



SHOW DAILY

2021

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DUAL SPEED.**



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**WHAT TO SEE
AT EUROBIKE:**

**E-CARGO BIKES | COMMUTER ACCESSORIES | MID-MOTOR DRIVE
SYSTEMS | E-BIKE CONNECTIVITY | E-MTB'S | HUB MOTORS
LIGHTS | SADDLE | E-UTILITY BIKES | BAGS | NAVIGATION
...AND MORE**

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NEW FRAME CONCEPTS 2022



MUC.C.al SUV
URBAN SUV CONCEPT BROSE MAG



MMC.L.al Kids
KIDS E-MTB 24" / 26" BAFANG



DRIVE POWER UNIT

DP MOTORS CO.,LTD

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CHANNELON

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M080MD



Power
(w)

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(%)

≥80



Torque
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>80



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Weight
(kg)

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DP is proud to introduce its
new generation mid motor



Front / Rear / Fat Bike Motor 250W~750W 36V/48V



FAREWELL TO FRIEDRICHSHAFEN!

Welcome to a special Show Daily as we say goodbye to the beautiful Lake Constance area, and hello to the metropolis of Frankfurt in 2022. Our team will be there to cover the show as usual, with daily editions.

Here at the last Eurobike in Friedrichshafen, we'll be updating our online news each day at www.showdaily.net



Show Daily Online

EUROBIKE CONFERENCE SCHEDULE

| Date | Conference | Start | End | Location |
|---------------|-------------------------------|-------|-------|---|
| 8/31/2021 | Bike Biz Revolution | 13:00 | 17:30 | Conference Center East, Berlin&Paris |
| 9/1/2021 | Start-Up & Innovation Day | 10:00 | 15:15 | Conference Center East, Berlin&Paris, EUROBIKE Stage |
| 9/2/2021 | Cargo Bike @ Eurobike Academy | 10:00 | 14:00 | Conference Center East, Berlin&Paris |
| 9/2/2021 | Gravel Talk | 15:00 | 18:00 | Conference Center East, EUROBIKE Stage |
| 9/3/2021 | Travel Talk | 10:00 | 16:00 | Conference Center East, Berlin&Paris, EUROBIKE Stage |
| 01-04.09.2021 | Eurobike Academy | 10:00 | 18:00 | Conference Center East & West, Berlin&Paris, EUROBIKE Stage, Österreich |

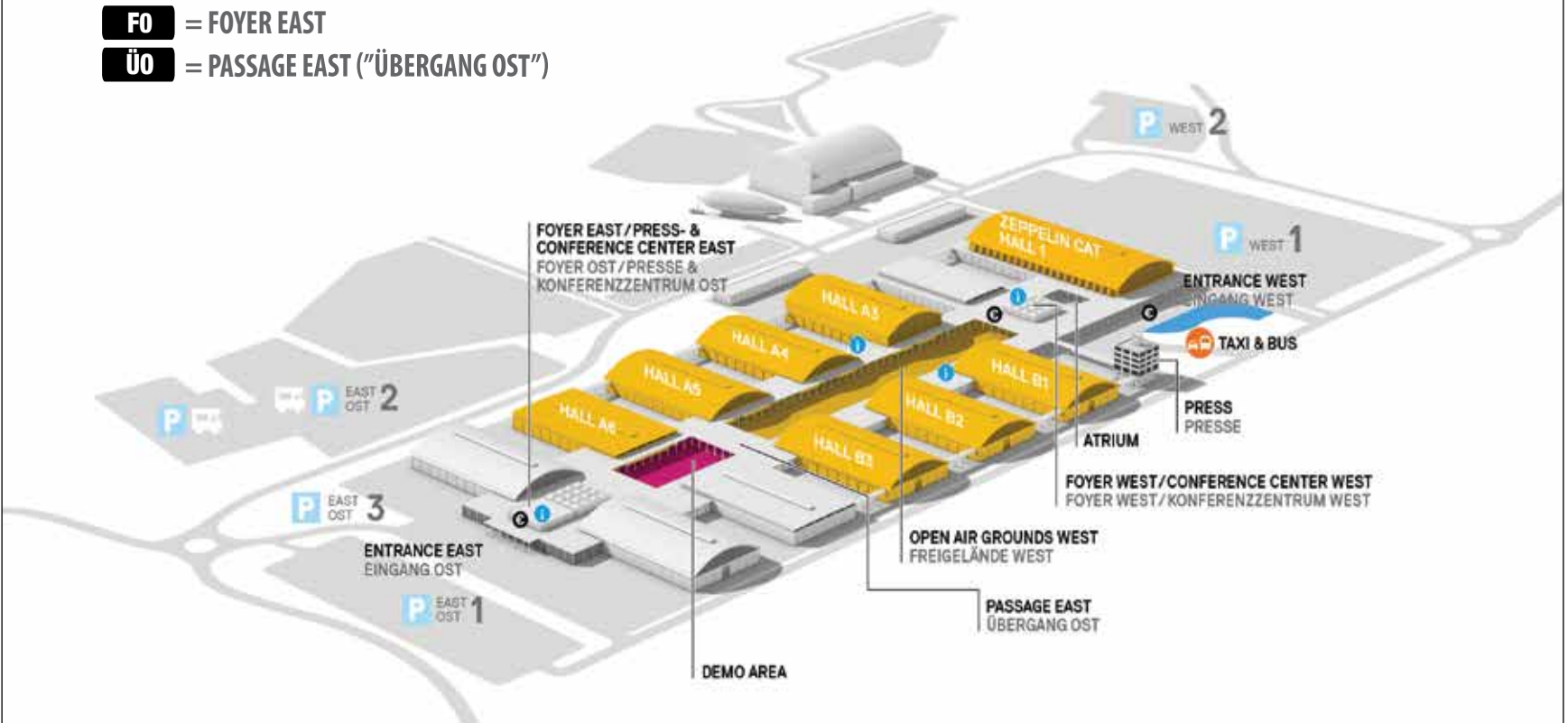
Cover photo: Electric cargo bikes are a big focus at this year's show. This heavy duty Pickup hauler is from German non-profit XCYC [A1-600]. See p22 for our roundup of cargo bikes at the show.

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A GUIDE TO EUROBIKE STAND NUMBERS

- A & B** = MAIN INDOOR HALLS
- DA** = DEMO AREA EXHIBITORS COURTS
- FG** = OUTDOOR AREA WEST ("FREIGELÄNDE WEST")
- FG-O** = OUTDOOR AREA EAST ("FREIGELÄNDE OST") INCLUDING DA
- FW** = FOYER WEST
- FO** = FOYER EAST
- ÜO** = PASSAGE EAST ("ÜBERGANG OST")



CONEBI MARKET REPORT

RECORD TURNOVER AND GROWTH FOR EUROPE'S INDUSTRY

The last 18 months have seen a massive growth in demand within the bicycle industry. According to Conebi's European Bicycle Industry and Market Profile Report, sales skyrocketed by 40 percent in 2020, indicating that the bicycle industry has been profiting from the pandemic.

There have been various reasons for the significant growth in demand that Conebi's report shows. Commuters have been avoiding public transport out of fear of the pandemic. Families have spent their holidays discovering their own country on bicycles due to travel restrictions. And governments have been investing in temporary and permanent improvements of the cycling infrastructure, making this choice of

mode of transport safer and thus more attractive. These factors have resulted in a record turnover of EUR 18.3 billion – a huge 40 percent increase when compared to 2019.

According to Conebi, the number of bicycles sold in 2020 in the 27 EU states and Great Britain grew by 10 percent, from 20 to 22 million units. E-bikes showed a massively stronger growth at 32.3 percent. And of the

4.5 million e-bikes sold in 2020, 3.6 million units or 75 percent had been produced domestically. The turnover from e-bike sales grew by a whopping 52 percent to EUR 10.6 billion – or more than half of the total turnover. Still, only about 20 percent of the bicycles sold were e-bikes – or 4.5 million of a total of 22 million bicycles sold.

In other words: almost 80 percent of bicycles sold were still conventional models without an electric assist drive, ranging from children bikes to utility bikes to sports-oriented models. And since the number of conventional bicycles produced in Europe only grew by 6.5 percent in 2020 and by 20 percent since 2017 according to numbers of Eurostat, the market share of domestic producers has to be a lot lower in this segment. Naturally, the average price per unit also is a lot lower.

As for the components and parts segment, the turnover in this segment grew by 50 percent to EUR 3 billion, according to the Conebi report. There are two reasons for this: firstly, European manufacturers have been increasing their output in order to

meet demand, and given the huge issues with logistics and sea freight in particular, resorting to European manufacturers and suppliers has been a popular strategy. The second reason for the massive demand is the numbers of consumers who brought their old and worn-down bicycles to repair shops so they could restart using them after a lengthy break.

Last but not least, the number of jobs linked to the bicycle industry grew by 30 percent last year, which is good news for pretty much everyone involved. ■ LVR



Bike Fun International factory in the Czech Republic



Moustache Bikes in France

Kettler's planned production facility in St.Ingbert will open in 2022



INVESTMENT IN EUROPE

THE RACE TO KEEP UP WITH DEMAND

The massive surge in demand caused by the Covid-19 pandemic has overwhelmed existing production facilities. As a result, many players within the industry are investing substantially in order to crank up production in Europe and meet the high demand.

Ongoing trade disputes between Europe, the United States and China have caused a push for the reshoring of the industrial production of bicycles, parts and components. Even before demand went through the roof due to the pandemic, big players made moves to invest substantially in Europe. Fitting examples are the Giant Group's new assembly plant in Gyöngyös, Hungary, Bafang's assembly plant in Wrocław, Poland and Merida Centurion massively expanding its existing assembly facility in Hildburghausen. These all served to bring production closer to the markets, to cut down lead times and to reduce the carbon footprint of the production.

As a part of the Zweirad Einkaufs-

genossenschaft (ZEG), **Kettler Alu-Rad [A6-302]** has seen its current plant in Hanweiler with its 150 employees running at full capacity. Now Kettler Alu-Rad has decided to invest approximately EUR 70 million to build what it calls "one of Europe's most modern production sites for e-bikes and conventional bicycles" in St. Ingbert, just 25 kilometers away from its headquarters. Scheduled to open in late Summer 2022, Kettler Alu-Rad expects the additional factory to run at full capacity in 2023, creating an additional 300 jobs.

Another big investment move that created a stir within the industry has been the joint venture of Pierer E-Bikes

and Maxcom, one of Bulgaria's leading manufacturers of bicycles. With a volume of EUR 40 million, this new assembly plant to be built in Plovdiv is a significant investment that aims at a production volume of more than 300,000 bicycles per year. Following the strategy to set up entire supply chain clusters in close proximity, Pierer E-Bikes and Maxcom are inviting parts and components manufacturers to set up shop at the site. With KTM Fahrrad [A6-200] another well-known European manufacturer has announced to expand its headquarters, investing EUR 30 million with a special focus on the assembly of e-bikes and creating up to 300 additional jobs.

In Portugal, the industry federation

Abimota [A6-404] has been supporting the push to expand production facilities under the Portugal Bike Value initiative. The latest noticeable investments there are Carbon Team's state-of-the-art factory for carbon frames that has been funded by European and Taiwanese manufacturers and Sram expanding its Coimbra factory to produce up to 200,000 pairs of Time Sports pedals per year. Last but not least, **Magura [A3-301]** has opted for a different way of investing: rather than expanding its factory, it has made a step towards vertical integration, buying a key supplier in Heuschkel Druckguss, a specialist for industrial die casting. ■ LVR

Miranda

The European Bike Fundamentals.



A6 - 404

www.mirandabikeparts.com

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THE VIEW FROM ASIA

TAIWAN MAKERS WELCOME EUROBIKE MOVE TO FRANKFURT

The Eurobike Show Daily asked industry players from Taiwan what they thought of the show's move to Frankfurt in 2022, how the Covid 19 pandemic is shaping their plans for the future, and what new products they are bringing to market.

For Beto's chairman, Lopin Wang, the disruptive effect of Covid on the supply chain has been significant, slowing the pace of Beto's product development considerably. He feels that although the pandemic will eventually fade away, it will continue to impact people's thinking, particularly in relation to social distancing. "At Beto, then, we are moving toward more outdoor and family-oriented products such as trailers, camping water purifiers, and hitch-mount bike carriers," he said.

Tern Bicycle's Josh Hon believes the pandemic has shown people the value of simple living in which bicycles play an important role. "We're also seeing massive weather-related disasters caused by climate change this year. The world is slowly waking up to the reality that we have to change how we live on the planet and reduce carbon output," he said. "As a result the demand for bikes and accessories is sky-high."

Tern's product development is especially aimed at getting people out of cars and onto bikes. "We continue to focus on making bikes and accessories that encourage people to switch trips from cars to bikes. In many developed countries, half of all trips are less than three miles or five kilometers. That is a ridiculously short distance to drive a two ton metal box. A bicycle (and even more easily an ebike) is a no-brainer replacement for such short trips as long as the bike is designed to carry some stuff or a passenger or two.

Our last bike launch was the second-generation GSD, a compact cargo bike that's the same size as a regular bike but which can carry an additional adult passenger, two kids, or 100kg, or cargo. That bike has been well received and we've got a lot more exciting bikes in the pipeline. Josh is looking forward to the move to Frankfurt. "We'll definitely miss Friedrichshafen after something like two decades there but it'll be exciting to be in a new city. July is OK for us," he said.

Neco Wang, Neco's General Manager, is also positive about the move to Frankfurt as he feels that the more convenient transportation will result in more industry people attending. Neco Group's acquisition of Lingbei Motor Technology in 2019 means continued expansion into mid- and hub-drive motors along with the development and manufacturing of complete systems. "Continuous innovation and development to meet market demand is our goal," he said. "The explosion of orders, skyrocketing costs, shortage of containers and so forth, all tested our team's ability to respond and coordinate. But we have nevertheless been able to deliver products on time at a reasonable price."

The Vice President of A-Pro, Sher Shen, lauds Frankfurt's convenient transportation and abundance of hotels. "Bringing the exhibition date forward to July is fine, with no impact on OE factories. There may be some impact on the bigger brands' Dealer Shows however," she said. "I see steady growth ahead for the bicycle industry as we emerge from the pan-



Lopin Wang, Chairman of Beto



Martin Hsu, General Manager of Kind Shock



Neco General Manager Neco Wang



Taya VP Jill Wu



A-Pro VP Sher Shen



Peter Huang of San Fang

demic. I expect we'll see changes in the popularity of various bike categories with commuter bikes increasingly replacing cars. Bike design will focus on comfort and versatility." A-Pro's product plans are extensive. The newly launched eMTB suspension frame, ONCA6.0-CA-S 29er, has a unique four-link pivot point (RDP) patented frame design, which can flexibly switch between two suspension strokes on the same frame allowing maximum optimization to different riding conditions. It also takes a large-capacity battery. Rim rigidity is increased by 102% and impact strength is increased by 19% on the E-GRAVEL rim R001-C42CL.

A-Pro's X-FUSION brand has launched the MIG Series shock-



Josh Hon, Tern Bicycles

absorbing front fork, which can be used in E-MTB and E-CITY models to enhance product compatibility.

In response to market demand, A-Pro also plans to increase production capacity. Ongoing projects this year include the creation of a dedicated e-Cargo production line in the Apro Taiwan plant. "We are also in the process of completing a new plant in Vietnam this year with a third aluminum factory to be completed there in 2023. A third factory will also be added to the existing Shenzhen complex in 2022," she said.

Jill Wu, the Vice President of the Taya Chain Group, is looking forward to the impending move to Frankfurt. "I believe that the brand-new experience and convenient functionality in Frankfurt will help the bicycle industry develop new business opportunities", she said. As for Covid, Jill says that the pandemic has

pushed many European governments to vigorously promote bicycles and electric bicycles in particular, which has resulted in huge sales boost for the bicycle industry. "This is a turning point, but it's also a huge challenge at the same time," she said.

In response to market demand, Taya Chain has begun to implement capacity expansion and build an internal production management cloud service application system. At the same time, it has launched a full range of product lines for various electric bicycle specifications, and improved quality control standards to exceed the expectations of e-bike manufacturers.

On the product front, the Rollerless Chain Series, which increases wear resistance to extend chain life, reflects Taya's commitment to reducing carbon emissions in the manufacturing process. In order to meet bicycle brands' increasingly stylized design requirements, Taya also provides customized parts development and surface treatment services. Their exclusive GST anti-rust technology can hold rust at bay for up to 25 years and can also be finished in matt black. It all adds up to a one stop shopping solution.

Kind Shock's GM, Martin Hsu, is completely in favour of a Frankfurt-based show. "Much better," he said. "It's much more convenient." As for Covid 19, "Bottom line, bicycles are good for the world, good for the environment; and the pandemic has been the icing on the cake with more people on bikes for commuting and leisure than ever before." KS new product development will focus on a variety of dropper posts for city, commuting, and cyclocross bikes. "Ragei-S is our newest addition to the line up. The original idea was to put it on electric city bikes, electric commuter bikes, and hardtail eMTBs. However, the main increase in demand has been for 34.9mm in the electric bike market and we later found that it is also suitable for gravel bikes. So 34.9mm across the range will become one of our main projects in the future," he said.

San Fang Chemical, one of the largest synthetic leather manufacturers in the world, will exhibit for the first time at Eurobike in 2022 as they expand their footprint in the bicycle industry. Established in 1973, San Fang's products have come to be extensively used in bicycle saddle manufacturing. The company's non-toxic "vacuum forming films", Aegiskin, and Alephab, are their latest products. Aegiskin is chemical and abrasion-resistant. It also has a high degree of hydrolysis-resistance. Its four-way stretch is unique, allowing high extension without the material splitting which makes it especially suitable for automated mass production. Because Aegiskin does not use solvents and plasticizers, it lacks a pungent odor and also contains antibacterial properties. It has passed EU environmental protection regulations such as SVHC, RoHS, and PAHs. ■ GR/SD

EUROBIKE MOVES TO FRANKFURT FOR 2022

NEW DATE, NEW VENUE, NEW DYNAMICS?

Through a joint venture with Messe Frankfurt called fairnamic GmbH, Messe Friedrichshafen aims to consolidate Eurobike's position as the world's leading bicycle trade show. In 2022, the show moves to a mid-July date. And after 30 years at the shores of Lake Constance the venue will change to the bustling city of Frankfurt am Main.

For three decades the bicycle industry, distributors, media from all over the world and European bicycle dealers converged on Friedrichshafen. In the very South of Germany the Eurobike show served as a stage to launch new products, meet old acquaintances and to get to know new contacts. But over the years a sizable number of bicycle manufacturers have opted to steer clear of the show, preferring to organize their own pre-order camps in Alpine resorts and invite bicycle dealers to try the new models there. Add to this the fierce competition between German cities to host major trade shows, and the bicycle boom induced by the Covid-19 pandemic, and you end up with a number of challenges.

Messe Friedrichshafen has chosen to actively shape Eurobike's future rather than to watch the erosion of exhibitors continue: joining forces with Messe Frankfurt, a joint venture called fairnamic GmbH was founded at the end of June. This company's main purpose will be the organization and the marketing of the Eurobike trade show. As part of this deal, Eurobike will move to Frankfurt am Main in 2022. This move will facilitate travel

plans and logistics for the overwhelming majority of exhibitors and visitors alike – and for overseas visitors in particular. And since Frankfurt as an aviation hub has plenty of accommodation on offer, the move also promises to get rid of another major complaint of the past.

"The new venue in the center of a large and bustling city rather than in a holiday region reflects a shift in focus of the Eurobike show, away from sports and towards utility bicycles and other forms of (micro-) mobility. We are confident that this will help consolidating the status of Eurobike as the world's leading trade show for the global bicycle business," Messe Friedrichshafen's CEO Klaus Wellmann said. The second big change is the move of the show from September to a mid-July date. Eurobike boss Stefan Reisinger is confident that this move will not be too much of a challenge for the industry: "More and more brands are pushing the dates of their product presentations forwards into July anyway, so that should not be an issue."

Since most apparel and bike wear manufacturers start their preorder



Organised by Eurobike and Bike & Co, the Eurobico event in July proved the popularity of the Frankfurt venue among retailers

season in July, the earlier date is likely to suit this segment of exhibitors well, as Pearl Izumi's marketing manager Andrew Hammond confirms: "The earlier timing picked for next year's show works well for Pearl Izumi's

planning purposes. The question however is whether it works for the bike dealers as well, as they have to leave their shops during high season in order to attend the show."

■ Lvr/BS



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OVERVIEW: ELECTRIC DRIVE SYSTEMS FROM ESTABLISHED SUPPLIERS

MY22 UPGRADES FROM THE BIG MID-MOTOR NAMES

Mid-motors are the most common choice for e-bikes, with a handful of manufacturers dominating the segment. For the 2022 model year, big players such as Bosch eBike Systems, Brose, Shimano and Panasonic focus on sweating the details rather than launching all-new platforms, while Yamaha launches the third generation of its motors.



Panasonic's side color display combines remote control and riding information

In just over a decade, **Bosch eBike Systems [A6-300]** has grown from a tiny start-up under the corporate roof of a global industrial player to a dynamic division of its own. With the fourth generation of its Active Line and Performance line offerings, the German manufacturer has been setting benchmarks in terms of size, weight and power. And with its Dual Battery technology, Bosch eBike Systems has been pushing the trend that more range is always the better choice. After all, one of the most common concerns of German consumers when buying an e-bike is *Reichweitenangst* (range anxiety). So it's no real surprise to see a 750 Wh version of the Powertube battery being added to the line-up. With a weight of 4.4 kilograms, this battery also adds some weight but most importantly extra range.

Also new from Bosch eBike Systems for model year 2022: the German

market leader has also pushed forward the development of its eBike Flow App. From adjusting the support modes to personal preferences to over-the-air updates to keeping track of one's efforts and sharing them with fitness apps such as Apple Health, the app offers a lot of functionality. And for all who prefer a minimalistic set-up on the handlebar, the app turns the mobile phone into a display when the new LED Remote has been mounted. By expanding the functions of the Connect Module, Bosch eBike Systems beefs up the theft protection as well, offering not only an acoustic alarm but also a real-time tracking option that can help to catch bicycle thieves and retrieving a stolen e-bike.

Shimano [B3-300] launched its latest EP8 iteration of its Steps mid-motor in late August 2020, but the news for the model year 2022 is low-key. To cater to



Shimano Steps EP8 Cargo mid-motor

the dynamic cargo bike market the Japanese component manufacturer presents two Steps CRG mid-motors – one based on the new EP8 model with a maximum torque of 85 Nm and one based on the mid-range Steps 6100 version with a maximum torque of 60 Nm. While the hardware of these two motors remains unchanged, the firmware has been optimized for more torque, so handling weights of up to 250 kilograms gets easier. In particular, the cargo versions deliver more torque at low speeds and cadences, so it's easier to get a fully loaded cargo bike going.

Being a manufacturer of both drive systems and drivetrains puts Shimano in a unique position. With the introduction of 12-speed groupsets, the chains and the cogs have again become thinner and more prone to wear. To counter this effect and offer silky smooth gear changes to e-bike riders, Shimano is launching an entirely new line of drivetrains under the Linkglide label. While the XT version offers 11 gears and a massive range thanks to the cassette with cogs counting 11 to 50 teeth, the Deore version has 10 gears and a bit less range. According to Shimano the redesigned cassettes and the special chain should last a lot longer than their 12-speed siblings, reducing the running costs for e-bike pilots. OE customers need to be aware that Linkglide components are not compatible with Hyperglide components.



Bosch eBike Systems adds 750 Wh version of its Powertube battery



Yamaha's new generation drive: PW-X3 motor is 10% lighter, 20% more compact

Another big player, **Brose [A1-404]**, is focusing on filling the blanks in its line-up and expanding on the features that result from advanced connectivity. This is not all that surprising since Brose launched a 630 Wh battery of its own and a selection of displays and control units in the summer of 2019, turning from a motor supplier to a supplier of complete drive systems for e-bikes. Responding to the growing speed pedelec market, Brose is offering its Drive TF mid-motor in a magnesium housing for MY22. This reduces the weight by about 500 grams, and is also 15 percent more compact.

Since the displays launched two years ago come with ANT+ and Bluetooth connectivity, Brose has also been working on its new, free E-Bike app. Available for both iOS and Android systems, this app includes features such as customizable display layouts and support modes. Of course the

smartphone can be used as a display as well, which comes in particularly handy when features such as the route planning with Komoot and Strava-based fitness functions are being used. For OE customers, Brose's app can be further customized to meet specific needs.

With its Cycle Technology division, **Panasonic [FG-O/506]** has been developing electric assistance drives for bicycles since 1979 and set Japan's e-bike standards as early as 1996. In the European market, the cooperation with Swiss e-bike pioneer Flyer has paved the way. This cooperation has been expanded to two more ZEG brands with Bulls and Hercules through the FiT technology platform. For 2022 the line-up and the hardware of the mid motors remain the same for the GX Ultimate version for e-mountainbikes, the sportive and trekking-oriented GX Power Plus and the GX Power unit for the comfort and urban market. But Panasonic has updated the firmware to work with Gearsensor, an electronic device that significantly improves the



Brose is offering its Drive TF mid-motor in a magnesium housing

smoothness of gear changes when using mid motors by synchronizing the power output and the change of gear.

Another novelty is a side color display that combines the remote controls and all necessary riding information. Thanks to the Bluetooth interface, Panasonic now also offers advanced functions linked to the Smartphone – such as Komoot for planning rides and Strava to keep track of workouts. Panasonic has also announced a close partnership with German battery specialists BMZ Group. The goal of this cooperation is to improve the aftersales service and to better support OE customers willing to combine Panasonic

mid motors with batteries from the BMZ Group for their e-bikes.

Yamaha is the only large player on the mid-motor market to launch a new generation of products for 2022 with its PW-X3 motor. The weight of the motor unit has been reduced by 10 percent to 2.75 kg, and the size has come down by 20 percent. Still the new motor cranks out a powerful 85 Nm of torque, and with an axle width of 128 mm it appeals to sporty riders in particular. Also new for 2022 is the small "Interface X" control unit that sits well-protected next to the stem and can be linked up to third-party GPS computers using the ANT+ protocol. ■ **LVR**

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EXPERIENCE

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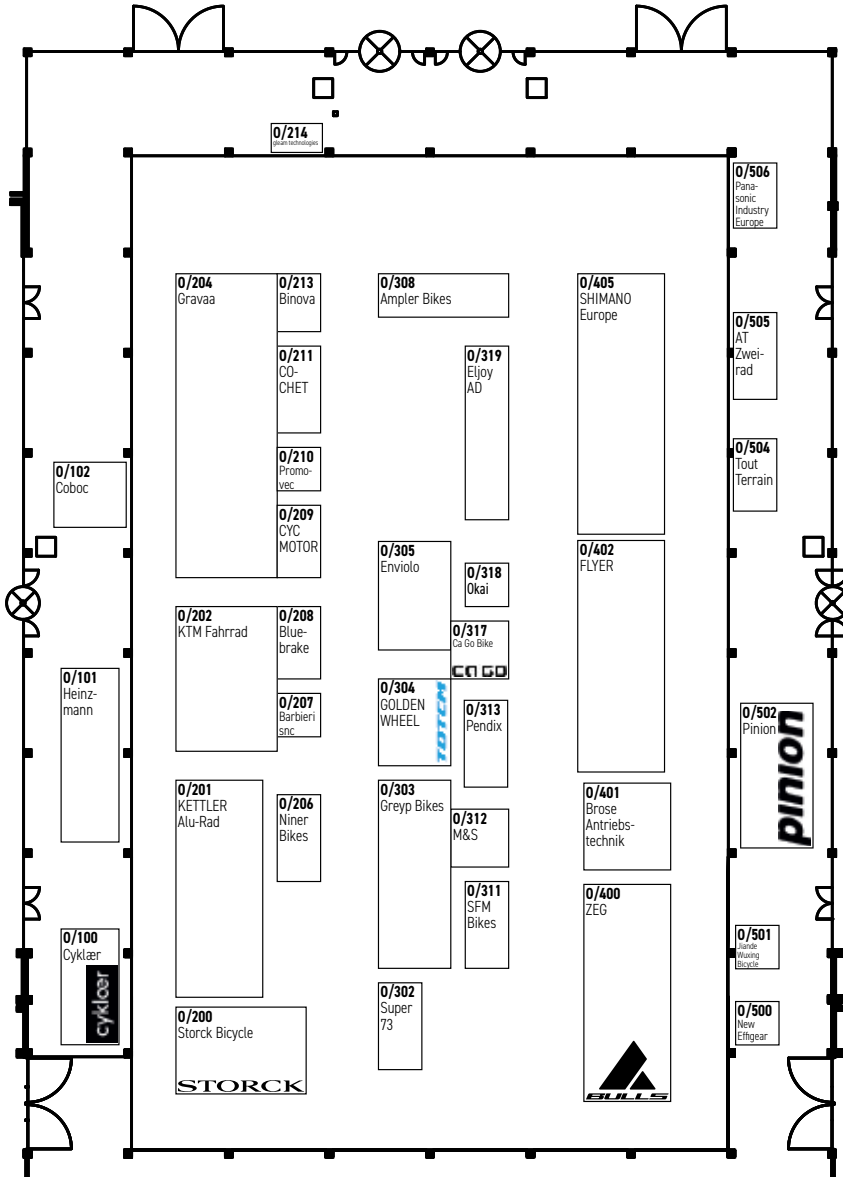


Bosch eBike Systems
bosch-ebike.com



GUIDE TO EUROBIKE DEMO AREAS

FGO OPEN AIR GROUNDS EAST



| STAND | COMPANY/FIRMA |
|-------|-------------------|
| 0/100 | Cyklær |
| 0/101 | Heinzmann |
| 0/102 | Coboc |
| 0/103 | Hermann Hartje KG |
| 0/200 | Storck Bicycle |
| 0/201 | KETTLER Alu-Rad |
| 0/202 | KTM Fahrrad |
| 0/204 | Gravaa |
| 0/206 | Niner Bikes |
| 0/207 | Barbieri snc |
| 0/208 | Blubrake |
| 0/209 | CYC MOTOR |
| 0/210 | Promovec |

| STAND | COMPANY/FIRMA |
|-------|--------------------|
| 0/211 | COCHET |
| 0/213 | Binova |
| 0/214 | gleam technologies |
| 0/302 | Super73 |
| 0/303 | Greyp Bikes |
| 0/304 | Golden Wheel |
| 0/305 | Enviolo |
| 0/308 | Ampler Bikes |
| 0/311 | SFM Bikes |
| 0/312 | M&S |
| 0/313 | Pendix |
| 0/317 | Ca Go Bike |
| 0/318 | Okai |

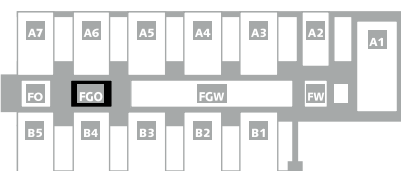
| STAND | COMPANY/FIRMA |
|-------|---------------------------|
| 0/319 | Eljoy AD |
| 0/400 | ZEG |
| 0/401 | Brose Antriebstechnik |
| 0/402 | FLYER |
| 0/405 | SHIMANO Europe |
| 0/500 | New Effgear |
| 0/501 | Jiande Wuxing Bicycle |
| 0/502 | Pinion |
| 0/504 | Tout Terrain |
| 0/505 | AT Zweirad |
| 0/506 | Panasonic Industry Europe |

You can carry out a practical check in the **DEMO AREA**, where bikes can be tested on specially designed test tracks. All kinds of bikes can be found right here: whether it's the latest racing, mountain, cargo and recumbent bikes or the newest e-bikes, e-scooters and pedelecs of the season 2021 - many bikes will be waiting in the Open Air Grounds East to be tested on paved roads, gravel and stony stretches or even single trails.

- **Open Air Grounds East, 09.00. a.m. - 6.00 p.m.**
- **Test track, 09.30 a.m. - 17.30 p.m.**

RENTING TEST BIKES - HOW TO

1. To borrow a bike at the DEMO AREA, you will have to fill in a liability exclusion form at the accreditation counter in the Open Air Grounds East. If you have registered for the DEMO AREA online already, please show your printed confirmation at the accreditation counter.
2. You will then receive a wristband which you must show before borrowing a bike from our exhibitors.
3. It is up to the exhibitor whether a further deposit is required (e.g. ID or passport).
4. You can borrow a helmet free of charge at the ABUS helmetrentalstations. A helmet is compulsory for s-pedelec test riders!



SHOW HIGHLIGHTS

EUROBIKE ACADEMY

The EUROBIKE event area for exchanging the latest specialist knowledge about cycling is perfect for both newcomers and experts in the industry. Whether you are a dealer or manufacturer, a member of the workshop staff or in management - the topics dealt within the EUROBIKE ACADEMY provide expert knowledge about the bicycle world.

- **Conference Center East, EUROBIKE Stage, all-day**
- **Conference Center West, Room Österreich, all-day**

EUROBIKE AWARD

The EUROBIKE AWARD is one of the leading international awards for companies in the bike industry. New and innovative products are evaluated and assessed by an international panel of expert. Due to its transparent evaluation process, the award is an important decision-making aid for consumers and provides independent information about a products' functionality, innovation, workmanship and sustainability. 2021 sees the 16th edition of the EUROBIKE AWARD.

Presentation of the Award EUROBIKE Stage, Wednesday, September 1st, 5.30 p.m.

Exhibition Of The Award-winning products Foyer West, all-day

START-UP

START-UPS, innovation and EUROBIKE go hand in hand. In addition to the EUROBIKE Start-Up Award and the EUROBIKE Start-Up AREA EUROBIKE is offering Start-Ups and innovators a big platform. The START-UP & INNOVATION DAY offers great keynotes, vivid panel discussions and cutting edge insides; seminars and workshops will offer information about financing possibilities, create networking opportunities or will nurture the grounds for future co-operations.

Start-Up Events (Keynote, Panel Discussion, Pitches)

Conference Center East, Room Berlin & Paris and EUROBIKE Stage, Wednesday, September 1, from 10.00 a.m. - 3.15 p.m.

Exhibition Of The Award-winning products Foyer West, all-day

START-UP AREA

The start-ups will be on show in the Passage East. This is where tomorrow's companies will be presenting their product innovations, and welcoming trade visitors and end consumers to their booths. A centrally located bar with lounge area invites visitors and exhibitors to network. The START-UP AREA is the central meeting place for young companies and all people interested in the latest trends in bike business.

Passage East, all-day

DEMO AREA

For one last time in Friedrichshafen, on every day of the show you can try out the newest products, whether they are road bikes, e-bikes of all kinds, mountain bikes, gravel bikes, cargo bikes or any other special kind of bike on our test tracks. Trade visitors, journalists



Find the current daily programme here

and end consumers have the chance to test the bikes in real conditions in the DEMO AREA. The exhibition ground of the DEMO AREA are in the Open Air Grounds East with direct access to our test tracks.

- **Open Air Grounds East, 09.00. a.m. - 6.00 p.m.**
- **Test track, 09.30 a.m. - 17.30 p.m.**

CARGO AREA

The variety and dynamics of all kinds of cargo bike solutions were highlighted at EUROBIKE 2018 in a newly created area for the first time. This year again, many exciting exhibitors are ready for your visit. Alongside bikes for commercial and private use, e-drives, assemblies and other components for cargo bikes will be presented in the CARGO AREA. There will be a guided tour of the CARGO AREA every day.

Hall A1, all-day

Guided Tours: Wednesday, September 1st, 02.00 p.m., Thursday, September 2nd, 04.00 p.m. Friday, September 3rd, 02.00 p.m. Saturday, September 4th, 12.00 a.m.

Meeting point: in the cargo area

E-MOBILITY SOLUTIONS

In hall A1 you will find mainly exhibitors from the "E-MOBILITY SOLUTIONS" sector. Global e-bike suppliers and players from other industries show that the electrification of the bike is in full swing. The focus on the classical (e-)bike is extended into the area of LEV (Light Electric Vehicles) including e-scooters and other micro mobility providers. Digitalization, connectivity, big data and fleet management will be other relevant topics in hall A1.

Hall A1, all-day

SERVICE AREA

More know-how for specialist dealers! The SERVICE AREA in Foyer West offers an additional bonus and a glimpse of the future with the latest software, digital retail solutions, insurance and finance products. Exhibiting companies will provide updates on current topics and developments in the service sector.

Foyer West, all-day

BLOGGER BASE

The EUROBIKE BLOGGER BASE supported by "THE WRIDERS' CLUB" offers international Bike Bloggers a platform to exchange views with exhibitors and trade visitors, detect trends and share them with their community. In addition, the exhibition organizers are offering special tours and talks by and with bloggers.

Foyer West, first floor, all-day

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DANISH CARGO BIKE MAKER LOADS UP RANGE WITH RECYCLED PLASTIC BOX

A white plastic lamp, the lid of a dumpster or discarded kindergarten toys could all be part of the cargo bikes sold by Black Iron Horse, which combine original frames with boxes from fully recycled plastic.

The bikes come from a workshop in Copenhagen run by Lars Leikier, a blacksmith with a particular interest in bikes and sustainability. Two years ago, **Black Iron Horse [A1-601]** came up with a greener version of the cargo bike, with boxes made of entirely recycled plastics. The material for the Pony's box came from the largest plastic recycling firm in Denmark, to make sure it's traceable and doesn't add to the company's carbon footprint. Launching at Eurobike, the latest version is suitable to cart around up to six children in a box from reused plastics. "It's one of the narrowest three-wheel cargo bikes in the market, but with the widest box," said co-owner Jesper Lindahl-Berg. "That way you can carry a greater load and have a safe ride at the same time, thanks to our rear-wheel steering."

Another product added this year is the Ox Cargo, a business bike with a square box to carry loads of up to 175 kilograms. It was conceived in aluminium, but Lindahl-Berg said Black



The Pony in use

Iron Horse will provide an option to get it made in reused plastics.

Black Iron Horse's cargo bikes are assembled in Copenhagen, using frames made in Jutland from Scandinavian steel. They are so sturdy that some of them return to the workshop for service after more than two decades of usage. ■ **BS**

SHIMANO OFF-ROAD FOOTWEAR GAINS FROM NEW SOLE COMPOUND

Shimano is rebuilding its off-road footwear line from the ground up, with the launch of its own Ultread compound to make soles more durable.



Ultread sole

Shimano [B3-300] has been using outsole compounds for its off-road shoes from a partner supplier up to now, but it wanted to be more flexible and reactive, and to come up with exactly the right mix between grip and durability. The focus for the proprietary compound used for Shimano's off-road range was on resistance to tearing after multiple rides. "With Ultread the tear strength has been improved by 20% compared to our previous model, whilst we have reduced the weight of our sole and therefore the overall weight of our shoes," said Evert-Jan Haarhuis, senior

product team manager at Shimano.

Ultread has helped Shimano to entirely refresh the soles of its off-road footwear. The Ultread XC compound is meant for cross-country cycling shoes, to provide grip as well as stiffness and light weight. The second iteration is the Ultread GR, for Shimano's latest flat pedal shoe. The GR's tread fits with the pins and platform shape of Shimano's flat pedals, allowing the pins to anchor in the sole without causing damage. The sole has reinforced areas in the toe and heel to walk more comfortably. ■ **BS**



BirdBike

Supercharged performance from the world's biggest micromobility provider.

The Bird Bike e-bikes are built to move with precision, style and performance perfect for both commuting and longer leisure trips.

Designed to capture the thrill of the ride with best-in-class safety features including integrated LED lights, front and rear Tektro disc brakes and a backlit handlebar dash display.

Offering both V-Frame (step-through) and A-Frame (step-over) designs with a total of four colours.



Place your pre-orders at shop.eu.bird.co with €100 deposit.
€1999 including VAT for both models.

Visit us in Hall B2,
Booth B2-207.



OUTLIERS DOING THEIR OWN THING

E-BIKE MAVERICKS BRING STYLE TO UTILITY

The trend towards mid-motors and integrated batteries has restricted the design freedom for e-bikes. While the models of many manufacturers look very similar, a few brands stand out proudly, doing their own thing and serving the need of style-conscious consumers.



Vello Bike+ Belt Drive folded

A walk through the Eurobike halls will lead past a lot of e-bikes that look very similar apart from the brand logo. The reason for this is that these e-bikes have been built around mid-motors and batteries that fit inside the downtube. But as the e-bikes of most manufacturers look more and more similar every year, some consumers start to look for something decidedly different. One brand to serve this need is **Super73 [B2-302]**. Hailing from Orange County, California and tackling the European market from an office in the Netherlands, this manufacturer mimics the looks of mini motorbikes that were popular in the late 60s and 70s.

The typical features of those mini motorbikes were a frame made of thin steel tubes, a lengthy seat bench and wide tires mounted to small-diameter wheels. All these elements can be found on the e-bikes of Super73 as well. And while early designs relied on a retrofittable motor mounted to the bottom bracket, the drive unit moved to the rear hub in 2019. The battery was built into a mock-up fuel tank for the fully-suspended R-Series and the S-Series with a suspension fork and rigid rear, while the entry-level, unsuspended Z-Series kept the battery under the seat. Speaking of the seat: since there is no

way to change its height, the lengthy bench is welcome to find the right position for an efficient pedal stroke.

At first glance, the Lil' Buddy and the brand-new Biggie model of **Ruff Cycles [B1-400]** may look similar to the models of Super73. And indeed the same mini motorbikes were the source of inspiration for this young German manufacturer as well. Founded back in 2012 by BMX enthusiast Petar "Pero" Desnica to bring some Rock 'n Roll to the bicycle industry, Ruff Cycles at first only sold frames that low rider enthusiasts like Desnica himself could use for their custom builds. The first complete bikes were sold in 2015, and the year after the Ruffian, a stretched-out low rider inspired by California's latino life style, was offered with optional electric assistance. In 2019 the Lil' Buddy was added to the brand line-up.

But Ruff Cycles is not only different in terms of design: From its headquarters in Regensburg, the company insists on keeping all steps in-house, from concept to product design, purchasing, assembly and marketing to sales. This has created over 30 jobs at the headquarters that Desnica calls the brand's manufactory – hinting at the high degree of manual work. Since Ruff Cycles has its steel and



Vello Bike+ Belt Drive



Ruff Cycles Biggie combines style and functionality

alloy frames welded and painted by a partner in Travnik, Bosnia-Herzegovina, another 35 jobs in Europe are linked to the visually striking bicycles from Regensburg. The big news for 2022 is the launch of the Biggie model. Thanks to its larger-diameter wheels, the Biggie combines style and functionality, making this Ruff Cycles model the most suitable for daily use.

From its headquarters in Vienna, **Vello Bike [A3-207]** is focusing entirely on folding bikes. As an industrial designer, company founder Valentin Vodev drew a first design of the characteristic frame back in 2013. To cover all commercial aspects he brought Valerie Wolff on board, and the two relied on crowdfunding to get their idea of a sustainable, innovative and modern mode of urban transport to production. While the fork and the rear triangle of Vello Bike's folding bikes are made of chromoly steel, the main frame is available in titanium as an option as well. Using this platform, the Austrian company builds a wide-range of models. And there's also a wide selection of accessories, from fenders and a front carrier to fitting, branded daypacks and a wheeled transport bag.

For its e-folders (weighing less than 13 kilograms in the titanium version),



Super73 S Series

Vello Bike relies on the Human + drive system from Italian manufacturer Zehus. This all-in-one solution packs the assistance drive, the electronics and the battery into the hub shell. To get the proper gearing for either flat or hilly terrain, Vello Bike relies on planetary drives from Swiss maker Schlumpf. For utility use, there are low-maintenance builds with Shimano's Alfine 11 hub and a belt drive from Gates, and at the Eurobike event the Austrians presented a gravel build with a flared handlebar, Schwalbe's slightly studded Billy Bonkers tires and a ten-speed drivetrain from Shimano's 105 groupset. And for Eurobike, Vello Bike will build a limited edition model with Rohloff's Speedhub 500/14. ■ **LvR**

Meet Portugal Bike Value at **Hall 6**

WHY #1

In 2019 Portugal became the biggest bicycle manufacturer in Europe. Last year, despite the pandemic and the crisis, Portuguese exports grew by five percent and the Portuguese bike industry hit the top spot once again.

The two-wheeler industry has been important in Portugal for more than 100 years. Since 1920, companies have been dedicated to the production of mopeds and components in Northern Portugal, especially around Agueda.

These companies made a bet on mobility. First with bicycles, then motorcycles and in the last years of the 20th century, a return to bicycle production.

Currently, the sector is repositioning itself. Bicycles and allied vehicles are now highly technological products and Portugal is ideally positioned as a production area, thanks to the

investments in innovation that are taking place.

For example, the first carbon frame factory outside Asia has been established in Portugal. Fully robotized welding and painting lines are also well established in Portuguese facilities.

New factories for long tail cargo bikes and other products are opening in Portugal, where development, design, and innovation are a continuing reality.

This is because Portugal has cutting edge factories, highly qualified labor, and is focused on future entrepreneurs. In Portugal it is possible to find vision and equipment, such as testing laboratories, equipped with the latest technologies.

And now, Portugal has foreign markets that recognize Portuguese quality and capacity.



LEA: ABIMOTA laboratory, testing and certifying bicycles and components, since 1994.



ABIMOTA, the association that represents the two-wheeled sector, manages Portugal Bike Value, an initiative that provides representation for the country's burgeoning bike sector, encouraging competitiveness and internationalisation.

Since 1970, **Esmaltina** has manufactured high quality and precision bikes, based on experience and constant monitoring of the evolution of global technology and design.

Incycles is a solution provider for bicycle-based products, providing customers with excellent service

and cooperation for mutual growth based on concepts of global vision, innovation and creativity.

Jasil has 70 years of history. The main activity is the production of parts and accessories for motorbikes, scooters and bicycles. Development of new products, commitment to quality and customer focus are its tools to project the future and new challenges.

Miranda Bike Parts, born in 1950, is Europe's biggest transmission and bicycle components manufacturer. It

exports 85% of its production around the world, and its range of customers includes the world's leading bicycle brands.

NdTuned is a company specializing in all types of suspension and shock absorbers, technical assistance, design and production of products with exclusive and patented technologies.

Rodi is a Portuguese company which operates in the area of metallurgy and metalworking. Its main objective is the manufacture of specialized products of high quality, with a great focus on cycling.

Sangal has 8,000 square meters available for e-bike assembly. It is equipped with two assembly lines, but with room for two more. The total maximum capacity of assembly location is nearly 100.000 e-bikes per year.

Tabor Since 1965, Taborsaddles has been hand-manufacturing bicycle leather saddles, providing a broad range of traditional saddles for men and women. The extreme comfort and distinguished looks make Tabor saddles the product of choice for those aiming for a remarkable quality saddle.

CONTACT US: showroom.portugalbikevalue.pt/



OVERVIEW: E-UTILITY BIKES

PRACTICAL, STYLISH TRANSPORT FOR BUSY URBANITES

The addition of electric assistance is making cycling a more convenient mode of transport and inspiring some new bicycle designs too...

Utility e-bikes are often used to replace a car or public transport as a practical way to navigate the city or just a hectic schedule. A pre-existing genre of bicycle, the addition of electrical assistance has helped grow interest in the segment as the extra support provided by a motor makes carrying luggage or children an easier task. One notable trend sparked by the use of electric assistance has been the return of manoeuvrable small-wheeled machines explicitly designed to fit into busy lives.



The O2feel iPeps includes a robust rear rack as standard

Founded by two French designers, **O2feel [B1-201]** makes a range of slickly engineered city bikes. The iPeps Fold Up 5.1 is its most compact model. The folder's integrated iPowerFit 400 battery can be boosted via the firm's iPowerFit Duo option to deliver a maximum range of 280 km. Driven by a combination of Shimano's E5000 motor and a durable 7-speed Shimano Nexus hub gear system, disc brakes complete the bike's low maintenance build kit. Despite its foldable function and overall small size, the iPeps includes a robust rear rack as standard. Designed with an easy to hop aboard step-through frame, riders will find it straightforward to get both feet onto the ground. Making for a confident and stable ride, this is especially noticeable when carrying luggage.

This year **VAAST [B1-300]** is jumping into the electric market with its must-see E/1 bike. Taking the adventurous spirit of its existing range and transferring it to the city, it's designed to carry its rider and all their daily needs with a minimum of effort. A versatile take on what the modern commuter wants, a step-through frame, sizable inbuilt front and rear cargo racks, and integrated lighting make it incredibly self-contained. Featuring tool-free ride height adjustment, each bike in the range relies on Bosch's well-established Gen 4 Performance CX motor, Kiox control unit, and Powertube battery for its electrical assistance. Available from October, with three different drivetrain spec options provided by



Rohloff, Enviolo, or Shimano, each bike comes with custom heavy-duty cargo holds and Super Nova front and rear lighting. Ensuring both its rider and payload travel in comfort, the entire bike is cushioned by the NAIL'D R3ACT 4-point suspension system, the newest innovation in urban mobility.

Again new for the show, **Greyp's [B1-301]** T5 is an intelligent e-SUV designed to cover the trekking e-bike segment. Perfect for travelling mixed terrain with confidence, it's equally happy commuting at home or exploring new locations on holiday. With front suspension, mudguards, and a QL3.1 or MiK compatible rack, it promises to be both a smooth and practical companion. Assisted by a powerful MPF 6.0c motor with 250 W of power and impressive 90 Nm of torque, its 700 Wh battery allows for an extended range or multiple days between charging. Of course, a Greyp bike wouldn't be a Greyp bike without integrated eSIM connectivity. Letting your smartphone help you navigate and control the bike, its dashboard mode gives easy access to turn-by-turn navigation, terrain-based range, and video recording functions.

The electrical assistance provided on **Ampler's [FG-O/308]** range of bikes is so subtly integrated, you might miss it at first glance. Lightweight and composed of slender tubes, they nevertheless each accommodate a 336 Wh battery and 250 W rear hub motor. Adding support without excessive weight, this leaves them both easy to use and easy to carry. Recharging in a speedy two and a half hours also makes them ideal for commuters wanting to plug in at work. Coming equipped with frame coloured mudguards, plus a rack and kickstand, their finishing kit comprises the sort of components you'd expect



VAAST jumps into the electric market with its E/1 bike.



Greyp's T5 is an intelligent e-SUV for the trekking e-bike segment

to find on a high-end city commuter. This includes continental tyres and Shimano disc brakes. Rounded off with a Busch+Müller IQ2 Eyc integrated headlamp and custom rear LEDs in the seatpost, these smart city bikes can also pair with the brand's equally slick companion app.



Bird A-Frame version with 250W Bafang rear motor and 346Wh/36V removable battery

BIRD BIKES TAKE FLIGHT AT EUROBIKE

Bird [B2-207] might have come to your attention as one of the largest last-mile electric vehicle sharing companies. However, since 2019, it's used its expertise to also develop class-leading vehicles for the consumer market. With its bike-share models acting as an excellent advertisement for its retail solutions, they're now sold in over 40 countries worldwide. Shown here, its flagship machine features a robust construction with an integrated battery powering a 250W rear hub motor, slick frame-based lights, and a backlit handlebar dash display, the bike's wireless connectivity also allows for continuous OTA updates to its operating system. Available with either a step-through or conventional frame, a choice of five colours adds a degree of personalisation to these popular urban bicycles. ■ **JD**



Electric power is subtly integrated in Ampler's Stellar

Germany's **Hartje** has launched QiO, a new brand focusing on compact utility e-bikes. The first model from the brand is called the Eins, a very modern electric utility bicycle featuring a compact step-through frame, space-saving foldable handlebars, and hydroformed aluminium chassis. Available in five different versions, each is driven by a Bosch motor from the Active, Active Plus or Performance lines. Twinned via a Gates belt drive to an internal hub gear system from Rohloff, Enviolo, or Shimano, disc brakes and a coil-sprung seatpost ensure comfort and control. With their radical design complemented by a range of bright, simple colour schemes, each bike is distinctive enough to stand out in the city crowd. Capable of taking

both a front rack and child seat, they promise to be a high-spec solution to the commuting needs of many families.

Timyo Cycles' [A6-205] Muon Performer e-bike is a sporty bike with a slimline silhouette courtesy of its integrated battery. Using a belt drive for silent and low-maintenance operation, its in-built lights produce 80 lux illumination, while the automatic brake alert function adds additional safety when riding in traffic. With nippy handling and aggressive looks, a comfortable saddle and broad tyres ensure rider support. Equipped with mudguards, a kickstand, and a rear-wheel lock, a simple single-speed drivetrain provides an efficient way to add your own pedal power to the bike's rear hub motor. **JD**



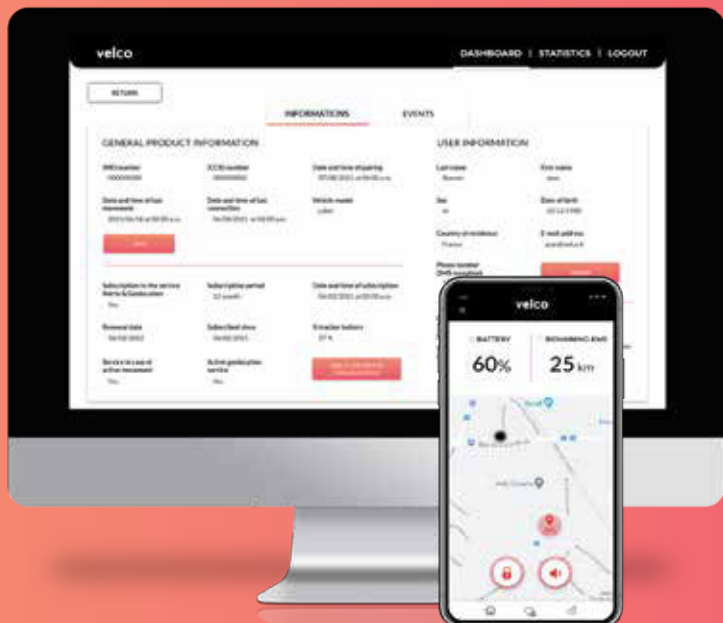
The QiO Eins compact utility e-bike



The Muon Urban e-bike with a slimline silhouette

CONNECTED SOLUTIONS FOR E-BIKE PROFESSIONALS

Let's meet!
Booth A1-304



DIFFERENTIATE

High value services for your dealers and cyclists



RETAIN

Best overall user experience



IMPROVE

Mobility experience and customer support process



ANTICIPATE

Essential data on vehicle performance and usage

OVERVIEW: MID-MOTOR DRIVE SYSTEMS FROM SMALLER SUPPLIERS CHALLENGING THE BIG PLAYERS



Ananda C230: compact dimensions, 2.7 kilograms and over 100 Nm of torque

While the major suppliers of mid-motors try to cover as many bases as possible with their products, there is more variety within the group of smaller players. While some aim to offer more compact and lightweight alternatives, others bank on offering plenty of power.

Positioning itself as an alternative to mid-motors from the big suppliers, Chinese brand **Ananda [A1-305]** has upped its game with its new top-of-the-line C230 offering. Built for use on e-mountainbikes, this mid-motor combines compact dimensions and a low weight of 2.7 kilograms with over 100 Nm of torque. As for the voltage and the maximum watts, OE customers can choose from options for either the EU or the United States. Thanks to the ISIS axle standard the choice of cranks that fit Ananda's mid-motor is abundant, and the tiny TFT display and controller to switch between the five support modes is tailored for off-road use, offering strong contrast for easy readability. As a supplier of complete drive systems, Ananda also has battery solutions that fit into the downtube of e-mountainbikes and offer up to 520 Wh of capacity, weighing in at approximately 3.5 kilograms.

Sachs Micro Mobility [A1-405] was launched as a supplier of e-bike drive systems at Eurobike 2017. At first a joint venture of automotive supply heavyweight ZF with Magura, the BMZ Group and Brakeforce One, ZF took full ownership in October 2020. As the first drive system of Sachs Micro Mobility, the RS mid-motor may not be either the most compact and at 3.5 kilograms the most lightweight motor unit on the market, but with a maximum torque of 110 Nm, it is hard to beat in

terms of sheer power. Due to this the RS motor is an interesting option for e-mountainbikes, speed pedelecs and cargo bikes. For battery power, Sachs Micro Mobility relies on the BMZ Group as a partner, offering a 48 Volt version with a capacity of 650 Wh to fit inside the downtube and a larger battery with a handle and up to 1500 Wh capacity for large cargo bikes. Due to this partnership, the entire RS mid-motor system is available through the BMZ Group as well. In terms of display choices, OE customers have a lot of options since they are being offered an open system with available Bluetooth. And despite being a relative newcomer, Sachs Micro Mobility also has an ABS system that works with the RS drive system.

While Continental decided to shut down its e-bike subsidiary in November 2019 to focus on its automotive business, its French competitor **Valeo [A1-204]** did the exact opposite. Aiming at cargo and utility bikes or sharing fleets, Valeo has opted for a 48 Volt solution for their Smart E-bike System, mainly for efficiency and to cut down charging times. While the mid-motor of this French company may seem bulky at first, its size is due to an integrated adaptive automated shifting



Valeo's Smart e-Bike motor with integrated adaptive automated shifting system



Sachs Micro Mobility RS offers max torque of 110 Nm



Oli eBike Systems

Maxon Bikedrive Air full system

Maxon Bikedrive Air Drive Unit

Sachs Micro Mobility 48V battery with 1500 Wh capacity for large cargo bikes.

Vinka's S20 drive is just 2.9kg

system built into the unit and developed with Effigear. This French company is known for its internal transmission gearboxes for bicycles. In terms of sheer power, the Smart E-bike System has been constructed with more in mind than the current legislation allows for, but of course the mid-motor can be limited to meet legal limits. Without any tapering of the performance, this motor can crank out up to 130 Nm of torque and multiply the riders effort by a factor of eight. Due to these numbers Valeo's drive system looks like a logical choice for heavy cargo bikes for commercial use.

With its **Vinka [A1-210]** brand, Chinese manufacturer Wanjia Electric Co Inc. takes aim at the market for lightweight and compact mid-motors that can be integrated cleanly into the

design. And a look at the relevant data of their S20 drive system indicates that Vinka has checked a lot of boxes with this one: with a claimed system weight of 2.9 kilograms, this may well be one of the lightest mid-motor systems on the market, and still the maximum torque of 60 Nm is more than many other compact and lightweight systems. As for the battery, Vinka has modular options that OE customers can choose from. The same goes for the colour display that has been designed to be mounted centrally and in front of the stem. An app allows for a customization of the support modes, using Bluetooth to connect the S20 system to a smartphone. An interesting twist is that this mid-motor can be set to adjust its support to the rider's heart rate. For bicycle dealers and manufacturers the

app also has IoT functions that allow for a detailed look at the use, mileage and battery charging patterns.

Known as the Swiss guys who built the electric motors for NASA's Mars rover missions, **Maxon [A1-407]** is making a big step towards becoming an OE player in the bicycle business with its Bikedrive Air drive system. First samples of this system were displayed at the 2019 Eurobike. Now this compact drive system for sports applications is ready to hit the market for the 2022 model year. With a claimed system weight of just 3.5 kilograms, the Bikedrive Air system should bring the weight of fully-suspended e-mountainbikes below 16 kilograms and that of e-roadbikes below 11 kilograms, as two sample models from early OE

partners Transalpes and Cipollini Bikes at the Maxon booth show. The drive unit of the system only weighs 1.9 kilograms, fits into relatively narrow down tubes and has an axle-width of 152 mm to 160 mm. With a performance of 220 Watt and a torque of 30 Nm, the support is less powerful than with heavier systems, and at 250 Wh the battery capacity is also lower.

Other interesting options in terms of mid-motor suppliers are the Finnish company **Revonte [A1-101]** with its highly customizable drive system solutions that combine a gearbox and a mid-motor, or the Italian mid-motor manufacturer **Oli eBike Systems** whose drive systems can be found on the cargo bikes of their compatriots **BCargo [A1-609]**. ■ **LvR**

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OVERVIEW: HUB MOTORS

HUB DRIVES MEET BROAD RANGE OF MARKET DEMANDS

Modern hub motors offer some advantages that mid-drive motors can't compete with. Lighter weight, easy to adapt to a bike wheel, and almost as powerful as mid-drive motors, complete hub motor kits are also emerging as aftermarket solutions to convert existing bikes into e-bikes.

Key features to look for include wheel compatibility, position (front or back), rated power, weight, and maximum torque. The recent demand for e-bikes has driven motor manufacturers to broaden their solutions in the category of electric drives to satisfy the requirements of more diverse riders.

Last month **Bafang [A1-303]** added the new H700 rear drive system to its range of hub motors. The H700 is intended for urban commuting and integrates the transmission into the motor to achieve a built-in automatic dual-speed motor. The motor automatically adjusts the gearbox ratio by detecting the speed of the vehicle during cycling, so that the rider can reach a better cadence without manually shifting. The H700 weighs in at 3.2 kg, features a maximum outer diameter of 136 mm and standard Over Lock nut Dimension of 135 mm, and can be adapted to standard e-bike sizes with either belt or chain transmissions. Its 250W rated power meets legal requirements and, with 32 Nm torque, the H700 boasts a strong performance for daily commuting and leisure use.

Zehus [B3-215], the e-mobility division of Eldor Corporation, has adapted a smart Kinetic Energy Recuperation System (KERS), commonly used in motorsports, to its BIKE All-In-One hub motor to allow it to store energy and convert it back to motor power when needed. While this isn't a new technology, Zehus claims that it is the first e-bike system that doesn't need to be recharged. It's called "all-in-one" because it includes the integrated motor, electronics, battery pack, multiple sensors, and Bluetooth connection. What may make the hub motor even more attractive to OEM's however, is its Bitride app, which allows users to customize two of the motor's six power modes, and features a remote control system to lock the bike and access customer care services to — for example, check the drive's performance. Zehus's Eurobike stand will be self-serve while brand reps meet with customers at a private location inside the Messe.

As one of the first electric bicycle drive manufacturers, **Heinzmann [A6-208 and FG-0 101]** has been around long enough to call one of its hub motors the Classic. This modest front hub motor has been successful in the electric mobility sector for decades and has other applications besides e-bikes. More recently Heinzmann developed the CargoPower RN 111 system specifically — and in response to demand — for cargo bikes. The heavy-duty motor has been optimized for heat management so that the system can cope with high loads. The motor's design culminates in increased power and torque density, which also serve to support heavy loads. Similar to Zehus, the CargoPower RN 111 also has a built-in regenerative system that recharges when traveling downhill and when braking, which can increase range.



The Mivice M070 is ideally suited for a road bike



Vinka's RH70 is the go-to motor for hauling cargo

The CargoPower RN 111 from Heinzmann recharges when braking

SR Suntour R250 TA HP's 450W is more than just A to B power assist

Bafang's new H700 drive integrates the transmission into the motor



SR Suntour [A6-401] first entered the e-bike drive category more than 10 years ago with its Human Electro Synergy Components (HESC), which has since evolved into three current models, the R250 HP, the F 250 HP, and the R250 TA HP. All three hub motors would be good options for a city rig to get from A to B with a modest power assist. Maximum torque comes in at either 40 Nm (F250) or 60 (R250 and R250 TA) while power maxes out at 400W for the F250 and 450W for both the R250 and the R250 TA.

Mivice [A1-314] supplies both front and rear hub motors designed for pedal assisted urban, road, mountain bikes, fat bikes, or cargo bikes. The practically imperceptible M070 motor has the same dimensions as most eight-speed hubs. The main body's exterior diameter is 80 mm and can be adapted to either disc or V brakes. The M070 weighs a lean 1.7 kg and can achieve a maximum power of 250W. The slightly beefier M080 fits wheel diameters from 20 inches to 700c and reaches a maximum power of 700W, which makes it suited for an e-mountain bike or a small cargo e-bike. The M090 raises the power to 1000W and boosts the torque to 80 Nm, which makes it the workhorse of Mivice's hub motors. Given its strength and heft (the M090 weighs 4.5 kg), Mivice strongly recommends it for beach, snow (fat bikes), and cargo bikes.

OEM hub motor suppliers, like **Vinka [A1-210]** and **Cloud Drive Intelligent [A1-302]** often bundle their respective hub motors with a controller, torque sensor, and display for a complete e-drive solution.

Vinka will have all its hub motors on display at Eurobike to show which motor is best suited for city, trekking, road, or off-road. For example, the FH30 front hub motor might be best for city or road bikes that could use a light boost while the RH70 would be the go-to motor for hauling cargo or smoothing out steep terrain. Vinka's other hub motors include the RH30, RH40, RH41, and RH60.

Cloud Drive Intelligent has conveniently created two e-bike kits to make the selection process easier, one with its CDHM1 rear-drive motor, and the other with its front hub version. The complete kits include display, motor, controller, PAS (Pedal Assist Sensors), and battery. The CDHM1 is compatible with disc brakes and has a rated power of 350-700W with a maximum torque of 48 Nm. It works with a 7-, 8- or 9-speed cassette, which makes it a good choice for commuter or mountain bikes. The CDHM1 is available in either black or silver.

Mid-drive motor leaders Bosch, Brose, and Panasonic have no current plans to enter into hub motor development, which leaves the category open to further innovation by smaller brands and OEM suppliers. If demand for e-bikes keeps up as it has, we can reasonably expect to see even more variety in the future. ■ **WB**

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OVERVIEW: CARGOBIKES

WORKHORSES FOR ALMOST EVERY JOB



Cargo bikes come in every size and shape, covering different needs from individuals and families to professional logistics. Eurobike's cargo area in hall A1 is well-booked, with the exhibitors ranging from true specialists and start-ups to big manufacturers.

When the cargo area debuted as a special exhibition zone in the large hall A1 of the Eurobike back in 2018, it was relatively small. One year later, it already filled twice as much floor space, attracting a number of new manufacturers such as Ca Go, A.N.T. and Johansson. Two years later the cargo bike market is as dynamic as ever. Incentives such as communal reimbursements for part of the retail price or tax-deductibles are keeping demand buoyant. The same goes for investments in cycling-friendly roads that can be seen in cities throughout Europe and beyond. At the same time, ongoing supply chain issues and high costs for sea freight are a big challenge for manufacturers.

In the light of strained supply chains, some pure cargo bike specialists such as Urban Arrow and Ca Go have made only slight changes to their extensive line-ups in order to maintain production volume. One remarkable addition to the cargo bike market is **Kettler Alu-Rad [A6-302]**: Operating under the roof of ZEG, Kettler has a strong position in the German utility bicycle market. At Eurobike 2019, the brand launched its Cargoline series with a Cargo Line Cruise mid-motor and a 625 Wh Powertube battery from Bosch. Perhaps the most striking detail of the Cargoline series is the Ackerman steering invented by Dutch custom builder Elian Veltman and used under license by Kettler. While this steering needs a proprietary hub, it does away with conventional forks. The large cargo bay of the Cargoline series can be used as a flatbed or to mount various boxes intended for the transport of children or goods. The maximum allowed weight of this cargo bike stands at 250 kg.

German manufacturer **Radkutsche**

[FG-AK/4] is re-launching its "Rapid" Long John cargo bike for 2022. To cater to the needs of trade, messengers and ordinary users alike, this model can be outfitted with a selection of boxes and accessories. And those boxes can be customized as well to match the corporate identity of a trade. For those planning to use the Rapid to transport children, there's a spacious rain cover. Since Radkutsche has opted for Sachs Micro Mobility's powerful RS mid-motor that cranks out up to 112 Nm of torque, this cargo bike is particularly well-equipped for hilly terrain. Thanks to this support the maximum allowed weight of 200 kg can still be hauled uphill. The core business of Radkutsche are heavy-duty tricycles for professional use that can be customized according to specific needs.

Hailing from Tuscany, Italian manufacturer **Bcargo [A1-609]** bets on sourcing the steel frame, the cable steering system, the powerful mid-motor made by compatriots OLI, the canopy made of sailcloth material and the wooden box in Italy, with many other parts hailing from Europe. For the hydraulic disc brakes and the 10-speed drive train, Bcargo relies on proven quality from Shimano. The company's focus on domestic suppliers has been rewarded with shorter lead times in recent months. According to Bcargo's Giacomo Pratellesi the delivery time for the company's cargobikes never exceeded four weeks despite global supply chain issues. Of course, lowering the CO2 footprint is another reason to source within the region whenever possible. As for the flagship product of Bcargo for 2022, Pratellesi points to the 4.0 Family model as a real alternative to a car in urban surroundings.

In a surprise move, newcomer **Johansson [A1-610]** brought a com-



Kettler Cargoline series with Ackerman steering



Radkutsche is re-launching its Rapid model, seen here with rain canopy



Bcargo's 4.0 Family model for 2022: a real alternative to a car in the city



At just over 15kg, a lightweight model from Swedish start-up Ginkgo



Winter CX transport model with 330L aluminum box

prehensive line-up of cargo bikes to Eurobike in 2019, ranging from compact front-loader models to heavy-duty trikes for commercial use. As its steel and alloy frames are welded in Taiwan, this German manufacturer has been impacted by the steep hikes in sea freight costs over the past 12 months. Assembly is done at the company's headquarters in Regensburg. Using Brose mid-motors and locally sourced woodwork for the modular boxes, Johansson is keeping part of its supply chain within the country. The best-selling model to date has been the compact Oscar S trike that combines tilting technology and wishbone steering with two 16-inch wheels up front and a 20-inch wheel in the back. And while all existing models of Johansson carry Scandinavian names, the next model under development will be a longtail model with the very German name of Michel.

Speaking of newcomers, two small brands who debuted in Eurobike's start-up area in 2019 will be back with their interpretations of what a cargo bike should look like. Hailing from Frankfurt, **Convercycle** [ÜO-222] has come up with a construction that transforms from an ordinary bicycle to a cargo bike and back without the use of tools. By lifting the bike's rear, a loading tray that sits between the seat tube and the rear wheel can be unfolded or stowed away, depending on the need to transport goods or to maneuver in tight spaces. As an option, Convercycle offers an electric drive kit with a hub motor up front. Swedish start-up **Ginkgo** [ÜO-301] on the other hand may well be presenting the lightest cargobike, weighing a tad over 15 kilograms. Thanks to its large 700c front wheel and the stretched-out position on the bike, going fast is not only possible on this cargo bike but

almost second nature.

Danish bicycle manufacturer **Winther Bikes** [A1-623] built its first cargobikes back in 2006. The specialty of the brand is tricycles that offer a safe stand for loading – be it groceries, kids or heavy goods. For 2022, the Danes launch the CX transport model that comes with a large powder coated aluminum box with a capacity of 330 liters. Two dampeners on the lockable lid facilitate the handling, and to keep the CX model going when fully loaded Winther Bikes relies on Shimano's Steps mid-motor and an eight-gear Alfine transmission hub. Another specialist for tricycles is Spanish manufacturer **BKL Eco** [A1-627]. Its heavy-duty versions with large standard-size containers for goods have been in use by Spain's national postal services for some years already. BKL Eco has redesigned all aluminum frames with a primary focus on stability, safety and design. And with the TWC model the Spaniards will be launching their first longjohn-style cargobike for families and smaller enterprises at this year's Eurobike show.

Last but not least, German manufacturer **XCYC** [A1-600] fully focuses on heavy-duty cargo trikes for commercial use, offering modular solutions to fit specific needs on a cargo bay area big enough to fit a Euro pallet. The biggest box has a volume of 1500 liters, and you may as well use a trailer to move even more cargo in one haul. XCYC's flagship Pickup Work 4.0 model weighs 100 kg, it can be loaded to a system weight of 300 kg. Thanks to the combination of Rohloff's Speedhub with its full 500 % range and Bosch's powerful Performance Line Cargo mid-motor, you do not need supernatural powers to get this cargo trike moving. And if you're into socially responsible products, XCYC clicks this box as well as the manufacturer is a branch of a non-profit operation. **LVR**



Eco Tricycle from Spain's BKL Eco



The compact Oscar S trike by Johansson



Convercycle: transforms from an ordinary bicycle to a cargo bike and back without tools



XCYC's flagship model, the Pickup Work 4.0

CLASSIFIED CYCLING

RETHINKING THE DRIVETRAIN

1x drivetrains have taken the mountain bike segment by storm, and they are very popular with gravel bike pilots as well. Young Belgian company Classified Cycling [B3-408] says it offers the best of both worlds - by replacing the front derailleur with a two-speed transmission in the rear hub.



Up to now, derailleur-based shifting systems have ruled sports-oriented cycling, with internal gear hubs mostly being used in the utility, trekking and travel segments. The main reasons for this have been weight, efficiency and shifting under load. Thanks to the introduction of wide-range cassettes, front derailleurs have largely disappeared from mountain bikes. In a quest for maximum tyre clearance, many manufacturers of gravel bikes opt for this kind of 1x drivetrains as well. While this saves space, weight and complexity, it also makes for significantly bigger steps between the gears - a thing many seasoned road cyclists can't get used to, as it messes up their cadence and workout.

This is where Classified Cycling's Powershift system comes into play, as it promises to combine the advantages of classic drivetrains and 1x set-ups. At first glance, a bicycle with the Powershift system looks like a 1x build. Only upon closer inspection you may notice the somewhat burly thru axle lever and the unique shape of the rear hub. Making good use of his vast experience building performance transmission systems for the automotive industry, Classified Cycling's co-founder Roell van Druten integrated a compact and lightweight two-gear planetary drive into the rear hub, offering a ratio of 1:0.7 - which results in pretty much the same gears as with a classic road bike crank with two chainrings. Seven years after the company was founded, the finished product has finally made it to the market.

Classified Cycling's commercial director Kristof Verpoorten explains how this works: "We have built our internal two-gear transmission into the rear hub, placing it on the drivetrain side under the cassette. It's actuated by a wireless signal sent from the handlebar module in the drops to the smart thru axle and then the hub, and it's lightning fast as it changes gear in less than 150 milliseconds, with no risk of derailing the chain. The system uses a fraction of the power normal systems use for shifting as the energy required to perform

the shift is not linked or dependent on the energy going through the system. The small amount of energy required is wirelessly transferred from the thru axle to the hub via induction coils." According to Classified Cycling, their Powershift system is on par with top-tier drivetrains with double chainrings in terms of weight. Since there is only one chaining the chainline can be truly optimized. With 90 percent of parts sourced regionally, Classified Cycling also looks well positioned in times of ongoing supply chain woes.

While only the company's own 11-speed steel cassettes were available at first, Classified is offering 12-speed compatible cassettes. The first couple of OE tie-ups were with bicycle manufacturers based in the Benelux region, namely Ridley Bikes, Jaegher and Isaac. The company is now working with German consumer-direct powerhouse Rose Bikes for their gravel flagship "Backroad x Classified" model, as well as launching their own complete wheelsets for both classic road and gravel bikes. These wheels and the fact that existing frames need no radical redesign to fit the Powershift system may well pave the way for the Belgian company to become an important OE supplier. And winning awards both at the Design & Innovation Awards in Europe and at Taipei Cycle Show's D&I awards this year won't hurt either. ■ LVR



BICYCLE CLUSTER: A DEDICATED B2B SEARCH ENGINE FOR THE GLOBAL BIKE INDUSTRY

Bicycle Cluster is a search engine designed specifically for the bicycle industry. Launched in Taiwan in late 2020, the purpose-built platform is a digital information resource advantage for industry partners.

Precise Search, Instant Connection

For each supplier, Bicycle Cluster www.bicyclecluster.com provides a personalized page to showcase product line images and information while communicating breaking news and product information in real-time. Through website browsing analysis, the supplier will have access to market insights, such as traffic, views, queries and overall engagement. As a result, potential customers can be identified, future market trend development tracked and therefore targeted product development and marketing strategies formulated.

For buyers, Bicycle Cluster provides direct classification and keyword search precision to assist with a suit of service, from sourcing to helping R&D professionals queries to enhance mission efficiency and development energy. Through an online real-time chat system, both buyers and suppliers can immediately communicate and execute projects efficiently.

Digital Marketing Leverage, Gateway to centers of manufacturing

Bicycle Cluster serves as an online exhibition throughout the year, connecting the entire global bicycle industry while showcasing product, information and providing in time updates.

Registered members will maintain effective interaction with customers, and release in time new product information whenever necessary. One



stand-out feature of Bicycle Cluster is optimization for buyers, who are able to find suitable products by searching for specifications. For instance, the keywords **e-bike, chain, 12S** will find the E-bike chains you need. Bicycle Cluster is the only platform built with this dimension. Since the establishment of the platform, many manufacturers have already registered and uploaded their products in order to remain visible and accessible in the field of digital marketing.

Alfred Tsai, founder of Bicycle Cluster, says that "Looking to the future, Bicycle Cluster will continue to strengthen its key advantages and develop more functions in response to the needs of our members—becoming a key database of the bicycle supply chain and the best partner of bicycle exhibitions. Through the online exhibition model, all manufacturers can create future business opportunities together under the umbrella of digitization."

E-Cargo Bike

2 x Batteries
Long Tail



EB-JL001LT

“Short Lead Time”



EB-JL046ST



Foldable
Handle Bar

ESA-008+

ESA-350



Dual Security
Mechanism
“EN17128”



10" Tire
Susp Fork
Durm Brake

E-Scooters

JOYLAND SPORTS

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Cycling Bags



BG-EVR367



BG-EVR402



BG-EVR397



BG-EVR263-3



BG-EVR358



BG-EVR087



BG-EVR067

Cycling Helmets



HM-EVC333



HM-EVC222



HM-EVS026-01



HM-EVH043



HM-EVZR01



HM-EVH045



HM-EVZF

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AS THE SMARTPHONE TAKES CONTROL AND CHIP SHORTAGES AFFECT DEVICE MAKERS IS THE AGE OF THE CLASSIC GPS DEVICE OVER?

In the past, every driver had a road atlas, every touring cyclist had a paper map. Then came mobile navigation systems, and now the smartphone brings navigation on the handlebars to everyone. The pandemic-fueled outdoor activity boom saw many people touring by bike for the first time.



Bosch Nyon2 gets new connectivity services and connection to komoot

These cyclists turned to their phones to find their way. One provider in particular benefited from this: komoot, which increased its user base during the COVID-19 era from nine to over 21 million. The annual ADFC Cycling Travel Analysis survey revealed that komoot has even surpassed Google Maps: more than 60 % of touring cyclists in Germany who use an app use komoot. By contrast, suppliers of classic navigation devices such as Teasi/Tahuna (once the best-selling GPS device in Germany) have withdrawn from the market. Garmin has discontinued its Oregon and eTrexTouch handheld devices, so for hikers there are just the GPSMap6x series and the new touchscreen Montana series, which is actually much too big for hiking use. In the wearable and cycling sector, things look quite different. Despite the chip shortage and the supply bottlenecks from China, Garmin recorded its most successful year in 2020, while Wahoo also enjoyed bumper sales.

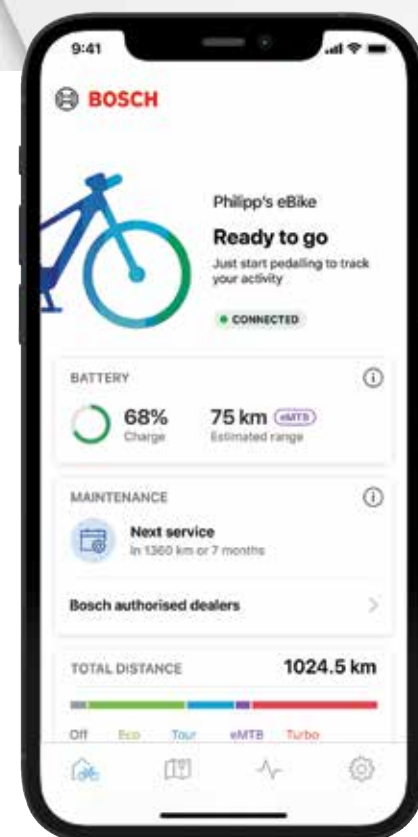
Training devices get smart. Indoor training reached unprecedented proportions during the pandemic – and so did

equipment sales. Wahoo was completely overwhelmed by demand for the Kickr series last year and is now gradually able to deliver again, while Garmin started up its new TACX manufacturing facility in Oegstgeest near Leiden at the end of 2020, helping to ensure orders can be processed. The bicycle trade reports increasing demand for navigation devices – and also for parts and smart services. Stadler, for example, reports that sales of GPS devices are still high. The same is true for the smart biking sector, with demand high for electronic anti-theft devices, accident notification, air pressure sensors, etc.

Component bottlenecks. Well-known suppliers were clearly reticent with new navigation hardware in the 2021 season, as problems grew with component shortages. Top dog Garmin, usually good for several models a year, introduced new fitness and multisport watches, but no new model in its Edge series. Wahoo's Element Bolt2, launched in May 2021, quickly became unavailable. Bosch brought out the second edition of its Nyon on-board computer at the

beginning of 2020, but component shortages mean it is currently practically unavailable as a spare part. Bad news for customers who have to send in their Nyon for repair, because without the Nyon the e-bike cannot be moved. Meanwhile, **Sigma [A5-200]** announced the end of its navigation flagship ROX 12.0. Due to delivery times that have doubled or tripled, according to Sigma, as well as components that are now completely missing, some models are no longer available. Nevertheless, navigation remains an important part of Sigma's product range. Sigma is launching the ROX 2.0, ROX 4.0 and ROX 11.1 EVO as new GPS bike computers.

New at Eurobike. Bosch [A6-300] is presenting a raft of innovations at Eurobike. The eBike Flow app can be used to control the various components of the Bosch eBike system, with automatic recording of activities and a connection to fitness apps such as Apple Health also possible. Another new feature is an LED remote unit that can be used to control a Bosch eBike via Bluetooth even without a display.



Bosch eBike Flow App



NAVIE app by GPS Tuner

GPS Tuner [A1-500] moves into the consumer space with its NAVIE application, suitable for users of e-bikes, e-scooters, or kick-scooters. The standard feature-set from GPS Tuner includes patented technologies like Real Range calculation or Draw and Plan track creator. It will expand the basic route calculation with info regarding the wind direction along your route and the Air pollution index. Meanwhile, the ANT+ and Bluetooth-enabled Coachsmart from **O-Synce [A1-100]** can connect with selected eBikes from Giant, Liv, Orbea [with the Mahle drive] and Specialized [with the Brose drive]. The option of an exact battery display in % is particularly appreciated. Navigation with turn-by-turn directions via the Naviki app is also a popular function. The Coachsmart can also display other e-bike parameters, such as the current support level, input power, speed, etc.

Californian company **Sena [A4-500]** has been applying its communications technologies from the motorbike sector to smart bicycle helmets for several years now. Large groups of helmet users with the mesh intercom system can communicate with each other over long distances, while the new Bluetooth-based Sena PI



Even Sigma's low-end Rox 2.0 computers are equipped with GPS and turn-by-turn navigation

system (Personal Intercom) works with two users. It's a retrofit system that meets the needs of cycling couples who want to talk to each other without stress, even if their partner is riding a few bike lengths away.

Smart biking for OEM; anti-theft components. In the OEM sector, the demand for digital equipment is increasing. Besides navigation and anti-theft devices, other online services are also on the rise, with many start-up companies getting involved. However, suppliers of hardware equipment like **Comodule [A1-504]** currently feel thwarted by the chip shortage. The company says it could take until the middle or end of next year before the supply bottlenecks are overcome. Comodule currently supplies brands such as Gazelle/Kalkhoff, with anti-theft protection playing a particular role here.



Coachsmart by O-synce: wide e-bike compatibility thanks to the ANT+ LEV connection

Innsbruck-based **PowUnity [A1-100]** also focuses on theft protection with a GPS tracker for e-bikes. The firm has developed a new connectivity solution based on the LTE-M radio standard. The new version of their GPS tracker will be available in 2022 and can be connected to the e-bike's CAN bus. CEO Stefan Sinnegger says sales are 30,000-50,000 units per year, with annual growth of 100%. Mobile phone providers are also getting in on the act. In June, Vodafone launched the "Vodafone Curve Bike", a smart rear light with an anti-theft system that can send its current location via an e-sim card. **Combination is the key.** Even if some manufacturers have withdrawn from the satnav market, the need for robust hardware remains, despite all the smartphone use. In the meantime, there are a number of robust outdoor smartphones with protection against drops, moisture and dirt. Although not as clunky as in the early years, they still lead a niche existence. For the decision to buy a smartphone, other criteria are obviously much more decisive than outdoor use. The combination of smartphone and outdoor-ready hardware, on the other hand, seems to be becoming more and more important. Users want to share their services and experiences and use them on several platforms - no small challenge for the classic navigation providers.

■ **Thomas Froitzheim/Naviso**



Powunity's Bike trax system is conquering the E-Bike sector



Garmin touchscreen-devices like Oregon and eTrexTouch-series are vanishing

mk4

BUILT TO PUSH BOUNDARIES

NEW MK4 RIMS AND WHEELSETS

STANS

ROUNDUP: BIKE BAGS

BAGBAR CARRIES URBAN CYCLISTS WITH “PERSONAL STYLE”

If you're a rider with blue fenders and flowers on your helmet, the odds are that you'll want your bicycle bag to fit with your personal style. That's where the BagBar comes in - allowing riders to securely attach and show off almost any backpack or handbag to their bicycle.

Shortlisted for the Eurobike Awards, the BagBar is meant to be attached to a bicycle rack. It swings open to be slipped into the closure of most packs and bags - eliminating the need for the plastic hooks and clips that are often found on the back of panniers. The product was created by Paul Taylor, a Canadian high-precision mechanical designer. He previously made seats for high speed watercraft under the Shoxs brand, but a few years ago he set to work on cycling solutions. His focus turned to carrying options. “Clunky panniers with plastic or metal hooks didn't seem like a particularly great way to do it,” Taylor said.

Taylor created **1Kiind Smart Commuting [A4-209A]** and teamed up with Jeff George, a cycling friend who previously worked with leading ad agencies. George reckons that bicycles are new vehicles for self-expression and that bicycle bags are part of the picture. “This product can

enable people to bring their own style with them every day,” he said.

Taylor and George intend to start selling their products directly to consumers online, and to team up with manufacturers of bicycle bags and racks. “We see 1Kiind as a potential entry point for bag makers that are not currently in the bike space,” said Taylor. As he explained, some suppliers may be interested in exploring the urban bike market but aren't eager to attach metal hooks or other pieces on the back of their products.

Some bags do require small modifications to make the use of the BagBar optimal, such as a few small loops. Although most riders will probably figure out their own adjustments, 1Kiind is creating an app to help users make the modifications. 1Kiind created its own range of bags as well, to showcase the product and to gain more understanding of the



issues faced by bag makers. It will be running a Kickstarter campaign during

Eurobike, with plans to launch online sales shortly thereafter. ■ **BS**



Komperdell packs built on a full protector

KOMPERDELL TURNS AROUND BIKE BACKPACK CONSTRUCTION

An Austrian specialist in poles and protection gear for outdoor sports, **Komperdell [A4-200]** has entirely turned around the construction of its mountain biking backpacks. The family-owned business sells protection systems for motorcycling, skiing and horse-riding. But Thomas Roiser, Komperdell's chief executive, figured there was a need for extra protection for mountain bike riders, as the rise of electric bikes is enabling some less advanced cyclists to go higher and faster.

Roiser was unsatisfied with just inserting a protector plate into a pack. He argues that this creates extra weight and the protector plate often covers only part of the spine - leaving some of the most vulnerable vertebrae exposed. Komperdell entirely revised the construction of mountain biking backpacks. “We use the protector itself, which is made out of foam that we developed, as the back plate of the pack and simply add the cargo on it,” Roiser explained.

The requirements were that the plate shouldn't add any extra weight, it should be washable and provide protection for multiple impacts. The company had already taken a similar approach two years ago for a winter sports jacket with an integrated protector plate -

instead of a separate piece or an insert. It helped that Komperdell, a leading Austrian supplier of ski and trekking poles, has its own manufacturing capacity for protection foams, as well as textile production for its Camaro brand. This made it easier to create a cohesive unit, and to add multiple smart features.

The concept was first used for the MTB Pro pack earlier this year. Komperdell is heading to Eurobike with the MTB Pack, which adds the integrated, water repellent and ultra-light Storm Jacket. It uses a new foam, making the protector about 20% lighter. The expandable MTB Team Pack integrates a two-liter hydration bladder and optional padded cases for notebooks or batteries. It replaces conventional rain covers and protects the rider and pack without extra weight, as Komperdell explains. Roiser said the MTB Team Pack launch at Eurobike is targeting retailers and mountain bikers. But he reckons that the potential in the longer term is even larger in the urban market, where riders are exposed to traffic. Roiser said that Komperdell already makes about 250,000 protectors per year, but that could double in the next eight years with expansion in the bicycle market. ■ **BS**

BASIL PACKS IN ACTIVE LEISURE RIDERS

From flowery handbags to crates and commuter backpacks, **Basil [B2-300]** sells a huge range of carrying options. But the latest trends spotted by the Dutch specialist encouraged it to target leisure riders with even more storage options. The last two years have seen cyclists heading out for increasingly long trips, combining their ride with activities ranging from a swim to a ball game or a yoga session. “We created waterproof and expandable bags with plenty of clever features for leisure riders who want to use their bike for an active day out,” said Basil's Jossie Hunting.

The expandable parts of the Basil Miles Trunkbags XL Pro are the two foldable side bags and the main compartment with roll top closure. That makes for flexible capacity, ranging from 9 to 36 liters. The trunk bag comes with an insulated water bottle pocket and an elastic cord to carry an extra layer. An X-shaped mesh is meant to carry a helmet. The inside has a black mesh pocket, two adjustable dividers and two ice pack compartments.

For even longer

and more active rides, the trunk bag could be used with the Basil Navigator. It's a new waterproof pannier bag made from black tarpaulin and polyester, with high frequency welded seams to ensure that water stays out. The Dutch supplier already sells pannier bags for grocery shopping and other urban rides, but again the Navigator fits with Basil's drive to provide more carrying options for leisure cyclists. “Unlike our commuter bags, which have padding for a computer or tablet, it's meant to carry all the stuff you may want for a leisurely outing, like water and clothing,” said Hunting. With a three-way roll-top buckle closure, the Navigator has a capacity of 25 to 31 liters. Hunting said the bag has a unique reflective and adjustable elastic cord, that's particularly convenient to carry an extra layer or a helmet. Both products use attachment systems and adapters devised by Basil. ■ **BS**



Basil Miles Trunkbags XL Pro

brose

Brose Drive System



+ E-bike system

The Brose Drive System provides the right solution for every intended activity. Our drives, displays and batteries complement each other optimally and deliver a harmonious and natural e-bike experience. As we see it, mechanical components, software and each single rider create a second-to-none team.

Come and see us at Eurobike
Stands A1-404 and FG-O/401

Inform yourself
www.brose-ebike.com



APPAREL ROUNDUP: BIKE SHORTS

SHIMANO DEPLOYS MOUNTAIN BIKE SHORTS FROM UPCYCLED AIRBAGS

When **Shimano [B3-300]** found out that its apparel production partner in Romania was making backpacks out of airbags, it figured that the material would come in handy for cycling garments as well.

That was the starting point for the Revo mountain biking shorts. It takes less than two airbags to produce this garment, using upcycled airbag fabric that mostly comes from German scrap yards, and industrial waste from automotive security system producers. "The shorts could be used by any mountain biker, but the sturdy material makes it particularly suitable for the die-hard mountain biker, the real enduro rider," said Evert-Jan Haarhuis, senior product team manager at Shimano.

As Haarhuis explains, the production of the Revo shorts is quite a complex process, because the airbags have to be disassembled and cut

again in patterns that are adequate for shorts. It's never quite certain how much fabric will be extracted from each airbag, given that it may have been deployed or torn. An advantage is that the structure of the fabric used for airbags has an interesting, somewhat shiny appearance when dyed. Shimano added fabric for the crotch and detachable inner shorts made from entirely recycled stretch material. Even the buttons and the tape of the zippers are recycled.

The project is part of Shimano's moves to make its apparel range more sustainable, using more European production and fabrics from recycled yarn. It helps to reduce waste for the production of durable shorts. As part of the Protect our Playground campaign, buyers will receive a notification that a tree has been planted for them, and regular updates about the plantation. The campaign



Revo shorts from Shimano

is a partnership with Treedom, an organisation that is currently planting 5,000 trees in Madagascar and Guatemala.

Shimano is also showing the Evolve Performante, a combination of bib shorts and a moisture-wicking base layer. "We now have connected the Evolve bib shorts together with a

seamless upper, which makes it really aerodynamic and very nicely breathable," said Haarhuis. Weighing at 216 grams, the product is 35 grams lighter than the combination of bib shorts and base layer. The piece is targeted at long-distance riders, who tend to sit on the saddle for at least three hours, and for gravel riders. ■ BS



SQLab Short One OX

SQLAB'S MTB SHORTS OFFER A PERFECT FIT AND MORE

On a bumpy downhill ride, you probably don't want the distraction of shorts slipping down your backside, or sitting on your hips a little too tightly. That was the brief when **SQLab [FG-A10/4]**, the specialist in ergonomic components and apparel, started working on mountain bike shorts: they should be light, durable, breathable and waterproof – and provide an outstanding fit.

Other shorts often have silicon applications on the back, to make sure they don't get overly revealing. SQLab found another way to ensure that its garment would remain comfortably in place, even on long trail descents. "We got this perfect fit because we use the silicone band not just in the back, we have a whole circle around the waist,"

said Thomas Bachhuber, product manager at SQLab.

The SQLab Short One OX shorts come in seven sizes, to make sure the waistband sits just right. The company used laser-perforated holes for ventilation, water-repellent fabric and waterproof zippers. A little extra that sits well with SQLab's purpose is the front right pocket. It has been designed to hold a smart phone, with added protection from a fabric that reduces electro smog. Bachhuber said that SQLab carried out tests at its own lab, using an electro smog indicator. An initial batch of the shorts reached the market a few weeks ago, and the company will launch them on a larger scale later this year. ■ BS

PEARL IZUMI HELPS RIDERS COMPENSATE FOR CARBON FOOTPRINT

By riding your bike just 15 miles instead of driving, you will neutralise the climate impact generated by the production of your Rove shorts. That is the equation that **Pearl Izumi [B3-301]** worked out for its Pedal to Zero initiative, which encourages cyclists to replace short car trips with rides.

"It's about inspiring people to look at their bike in a different way," explained Andrew Hammond, global director of brand marketing at Pearl Izumi. "The idea is that, every time you want to take your car, you reconsider." Hammond adds that the campaign could particularly resonate with road cyclists who use their bike for leisure. They could make a substantial impact by extending an activity they appreciate for clean transport purposes. "We hope that their car stays parked a lot," said Hammond. Sustainability has been a key part of Pearl Izumi's brand

purpose in the last few years. It has set a goal to make 90% of its product range from sustainable content by 2022.

The Pedal to Zero campaign was launched when the company found out that a module in the Higg Index (a suite of tools for measuring value chain sustainability) enables suppliers to work out precisely the environmental impact of a specific product. It then calculated how far a rider would have to pedal instead of driving to "zero out" the climate impact of a garment. For instance, the Rove Short creates the equivalent of 5.9 kilograms of CO₂, based on a Higg Product Module that covers "cradle-to-gate" impacts. On the basis that a typical passenger car produces 404 grams of CO₂ per mile, choosing not to drive for 15 miles would neutralise the impact.

The implementation of the Pedal to Zero initiative focuses on the

BikeStyle range, which is intended for urban commuters. "It's most aligned to the target of riding instead of driving," Hammond explained, adding that the range should make it easier to integrate cycling into everyday life. For this purpose, Pearl Izumi has used its understanding of performance cycling apparel and applied it for more casual clothing. That is exemplified by the construction of the Rove Short, which has a casual appearance but technical features that make it comfortable for an urban ride. The inseam was moved slightly forward, to make sure it doesn't fall where the rider sits in the saddle. The adjustable waistband allows the wearer to personalise fit, and the cuff can be rolled up to expose reflective elements in the dark. The Rove is made with a blend of organic cotton and nylon, with a touch of elastane to



Pearl Izumi's Rove shorts

provide more stretch.

The Pedal to Zero initiative will be a key part of Pearl Izumi's brand messaging for the upcoming spring range. From next fall, the bicycle mileage required to offset the production of the item will even feature on the label. ■ BS

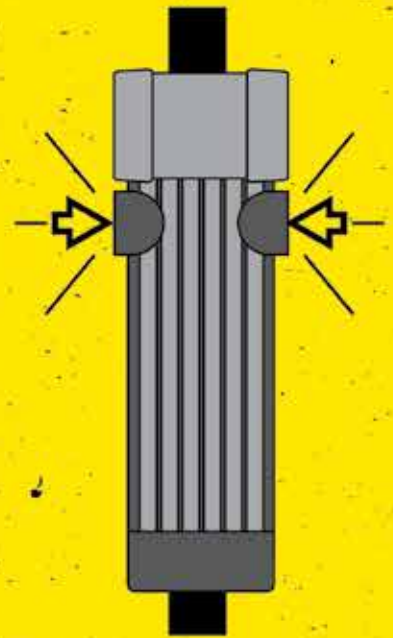
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OVERVIEW: SADDLES

SADDLES GAIN FROM MATERIAL TECHNOLOGY AND ERGONOMIC RESEARCH

A greater understanding of how our bodies move is combining with innovative materials to produce saddles that keep riders comfortable. Whether it's a racing perch that's now better able to flex with the pedalling movements of the rider or a more upright e-bike saddle providing improved support to the sit bones of a commuter on the way to work, everyone is in line to benefit.

Entirely designed and produced in Germany, the 60X Ergowave Infinergy saddle is **SQ-Lab's [FG-A10/4]** latest and most important project. Made to suit conventional and electric mountain bikes, it's a unisex saddle that comes in four different widths, allowing for the perfect fit for any rider. Benefiting from active technology, this allows a degree of lateral movement that increases comfort and reduces strain on the back. Integrated using slimline elastomers, the saddle's carefully considered shape also boosts comfort. Using the brand's Step profile, this has been refined over twenty years. Now medically vindicated, its design ensures pressure is placed to avoid pressing on sensitive structures, while the dip in the middle of the saddle ensures excellent blood supply. Created using BASF's latest Infinergy material, this collaboration ensures that the saddle benefits from the very best German design and technology.

Established for over 100 years, Germany's **Buechel Group [A5-102]** produces a vast range of practical products. Among these is a wide range of saddles, including those made by the well-known Wittkop and Selle Esse brands. One of the latter's more radical products is the recently released Skuba saddle. Split almost its entire length by a pronounced cut-out, this racing saddle for mountain, road, and gravel segments features active energy distribution to balance the forces created by the rider. Even more radically, it's also made to be completely recyclable at the end of its lifespan. Taking an equally ergonomic approach, the Wittkop brand's Medicus and ADA lines benefit from cutaway sections with distinctive airflow channels. Again with an eye on sustainability, increasingly, these too can later be recycled.



SQ-Lab 60X Ergowave benefits from the best German design and technology



Selle Esse Skuba from Germany's Buechel Group

Shimano's [B3-300] component arm Pro has released new variants of two of its most popular saddle range. Both the new Curved and redesigned conventional versions of the Pro Stealth saddle aim to keep you aero for longer. First up, the Curved model is designed for those who shift from left-to-right in the saddle. To match this, the Curved range brings a new shape to the family with a curved profile, extended sides, and a weaved edge to ensure that riders enjoy a fixed position and don't slide back and forth. A new addition that brings the Stealth line up to ten saddles, existing designs have also been revisited. This has seen first-generation Stealth saddles, including the flatter profiled Team and Performance drop weight while getting an aesthetic overhaul to better match the rest of the range.

Given its name, **Ergotec [A6-100]** unsurprisingly specialises in practical products continuously focusing on improving ergonomics. Through its website, downloadable guides, and dedicated bike fitting tools and scanners it also advises riders on how best to set up their bicycles for their own morphology and style of riding. This same expertise is also applied to the brand's range of saddles. Covering Sport, Comfort and Relax models, all



Prologo's Tour de France-winning Scratch M5 CPC model



Velometrik: the first independent referral advisory software for bicycle saddles

are subjected to Ergotec's famously stringent quality control testing.

Not itself a saddlemaker, Italy's **Cybro Ind [B1-216]** creates loud and attention-grabbing bicycles covering multiple segments, including conventional and electric road and mountain bikes, track bikes, and commuters. Its customised road and track machines now come fitted with custom-made saddles from compatriots Selle Repente. Uniquely finished for the brand in a style that mirrors Cybro's aesthetic and performance philosophy, you can see the results of this collaboration on display across the firm's stand.

Saddle specialist **Velo**, one of several leading Taiwanese makers who were unable to exhibit this year, has recently launched a range of new saddles. Among the most exciting is the VL-3575. It features a base designed with a suspension shock absorbing system that extends from the centre to both sides. Allowing the saddle to follow the rider through a range of motion, such as when quickly turning or transferring their body weight, the result promises to be increased comfort and control. Finished with extra thick Airform padding for excellent support, anti-collision protection on both sides of the saddle prevents



Ergotec Comfort Saddle

damage in the event of an accident. Designed for rider's who prefer a wide and comfortable saddle, Velo's VL-6450 features 'Wing Bow' shock-absorbing technology which isolates the saddle's rails from its base. Looking something like the exhausts from a jet engine, its cast aluminium structure can be seen when viewing the saddle from behind. More conventional to look at from



Shimano Pro's Curved model is designed for those who shift from left-to-right in the saddle

above, its patented vacuum technology seamlessly combines the cover, padding, and shell for a fully waterproof construction.

Wandering around the show in search of the latest saddles, visitors might find themselves confronted with a question also faced by consumers; which is likely to be the best fit? **Velometrik [FG-A9/5]** may have the answer. It offers the first independent referral advisory software for bicycle saddles. Allowing shops and fitters to find the best saddle for their customers regardless of the manufacturer. Available via a monthly subscription of 22€, the software currently collates data from over 1,000 saddles from more than 30 manufacturers. Besides digital services, Velometrik also offers hardware, including its Smart Cube digital sit bone measuring tool, which can be paired directly with its saddle advice app. Also offering a Smart Cover pressure mapping device, this innovative German firm is well placed to provide a more scientific route to your next saddle. ■ **JD**



Velo's VL-6450 features 'Wing Bow' shock-absorbing technology

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GEAR ALTERNATIVES TO SHIMANO AND SRAM

EUROPEAN MAKERS STEP IN TO MEET DEMAND

While supply chains snapped worldwide last year, some component manufacturers found themselves uniquely positioned to fill the gaps left by the broken links. Compatibility and “Made in Europe” became the in-demand selling points that were the difference between getting bikes on the road now or six months from now. European-based components manufacturers and new shifting systems emerged to challenge traditional drivetrains and ease some of the strain on supply chains.



Pinion/Neodrives Pineo V10

Low wear, minimal maintenance and manageable follow-up costs have thrust **Pinion [FG-O/502]** into a favorable market position since its founding in 2008. Pinion's fully sealed gearbox combines automotive and bicycle technologies to deliver unprecedented drivetrain performance and reliability. In 2019, Pinion and Neodrives joined forces to present the Pinion X Neodrives frameset, the result of joint development work. At Eurobico in July, the two drive manufacturers presented the latest edition of their e-bike frame platform, the Pineo V10. The aluminum



ROTOR Q-Ring AXS compatible chainring

frameset for e-touring and e-commuting has a slimmer down tube than the previous edition and is compatible with all Pinion P and C line transmissions. What's most significant is the integration of the latest generation of BMZ V10 batteries with 48V and up to 820 Wh in combination with the new Neodrives Z20 rear motors.

The frameset is available in diamond and trapezoidal frames in sizes S, M and L. Pricing is available upon request.

Brands that manufacture parts locally, like cranks and chainrings which are compatible with category leaders like **Shimano [B3-300]** and SRAM,

started to see their volume sales tick upward as people raced toward cycling once lockdowns were lifted last year.

After a few rough years financially, Rotor Bike Components has been on an upward trajectory since September 2020. In addition to its own line of components, the Spanish brand also produces compatible chainrings and bottom brackets at its factory outside of Madrid. This spring saw a series of successive product launches for Rotor, which announced its signature Q-Rings, compatible with Shimano GRX and SRAM AXS, as well as equally compatible round rings. These new products complement existing components that are already compatible with other brands in the category.

Miranda & Irmão [A6-404] has made a name for itself for decades as an OEM supplier of cranks, chainrings, and e-bike parts. Over the last several years, the Portuguese company has taken some bold initiatives both internally and externally to expand its offerings and do it in a more sustainable manner.

Miranda introduced the world's first modular crankset in 2017 and followed that with the lightest dedicated e-bike cranks. Last year Miranda announced the installation of 850 solar panels at its factory in Águeda for a savings of €38 million in energy costs and a reduction of 170 tons of CO2 per year. This spring Miranda and its partners announced the opening of their new European carbon fiber frame factory simply called Carbon Team. All the while Miranda has continued the understated, day-to-day business of manufacturing dependable components and replacement parts without relying on overseas suppliers.

Revolute showed up at Eurobico in July with a new type of internal transmission hub for e-bikes. The hub's six gears feature a 400 percent gear ratio with a coordinated spread designed specifically for e-bikes to enable maximum climbing ability and top speeds. Mountain Aid is the name for the hub's rollback stop feature; to deactivate it, the rider puts the bike in its neutral gear and pushes it backward to disengage the feature. The Revolute

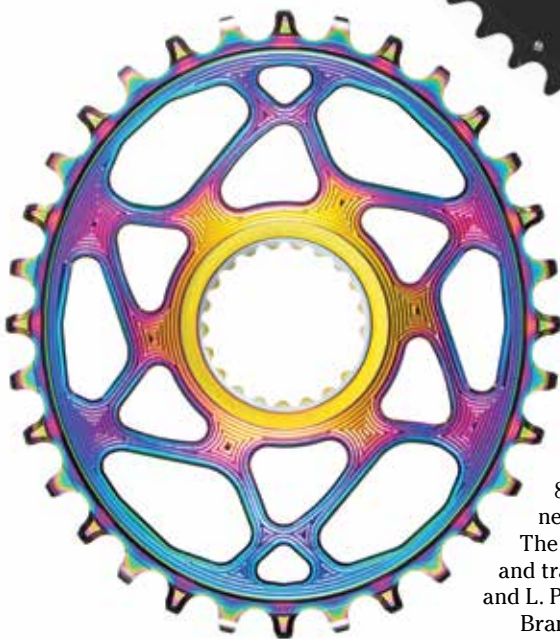


Revolute's new internal transmission hub for e-bikes

hub weighs a lean 1.9 kilograms and is assembled from high quality materials produced almost entirely in Germany.

Absolute Black has gone all in on oval chainrings with a product range that's almost quite literally a rainbow of compatibilities. The company manufactures chainrings compatible with SRAM, Shimano, Campagnolo, Cannondale, and RaceFace at its factory based in Poland. Absolute Black claims to be the largest manufacturer of oval chainrings in the world, which is in line with other superlative claims on the Absolute Black website (i.e. world's best bike fitting services). However, given the skyrocketing demand for alternatives to components made elsewhere, it's not hard to believe that manufacturing shot up as well.

It may be a while until weakened supply chains gain strength, meanwhile some manufacturers have found themselves in strong position to meet new demands for ordinary – and extraordinary – parts. **WB**



Oval direct-mount chainring from Absolute Black

GRAVAA

TAKE CONTROL OF YOUR TYRE PRESSURE WHILE RIDING

After years of developing, GRAVAA proudly presents all-new revolutionary wheelsets, which enable you to adapt your tyre pressure on the go, very fast, extremely accurate and without limitations. This article dives deeper into the technology and the potential gains.



ENERGETIC BENEFITS

Intuitively, the benefits of an optimal tyre pressure are clear: more grip on softer surfaces, lower rolling resistance on harder surfaces.

Nevertheless, users typically want to know what they gain when they consider buying a new product like GRAVAA wheels. The energy loss, when inflating only, is about 4 W per wheel at 25 km/h. The advantages in return depend on various factors. A first study has been done to quantify the power savings by choosing the right tyre pressure on different surfaces.

Test setup

Using a GRAVAA GX-30 wheel, equipped with Challenge Grifo Pro 33 mm tyres, three sections were ridden multiple times. A test rider of 75 kg cycled on rough cobblestones (500 m), smooth tarmac (1400 m) and compact sand (1000 m) in both directions. Elapsed time, distance, riding speed, power, and – of course – tyre pressure were continuously monitored. Tests were repeated at different riding speeds and various tyre pressures. The rear tyre always had 0.2 bar higher pressure than the front tyre in this test.

RESULTS

Riding at 25 km/h with 3.5 bar tyre pressure on smooth tarmac roads, it takes about 12 W less energy, compared to a tyre pressure of 1.5 bar.

On non-smooth surfaces like cobblestone or sand trails, the impact of tyre pressure on the power consumption is much higher. In contrast to smooth tarmac, lower tyre pressures – until a certain limit – result in less resistance. Keeping traction is more important:

- ✓ Lowering tyre pressure from 3.5 to 2.0 bar on cobblestone trails gives a benefit of 32 W.
- ✓ On compact sand, the gain is 49 W (going from 2.5 to 1.1 bar).

CONCLUSION

The impact of tyre pressure is clear as explained above. You need to deliver an average 8W, riding at 25 km/h, while inflating both tyres only. Once inflation is stopped (typically, within minutes), there is no power loss by the KAPS inside. Also deflating 'costs' nothing.

Adapting to more optimal tyre pressure can easily compensate for this temporary power loss: whilst on smooth surfaces the gain is in the range of 10 W (at 25 km/h), on cobblestone roads and compact sand trails power savings up to 50 W were reached in this test. Furthermore, **GRAVAA wheels can keep tyre pressure constant and give early warnings in case of flats. For the first time you will have the option to play with your tyre pressure while riding, endlessly.**



KAPS – THE TECHNOLOGY EXPLAINED

By pushing a button on the wireless control unit, mounted on the handlebar, the tyres can be in- and deflated endlessly while riding. The tyre pressure is managed via an advanced mechatronic system, which is safely stored inside the hub of each wheel. For inflation, a pump is activated which is driven by the rotation of the wheels: kinetic energy creates air pressure. Some key components

A miniature, reciprocal membrane pump

Energy-efficient and of a very small size. The pump cylinders are moved by a camshaft, which is driven by the rotation of the wheels: powered by you!

A pneumatic clutch

The pump consumes only a little energy when switched on. To limit this, the pump is (automatically) switched on/off for you via a pneumatic clutch unit.

Booster valves

During testing it was recognized that a fast response upon a deflation command is powerful: think of hitting a loose sand trail with too hard tyres... Special miniature booster valves enable fast deflation.

Low-power electronics

The complete system is driven by human power only. Low-power electronics allow for communication with our system and control unit. In each wheel a rechargeable battery is inside.

Wireless control

Our system makes use of Bluetooth low energy and ANT+ protocols to enable communication between both wheels, your smartphone, bike computer and control unit.

Control unit and App

Regulate via a wireless control unit, placed ergonomically on your handlebar. By pressing up/down, the system reacts on your commands directly. Settings are done via a smartphone App.



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OVERVIEW: ABS SYSTEMS

WHAT'S STOPPING BICYCLE ABS SYSTEMS?

E-bikes have proven crucial in getting new segments of consumers on bicycles. However, the combination of increased power and weight and less skilled riders may well lead to more accidents. One answer is the use of anti-lock braking systems (ABS), and some innovations in this regard can be found at this year's Eurobike.

Thanks to electric assistance people can ride utility e-bikes without breaking a sweat – or tackle even steeper climbs. The higher weight and the increased dynamics provided by the electric motor also means a greater need for capable brakes. One consequence of this is that most mid- to high-end e-bikes come with powerful disc brakes and often with oversized rotors. While these brake systems are easily capable of handling the higher loads typically occurring on e-bikes, they tend to overwhelm less skilled riders with their sheer stopping power. There are plenty of reports of accidents caused by a loss of control after hard braking, sending riders over the handlebars or making the front wheel lose traction and wash away.

While anti-lock braking systems (ABS) have taken the automotive world by storm, having become a standard feature on new models, the situation is less clear when it comes to motorbikes. The systems are popular with upper-end models made for paved roads, but they are irrelevant in the offroad market, as Trickstuff's general manager Klaus Liedler points out: "Experienced riders want to be in full charge in terrain, pushing their bike into a drift or doing a stoppy. I feel it's the same in the e-bike market: while ABS systems make a lot of sense for e-bikes intended for urban use, I do not see an advantage for sporty off-road applications. Since this is the core market of Trickstuff, we have not been looking into ABS technology yet – and are unlikely to do so anytime soon."

In general, e-bike ABS systems are still in their infancy, despite an estimate by Bosch eBike Systems' CEO Claus Fleischer that the number of accidents with e-bikes could be reduced by 29 percent if the technology was used. Fittingly, **Bosch eBike Systems [A6-300]** has been an early mover in terms of ABS for e-bikes, teaming up with fellow Germans **Magura [A3-301]** to develop an optional ABS system for e-bikes and launching it for the 2018 model year. So far, only a few manufacturers have gone for this option for some select models, keeping the number of ABS systems in use and the acceptance on the market on a decidedly low level. One of the reasons for this is the size and bulky shape of the ABS module developed by Bosch eBike Systems and Magura. Sitting in front of the head tube, the existing unit does not fit the current trend of hiding an e-bike's technology within the frame whenever possible. Asked by the Eurobike Show Daily, neither Bosch eBike Systems nor Magura would say if they were working on an updated version of this system that has been on the market for four years.

Italian manufacturer **Blubrake [A6-308]** aimed to integrate its ABS system

developed in close cooperation with Taiwanese brake manufacturer **Tektro** into the frame from the very start. Just like the system developed by Bosch eBike Systems and Magura, Blubrake uses an additional perforated ring attached to the rotor and a photosensor mounted to the fork leg to measure how fast the front wheel spins. Apart from this visible part of the ABS system, there are sensors for acceleration and rotation as well. Blubrake's ABS system can be combined with various brands of hydraulic brakes and has been specced by the likes of Bulls, Stromer and Bianchi already. The G2 version as the second generation will be presented at Eurobike, with the main improvement being that the electronic board and the hydraulic unit now have been packed into one unit, facilitating the assembly of e-bikes with the G2 ABS system. Like the system developed by Magura and Bosch eBike Systems, the Blubrake system is linked to the front brake only.

Another pioneer in terms of ABS systems for e-bikes has been **Brakeforce One**. This small German brake manufacturer presented their market-ready ABS system back in 2017 at the Eurobike booth of **Sachs Micro Mobility [A1-405]** who have since brought it to the market. Thanks to its relatively compact size, this system can be fitted in the head tube, down tube, seat tube or it can be mounted to the left-hand chainstay of a frame. This compact actuator unit houses electronics, hydraulics and a bunch of sensors and connects to the brake line and to the battery of an e-bike using the proven CANBUS standard. According to Sachs Micro Mobility the actuator is so fast that it can preempt the risk of a blocking wheel before a complete standstill occurs, thus shortening effective braking distances and eliminating the risk of going over the handlebar.

As for **Shimano [B3-300]**, the Japanese component giant would seem to be a logical player to come up with a solution, being a supplier of both electric assist drive systems and hydraulic disc brakes and having made plenty of experience with electronics. Indeed, Shimano has patented



ABS by Bosch eBike Systems & Magura

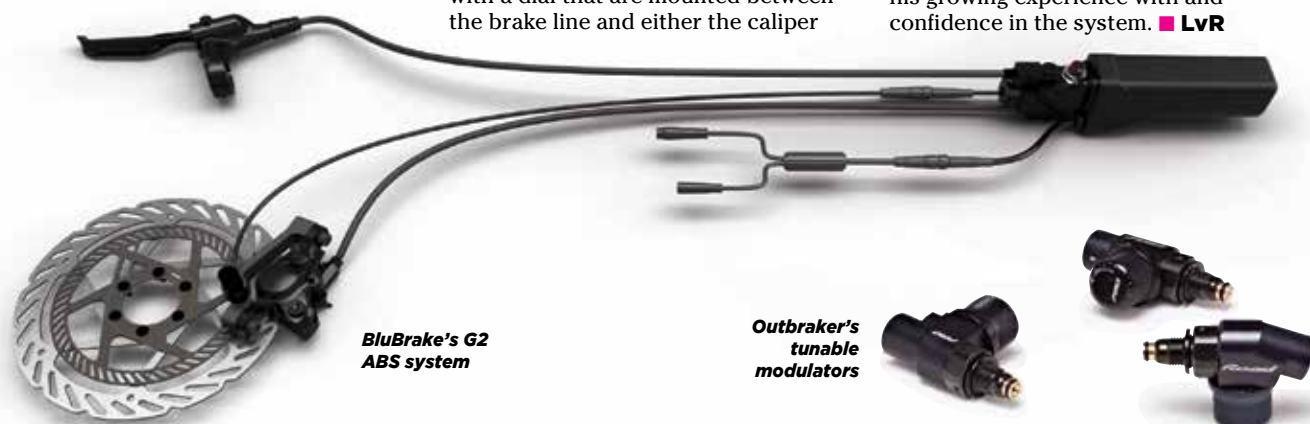


Brakeforce One/Sachs Micro Mobility ABS system

some technologies already in this regard, but that does not necessarily mean that a product is in the pipeline. Asked by the Eurobike Show Daily, Shimano preferred to keep its cards close to its chest, resorting to the standard answer that there will be no comments on ongoing developments not ready for the market yet.

Following an entirely different philosophy is **Outbraker**: with its Brake Power Adjuster, this Korean manufacturer offers small modulators with a dial that are mounted between the brake line and either the caliper

or the lever of most relevant 3rd party brake manufacturers. The idea behind this is to allow riders new to disc brakes to manually fine-tune the flow of brake fluid and thus the brake force generated at first and to increase the flow step by step while getting used to the powerful brakes and the reduced hand forces needed to operate them. With this approach, it's not electronics and an algorithm changing the characteristics and the performance of the disc brakes, but the rider and his growing experience with and confidence in the system. ■ **LvR**



Blubrake's G2 ABS system

Outbraker's tunable modulators

E-BIKE CHAIN SERIES

HIGH TORQUE & IMPACT RESISTANCE



DEVELOPED FOR E-BIKE

Specifically designed and built to withstand the additional force delivered by the motor.



GST TREATMENT

Proven rust resistance. Eco-friendly, 100% hexavalent chromium free.



DHT TREATMENT

Slows down chain elongation, chain life is greatly prolonged.



SUB PUNCHED PIN

Adds strength between the links.



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TAYIA

OVERVIEW: LIGHTS

IT'S NOT ENOUGH TO BE BRIGHT, NOW LIGHTS HAVE GOT TO BE SMART TOO...

Thanks to clever technology, lights have gone from providing simple visibility to encompassing units capable of calling for help in the event of a crash, alerting other road users to your intentions, or even locating a lost bicycle.

With braking sensors, indicators, and remote operation, this year's cohort of bicycle lights is smarter than ever.

As bike designs get slicker and more integrated, lighting has increasingly become a standard feature. However, illumination isn't the only thing lighting units can bring to the bicycle. Athens-based design studio **Speen's** [ÜO-307] Guard light provides illumination, plus plenty more. Functioning as an intelligent hub for your bike, it offers electronic locking, GPS tracking, accident detection, and an anti-theft alarm alongside automatic lighting. Aimed at both consumers and fleet operators, this self-contained unit is adaptable to fit most bikes and comes in a sturdy vandal-resistant casing. Able to take a universal charge from any E-bike, it also features an independent battery that can power the unit for up to two months. Letting you trace your bike, hire operators will also appreciate the brand's matching platform, which marries together real-time tracking and analytics. Also helping log and predict maintenance issues, the Guard light will even send instant alerts to the machine's owner if the bike is stolen.

More conventional-looking but also very clever, **Ravemen's** [A4-510] high powered PR2400 bike light uses a self-contained 8000mAh battery to power an output of up to 2,400 lumens. Using an anti-glare optical lens, its road cycling mode reduces glare for oncoming traffic while producing a wide flood of light at close range. Married to a long-distance spot for safer urban riding, it also includes a dedicated off-road mode. Activate this, and the PR2400 replicates the performance of an automotive headlight with a simultaneous far-reaching high-beam and wide low-beam for off-road riding. Helping riders keep on top of the charge remaining when out and about, the back of the light contains a detailed OLED real-time display to show the remaining runtime at each output level. Pairing with a wireless remote switch, it's easy to flick through each mode without removing your hands from the bar. Also able to increase its runtime via the addition of an external power source, its USB output port can also be used to charge your portable digital devices if needed.

Also letting riders stay updated on how long their illumination is likely to last, **Kryptonite's** [A5-103] latest Incite X6 Smart light includes a digital countdown timer. Located on the back of the light, it'll tell riders exactly how much time they've left until the light shifts into emergency mode. A clever feature by itself, the Incite X6 Smart also features an in-built light sensor that measures ambient brightness and can adjust output automatically. Further ensuring you make the most efficient use of the light, its 60 Lux

output is precisely distributed via a double lens design with increased side lighting for maximum visibility. Pairing perfectly with Kryptonite's Incite XBR rear unit, this includes an accelerometer allowing it to alert following traffic when you're slowing down. Like the front-mounted light, it also benefits from a memory mode feature meaning both lights will work predictably every time you switch them on.

Including similar innovative braking technology, Lezyne's Alert tail lights come in a range of different styles. Including StVZO compliant versions, each can sense the deceleration of its user. Regardless of the mode being used, when the unit detects that you've pulled the brakes, it quickly switches to glowing solidly at its maximum output. Shifting to a distinct flash pattern once you've stopped to alert riders or vehicles behind, once you pedal away, it'll automatically return to the previous output mode. Now found across a wide range of Lezyne's rear lights, this technology goes a long way to differentiate the brand's entry-level options compared to more basic rivals.

Known for its helmets, **Overade's** [A4-304] smart Blinxi light isn't restricted to just being fitted to the firm's lids. Able to attach itself to most urban-style helmets, this smart indicator light pairs with a handlebar-mounted remote. Allowing riders to indicate upcoming left or right turns at the press of a button, once the rider activates the turn signal, an audible beep is produced to remind the rider to turn off the light once their manoeuvre is safely completed. Also significantly improving general visibility thanks to its more conventional lighting functions, the Blinxi is rechargeable via a micro-USB cable. Made to fit almost seamlessly onto the firm's foldable Plixi helmet, its fixing system also allows it to be attached to most lids with a solid back section.

Back on the bike and catering to users who want to plug into either a dynamo or directly into e-bike battery power sources, **Shengguang Electronics** launches a new light in multiple iterations. All its latest JY-7191 system models are approved for the German market and pump out 90 lux. Made of a combination of lightweight plastic and aluminium for superior heat dissipation, they use



Speen's Guard light does a lot more than light your way



Overade Blinxi smart indicator light pairs with a handlebar-mounted remote

Kryptonite's Incite X6 Smart light includes a digital countdown timer

an automotive-grade LED for excellent efficiency and reduced light decay. With a clear cut-off at the edge of the light's beam, this ensures a minimum of glare for oncoming road users. At the same time,

lateral outlets on the left and right of the light increase side-on visibility and safety for the user. These new JY-7191 series lights can be paired with matching rear models from Shengguang's extensive range, many of which have also gained German market approval.

This year well-established brand **Reelight** [A4-208] will be at the show again. Among a range of neat units, those that promise free power regardless of the style of bike you ride are probably the most intriguing. Instead of a battery or dynamo, Reelight's Red Dot design award-winning Cio lights use magnetic induction to generate power. Meaning there's no added friction; even once your wheels stop spinning, the lights can power themselves for up to two minutes, ensuring users remain safe while stopped in traffic. Now supplied with two magnets per wheel, this simple update has doubled the intensity of both the front and rear lights' output, ensuring both their design and illumination continue to stand out. ■ JD



Reelight's Cio lights use magnetic induction to generate power



An accelerometer in Kryptonite's Incite XBR rear unit allows it to alert following traffic when you're slowing down



Ravemen's [high powered PR2400 bike light



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DIRK ZEDLER: THE BIG WOBBLE IS BACK

THE POOR RIDING CHARACTERISTICS OF E-BIKES CAN BE SOLVED

Just a low step-through frame, a front or rear motor and a pannier rack battery – and the e-bike was ready. The other side of the coin was disastrous riding behaviour. Many of these early e-bikes were basically unrideable with luggage, characterised by poor directional stability when changing direction, oscillation on faster descents, and even handlebar wobble when the rider did not have a firm grip on the handlebars with both hands. Falls resulting in serious injuries led to court cases, compensation payments, articles in the special-interest press and, as a result, to a rethink on the part of the manufacturers and finally to significantly more stable e-bikes.

A decade later, it seems that manufacturers are putting the users at risk again. Today's frame designs with integrated batteries, combined with rapidly changing user behaviour, are causing problems. In a sense, the story is starting again from the beginning.

As if the industry had not learnt from its mistakes, the design is being changed just like that in an almost negligent manner and, what is more, the fact that luggage is carried much more frequently is being ignored. In addition, sporty road racers or mountain bikers used to be alone in the mountains. Today, thanks to powerful drive units in combination with large batteries and charging possibilities at nearly every mountain inn, e-bikers climb far uphill. Only a few days ago, the author saw a group of older people with low step-through e-bikes at Bielerhöhe, the highest point of the Silvretta-Hochalpenstrasse (Silvretta High Alpine Road, one of the most popular panoramic roads in the

Austrian Alps), all of them with full pannier bags.

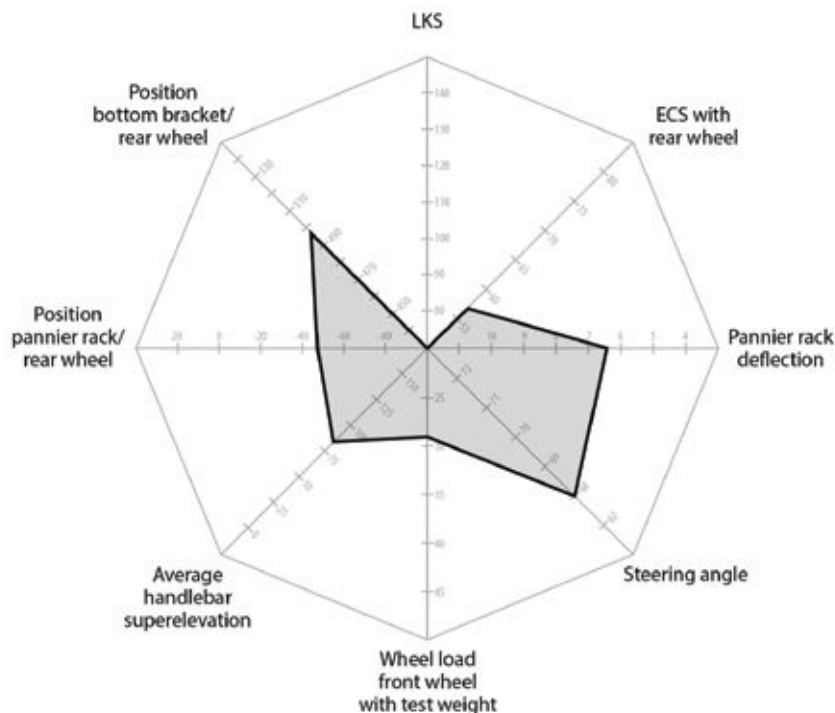
It's not only our industry that wants a higher share of cycling in traffic and travelling. For this reason, the use of e-bikes should no longer be related to the skills of athletes only. As an industry, the electric drive not only offers a great chance for us, but also means that we have to face the challenges.

Complex interrelationships - solved by testing. It is not a simple matter to cope with the complex oscillation behaviour of electric bicycles. Nevertheless, it can be solved. It basically makes sense to increase the frame stiffness, but this is not yet a guarantee for a good ride. The centre of gravity position, the frame geometry, the pannier rack connection, the fork and the wheel stiffness are further factors which must be optimised in terms of interaction.

The good news is that basically all e-bikes can be improved, often to a considerable extent. In particular, low step-through e-bikes can be optimised to such an extent that the adverse riding phenomena are only evident at very high speeds that are reached only rarely by most riders. The risk as defined by the Product Safety Act valid throughout Europe as probability of occurrence times severity of the potential damage is minimized to such an extent that the risk assessment can turn out to be positive with good conscience.

In figures, this means that even a low step-through e-bike with down-tube battery that already shows severe wobble at 10 km/h with luggage, can on the basis of the test results be optimised to such an extent

Low step-through bicycle Model C
Frame size 47 cm | With test weight on pannier rack



Poor riding stability. Highly prone to wobble and oscillation even at low speeds. Unsafe riding behaviour with one hand on the handlebar as of 10 km/h.

that the same phenomenon does not occur before the e-bike has reached a speed of 35 km/h. With both hands on the handlebars such an e-bike remains

safe and steady on its track even at a fast speed while carrying luggage.

■ Dirk Zedler

DIRK ZEDLER

Since 1993, Dirk Zedler has been an analyst and expert witness on bicycle accidents and product failures for courts, bike and insurance companies, and private individuals all over the world. He got his start in the industry by working for a large bike shop in 1986, and now holds the respected advanced engineering degree known as a "Diplom-Ingenieur."



Courts have recognized Zedler as an officially appointed and sworn expert on bicycles since 1994, and on electric bicycles since 2014. His staff prepares some 800 expert's reports every year.

Zedler – Institut für Fahrradtechnik und -Sicherheit GmbH (the Zedler Institute for Bicycle Technology and Safety) has used this wealth of knowledge, derived from its work in thousands of court proceedings and expert's reports, to enhance research and development

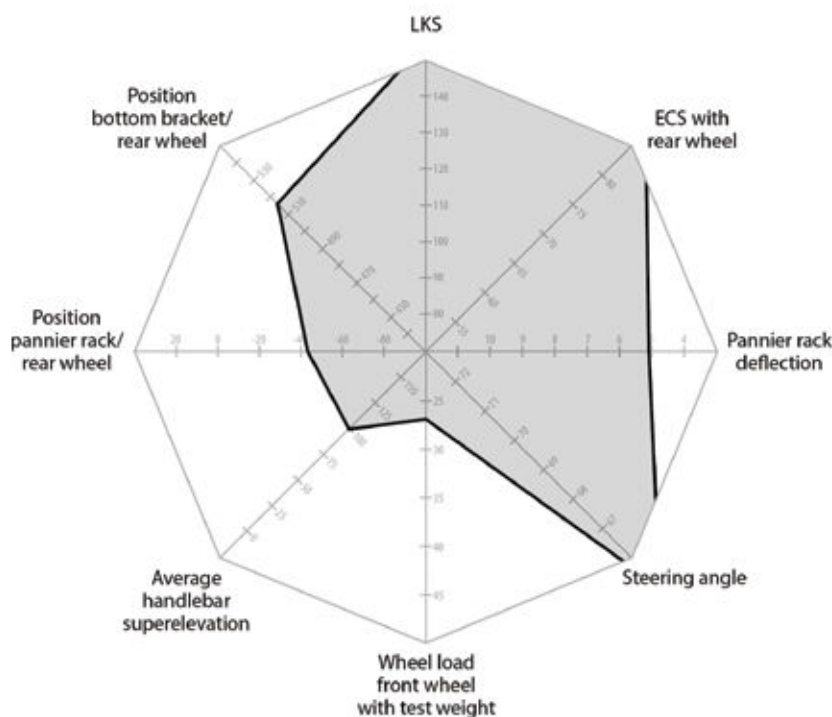
in the bicycle industry.

The Institute sets the standards for the bicycle industry. It develops and builds testing equipment that is used by manufacturers to improve the riding quality and safety of their bikes, and by leading European bicycle magazines to test them. The Institute's work provides a basis for European and American manufacturers to communicate with their Asian suppliers. Manufacturers can buy test equipment from the Institute or use its state-of-the-art testing labs.

The Zedler Institute also prepares risk analyses, recall papers and user manuals for bicycles and pedelecs. These manuals, now available in more than 40 languages, help consumers use their bikes properly — and in many cases have protected manufacturers from liability.

■ For more information, visit www.zedler.de.

Low step-through bicycle Model A
Frame size 45 cm | With test weight on pannier rack



High riding stability. Safe riding behaviour even with only one hand on the handlebar at 35 km/h and faster.

DIRK ZEDLER: COSTLY COMMUNICATION DEFICITS

BETTER CONSUMER COMMUNICATIONS CAN AVOID COSTLY LEGAL TROUBLES



I travelled several hundred kilometres, twice, as an expert witness in court cases to examine a bicycle or e-bike for noise. To my astonishment, test rides revealed that there was nothing but a squeaking chain. In both cases, the claimants confirmed that it was the noise they were claiming as defect. In the presence of the claimants, the defendant bicycle dealers and their lawyers, I greased the chains and everything was ok.

Really ok? Not at all, as the legal proceedings continued. After I had submitted my expert's report, the parties argued about freedom from maintenance offered, workshop visits, promises made by the seller or the mechanic, and so on. As a result, both parties invested a lot of time as well as racking up thousands of euros in legal costs over several years.

This is only the tip of the iceberg of such avoidable proceedings, and court is not the only place where consumers engage in disputes over ranges considered too short, noises of all kinds, and imprecise gears, to name just a few examples.

The court cases where we were called in as an expert witness reveal one of the miseries faced by the bicycle industry (and not only since Corona). In terms of technology, development in the industry is at a very high level in recent years.

However, what has not kept up, by far, is the service for the customer – on many levels.

Rethinking needed: more technology, other target groups and more intensive use "From cyclists for cyclists" has been the motto in the cycle industry for years. Preferred topics in discussions were carbon qualities, rebound and compression damping, wind tunnel results, wheel sizes and even the question where to use aluminium or titanium screws. For many current customers all this is completely irrelevant; what they expect is quite simple: the e-bike should work. They want to be mobile, without any ifs and buts.

It is clear to all of us that customers have to contribute their bit, but at present this is not communicated sufficiently by the industry.

Five points to avoid trouble and increase effectiveness in the trade:

- Make employees fit for customer contact, e.g. by communication training
- Hand over the user manual in the language of the country together with the purchased bicycle or e-bike and have the receipt countersigned by the customer
- Indicate necessary maintenance measures to be carried out by the customer (with reference to the user manual)
- Indicate the observance of necessary service intervals. It is advisable to make an appointment for the first service at the moment



- of selling (with reference to the user manual)
- Always document workshop work

Five points for successful communication by manufacturers:

- Consistent and clear information for customers (and dealers) through social media, the website, the catalogue and the user manual
- Providing low-threshold customer information (enclosing user manual with the bicycle)
- Regional training offers for dealers and their staff
- Ensuring service staff are competent on the phone
- Documenting, filing and evaluating

reports of defects
None of these points are rocket science. These reasonable measures just have to get into the heads of the decision-makers and the corresponding time and financial budgets have to be granted.

With all of our experience, it's surprising how miserable the existence of the most important set of rules between manufacturer/dealer and customer – namely the user manual – still is.

And let's be honest, how many employees of manufacturers or dealers have ever read the user manual of their bicycles?

That's how simple it would be to avoid some trouble. ■ **Dirk Zedler**



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OVERVIEW: E-MOUNTAIN BIKES

E-MTBS LOOKING MORE CONVENTIONAL, BUT ABILITIES ARE MORE RADICAL THAN EVER

No other kind of bike quite matches the escapism provided by an electric mountain bike. Allowing you to get out into the wild, push further afield, and enjoy yourself while building off-road skills, interest in the segment has boomed in a time where many of us have lusted after a change of scene. Happily, the latest e-mountain bikes are increasingly accomplished, combining all the features of conventionally powered bikes with ever lighter batteries and motors.



Thok's new top-of-the-line MIG R

A big launch for the first day of Eurobike, **Thok E-bikes [B1-303]** presents the new MIG R. The latest addition to Thok's all-mountain range, it builds on the success of the MIG 2.0. Driven by Shimano's new EP8 motor and a 630 Wh battery, this has been custom mapped to offer two different assistance profiles; a natural long ride setting and a more powerful fast ride mode. Helping rider's seamlessly add their own power via the pedals, Sram's GX Eagle 12-speed rear derailleur and 10-52t sprocket provide an extensive range of gears.

The highlights of the **KTM [A6-200]** e-bike range for 2022 are newly developed frames, in combination with the proven Straight Line Link (SLL) concept and the new Bosch Smart System. With this self-contained Bosch system, you are ready for

the digital future. The system also includes the Kiox 300 display, the Bosch Performance Line CX motor, a 4A charger and the most powerful Bosch Powertube battery ever (750Wh) for even more range. Removing and reinserting the battery is easier than ever before. The Power Tube Top Loader (PTTL) is the name of KTM's own innovation for this user-friendly battery handling.

A hallowed name among motorbike enthusiasts, **Ducati's [B1-303]** electric mountain bikes are no less worthy of admiration. The firm's new TK-01RR is a long travel e-enduro machine that adopts the most modern technical solutions. Not only is it very cool looking, but it also includes a 180mm Öhlins RXF 38 fork and matching rear damper that will catch the attention of any existing enduro riders not yet



Ducati's TK-01RR e-enduro

converted to the joys of electrical assistance. Powered by Shimano's high-spec EP8 drive unit, its weight of 2.6 kg makes it one of the lightest and most compact yet available.

Greyp [B1-301] returns with an upgraded generation of its Eurobike Gold Award-winning G6 models. Unique in offering a constant connection to the internet via eSIM technology, the bikes' mechanical elements have recently been updated. Backed by the Greyp App, this can be used in either Dashboard or Remote mode. The first of these transforms the user's smartphone into a comprehensive dashboard, giving access to features like turn-by-turn navigation, terrain-based range, and onboard camera control. Alternatively, the remote mode can be used as a wireless control, allowing users to take a photo, remotely lock the bike, or activate the kill switch to shut it down completely. Based around a carbon fibre chassis with 150mm of front and rear suspension, the bike's compact 700 Wh battery pack and

integrated Battery Management System power an equally neat MPF drive unit. Running Greyp's own firmware, this promises excellent control of the motor at the same time as providing powerful torque and a natural feel.

Italian firm **Torpado's [B1-404]** 29-inch wheeled T970 Hyper mountain bike is light on both the ground and its owner's finances. It is powered by a low weight mid-mount motor made by the firm's compatriots OLI E-Bike Systems. The most powerful in the brand's range and providing a maximum torque of 85 Nm, its addition adds just 3.5 kg to this nippy hardtail. Paired to a 630 Wh capacity battery, the bike's five levels of assistance suit it to all kinds of riding. Backed by 100mm of front suspension, its hydroformed aluminium frame can also accept a dropper suspension post for riders who wish to upgrade later. Decorated with Shimano 11-speed gearing and a simple single chainring, everything is kept under control by quality hydraulic disc brakes.

Founded in 2009 by two engineers in



KTM Macina Prowler 2022: new frame and Bosch technology



Greyp new generation G6.6



Torpado T970 Hyper 29er



Amplitude AM Boost 4.1 by o2feel

a garage, **o2feel [B1-201]** has come to specialise in high-quality bikes displaying a utilitarian approach to design. Aiming to bring a breath of fresh air into the lives of their users, the full-suspension Amplitude AM Boost 4.1 sits at the wilder end of the spectrum of bikes created by the brand. Built around a powerful, lightweight Shimano E7000 mid-mounted motor centred within a fully suspended chassis, it comes with either an iPowerPack Advanced 432 or 720 battery for high performance and a maximum range of up to 210km. Sitting below o2feel's Soar series but targeting more demanding terrain than the firm's city-focused bikes, a capable RST Vibe Coil Boost 140mm fork and 120mm of rear travel keep things on the straight and narrow. Finished with a Shimano Deore 10-speed groupset and suitably chunky tyres, it's an unusually sophisticated take on a rugged off-road bike.

As the e-mountain bike segment develops, so do technologies specific to the sector. Exhibiting at this year's show is **Blubrake [A6-308]**, the producers of an ABS (Anti-lock Braking System) that's finding fans among well-known e-mountain bikemakers, including Bulls Bikes and Bianchi. Its frame-integrated solutions comprise a speed sensor, electronic control unit, and actuator that prevent unwanted locking of the front wheel to maximise braking efficiency and reduce accidents. The actuator continuously controls the hydraulic pressure of the front brake to guarantee smoother braking and increased stability. Now included as an option across Bianchi's e-mountain bike range, the Italian firm

is looking to collaborate with more manufacturers eager to add value and fresh braking tech to their next designs.

Escaping into the outdoors is a great way to stay fit and clear your head. So it's excellent to find **HP Velotechnik [B1-100]** helping more people do just that. Its latest release shown at Eurobike for the first time is the Hands-On-Cycle, the world's first hand-drive with a fully encapsulated chain guide as well as integrated cables. Retrofittable to trikes, including the firm's off-road capable Scorpion FS 20 model, it promises to allow more riders access to off-road trails. Concealing the chainrings for increased safety and durability, the combined drive system and steering functionality are neat and intuitive. Able to work in conjunction with a rear-wheel hub motor from Neodrives, this provides support up to 25kmph, just as it would on a regular e-mountain bike. **■ JD**



Velotechnik Hands-On-Cycle

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OVERVIEW: E-BIKE CONNECTIVITY AND INTEGRATION

NEW OEM SOLUTIONS CONNECT E-MOBILITY BRANDS TO USERS

Hardware and paired software that connect bike to rider to services are offering more sophisticated products and services to keep bikes and riders safer and more connected than ever before. Emergency fall detection, GPS tracking, and insurance are some of the subscription services that are starting to become standard as add-ons to an e-bike purchase. GPS location, real time tracking, anti-theft, and data collection are selling features to attract the attention of fleet managers in charge of constantly moving inventory. Where there are perceived vulnerabilities in e-mobility is where opportunity lies, and new startup solutions help drive established brands to stay innovative.



Co-Scooter by Comodule: durable and eco-friendly

New to Eurobike, **Speen [ÜO-307]** is introducing its Guard smart IoT hub for e-bikes. The device takes the shape and functionality of a front light, and adds in a GPS tracker, alarm, e-lock, ride metrics, and emergency fall detection. It comes with a mobile app, where the rider can control the hub, monitor rides, and get notified in case of theft. For professional fleet operators, Guard is paired with Speen's cloud-based platform



Speen's Guard smart IoT hub

where operators can efficiently manage and secure their fleets. When in an armed mode, it offers an independent battery life of approximately two months. Speen claims that its anti-tampering design – in combination with its e-lock – makes it impossible to remove via conventional tools. When used as a front light, Guard offers three modes: medium, light, and blinking with an output of 150 to 250 lumens. In the event of an accident the device's fall detection service sends an alert to the rider's preferred contact. Speen's Guard will initially be offered as an OEM product.

Two years ago, **IoT Venture [A1-401]** introduced Its My Bike, a theft protection system that consists of hardware installed inside the housing of the e-bike motor and uses NB-IoT to send and receive data,

Velco ONITRAX



and an app to set an alarm on the bike. If a thief moves the bike, the bike alerts the owner, who with a push of a button can report the bike stolen. Since then, IoT Venture has added its digital emergency assistant, called eCall, developed in partnership with the AXA WayGuard Emergency Process. In the event of a fall, a DEKRA-tested accident detection system initiates the process. The

WayGuard Control Centre is operational 24 hours a day and will alert the nearest police and rescue services in an emergency. The emergency process can also be activated manually if necessary. This new service can be bundled with the It's My Bike system at a rate of €1.99 per month, however it is currently only available in Germany.

It's no secret that COVID has been good for business – especially in attracting new users to alternative mobility. Managing large-scale mobility solutions has opened up new opportunities for companies like **Velco [A1-304]** to compete for dominance in emerging markets.

After successfully introducing the Wink Bar connected handlebar at Eurobike in 2018, Velco embraced the challenge to connect all types of e-bikes for brands and fleet managers. Velco's connectivity platform integrates both software and hardware. For instance, Velco OEM is the solution for e-bike brands and includes a custom branded mobile application for the user, a branded dashboard that provides insights on users and usage KPIs, an application for the retailer to improve support and processes, and also an IoT device in order to remotely collect vehicle data. By comparison, Velco Fleet is the solution for fleet managers who want to integrate a fleet management platform with personalized alerts and reports in order to optimize e-bike renting activity. Velco's full range of tools were created to enable their clients to offer the best possible service

levels in the market.

Four years ago, Kristjan Maruste, the co-founder of **Comodule [A1-504]** said that simply connecting a vehicle to a smartphone app was "primitive." What is more important, he reasoned, is offering services that can be built into such systems and tailored to their users.

Comodule claims to be the first IoT company to provide solutions to shared fleet operators. Since then, the Estonian company has continued to build upon that reputation and improve its existing services as well as develop new ones. Comodule's open-ended ecosystem supplies the communications system that links the bike with the user's smartphone app and an online data analytics platform. To better connect e-bikes with the ecosystem, Comodule is presenting its new module, called Bonnie&Clyde, which enables more customizable integration with e-bike frames. From there, an OEM customer is free to offer other products or services that their customers may find valuable. One of those services is full-coverage bike insurance in conjunction with Kasko, which designs, distributes, and runs digital insurance products through whichever distribution channel is chosen by Comodule's partners.

Another first for Comodule is the Co-Scooter, the first electric kick-scooter produced outside of China. Supported by Norway Grants' Green ICT program, Comodule conceived the Co-Scooter to be the most durable and eco-friendly kick-scooter on earth.

Comodule's success may also be expressed in the number of OEM partners it works with, including **Coboc [FG-O/102]**, **Super73 [B2-302]**, **Ampler Bikes [FG-O/308]**, **Bafang [A1-303]**, **Brose [A1-404]**, and **I Lock It [A5-418]**. ■ **WB**



Comodule's new Bonnie&Clyde module

VELCO INVESTS TO DIGITALISE EUROPEAN CYCLING INDUSTRY

After a €5 million fundraising round in March, Velco (A1-304) is investing in its ecosystem to become a European leader in connectivity for electric two-wheelers by 2024.

The French company opened offices in Rotterdam in May and in Frankfurt in July, to serve end users as well as brands, fleet managers and manufacturers. Next year it wants to target the U.K. as well as Switzerland, Austria and other northern European countries.

Velco has already made its digital mark in France with customers such as Véligo, connecting a fleet of more than 20,000 bicycles for long-term rentals.

Another prominent partner is Manufacture Française du Cycle, a large-scale French manufacturer owned by Intersport France, which makes the retailer's Nakamura bikes.

Johnny Smith, Velco's chief marketing officer, explained that Velco started in 2016 making the Wink Bar, a connected handlebar. But last year the company shifted its focus to a wider range of solutions related to connected mobility.

"Our job is to digitalise the whole cycling industry," said Smith. He launched the company together with Pierre Régner, its chief executive, and Romain Savouré, its chief technology officer.

With the latest investment, Velco has redesigned its solutions and added more features. It's at Eurobike to showcase the entire ecosystem, which requires a connected device to

be inserted into the vehicle.

Some of the applications are useful for end users, such as an anti-theft and tracking function that is controlled through a mobile phone app. Others are more relevant to brand owners, helping them to gain more insights into the behaviour of their customers. At the same time, Velco helps fleet managers to optimise the management and the maintenance of their vehicles. "We can warn the user that they need maintenance, that way they will never have to deal with failure," said Smith.

Velco provides manufacturers with tools to directly integrate its device into the bicycle in production, and to test it. In some cases, the device can be installed after the manufacturing process.

Started about two years ago, the partnership around Véligo is an example of a connected system involving several stakeholders. It is operated by Fluow, a consortium of four companies, to provide electric bicycles for long-term rentals. Velco works with Fluow to supervise the management of their huge rental fleet. It provides data on the usage of the vehicles, which is useful for the authorities to plan investments in infrastructure.

The Velco device notifies users in



case their parked bicycle moves, and it helps to track the bicycle in case of theft. The partnership also involves Cycleurope, which assembles bicycles for Véligo.

It's apparently working out well, since the fleet is expanding, with e-bikes and electric cargo bikes.

In Intersport's case, Smith said that the partnership helps the retailer to differentiate its Nakamura private label bikes. "We create a digital environment for them to bring better

experiences and service to their customers," he explained.

Velco has roughly doubled in size in the last year, and it aims to grow to 50 employees by the end of next year.

The fundraising round in March brought in two new investors, the Banque des Territoires and Inventures Investment Partners, a Belgian venture capital fund. Prior investors chipped in as well, from Go Capital to Pays de Loire participations. It was led by Siparex and family offices. ■ **BS**

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// DEVELOPED FOR CARGO BIKES //

V-FRAMES - ISOCO'S THERMO-INJECTED FRAME PRODUCTION FROM CRATES TO E-BIKE FRAMES (ONE EVERY 90 SECONDS)

Thermo-injection specialist V-Frames [B2-103] says it can make a frame in 90 seconds, using hardly any human labor and resulting in a fully recyclable product. The first frames made with this German company's innovative technology are already hitting the markets in Germany and Norway.

Ongoing issues with containers and sea freight, rising costs induced by high demand and repeated delays in production caused by outbreaks of the Covid-19 pandemic in Asia throughout the first half of 2021 have further amplified and accelerated the reshoring push. But bringing the industrial production of bicycles closer to the market comes with some serious challenges – most notably, the cost of labor in Europe is a lot higher than in Asia. One way to get around this challenge is to turn to automation, and German thermo-injection specialist Isoco is doing just that with its V-Frames subsidiary. Based in Thuringia, this company has become well-known for building plastic crates in many different sizes and colors – fully automated and in large numbers.

Using reinforced carbon-composites and seriously oversized tooling, the machines of this German company are capable of turning out bicycle frames as well – at a remarkable pace. A frame can be produced in 90 seconds. If a frame should not meet the tolerances or end up as a warranty case later on, it can be shredded and its material can get used again – a serious plus in terms of sustainability. One of the initial partners of V-Frames in getting this production method dialed-in has been

Advanced, whose founder Helge von Fugler points to another big advantage of producing frames in Germany: “Rather than just getting one or two production slots for frames in Asia, we have monthly production slots in Germany. And we don't have to wait for frames to show up in a container, which cuts the carbon footprint of these Made-in-Germany frames in half.”

While the advantages of V-Frames's thermo-injection technique are appealing, there are some challenges to overcome as well. The major drawback of this production method is reduced flexibility due to high tooling costs. To keep these as low as possible, OE partners need to come up with smart frame designs that can fit a large range of body sizes. While Norwegian brand and early development partner Buddy Bike has opted for an x-shaped frame for its SX1 platform, Advanced relies on deep-instep designs for their Reco One trekking model and the upcoming Reco Two urban model. The difference between frame sizes lies in the seat tube that can be extended with two



Isoco Buddy Bike X1 with trailer

different lengths of stubs. The detailed fitting is done by using seat posts with various set backs and stems that offer both an adjustable height and reach.

As von Fugler points out, the automated production in Thüringen allowed him to build additional e-bikes in the spring and summer of 2021 on short notice to meet the increased demand – something that would not have been possible with the limited production slots and capacities available in factories in Asia. V-Frames's general manager Michael Müller will be at the Eurobike show to find more bicycle brands willing to bet on thermo-injected, fully recyclable frames made in Germany as an alternative to frames built with traditional methods in Asia. ■ LVR



Isoco tooling for the Advanced Reco One



Reco One trekking model from Advanced uses a deep-instep design

MOLECULAR BREAKTHROUGH MAKES LUBRICANT MORE DURABLE

With a molecule that grips onto metal and attaches grease, a small company from eastern France wants to make chain lubrication cleaner and more durable.

The molecule that performs all this work was developed from research at the Université de Bourgogne Franche-Comté in eastern France. Chemistry professor Fabrice Lallemand helped to launch a startup in Dole, **Afuludine [B1-409]**, to capitalise on some of the research that came out of the university's labs. The business focuses on industrial applications, but Afuludine's chief executive decided to study potential in the bicycle market as well. The company developed Winsleek, a brand of maintenance products that gained plenty of recognition as an official supplier for the Groupama-FDJ team. A few weeks ago it was approved as technical supplier of the French cycling federation.

At Eurobike, the stand-out product launching for European distribution and retail partners is Win'prim, a pre-lube layer that makes optimal use of Afuludine's assets in chemistry. Sébastien Bergeret, product manager at Afuludine, explains that Win'prim helps to “attach” lubricant, so that it lasts longer. It's meant to be used on dry and clean chains. “Our tests show that you can ride roughly twice the distance for the same volume of lubricant,” he said. “That makes the

whole process cheaper and more environmentally-friendly.”

The solution was developed at Afuludine's own research and development facility in Dole. The company has its own production plant as well, and some of its raw materials are from nearby sources. Win'prim mostly consists of ethanol, extracted from beetroot in northern France. But the ethanol only serves to apply the operative ingredient, which is Afuludine's molecule. It was slightly tweaked from the product used in industrial settings.

“Working on performance in cycling has become a matter of microns,” said Bergeret, himself a former cyclist. “Working on lubrication was all part of the same drive to innovate and optimise performance.” Win'prim is meant to be applied before Win'lub, a lubricant made from bio-sourced resources as well. “It's green and is suitable for any weather conditions, so it saves the hassle of wondering what lubricant to apply,” said Bergeret.

Afuludine is working together with Groupama-FDJ and creating a test bench to measure the durability of its lubricant combination more precisely.



Afuludine Win'prim

An extra benefit is that, due to the smaller quantity of lube required with Win'prim, the chain won't get dirty as rapidly, and it will be easier to clean. Afuludine is also offering an environmentally-friendly degreaser.

The products come in two ranges, one of them for private users, to be sold through cycling retailers, and

the other for professionals. Eurobike marks the full launch of the workshop range. The roll-out was somewhat delayed last year, because Afuludine decided to urgently transform its production facility and to turn out hydroalcoholic gel for protection from viral infection – up to three tons per day. ■ BS

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OVERVIEW: COMMUTER ACCESSORIES GETTING FROM A TO B IN STYLE AND COMFORT

Once a mere trend, commuting by bike has become a vital mobility mode and has sparked a demand for greater style, comfort, and utility.

Commuter accessories now go way beyond a set of lights, a helmet, a backpack, and a U-lock to more diverse offerings that allow commuters to express their personal style and stay safe at the same time. Keyless locks and practical yet chic carrying systems are some of the new developments shaking up the category of commuter accessories. You still need lights, helmet, bag, and lock but what you'll find are products that are as unique as they are functional.

Eurobike newcomer **1Kiind Smart Commuting [A4-209A]** is presenting a new system for transporting gear. The BagBar is a carrier system for bags that can be attached to any bicycle cargo rack as well as a purpose-built 1KIIND rack. The BagBar eliminates the need for hooks or any other hard mechanical fixings which are typical on the back of panniers. Paul Taylor is the entrepreneur behind the concept. After selling his interest in a company that makes shock mitigating seats for maritime security agencies, he wanted to create something that would solve a problem.

"I realized that the way commuters carry bags on their bikes is old, clunky, generic, and generally very utilitarian," Taylor said. "The bike ride is only part of a commuter's day, so when they're off their bikes why should they have to put up with these 'bike panniers' with such hard backs and plastic hooks? Everyone has their own personal style, so why should it be so difficult for them to carry that style with them when they're on their bikes?"

Once unlocked, the BagBar swings out at an angle from the rack to mount the bag. The bags have a soft back that easily slides on or off the bar and, once installed, the bar and bag swing back into place and lock with a twist.

With the cancellation of Eurobike 2020, Taylor continued to refine and improve the BagBar however, it was bag design that got the most attention. Taylor and his team took a deep dive into bag-making and created a line of bags made from the finest waxed canvas, antique brass and leather. The 1Kiind system will be available this fall with pricing yet to be determined.

Fixeur Studio [FG-AK/1] took a different approach to commuter cargo transport and set a single-minded goal to develop the world's most compact, ultralightweight cycle bag mount. The Fixeur mount weighs just 28 grams and attaches to most bicycle forks with sturdy Dyneema fiber. To complete the system, Fixeur has designed bags made from a range of materials, including vegetable-tanned Italian leather and



The Skane HiVis Rainwear from Basil boasts 360° visibility

mineral-based synthetic fiber bags. They're also pleased with customers who tweak their own bags for use with the mount. Bag handles slip over the handlebar and a slim carbon fiber rod catches the bag to hold it firmly in place. Bag prices range from 30€ to 450€, and each one comes with an alloy Fixeur mount. The Fixeur system will be presented to a wide audience for the first time here at Eurobike.

New developments in commuter accessories are motivated by ease-of-use and ways to make the commuter routine more efficient. **I LOCK IT [A5-418]** is a Eurobike Gold Award-winning smart bike lock, which is controlled by smartphone (or key fob) to open automatically and is equipped with an intelligent alarm system. Annoyed by the repetitive action of having to affix and lock traditional hardware (U-lock, chain, cable etc.), founders Christian Anuth and Markus Weintraut wanted keyless access and more comfort. What they developed is a device that installs on the rear chainstays and slides an 8

mm hardened steel locking bolt through the wheel spokes to render the wheel immobile. Users who think they may have seen something like this before would be mistaken because I LOCK IT features the world's first spoke avoidance system, which automatically adjusts to avoid damaging spokes. I LOCK IT counts a number of features and accessories to make securing a bike less of an involved process. For example, the automatic opening feature unlocks the device when the paired smartphone is nearby, the 110 dB alarm sounds whenever there's an attempted theft – this also sends real time alerts to the owner's smartphone, and to extend security beyond standalone locking, users can buy an accessory chain or cable that plug into the device. I LOCK IT currently offers two models, the I LOCK IT+ for 149€, and the I LOCK IT GPS for 199€, which gives users GPS live tracking for greater security. There's also an add-on insurance option that's currently only available in Germany.

Despite the emphasis on innova-

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Z.1 ZERO LINE FOLDING PEDAL

The by.schulz Z.1 zero line folding pedal establishes new standards in cycling. The exceptional pedaling feature is achieved by the lowered platform to the zero line of the pedal axis. At the same time, the saddle can be lowered, allowing better contact with the ground when stopping. The sturdy folding mechanism is easy and quick to

operate. Despite the large pedaling surface, the pedal has an unrivaled compact folding size. The system, developed for e-bikes, bicycles and compact bikes, automatically balances out in riding mode. Available from March 2022 and priced at €189.95.

A3-401



Fixeur mount



Fixeur's compact alloy cycle bag mount is the world's lightest at 28 g



IKind Smart Commuting has created a system for smarter gear transport

tion, safety still reigns supreme in commuter accessories. 2020 Eurobike Award finalist, **Torch Apparel Ltd.** has joined the two in its TorchONE helmet, which is intended for the “new commuter” produced by the COVID pandemic. The helmet was conceived

as an all-year-round commuter helmet that improves weight, durability, and weatherproofing characteristics.

The TorchONE features a low profile ergo design with an extra-large integrated light system, four light modes that offer 360° visibility, wide air vents



The spoke avoidance system by I LOCK IT prevents damaged spokes

for maximum ventilation, removable light panels, and USB3 recharging. Torch Apparel first made the helmet available for pre-order through a Kickstarter campaign last winter. There will be another Kickstarter campaign in the fourth quarter of this year. Availability and pricing are yet to be determined.

Wet weather diminishes visibility and can be a threat to safety when cyclists can't be seen. **Basil [B2-300]** is introducing Skane HiVis Rainwear to its successful Skane Rainwear Collection to ensure optimal 360° visibility in all weather. The rainwear for both men and women borrows all the qualities of the Skane collection and boosts them with high-level, all-conditions visibility. The BlueSign approved 10,000 WP / 10,000 MVP lightweight fabric has a Bionic Finish Eco coating and two-way stretch to promote fit and movement.



Hafny's new mirror can withstand high speeds and deflect glare

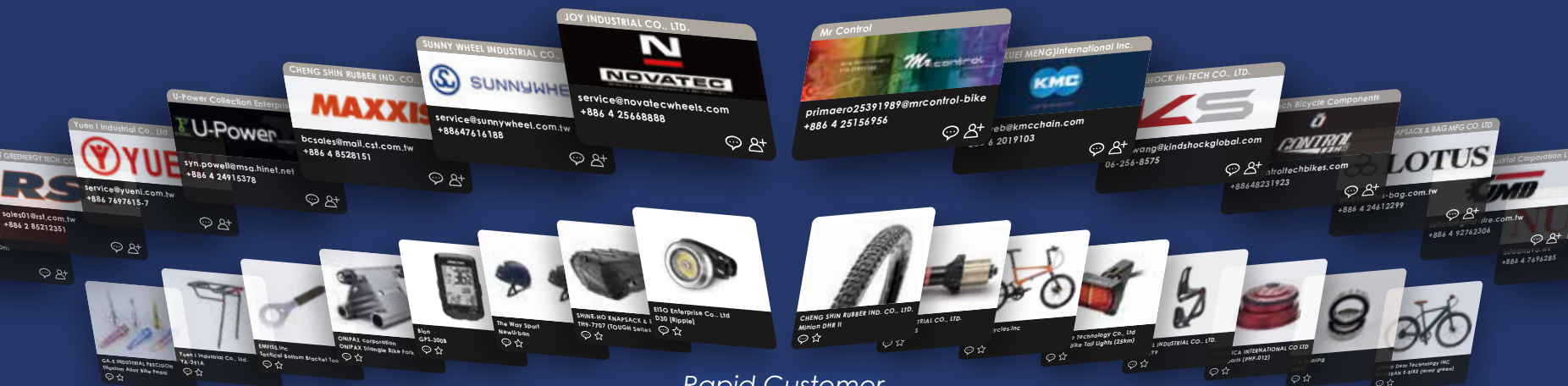
Both the jacket and pants have a full mesh lining for breathability, and extra space in the removable hood to accommodate a bicycle helmet.

Owning one's safety takes a more proactive approach than just being seen. **Hafny** has designed the HF-M902L/R-FR01 handlebar bike mirror with two different lenses to meet different needs. The HD automotive-grade glass lens is designed with high-speed e-bikes in mind, while the anti-glare blue lens is meant for anyone riding on a sunny day. The mirror body is made of durable fiber-reinforced nylon; the mirror itself has two pivot joints to adjust any desired angle. The new clamp can fit 21-26 mm handlebars.

New accessories demonstrate that commuting by bike is no longer just for utility, but rather for getting from A to B in safe, state-of-the-art style. **WB**

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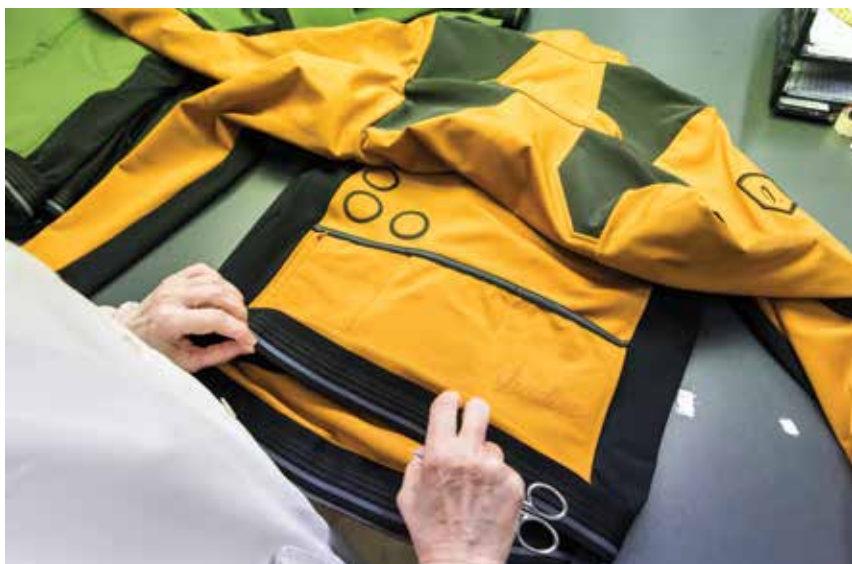
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ISADORE MAPS OUT A GREENER SUPPLY CHAIN

Isadore has launched a traceability program to track the provenance of the materials in its products, as part of the Slovak apparel maker's efforts to make its supply chain greener and more transparent.



Isadore [A5-105] explains that it's aiming to trace the supply chain for all its products by the end of next year. It started by focusing on core materials such as merino wool, denim, cotton, polyester and recycled polyester. The contents of each product and their provenance should be displayed online by the end of this year.

The project fits with the sustainable approach of the Slovak cycling apparel brand created by Martin and Peter Velits, both former professional riders.

"When we started seven years ago, we had a clear idea that we wanted to use sustainable resources, before this became a big topic," said Martin Velits, in charge of Isadore's design.

The brothers decided to get their apparel manufactured locally, at the

Makyta factory in Puchov. They used paper instead of plastic bags for packaging, and later sourced plant-based bags that are fully biodegradable. Some of the jerseys are made from fully recycled materials, mostly from Italian suppliers and using PT bottles.

Velits acknowledges that such resources add to product costs, but surveys conducted by Isadore suggest that sustainability increasingly ranks among the top motives to pick the Slovak brand.

"It used to be just a couple of people, now it's much more important in terms of purchase motivation," said Velits, adding that its customers are most interested in style, comfort and performance.

Another green project by Isadore was



Production at Isadore

to create a subscription rental service, in eight European countries. It's meant as a "hassle-free way to upgrade your cycling wardrobe" – and to reduce the number of products sitting in wardrobes after just a few uses.

The system works with three types of subscription, ranging from €35 per month for one jersey per three-month rental, €60 for two and €110 for four. All rented jerseys are cleaned by an ecologically certified laundry service, and inspected, then dispatched to the next user. When they are worn out, they are recycled and reused for insulation.

Isadore's production manager, Adam Majska, and other managers are on hand at the brand's booth to discuss the traceability project. ■ **BS**



TAIPEI CYCLE GOES 'HYBRID' IN 2022

Taipei Cycle will hold both a physical show and a virtual event dubbed 'Taipei Cycle DigitalGo' next year. This is Taipei Cycle's first 'hybrid' event, the last two editions being held online due to the COVID-19 pandemic. This year, Taipei Cycle attracted approximately 110,000 visits from 81 countries, with strong participation from the U.S., Japan, Singapore, U.K., and Germany.

Taipei Cycle and Taipei Cycle DigitalGo will open on March 9, 2022, with Taipei Cycle closing on March 12, and Taipei Cycle DigitalGo concluding on April 8. The virtual exhibition aims to help international exhibitors and attendees overcome the limitations of cross-border travels and time zones in getting business done.

The global cycling industry has weathered the pandemic with demand staying resilient. According to Taiwan's Bureau of Foreign Trade, Taiwan's export value of e-bikes for the first half of 2021 reached USD 647 million representing a year-on-year growth of 40%. During Taipei Cycle, visitors will be greeted with the latest designs, innovation and R&D in cycling, and themed pavilions including the d&i awards Pavilion and Smart Cycling Pavilion.

While the organisers emphasise that the personal touch of a physical trade show is irreplaceable and the physical event remains at Taipei Cycle's core, it is equally important to have an online solution in parallel even after the pandemic to maximize opportunities and optimize the man-

ner for which buyers and sellers can interact with each other. Taipei Cycle DigitalGo will improve its interaction and search functions by adding new features such as the Networking VR Lounge and Exhibitor Guided Tour to enhance both the exhibitors' and buyers' experience. The introduction of a powerful search engine will increase product discovery and facilitate buyers purchasing needs. Online visitors can also look forward to livestreams of onsite events at Taipei Cycle and online forums discussing industry insights. Additionally, exhibitors will have exclusive access to insights on buyer demographics to inform their marketing strategies.

TAITRA's President Leonor Lin noted that "We have noticed a disparity among exhibitors in terms of their know-how and understanding of digital strategies and marketing skills, and we hope the hybrid format will help our exhibitors to level-up their relevant knowledge and sharpen their skills." Registration for both Taipei Cycle and Taipei Cycle DigitalGo is now open.

www.taipeicycle.com.tw/en/index.html



Taipei Cycle DigitalGo 2022 aims to enhance both exhibitors and buyers' user experience

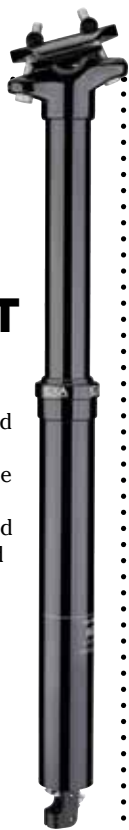


Taipei Cycle 2022 will go hybrid, expecting more visitors both on-site and online

NEW PRODUCTS

KIND SHOCK 860-I DROPPER SEATPOST

Sold under Kind Shock's ExaForm name, the 860-i post delivers unsurpassed OEM value. Using an air/hydraulic sealed cartridge to power its internals, a forged and machined head clamp offers a secure and positive saddle connection. Available in 39.0 and 31.6mm diameters and with up to 150mm of travel, the 860-i is rated for E-Bikes and passes Zedler testing standards.



TERN BICYCLES CLUBHOUSE FORT MINI

Compatible with the popular Tern HSD and GSD bicycles, the Clubhouse Fort Mini aims to make every day a great day to ride with your little one. Composed of three different accessories, the Clubhouse Mini, Storm Shield Mini, and Storm Box Mini, this weather-protected compartment keeps the elements out, the good vibes in, and your kid's complaints at bay.

www.ternbicycles.com

STAN'S NOTUBES CREST MK4 RIM

The Crest MK4 rim features a new asymmetric version of Stan's patented BST tubeless design, creating a stronger, more balanced wheel. The 25mm internal width is optimized for gravel and XC use. The 6069 welded aluminum construction and reinforced spoke holes ensure lightweight durability. Available in 20", 24", 26", 27.5", and 29" sizes, the rim includes a 3-year warranty.

www.notubes.com



VELCO DIGITAL SOLUTION FOR E-BIKE BRANDS

Velco's technology allows e-bike brands to build a better experience for their users. Providing for the creation of a bespoke app and aiding in the automation of processes relating to the bicycle, it's a great way to set your machines apart. Along with retaining customers thanks to improved user experience, Velco also allows makers to set personalised KPIs to measure the performance of their products and services. **A1-304**



KRYPTONITE INCITE X6 SMART LIGHT

This diminutive but very bright and intelligent 60 Lux light from Kryptonite features double lens technology to provide precise light distribution. With an auto light sensor to measure ambient brightness, it can adjust the light mode automatically. Benefiting from increased side-on visibility and safety, plus a new snap-tight bracket, it also includes an intelligent display. Showing the precise remaining run-time, the battery symbol on this starts flashing when the level dips below 20%. **A5-103**

BIRD RIDES, INC BIRD BIKE

A massive name in last-mile electric vehicle sharing, Bird's new consumer e-bike is built to move with precision, style, and performance. Perfect for both commuting and longer leisure trips, its safety features include integrated LED lights, front and rear Tektro disc brakes, and a backlit handlebar dash display with OTA updates. Available in step-over and step-thru designs, each can be customised via one of five colours. **B2-207**



WD-40 SPECIALIST BIKE PRODUCTS

Instantly recognisable, WD-40's Specialist Bike products offer powerful formulations and ease of use to help cyclists get the job done right, whatever the conditions. Now using WD40's core colours of yellow and blue, the Specialist range allows shoppers to identify the products quickly. With excellent brand loyalty, they're unlikely to stay on the shelf long. **B3-110**



MOMES TRIEYE SUNGLASSES

A set of sunglasses that lets you look behind without turning your head. The new TriEye model has a modern design with large lenses in panorama format and is available in several different sizes and colours. Thanks to the oversize lenses, the rearview mirror is now located further away from the eye, making rearward vision even more comfortable. Good news for people who wear glasses, it's also possible to attach a clip with prescription inserts. **A1-100**



ZENO CAPLOCK ANTI-THEFT PARTS



Zeno won the 2021 Taipei Cycle D&I Award for its CapLock anti-theft products. A D-lock can prevent the theft of the complete bike, but not its parts. Zeno's gravity-based anti-theft parts solve this problem by protecting components without keys. Including seat post collars, QR skewers, and nuts for conventional and motor hubs, as long as your bike remains locked upright, these parts can't be removed. **A3-103**



SAFETY LABS X-EROS 2.0 HELMET

The X-Eros helmet has recently been upgraded to make it more aerodynamic, lighter, and safer. Taking the original's aerodynamic profile, dial fit system, and wraparound external shell, more air vents have been added to the helmet's in-mould construction. Also reworking the firm's Pro 360° adjustment fit system, its price has remained the same despite these improvements. As a result, the X-Eros 2.0 is even better value. **B3-303**



NEW PRODUCTS



BY.SCHULZ STEM QUILL TWIST SDS

Designed to fit 1 1/8" threaded forks, the Stem Quill Twist SDS offers an easy-to-use twist function as well as SDS. In addition, the handlebar height can be adjusted by 8 cm. The tool-free twist function allows a space-saving parking position of the handlebar in seconds. When turning back the handlebars, the stem engages again in the direction of travel. The SDS system allows the mounting of a variety of accessories easily and securely directly on the stem. www.byschulz.com
A3-401

EVOLO BG-R367 RACKBAG

Evolo's BG-R367 Rackbag is almost universal in its fitting and fully waterproof in its design. An ideal companion on the commute, it features multiple compartments and internal mesh pockets. With a rear water bottle holster, this sports a reflective stripe and a hook for attaching a light. Quickly strapping into place via four quick-release attachments, it also includes a removable shoulder strap for carrying off the bike.



M-WAVE SPY SPACE MIRROR SERIES

A clear view to the front is crucial when cycling – and all the better if the view to the rear is also perfect! This is ensured by the M-Wave mirror range from bicycle parts importer Messingschlager. M-Wave offers many practical solutions for everything to do with bicycles. M-Wave stands for high quality products with a great price / performance ratio and attractive sales-promoting packaging. They are designed by cyclists for cyclists. In the M-Wave Spy Space series of bicycle mirrors, dealers and consumers find products which stylishly showcase e-bikes and are in some cases even approved for use on speed pedelecs. These special mirrors have ECE approval. Features such as 3-dimensional adjustability or solid attachment through high-quality clamps on the handlebar or bar end are combined in different chic designs. In addition, there is glare-free, razor-sharp, anti-reflective and impact-resistant glass. The mirrors are available in various sizes and shapes, from round to hexagonal. What is more, the "Spy Flex" model has a clever detail: its rod is fully flexible



and it can be bent to any shape that is required. It is also available in two lengths. The new mirror models are exhibited at the Messingschlager

stand in Hall A5/100. For more information about M-Wave, please check <https://www.messingschlager.com/en/brands/m-wave>. **A5-100**

TAYA E-TOLV-121 12-SPEED CHAIN

Chainmaker TAYA introduces its new 12-speed E-TOLV-121 model, a high-specification chain dedicated to the pedelec market. Using the firm's well-known Diamond Hard Technology, the chain promises an extremely long service life, even when used with the most powerful motors. It's available in two anti-rust two finishes of either grey or silver. www.tayachain.com



BAFANG H700 AUTOMATIC DUAL SPEED DRIVE SYSTEM

Brand new at Eurobike, Bafang is launching its H700 built-in automatic dual speed rear drive system - a clean, compact and dynamic rear-motor that aids urban commuting for eCity segment. The H700 rear motor is not only equipped with the deceleration system that Bafang is known for, but is also integrated with the automatic dual speed system. The motor automatically adjusts the gearbox ratio by detecting the speed of the vehicle during cycling, so that the rider can get a better cadence without manually shifting and experience greatly improved riding comfort without affecting the power of the motor. www.bafang-e.com **A1-303**



KRYPTONITE KRYPTOLOK 610 S FOLDING LOCK

A new folding lock from Kryptonite. Constructed from 5mm hardened steel links for moderate security, the KryptoLok 610 S is an elegant and compact solution for securing your bike. With a durable rubber

coating to protect your frame, it expands to 100cm in length for easy locking around a range of objects. Eligible for Kryptonite's anti-theft protection offer up to €1,500, it also benefits from the firm's Key Safe program. **A5-103**

NEW PRODUCTS

KIND SHOCK LEV-INTEGRA DROPPER SEATPOST

The longstanding LEV Integra has received significant refinements to make it KS' most advanced and robust dropper post yet. It's now more reliable than ever with a new one-piece mast, refined internals, lighter actuation, and forged head clamp. Available in 27.2, 30.9, 31.6 and 34.9mm diameters and drops of up to 200mm, it's ready for a massive range of applications.



KIND SHOCK RAGE-IS SUSPENSION DROPPER SEATPOST

KS continues to innovate with the Rage-iS suspension dropper seatpost. Its unique design uses an air spring to suspend the rider and take the edge out of harsh bumps. Ideal for gravel, XCM or XCO use, the suspension is fully adjustable via an external air valve. Retaining the conventional functions of a dropper post, the post's weight, efficiency, and affordability are all maintained despite the increased comfort.



ZENO SPEEDLINK Q-CONNECTOR LITE HYDRAULIC COUPLER

Zeno's SpeedLink Q-Connector Lite is a hydraulic coupler designed to make hydraulic brake maintenance and installation easy. Suitable for most brakes and reusable, the device automatically ensures the oil circuit is closed the moment it's disconnected. Able to withstand pressures above 4,500psi, the design has been commended by both the RedDot and Taipei Cycle D&i awards. **A3-103**



KRYPTONITE INCITE XBR REAR LIGHT

A smart rear light with safety braking technology. Featuring an internal accelerometer, when speed is reduced by more than 1.6 m/s, an additional LED is activated. Three times brighter than the light's standard output, this will alert any following traffic to your change in speed. Also benefiting from a memory function that remembers the last mode used, all considered, this 20 Lux light is far more intelligent than average. **A5-103**



SAFETY LABS E-BHAN 2.0 HELMET

Safety Labs' popular urban E-Bhan helmet has recently had a complete overhaul. Adding to the helmet's safety features, its exterior is made using a robust polycarbonate in-mould construction. This is bonded to a shock-absorbing EPS liner to protect the head from impacts. A design that allows for better ventilation without compromising strength and safety, soft padding on the helmet's interior adds to its comfort, while discreet straps and an ITW buckle give it style. **B3-30**

VELO VL-3575 SADDLE

Available in striking blue, the VL-3575 is a 245mm wide saddle. Complemented by double-sided yellow anti-collision protection, it's been certified as satisfying UCI cycling regulations. Velo's signature Airform support allows the saddle to pivot slightly, ensuring the riders' security with shock absorption on quick turns. Designed to harmonise with the riders' body weight as they move, it also provides outstanding support.



EVOLO BS-EVL006 WORKSTAND

This full-size workstand can fold into a compact package weighing just 4.7kg. Created from lightweight yet robust aluminium alloy, it features a 360° rotatable quick-release clamp to get your bike into precisely the right spot. With the jaws of its clamp benefiting from thermoplastic elastomer inserts to protect the bike's frame, it's capable of supporting cycles up to 30kg.



BOSCH SMART SYSTEM A FULLY CONNECTED EBIKE EXPERIENCE

The smart system by Bosch eBike Systems – consisting of the new eBike Flow app, control unit, display, battery, and drive unit – ensures an individual eBike experience. The new system generation combines technologically high-quality eBike components with the digital world, taking riding enjoyment in everyday life and in leisure time to the next level. Digital features and services are important

enablers for the mobile future in a connected world. With the smart system, Bosch is taking another step towards the eBike mobility of tomorrow. **A6-300**



STAN'S NO-TUBES FLOW MK4 RIM

The Flow MK4 combines Stan's patented BST tubeless design with a new asymmetric shape to create more balanced, stronger wheels. With a 30mm internal width ideal for trail and all-mountain riding, the 6069 aluminum rim's welded joint and reinforced spoke holes are built to last. Available in 27.5" and 29", the rims feature a 3-year warranty. **www.notubes.com**



NEW PRODUCTS

MESSINGSCHLAGER MUC.C.AL.SUV

"E-bikes under your own brand and market launch in a maximum of 12 months? No problem!" This is the promise made by the importer Messingschlagler from Baunach in Franconia, Germany. Supported by the development and procurement expertise of the largest European bicycle parts importer, the customer can configure e-bikes from eight different concept platforms or contribute their own concept ideas. The latest model is the MUC.C.al SUV with Brose drive.

City e-bikes have many advantages, but are inferior to normal e-mountain bikes in terms of off-road suitability. This model is designed as an all-road e-bike, ideal for on- and off-road, combining the advantages of a low entry with greater off-road mobility. The SUV is equipped and well prepared for all eventualities, whether on a weekend tour or a shopping trip to the weekly market. This is guaranteed by a powerful lighting system, elegant integration of mudguards and luggage rack, as well as thick knobby tires. The battery removal was designed in such a

way that the cover and battery can be removed upwards without tools, thus fulfilling important ergonomic aspects. The geometry and seating position promise a high level of comfort and touring suitability in urban areas as well as on gravel or forest paths. In terms of power transmission, great

importance was attached to the maximum possible compatibility, with an open frame triangle, so that chain, hub and belt drives can be installed without any problems. All Brose Generation 2 motors with 50 - 90 Nm torque are available

as a drive, with a choice of two batteries (522 or 630 Wh) and the displays from Brose. Interested visitors can view the complete range of e-bike concepts at the Messingschlagler exhibition stand in Hall A5/100. **A5-100**



HAFNY E13 APPROVED E-BIKE MIRROR

The HF-M901L/R-FR08 mirror is designed for speedy 45km/h e-bikes. A high-spec product, its hollow design decreases weight and lowers wind resistance. With a body made of robust fibre-reinforced nylon, it can fit within a broad range of 14.8-23 mm internal

diameter handlebars. Benefiting from three pivots joints, this high degree of articulation allows the mirror to be adjusted to any desired angle. It's available with either an HD glass or anti-glare blue lens. www.hafny.com.tw



VELCO FLEET MANAGER SOLUTIONS FOR E-BIKE

Velco's fleet management tools make it easier to maintain your pool of bicycles while improving the experience of your users. Offering applications and automated processes to enhance your rental service, it allows oversight of your fleet with real-time geolocation alerts in case of theft or maintenance issues. Also allowing you to remotely shut down your bikes if needed, Velco can also provide personalised KPIs to measure your service performance. **A1-304**



EVOLO EVC333 ENDURO HELMET

A modern enduro helmet with a patented air-flow design and including big vents. Created using the in-mould technique, the EVC333's shell comes in two pieces, allowing for contrasting colouring of each component. Featuring a comfortable inner lining and an ITW buckle, it can also be heavily customised by adding logos to the straps or shell. With mould design capabilities, Evolo is also keen to collaborate on entirely bespoke products.

TERN BICYCLES STORM BOX MINI

When combined with the Clubhouse Mini rear carrier, the Storm Box Mini creates a large weather-protected bucket that is ideal for transporting one young kid or hauling up to 100 litres of cargo. Includes a water-resistant and lockable lid to protect your stuff from rain and prying eyes. It's compatible with Tern's best-selling HSD and GSD bikes. www.ternbicycles.com



VELO VL-6450

With its sleek black finish, the cast aluminium supporting structure of the VL-6450 saddle resembles a jet engine. This patented Wing Bow design at the base of the seat offers support and minimises the amount of discomfort a rider may experience by allowing the saddle an enhanced degree of movement. Also designed to sway with the rider during fast turns, it ensures rider and saddle are always in harmony.





SAN FANG AEGISKIN VACUUM FORMING FILM

As governments and global brands embrace environmental and renewable energy policies, San Fang is helping component makers keep up. Its Aegiskin Vacuum Forming Film is a new material solution for bicycle saddle skins. Dimethylformamide and plasticiser free, it's been certified REACH, RoHS, and PAHS compliant. Possessing outstanding strength and stretchability, it's suitable for vacuum forming in conjunction with many different types of foam. Contact: peterhuang@sanfang.com.tw www.sanfang.com

NEW PRODUCTS

A-PRO ONCA 6.0 FRAME

The ONCA 6.0 CA-S frame is designed for conquering extreme terrain. Made to work with 29-inch wheels, its muscular carbon chassis is manufactured using lightweight EPS technology and high modulus fibre. Combined with 6061 aluminium chainstays, the complete frame is lightweight, stiff, and responsive. At its heart is a mount for Shimano's EP-800 motor and new in-tube battery. Extremely versatile, travel can be switched between 150mm and 120mm by adjusting its linkages. www.apro-tek.com



BYTHLON PEDAL SYSTEM

The Bythlon Pedal System offers the performance of clipless pedals without the risks of clipping-in. Using a patented form-fitting connection instead of a lock, the Bythlon system holds the shoe in place yet allows the user to step out at any time with a very natural movement. Simply lift your feet, and they're free. Compatible with every road-bike shoe, it's a great introduction to efficient pedalling for those that don't want to be more rigidly attached to the bike. ÜO-203

SKS NEW FLOOR PUMPS

SKS has launched a suite of five floor pumps. Divided into Eco, Comfort, and Pro categories, everyone will find a design that suits their way of life. Each sporting SKS' famous Made-in-Germany quality, all are equipped with the firm's improved MV Easy multi-valve head. Like the firm's famous Rennkompressor, each is further backed by a fully serviceable construction, with spare parts available years after the purchase. Ensuring each pump can be used with pleasure over many generations, the entire range will be available in early 2022. A5-300

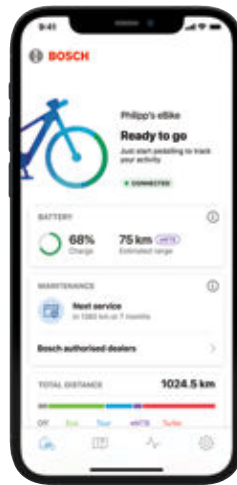


HAFNY HF-M956-FR06 BAR-END MIRROR

The HF-M956-FR06 bar-end mirror is specially designed for drop bar road bikes but can also be used on MTB handlebars. This super convex mirror is made of HD shatter-proof glass instead of the generic plastic more commonly used across the market. Because of this, it's able to reduce distortion and provides the most accurate view to improve your riding experience. www.hafny.com.tw

BOSCH EBIKE FLOW APP

Download to discover a uniquely connected experience. The eBike Flow app from Bosch eBike Systems is the central connection to the eBike and the key to the connected biking experience. Over-the-air updates always keep the eBike up to date and continuously enhance the eBike experience with new, innovative features. The app lets you customise riding modes, record activities completely automatically, and integrate fitness apps such as Apple Health. A6-300



VELO VL-6535 SADDLE

Velo's VL-6535 saddle comes in matte black and is designed for riders who enjoy a wide and comfortable seat. Benefiting from Velo's Atmos Shaping technology, its construction is both seamless and waterproof. Ensuring smooth riding, its shell features cutaways to add flexibility in critical areas. Helping the saddle absorb shocks when riding on rougher terrain, like other saddles in the range, it also benefits from Velo's hidden I-carry handle.

BY.SCHULZ STEM QUILL TWIST PRO SDS

Designed to fit 1 1/8" threaded forks, the Stem Quill Twist SDS offers an easy-to-use twist function as well as SDS. The stem angle is adjustable between -20° and +60°, which together with the height adjustability of 8cm, allows an optimal individual seating position. The tool-free twist function allows a space-saving parking position of the handlebar in seconds. When turning back the handlebars, the stem engages again in the direction of travel. The SDS system allows the mounting of a variety of accessories easily and securely directly on the stem. www.byschulz.com A3-401



TERN BICYCLES DOGHOUSE MINI

Bring your best buddy on your next ride. Composed of three different accessories, the Clubhouse Mini, Soft Crate Mini, and Dog Roof Mini, the new Doghouse Mini is designed with washable materials, breathable mesh,



and a zippered top. Ideal for carrying a small or mid-sized dog, it's made to fit on the back of the Tern HSD and GSD bicycles. www.ternbicycles.com

JOYLAND LONG-TAIL E-CARGO BIKE

Designed around small and robust wheels with large comfortable



tyres, Joyland's Long Tail E-Cargo Bike benefits from both a compact size and low centre of gravity. Able to travel up to 60km on a single charge, its long-tail design makes it ideal for shopping or travelling with kids. Able to carry 40-50kg of luggage, it can accept a range of modular accessories, including child seats, luggage racks, bags, and baskets.

NEW PRODUCTS

TANNUS ARMOUR TUBELESS

New from Tannus is the Armour Tubeless in a narrow version for tires from 700 x 33 - 47C, such as gravel tires. As an additional insert in tubeless tires, it offers up to 20 millimeters of protection for the rim, improves riding behavior and ensures emergency running properties. The innovative product concept combines the lowest possible weight and high cornering stability. The Armour Tubeless absorbs a wide variety of impacts and vibrations thanks to its innovative construction of high-tech polymer foam and, at 70 grams, is significantly lighter in the gravel version than a standard tube. Thanks to the innovative wing technology, installation is easy, and the handling is comfortable and stable at all times. It has already proven this and its low rolling resistance and excellent puncture protection in testing. Test videos and other helpful video material on possible uses and

assembly can be found on the distributor Messingschlager's microsite for Tannus at www.tannus.messingschlager.com. Of course, the Tannus Armour models for tires with inner tubes are still available. These are offered in a variety of sizes between 20 "and 29". Here the

additional puncture protection is in the foreground, which is achieved through the up to 15 mm thick insert on the tread. The protection is 2 - 5 mm thick on the sides and on the rim. The Tannus range also includes airless tires that guarantee 100% puncture protection as

they contain no air. They are available in different degrees of hardness, sizes, colors and profiles. The tubeless gravel version and other puncture protection inserts from Tannus Armour can be viewed at the Messingschlager stand in hall A5 / 100. **A5-100**



EVOLO PB-EVK003 MAGNESIUM PUSH BIKE

Made for little racers. This beautiful balance bike features a sculpted magnesium alloy frame and fork. Lighter than aluminium and with high tensile strength and damping capabilities, it provides for a low weight of 3kg along with improved comfort. Easy for your child to ride and light for you to carry, this 12-inch wheel bike also benefits from an alloy handlebar and EN71 approval.



A-PRO R001 WHEELS

The R001 carbon gravel wheelset has benefited from significant new design and process optimisation. Allowing A-Pro to improve rigidity by 102% and impact strength by 19%, its asymmetric rim design keeps both sides of the wire tension almost equal. Resulting in a vastly expanded lifespan for the wheelset, it also improves stability when cornering, ensuring safety and comfort. Using a secure hooked rim design, it's compatible with both tubeless and clincher tyres. www.apro-tek.com



BLUBRAKE BLUBRAKE ABS G2

Blubrake aims to make e-bikes safer. Small, lightweight, and adaptive, its Blubrake ABS G2 is the second generation of the firm's e-bike-specific anti-lock braking system. Designed to prevent front wheel lock and rear wheel lifting, it's a further step forward in the development of technologies applied to electric bicycles. Already working with firms including Bulls and Bianchi, it's now looking for more bikemakers with which to collaborate. **A6-308**



B&W BIKE GUARD CURV

The Bike Guard Curv is a high-spec hardshell box for storing racing, mountain, and triathlon bikes. With a shell made of innovative Curv material, this is comprised entirely of self-reinforced polypropylene. Environmentally friendly, impact-resistant, waterproof, and ultra-light, the complete case weighs only 8.2 kg. The lightest hardshell bike case you can find, its easy wheel design further ensures stress-free travel with your bicycle. **A3-305**



FLR F-11 SHOES

FLR's popular F-11 shoes now come with knitted uppers. More comfortable, more breathable, and generally an ideal option for long rides in hot weather, they're paired to a robust nylon outsole for the perfect balance of performance and value. Based on the firm's top-of-the-line F-XX knit shoe, as used in the WorldTour pro peloton, the F-11's only difference is the more budget-friendly material used for its sole. **B3-303**



NEW PRODUCTS

CORE BODY TEMPERATURE SENSOR

The innovative CORE Body Temperature Sensor has been adopted by leading cycling teams and athletes. The CORE sensor delivers accurate data in real time and enables riders to improve their training and racing performance when they get hot. CORE is compact, easy to use and integrates easily with sports hardware and software. **B3 - 308**



SCHWALBE - RALF BOHLE GMBH PICK-UP CARGO TIRE

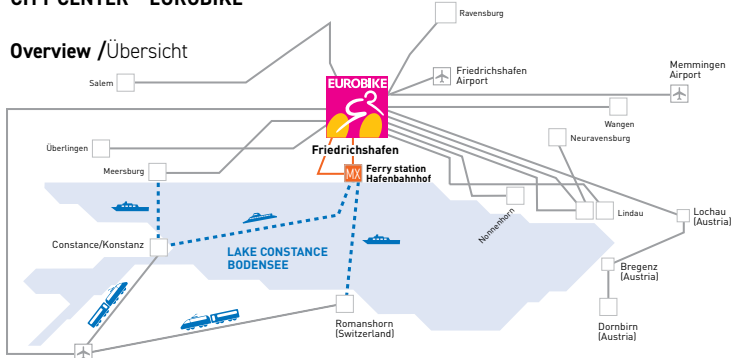
Takes the load without punctures — a new tire for cargo bikes. Schwalbe's first true cargo tire the Schwalbe Pick-Up, easily gets any load of up to 300 kg rolling — at the same time, it is stable, low-maintenance and durable. With its extremely robust carcass construction it meets the highest standards for performance and safety under extreme loads. Further advantages: the Schwalbe Pick-Up is Schwalbe's second tire made of fair trade rubber. www.schwalbe.com **A5-301**



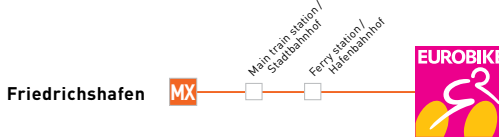
EUROBIKE TRANSPORT GUIDE

FREE SHUTTLE SERVICE CITY CENTER - EUROBIKE

Overview / Übersicht



MX MesseExpress Main train station / Stadtbahnhof - Ferry station / Hafenbahnhof



Arrival & Departure **MESSE** Entrance West

MESSE EXPRESS
September, 1 - 4 /
1. - 4. September 2021

ARRIVAL ENTRANCE WEST / ANKUNFT EINGANG WEST

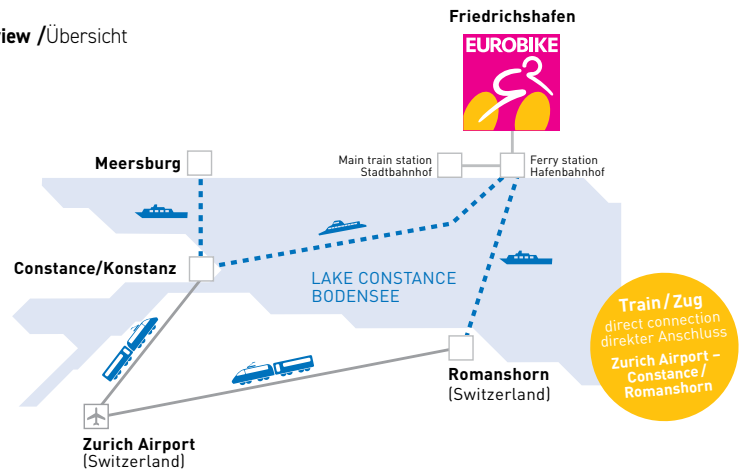
| Bus Stop / Haltestelle | From / Von | Takt | Till / Bis |
|-----------------------------------|------------|-----------------------------------|------------|
| Main train station / Stadtbahnhof | 8:10 | Takt: 10 / 30 / 35 / 50 | 12:50 |
| EUROBIKE Entrance / Eingang West | 8:21 | Takt: 01 / 21 / 41 / 51 | 13:01 |
| Ferry station / Hafenbahnhof | 8:15 | Takt: 05 / 15 / 45 | 13:05 |
| EUROBIKE Entrance / Eingang West | 8:25 | Takt: 15 / 25 / 55 | 13:15 |
| Ferry station / Hafenbahnhof | 13:10 | Takt: 00 / 10 / 20 / 30 / 40 / 50 | 18:30 |
| Main train station / Stadtbahnhof | 13:16 | Takt: 06 / 16 / 26 / 36 / 46 / 56 | 18:36 |
| EUROBIKE Entrance / Eingang West | 13:27 | Takt: 17 / 27 / 37 / 47 / 57 / 07 | 18:47 |

DEPARTURE ENTRANCE WEST / ABFAHRT EINGANG WEST

| Bus Stop / Haltestelle | From / Von | Takt | Till / Bis |
|-----------------------------------|------------|-----------------------------------|------------|
| EUROBIKE Entrance / Eingang West | 8:15 | Takt: 15 / 22 / 37 / 55 | 12:37 |
| Main train station / Stadtbahnhof | 8:25 | Takt: 25 / 32 / 47 / 05 | 12:47 |
| EUROBIKE Entrance / Eingang West | 8:26 | Takt: 02 / 26 / 46 / 50 | 12:45 |
| Ferry station / Hafenbahnhof | 8:34 | Takt: 10 / 34 / 53 / 58 | 12:53 |
| EUROBIKE Entrance / Eingang West | 13:00 | Takt: 00 / 10 / 20 / 30 / 40 / 50 | 19:00 |
| Ferry station / Hafenbahnhof | 13:09 | Takt: 09 / 19 / 29 / 39 / 49 / 59 | 19:09 |
| Main train station / Stadtbahnhof | 13:15 | Takt: 15 / 25 / 35 / 45 / 55 / 05 | 19:15 |

BOAT TIMETABLE SCHIFFSVERBINDUNGEN

Overview / Übersicht



Train / Zug direct connection direkter Anschluss
Zurich Airport - Constance / Romanshorn

FERRY / BODENSEEFÄHRE Constance Stadt / Konstanz Stadt - Meersburg

| Departure Constance / Abfahrt Konstanz | From / Von | Takt | Till / Bis |
|--|------------|---------------------------|------------|
| 00:05 | | Takt: 05 | 04:05 |
| 05:05 | | Takt: 05 / 35* / 50* | 05:50 |
| 06:05 | | Takt: 05 / 20* / 35 / 50* | 06:50 |
| 07:05 | | Takt: 05 / 20* / 35 / 50 | 07:50 |
| 08:05 | | Takt: 05 / 20 / 35 / 50 | 19:50 |
| 20:05 | | Takt: 05 / 20 / 35 / 50** | 20:50 |
| 21:05 | | Takt: 05 / 35 | 23:05 |

| Departure / Abfahrt Meersburg | From / Von | Takt | Till / Bis |
|-------------------------------|------------|----------------------------|------------|
| 00:35 | | Takt: 35 | 05:35 |
| 06:05 | | Takt: 05* / 20* / 35 / 50* | 06:50 |
| 07:05 | | Takt: 05 / 20* / 35 / 50* | 07:50 |
| 08:05 | | Takt: 05 / 20 / 35 / 50 | 20:50 |
| 21:05 | | Takt: 05 / 20** / 35 | 21:35 |
| 22:05 | | Takt: 05 / 35 | 23:35 |

* Nur Montag bis Freitag an Werktagen / Only on Monday to Friday on working days.
** Nur in den Sommerferien des Landes Baden-Württemberg / Only during the summer holidays of Baden-Württemberg County (29.07.2021-10.09.2021)
Duration of the journey approx. 15 min. Subject to a charge. / Fahrzeit ca. 15 min. Kostenpflichtig. www.bsb-online.com

CATAMARAN / KATAMARAN Constance / Konstanz - Friedrichshafen

| Departure Constance / Abfahrt Konstanz | From / Von | Takt | Till / Bis |
|--|------------|---------------------|------------|
| Mon - Fri / Mo - Fr | 6:00 | every / alle 60 min | 19:00 |
| Sat - Sun / Sa - So | 8:00 | 60 min | 19:00 |

| Departure / Abfahrt Friedrichshafen Ferry Station / Hafen | From / Von | Takt | Till / Bis |
|---|------------|---------------------|------------|
| Mon - Fri / Mo - Fr | 6:00 | every / alle 60 min | 19:00 |
| Sat - Sun / Sa - So | 8:00 | 60 min | 19:00 |

Fr and Sat additional departure FN / Fr and Sa zusätzliche Abfahrt FN: 20:02 / 22:02
Duration of the journey approx. 52 min. Subject to a charge. / Fahrzeit ca. 52 min. Kostenpflichtig. www.der-katamaran.de

FERRY / BODENSEEFÄHRE Romanshorn - Friedrichshafen

| Departure / Abfahrt Romanshorn | From / Von | Takt | Till / Bis |
|--------------------------------|------------|---------------------|------------|
| Mon - Fri / Mo - Fr | 5:24 | every / alle 60 min | 20:24 |
| Sat - Sun / Sa - So | 7:24 | 60 min | 20:24 |

| Departure / Abfahrt Friedrichshafen Ferry Station / Hafen | From / Von | Takt | Till / Bis |
|---|------------|---------------------|------------|
| Mon - Fri / Mo - Fr | 5:21 | every / alle 60 min | 20:21 |
| Sat - Sun / Sa - So | 7:21 | 60 min | 20:21 |

Duration of the journey approx. 41 min. Subject to a charge. / Fahrzeit ca. 41 min. Kostenpflichtig. www.bsb-online.com



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