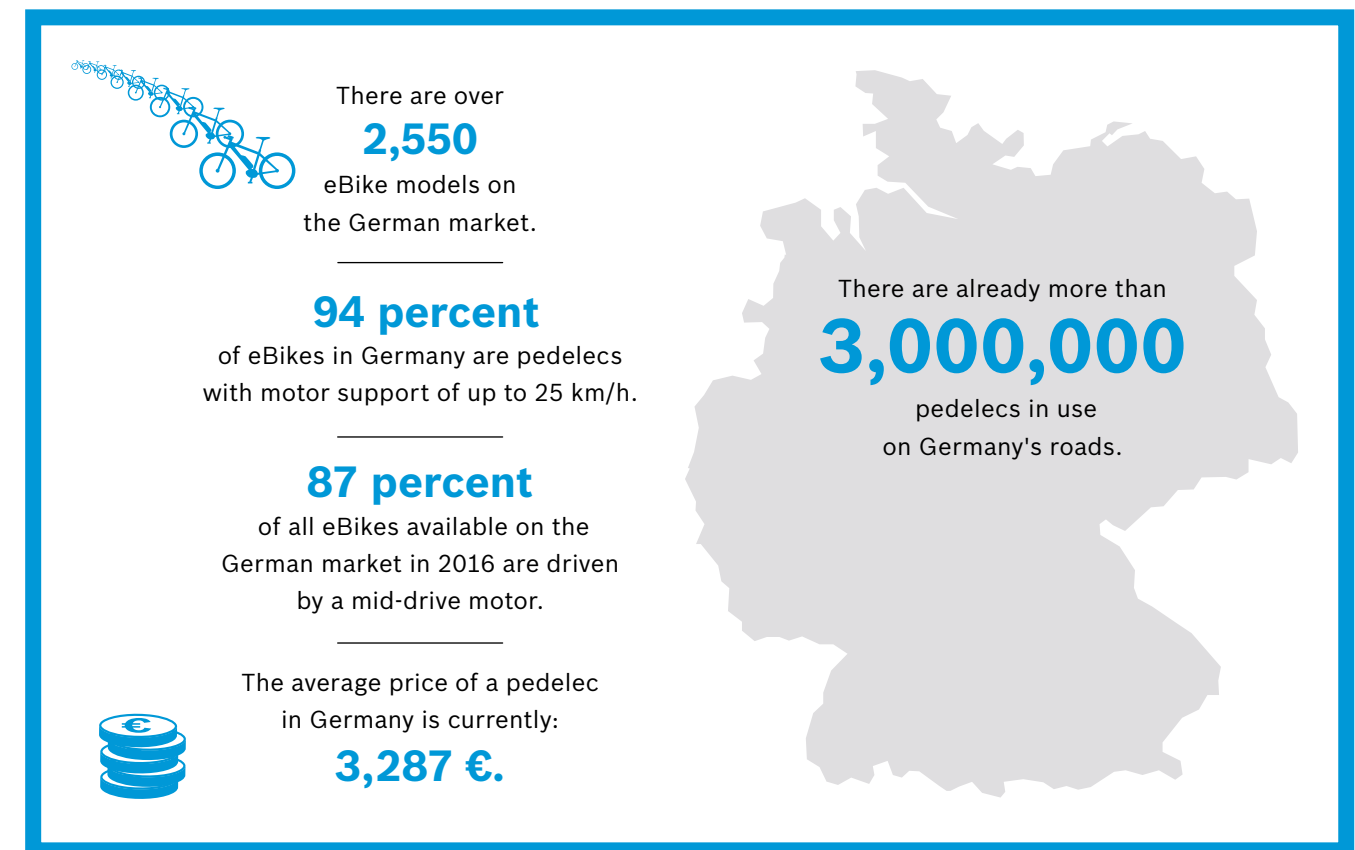
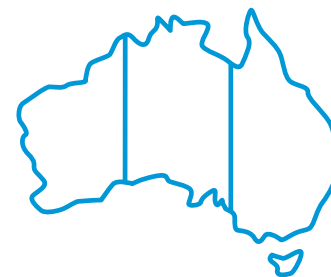
The pedelec is the fastest mode of transport for these distances in urban traffic.



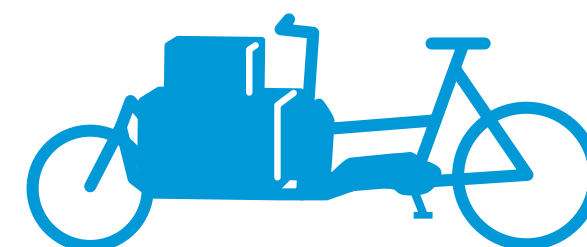
The amount of energy a pedelec requires to cover a distance of **10 km** is the same as that needed to bring 0.7 litres of water to the boil.



One of the longest eBike tours in the world: **16,000 km**, three time zones, a round trip around Australia.



Potential for Europe's major cities: **51%** of motorised transport trips could be moved to bicycles or cargo bikes.



eCargo bikes can carry up to **200 kg***



Should we copy Copenhagen?

Mobility connects people, urban centres and ideas. 200 years after the invention of the bicycle, we have arrived at a decisive crossroad: the **start of a multi-mobile era.** It will transform our cities.

Despite “only” being an urban planner, Mikael Colville-Andersen is often celebrated like a star. Admittedly, the Copenhagen resident is anything but ordinary. He is considered one of the most influential members of his guild worldwide. This is due to the fact that, jointly with Gehl Architects, the trained film maker has succeeded in making a miracle come true: there is hardly another city that promotes cycling in such an exemplary manner as Copenhagen. An increasing number of cities have started to follow suit – from Detroit and Berlin to Almetjevsk in the Russian region of Tartarstan, from Buenos Aires and Seville to Rome and Ljubljana.

The network of cycle paths in the Danish capital covers a total distance of 375 kilometres. Cyclists here cover 1.4 million kilometres each day, at an average speed of 16.3 kilometres per hour.

One thing is clear: bicycles and eBikes offer unprecedented opportunities for society and the environment. In a study, the US Institute for Transportation and Development Policy analysed the global potential. If the share of bicycles were to treble worldwide by 2050, energy costs amounting to some 24 trillion dollars could be saved and the environmentally harmful CO₂ emissions caused through urban vehicle and passenger transport ►



Copenhagen

Copenhagen is the world's first “Bike City” and is famous for its bicycle culture. Two third's of the city's residents cycle to work, university or school. A network consisting of “cycle super highways”, including green traffic light phases and garages at intersections, help to make this possible. Louise Vogel Kielgast, who works as urban planner at Gehl Architects in Copenhagen and cycles 17 minutes to her office every day, is enthusiastic: “We truly live in a paradise for cyclists here.”

could be reduced by eleven percent during this period. The transformation also has a favourable effect on the daily freight transport: The use of electric cargo bikes as means of transportation, for instance, helps to reduce the traffic load and the burden on the environment. One precondition for this is “a combination of investment and intelligent fiscal policy,” says Benedicte Swennen of the European Cyclists' Federation (ECF), which promotes cycling as sustainable and healthy means of transportation in society, business and politics, jointly with the Cycling Industry Club (CIC) and the support of Bosch eBike Systems.

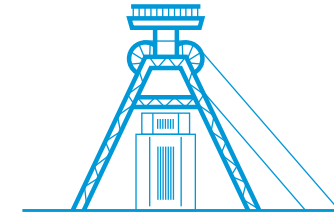
Wolfgang Rid, professor at the Institute for Urban Development at Stuttgart University, believes that another factor also plays an important role in a new culture of mobility: “Because this involves a change in user behaviour across all social classes, an intensive dialogue with citizens is required.”

A well-conceived traffic management system is also vital: In 2016, more bicycles than cars were counted in downtown Copenhagen for the first time. As a result, there are also traffic jams on the cycle paths. The plan now is to introduce intelligent panels that use red and green arrows to signal whether a route is flowing freely or whether cyclists would be better off using alternative roads. ◀



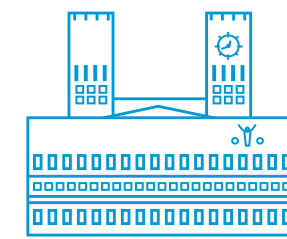
In the Danish capital, more than every second inhabitant travels by bicycle. By comparison: the ratio in Hamburg is only one in eight.

In 2006, the municipal council of Copenhagen set itself the target of creating the most bicycle-friendly city in the world. It worked! According to official information, 25 percent of all families with two children have a cargo bike.



Ruhr area

The RS1 high-speed bicycle roadway is progressing well: in June 2016, the ground-breaking ceremony for the next section was celebrated at Mühlheim central station. Apart from the high-speed bicycle roadway in Göttingen, this is the first high-speed bicycle roadway in Germany and is being constructed between Duisburg and Hamm over a length of 101 kilometres. It connects ten cities and four universities – largely without intersections, with sufficiently wide lanes in both directions and includes lighting and winter road clearance. The “cycle super highways” in Copenhagen, London and the Netherlands served as role model here. One section of the roadway uses the former freight line of the Rheinsche Bahn rail company. The project is due for completion by 2020 at the latest.

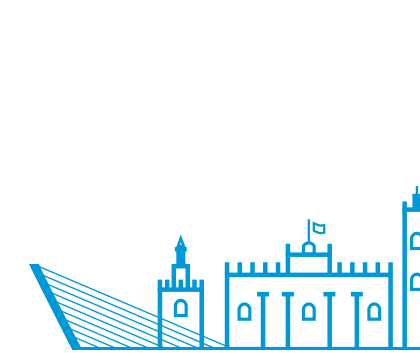


Oslo

Norway is taking cycling seriously: The “National Traffic Plan” stipulates that by 2025, only electric vehicles can be registered as new cars. Now, the capital is to become the “next big thing” for new mobility applications worldwide. A ban on cars in the city centre by 2019 has already been agreed. Last year, urban planners also presented a ground-breaking plan, which is known as “The Oslo Standard” among mobility experts. According to this plan, the share of bicycles in road traffic is to rise to at least 20 percent over the next few years and parking spaces for cars are to be removed to allow construction of more bicycle paths. Electric bikes will be eligible for state funding of up to €1,130 - while public transportation is also to be improved.

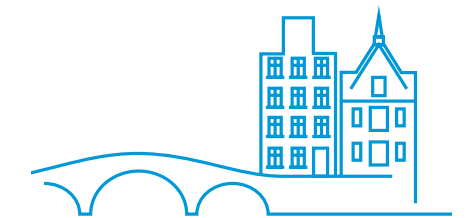
4

further examples from around Europe demonstrate how mobility solutions work.



Seville

In the past, those wanting to ride through the city in the Spanish region of Andalusia by bicycle were considered foolhardy and reckless. This has changed. Within four years, the proportion of bicycles in road traffic has risen from zero to nine percent. “Our recipe for success was the networking a total of 70 kilometres of bicycle paths in two lanes as well as the speed of construction,” explains Ricardo Marques Sillero, one of the pioneers of the untypical cycling revolution in Spain. Today, more than 70,000 Sevillanos cycle on a daily basis. Now, some drive their cars to the edge of the city and then use one of the rental bikes provided at the 250 stations of the Sevici service.



Amsterdam

With 22 million bicycles, the Netherlands already have five million more bikes than inhabitants. The country is exemplary for new urban concepts. This is partly due to websites like “Dutch Cycling Festival”, on which mobility and bicycle experts share their experiences with other cities and municipalities. During the Dutch Presidency of the European Council, the government invited all European ministers for traffic and the environment to Amsterdam in order to discuss intelligent and sustainable mobility – including best practices for the promotion of a cycling culture. In the city, which is considered one of the most bicycle-friendly worldwide, 38 percent of all travel is undertaken by bike today. The cycle path network covers 600 kilometres and virtually all main roads have bicycle lanes on both sides.

Looking good:
Alexandra and Daniel,
both of whom work at
Bosch eBike Systems,
try out the new outfit
on the bike

Functional and stylish

Sports clothing label Maloja has developed a **collection called “eRide”** specially for Bosch eBike Systems staff members.



Ideas for clothing are always the result of a team effort at Maloja. Bosses Klaus Haas (centre) and Peter Räuber (2nd from right) with the their team

From a distance, the building in Rimsting simply looks like a quiet farm close to the shores of the Chiemsee lake. As you get closer to the idyllic location, the surprise is all the greater. In the converted hay barn, designers design fashionable apparel for cyclists and skiers that is now selling worldwide.

Here at Maloja, initial sketches were very discreetly developed for a functional fashion collection aimed at Bosch eBike Systems employees and team riders in 2016. There are three different lines – “Originals”, “Performance” and “Uphill Flow”. Nineteen items are available in all, ranging from soft shell jackets to shorts and socks.

“With our new collection we show what we stand for and what drives us”, says Claus Fleischer, Managing Director of Bosch eBike Systems. “We live biking. This passion should now also be visible to

the outside world. Our new eBike collection allows for a uniform look, promotes identification and establishes a high recognition value.”

Why did Bosch choose Maloja as its partner? “Maloja stands for quality, functionality, design and sustainability – and maintains the highest standards,” explains Fischer. Co-operation is already “more than a one-hit wonder, because we speak a similar language and both sides want to bring some changes to our respective markets,” adds Maloja co-founder Klaus Haas: “The spirit, drive and conviction of both companies are a great match. This just whets your appetite for more.”

Functional wear for cyclists is getting more stylish. Street-wear labels such as Levi’s have started their own lines of cycling wear and British fashion designer Paul Smith has taken to creating bicycle helmets, while trendy Berlin designers ▶

such as Ben Weide are presenting water-resistant business trousers and shoulder-vented business jackets on the catwalk. “There was a time when cycling was ‘working class,’” says Smith. “Today it’s fashionable and hip.”

The new culture of this laid-back and individual lifestyle is conquering significant segments of the fashion industry. Every new trend has its catchwords. In this case, the talk is of ‘Cycle Chic’, ‘City Cyclists’ or ‘Commuter’. Or else ‘Nature Meets Technology’ and ‘Urban Outdoor’, if you prefer.

Many clothing manufacturers are consciously choosing to show their designs at conventional fashion shows.

They are sending a strong signal. Their labels stand for a smart new generation: functional, technically sophisticated, comfortable and pleasant to wear. Trendy and minimalistic. Not flashy, but not drab either.

Brave the rain protected from the elements and go to a meeting straight out of the saddle without having to ‘out’ the functionality of your

However sports minded, his company has always set a premium on expressing itself through its own colours. Today, the Maloja development team comprises 20 men and women. “We were confident enough from the beginning,” says Rauber. Part of that confidence, he explains, lies in cyclists looking well dressed, however functionally. Then, as now, Maloja stands for the good and beautiful things – and for the courage to get off the beaten track and try something new.

Rauber’s business partner and Maloja co-founder Klaus Haas is convinced that eBikers always need specially tailored clothing: “Commuters use eBikes because they can get to the office fast but without all the sweat. This calls for more breathability and wind breaking capability but also greater insulation.”

Haas speaks from experience: “Half my family makes use of the electric tailwind. eBikes have become much younger and more generally acceptable.”



“We live biking. This passion should now also be visible to the outside world. Our new eBike collection promotes identification.”

Claus Fleischer

outfit. Why not?! One of the very first designers to catch on to this trend was Japan’s Hideto Suzuki. In 2007, he and his label Pedaled began to design fashionable urban cycling outfits, which he had manufactured predominantly in Italy from the outset. Because the right lifestyle counts more than ever in the city. No matter whether it’s Hamburg, London, New York or Tokyo.

A recipient of several awards, the Triple2 label offers a collection of jackets, shirts and trousers combining functionality and sustainability. It’s products are made exclusively from merino wool, organic cotton, hemp fibre and recycled polyester. Rapha, the retro bicycle racing outfitters from the UK have launched their own City collection to take you through town in style. Maloja’s boss Peter Rauber is delighted with the search for everyday usability in cycling apparel.

The partly illustrative designs and the colours found in the collection from Maloja and Bosch eBike Systems show how progressive the cooperation partners are in their thought processes. The combination of grey with light and dark blue for the functional employee and team rider kits not only works perfectly in a racing and testing setting, but also looks good at trade fairs, events and customer meetings. The high-quality materials, as well as the workmanship, show what sustainability really means. Slow fashion that doesn’t need to be changed after a single season.

Cycling is not just a physical challenge, but also an aesthetic one. This is true not only for rides by eMountain bike, but also for urban use.

“The demand for cycling gear that really meets both criteria, is getting bigger,” says Maloja boss Klaus Haas.



1 2

The graphic on the “Uphill Flow” shirt (1) is the work of Maloja designer Anne-Sophie Kramer. Zips ensure greater breathability in “Uphill Flow” shorts (2). The “Polo Shirt” (3) creates a uniform look for customer advisers. A love of detail: The tie cord solution on “Originals” trousers (4) stops you getting tangled with the chain. Matching outfits for uphill riders Alexandra and Daniel: trousers and shirts from the “Uphill Flow” line (5)



3



4



5

Get moving, get healthy

What are the health benefits of eBikes?
What points need to be considered?
Interview with an expert on the subject.

Sport is healthy. This is a known fact. Nevertheless, many people do not get sufficient exercise. Almost half of Germans do little or no sport at all. Frequently stated reasons include a lack of motivation or physical limitations. But why are physical activity, fitness and exercise so important? And how much exercise is good for you? What contribution can the eBike make in this regard? Physiotherapist Philipp Hausser provides the answers.

How important is exercise for fitness and health?

Let me begin with a few figures: More than half of the population in Germany is overweight. 400,000 to 500,000 Germans are fitted with a permanent prosthesis every year – and the figure is increasing. Moreover, nearly all Germans suffer from back pain at least once in their lifetime. The most common cause of health problems such as excess weight and joint complaints is a lack of exercise. Whether one considers the cardiovascular system, the joints or even the brain: Sporting activities promote the oxygen supply throughout the body and can slow down ageing as well as degenerative processes. Exercise promotes and maintains health.

How much exercise is good for you?

Daily exercise can prevent diseases. There is even evidence that 15 minutes of physical activity a day is enough to increase life expectancy by three years. The World Health



Philipp Hausser

Physiotherapist and sports instructor

He is a joint partner in two practices for physiotherapy and training. Moreover, he works as an instructor at various schools and training centres. Sport is very important to the 38-year-old, as is a health-conscious lifestyle.



Organisation recommends 150 minutes of moderate exercise per week – i.e. accelerated pulse, getting slightly out of breath – in order to achieve positive effects. In principle: any form of physical activity is better than none at all.

How do you use the bicycle in your work?

Cycling is highly recommendable for people who experience pain when walking because loading of the joints is easier to control with this form of sport. In our practices, we use the bicycle ergometer for getting back into cycling, for example after an operation, to warm up before a training unit, or for endurance training and for losing weight.

What do you see as the health benefits of eBikes?

The particular advantage of the eBike is that the load can be adjusted and adapted to the rider's stamina and state of health. As a result, the eBike offers patients a great opportunity to remain active immediately after joint replacement. You can therefore gradually work your way up to more intensive loads. The electric support enables people who are in poor physical shape to compensate for the prevailing physical situation. Furthermore, the eBike is already being used today in professional sports – for example, by the national football team – for regenerative training sessions or to escape from the everyday football routine.

How can the eBike provide more exercise?

The support provided by the eBike and the rapid progress it makes possible can motivate people to use the “sports equipment” slightly more frequently. Distances also feel shorter on a pedelec. The eBike can also be used for routes that would normally be covered by car, for example for commuting to work or doing the weekly shop. Exercise is integrated into everyday life as a result. For some people, a fitness tracker that shows the specific successes achieved as a result of the training can also have an additional motivational effect. Here, on-board computers which can be attached directly to the bicycle handlebars are available for the



“Cycling is highly recommendable for people who experience pain when walking because loading of the joints is easier to control with this form of sport”, says Hausser

eBike. However, everyone has to decide for themselves what they find motivating. The main thing is that the exercise is enjoyable!

What must be borne in mind when riding an eBike?

The prerequisite for using an eBike is that the rider's joint mobility is sufficient for mounting the bicycle and that their reactions are sharp enough to respond safely to road traffic incidents. Individuals who use the pedelec for health reasons should consult a specialist for advice and have a training schedule drawn up based on a performance test. An ergonomic seating position is a precondition for long-term riding enjoyment and well-being when cycling. It is therefore best to have a dealer check whether the frame, handlebar and saddle heights are appropriate and that everything is correctly adjusted. ◀

10

REASONS

Why an eBike is worthwhile



eBiking is proving very popular. For young or old, for urban or sporty use, the eBike's electric power boost makes cycling more relaxing, you travel longer distances and you reach your destination feeling fresher. What began as a niche movement has become a trend. There are now **3 million pedelecs on German roads**. Opting for an eBike is well worthwhile.

1

The environment benefits

Pedelec users go easy on the environment, especially if they use their eBike on a daily basis. Half of all car journeys are five kilometres or less. According to the Environmental Protection Agency, the CO₂ 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

Headwind is a thing of the past

Who hasn't wished for a little help when cycling on steep mountain roads or into strong winds? An invisible "hand" that provides a gentle push. Tackle slopes or steep climbs almost effortlessly. Mountains are no longer a problem. Headwinds are hardly noticeable. All thanks to the eBike.

3

Perfect for commuting

Would you like to keep fit on your commute? Then the eBike is for you. It is a sporty option. A glance at the statistics reveals that there are 30 million commuters in Germany. 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.

4

Alleviation, exercise, extra boost

Thanks to the even, adjustable assistance 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. You would like to be fit and healthy and improve your wellbeing? An eBike is a step in the right direction.



5

Keeps you fit, makes you mobile

Are eBikes just for those who want to take it easy? Not at all! Despite the power assistance, eBikers still have to hit the pedals to get moving. And it is up to you to decide how much power assistance you want or need. Studies have found that eBikers get on their bikes more often and cover much longer distances than conventional cyclists. So: now is the time to get on a bike with power assistance regardless of whether it's for comfort or for sporty use.

6

Wheely good advice

Could you do without discussions and complaints? No arguments, please? The mood can turn fast when people with unequal physical conditions and expectations set out on a cycling ride together. That is when a little motor can work wonders. Its power assistance equalizes differences in performance and brings people closer together again. The result is that the tour is an experience everyone is happy to repeat. Again and again!

7

Easy on the wallet

eBikes are much less expensive than cars to buy and to maintain. Fuel costs, insurance premiums, car tax or parking charges? Zero. The cost of fuel alone for a diesel-powered car is currently around EUR 7.00 per 100 km. 100 km on a pedelec costs around EUR 0.25. Now that is a genuine saving. Plans already?

8

Fun factor

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

9

Pure mobility

Intermodal traffic? Not the slightest problem with an eBike. eBike to the rail station, take the train and then either use public transportation or rent a pedelec to your destination. With an eBike you are fast and flexible. You can cover distances more easily and increase the radius of 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 either.

10

Something for everybody

The market is constantly coming up with new models and versions. Pedelecs are capable of speeds of up to either 25 km/h or 45 km/h. eBikes are available for urban or cross-country use, for leisure tours or for summiters with sporting ambitions. There is a wide range from which to choose and the right eBike for every kind of person. You really are spoilt for choice.

We're working for you

Bosch eBike Systems supports projects and initiatives, trade fairs and events promoting economically and environmentally viable mobility. Here's a selection:



PROJECTS AND INITIATIVES

FOR MORE INFORMATION, VISIT
bosch-ebike.com/news



I

BikeHotels, South Tyrol

Ten certified hotels in the South Tyrol offer their guests a bike breakdown service, charging stations, touring folders and special weekly or short stay offers. The hotels also organize guided eBike tours with local professional biking guides trained by Bosch.

bosch-ebike.com/bikehotels



CH

carvelo2go

With carvelo2go, the world's first sharing platform for electric cargo bikes, electric bikes can be reserved and rented by the hour in various towns and communities throughout Switzerland. Bosch eBike Systems supports this venture as a technology partner.

bosch-ebike.com/carvelo



EU

Enduro World Series

The Enduro World Series, considered to be the world's largest and best-known racing series for Enduro mountain biking, offers a special service for journalists. Bosch eBike Systems, in cooperation with Cube, is providing eMountain bikes that will make it easier to transport photographic equipment in order to provide the best possible reporting conditions.

bosch-ebike.com/ews



D

Münsingen Mobility Centre

The Mobility Centre in Münsingen in the Swabian Jura allows tourists to borrow eBikes to take idyllic tours through the UNESCO biosphere reserve. 20 pedelecs with Bosch drive system are available for this purpose.

bosch-ebike.com/muensingen



F CH

Portes du Soleil

Bosch eBike Systems plans to support mountain bike destination Portes du Soleil for the next three years as it develops eMountain bike tourism programmes. There are plans for charging stations, special Uphill Flow trails for eMountain bikers, family trails and the launch of an eMTB trail on the "Pass'Portes" mountain bike tour circuit.



D A

Travelbike

In Germany and Austria, pedelecs equipped with the Bosch drive system are available at over 670 ZEG (Zweirad-Einkaufs-Genossenschaft eG) designated rental stations and hire companies, as well as hotels, guest houses, holiday apartments and tourist information centres. Technical consultants from Bosch eBike Systems support the participating providers with instruction and training.

bosch-ebike.com/travelbike



TRADE FAIRS AND EVENTS

FOR MORE INFORMATION, VISIT
bosch-ebike.com/events



CH

Urban Bike Festival

Zurich, 6/4–8/4/2018

Velofestival held in Zurich for the third time. A diverse programme is guaranteed with various testing opportunities, a product exhibition, lifestyle trends, shows, music and street food. As co-sponsors of the event, Bosch eBike Systems is running various events focusing on cycling with electric riding support.



USA

Sea Otter Classic

Monterey, 19/4–22/4/2018

The second Haibike eMTB Race ePowered by Bosch was held at the 2017 Sea Otter Classic event. More than 70 people participated in the challenge: they were required to complete the 4.6 kilometre route four times. There are plans to run the event again in 2018.

bosch-ebike.com/seaotter



I

BIKE Festival Garda Trentino

Riva del Garda, 28/4–1/5/2018

In spring, the 25th BIKE Festival will be held on the shores of Lake Garda, traditionally marking the start of the new mountain bike season. Bosch plans to present a sporting programme for fans of the electric tailwind: riding technique coaching, test trails and a special race format for eMountain bikes.

bosch-ebike.com/challenge

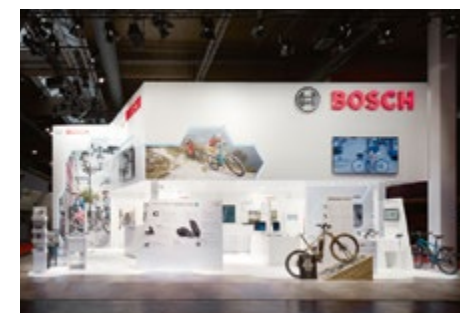


D

E BIKE DAYS

Munich, 25/5–27/5/2018

The third E BIKE DAYS trade fair in Munich will offer eBike fans the chance to see the latest innovations for themselves on an 18,000 square metre exhibition site. Furthermore, all visitors will have the opportunity to try out the urban and eMTB test tracks specially designed for eBikes.



D

Eurobike

Friedrichshafen, 8/7–10/7/2018

The Eurobike is the leading global trade fair of the bike business. Every year, over 1,000 exhibitors from more than 50 countries showcase their innovations in Friedrichshafen on Lake Constance. Eurobike is the place to see the trends for the coming bike season. In 2018 the exhibition will be for trade visitors only.



F

Roc d'Azur

Fréjus, 4/10–7/10/2018

The Roc d'Azur is the largest MTB meeting in the world: The event is held on France's Mediterranean coast and many bikers use it for one last race of the year. The Bike Festival is an attractive prospect, with a host of competitions and the large exhibition area and the 2018 festival is sure to be a winner.

New features 2018

NEW



Active Line

The new Active Line is the smallest and lightest drive and is ideal for anyone who wants moderate support during routine cycling trips. The quiet drive unit provides harmonious delivery of acceleration. It is designed for optimum integration in the bicycle frame.



reddot award 2017
winner



Active Line Plus

The new, versatile Active Line Plus is the ideal companion for eBike excursions beyond the city boundaries. This quiet, small, yet powerful drive unit is the best in its class and offers a significant plus in riding enjoyment, as well as improved handling due to its low weight and reduced size.



reddot award 2017
winner



PowerTube 500

With the PowerTube 500, Bosch offers a rechargeable battery that can be integrated in the bike frame. The PowerTube combines modern design with high-quality Bosch technology, for eBikers who are committed to a clean and timeless look. The PowerTube is easy to grip when unlocked, while a safety catch prevents the battery from falling out.



Nyon

With new maps, new features for route planning, altimeter preview, battery usage and an improved display of the rider's own sporting performance, Nyon is once again setting standards.



eMTB mode

A mode for eMountain bikers: eMTB Mode can switch between Tour and Turbo riding modes. Depending on pedal pressure, the progressive motor support automatically adapts to the individual riding style. This provides for a natural riding experience and maximum performance on the trail.



eShift

The integrated, electronic eShift gear shifting solution ensures greater riding comfort, enhanced safety, a longer range and reduced wear. eShift is available for Active Line, Active Line Plus, Performance Line and Performance Line CX. New this year: eShift specially for sporty eBikes with derailleur systems.



FOR MORE INFORMATION VISIT
bosch-ebike.com

Publisher's information:

The Bosch eBike Systems magazine is aimed at business partners, specialized retailers, bicycle manufacturers, customers and the interested public. The magazine appears once annually and provides information on the topic of eBikes. The 2017/2018 edition is published in two languages (German and English).

Publisher

Robert Bosch GmbH
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Concept, design and editing:

Joint project by
Storyboard GmbH, 2issue and
Neue Magazin Kultur (Munich)

Print

Designpress GmbH

Uphill Flow

The pleasure of getting around the natural environment. To forget time and the world, while still staying focused. At one with our instincts – uphill with the eMountain bike. That's what Bosch eBike Uphill Flow is all about.
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Expand your flow
#uphillflow

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