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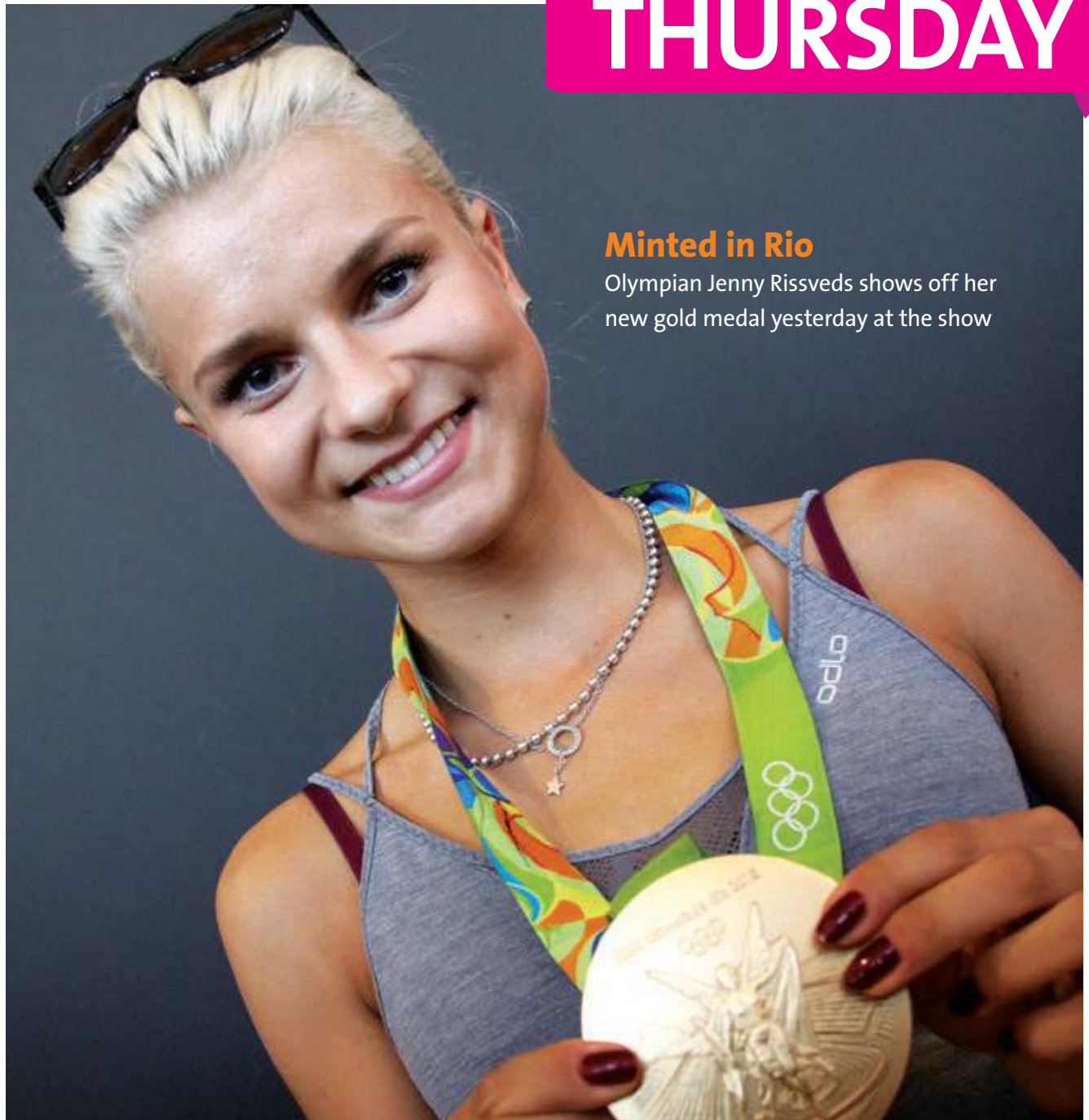


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Olympian Jenny Rissveds shows off her new gold medal yesterday at the show

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Eurobike honors 12 with Gold Awards

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All kinds of bikes are getting plus-sized

10 **FSA says WE is for all**
It unveils its electronic drivetrain yesterday

36 **City slickers**
Urban e-bikes get sleeker and slicker



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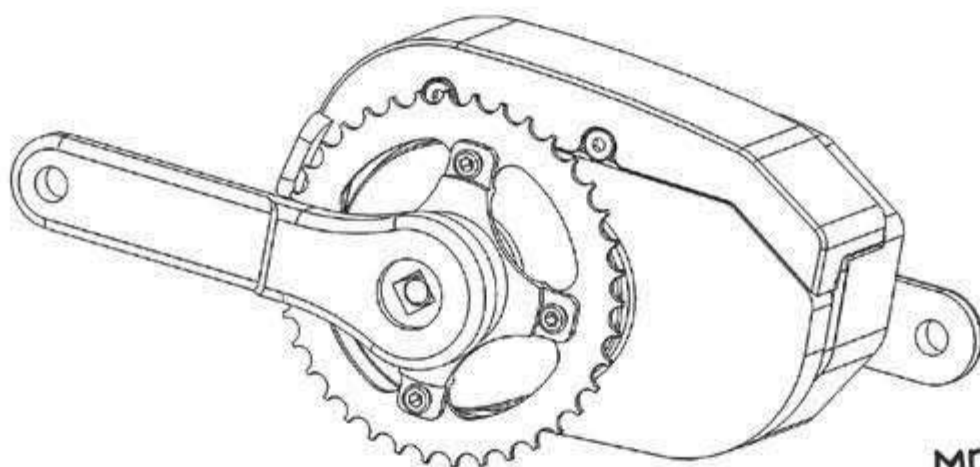
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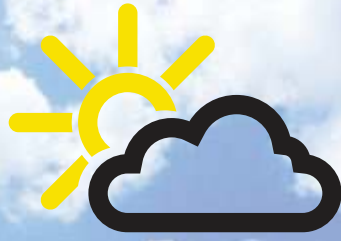
THE PERFORMANCE
SPECIALIST

TODAY

September 1
FRIEDRICHSHAFEN

25°C (77°F)

Mostly sunny



TONIGHT

14°C (57°F)

Chance of showers



TOMORROW

26°C (78°F)

Mostly sunny



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Wish Eurobike a happy 25th birthday and then get down, old-school style, at tonight's Eurobike Party! Join six industry veterans at 6 p.m. to reminisce about Eurobike's illustrious past on the Fashion Show Stage, Foyer East — and then head to the party at 7 p.m., just outside at the Open Air Grounds East. Special guest is the 90s German rock star Mr. President, along with the cover band Decoy. Free shuttles will take party-goers back to nearby towns and hotels at 11:30 p.m.

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A5-205

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Eurobike and exhibitors start a new chapter after 25 years

Eurobike opened its 25th edition on Wednesday amid a sea of changes. Most notably, the decision to run the demo concurrently with the indoor show, now five days, and to host a two-day consumer festival this weekend. The demo area is outside of the B halls.



Eurobike has completely revamped its demos, which now run for all five days of the show.

Eurobike head Stefan Reisinger was predictably positive about the kickoff to Eurobike's 25th year. Speaking Wednesday afternoon, Reisinger said he was really pleased with feedback from exhibitors.

"All the people I met today said it's really working well. I'm convinced that bringing the bike demo closer to the business part of the show is a good move," he said.

Exhibitors at the demo reported less

traffic compared to previous years when there was a single dedicated day.

"Because we are selling online, our days are more Saturday and Sunday," said Maximilian Stauber, event coordinator for Canyon. "We expected the first days to be quiet, and we'd have more on the weekend."

Stauber said the new layout has benefitted Canyon, which scored a bigger booth space when it moved to Hall B1. The demo event is less stressful now that they don't have to rush to set up the tent and build the booth at the same time, Stauber said, and it's less chaotic because testers aren't as rushed.

"There's no pressure to test everything at once, all in one day," Stauber said.

But, the fact that the demo is now spread over five days is worrisome to Klaus Rutzmoser, project manager marketing for Scott Bicycles, one of the show's biggest anchors.

"Sure, you can go outside have a ride with a dealer, this is an advantage. But we have more than 50 test bikes and they're not completely in use the whole time. It's really spread out. Many people don't think about riding bikes because they are here for a business fair," Rutzmoser said.

The new arrangement can also be taxing for a small brand that now has to staff up in order to run a demo tent for a

full five days.

Inside, it was business as usual. Aisles and booths teemed with roller-bag-toting attendees, despite some of the biggest brands in the industry, like Cube, Felt, Specialized, Trek, Derby Cycle and Focus Bikes, opting to spend their marketing budgets on their own events instead of buying tradeshow booths.

That trend has opened the door for a brand like Marin to draw in more prospective dealers.

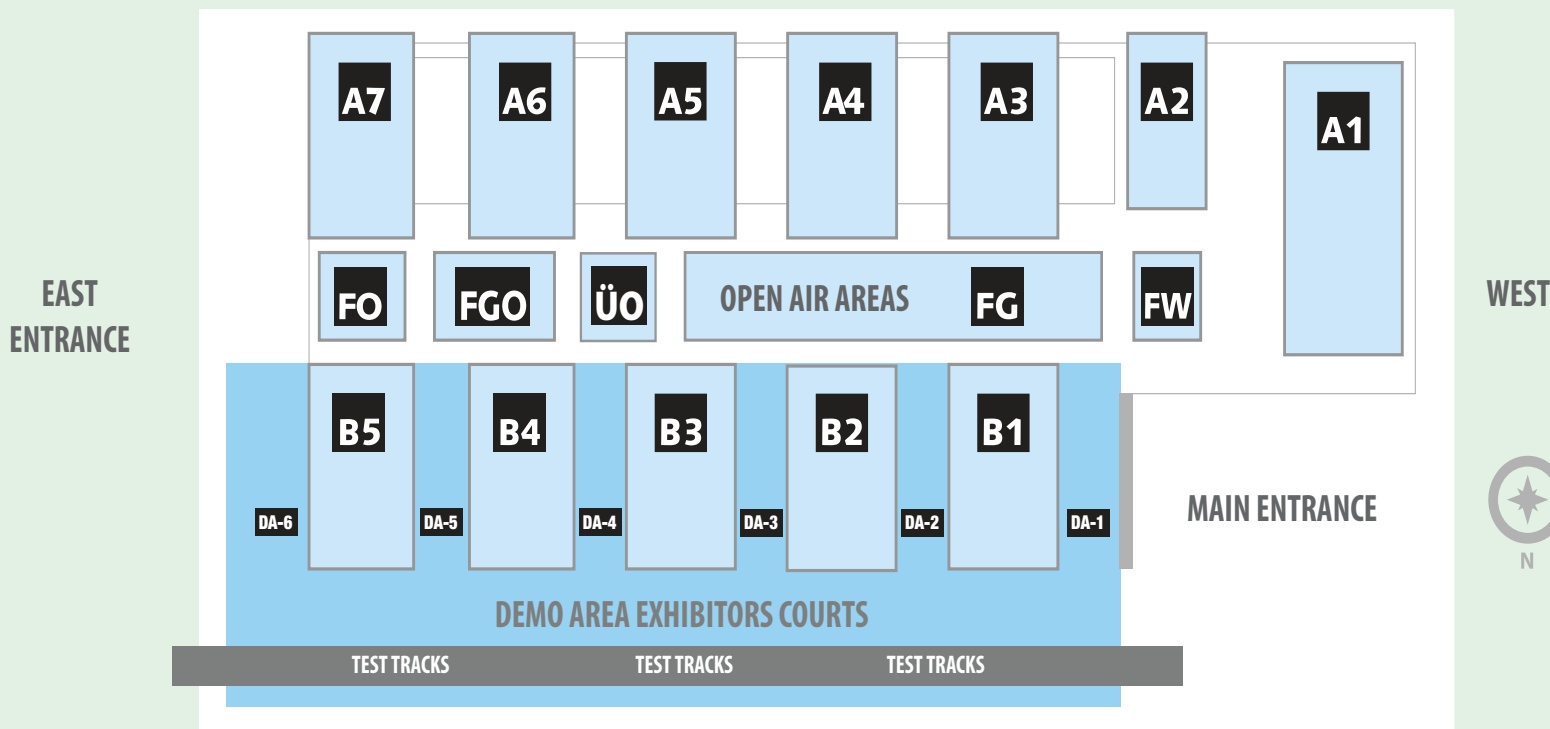
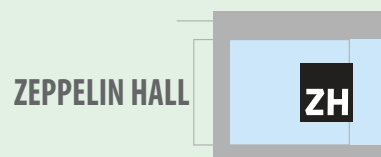
"We're in a growth stage in Germany," said Chris Holmes, Marin's brand director. "We made some management changes a few years ago and we have a renewed focus on the market. We're rebuilding the dealer base and we need to be here for it."

For Reisinger, Eurobike's new model with a heavy focus on the end consumer—the two-day weekend festival with bands and bike performances is expected to draw some 35,000 visitors—is a move to keep the show relevant for existing exhibitors and potentially intrigue those that have left.

"In the future, brands will realize they need to work directly with the end consumer," he said. "Communication with the bike enthusiast will be key in marketing, strategy and communication in the future." ■ **NF**

A GUIDE TO EUROBIKE STAND NUMBERS

- A & B** = MAIN INDOOR HALLS
- DA** = DEMO AREA EXHIBITORS COURTS (SEE PAGE 36-39 FOR DETAILS)
- FG** = OUTDOOR AREA WEST ("FREIGELÄNDE")
- FG-O** = OUTDOOR AREA EAST ("FREIGELÄNDE OST")
- FW** = FOYER WEST
- FO** = FOYER EAST
- ZH** = ZEPPELIN HALL (EXIT THROUGH THE SOUTH END OF HALL A2)
- ÜO** = EAST PASSAGE



Vox Pop

How do you like the new demo format?



Jean Michel Guichard
Look International
Nevers, France

Today was calm, very calm. We didn't have many people testing our bikes, whereas before there were many more right from the start. Tomorrow we will see what happens. The older format saw more people at our stand right away. But I think we will have more people test riding our bikes this year, but spread across the five days. And the sun is out as well, so I expect a large crowd for the public days..



Michael Prugner
Marin
Nurnberg, Germany

It's my first time at Eurobike, so I can't compare to other years. I think it is working well with the armbands and the stands outside. Many people don't know that they have to have accreditation to test ride the bikes. We have had to send several people back to the accreditation stands. It's not very clear what the procedure is.



Robert Wurtenberger
Simplon
Hard, Austria

I've been here before but in the past I came as a bike dealer. This is my first time here as an exhibitor, but I think it's better for the dealers and consumers that they have the opportunity to try the bikes out all week rather than just on one day. I think the public will really enjoy the new format.



Francesco Baroni
Bianchi
Treviglio, Italy

Of course the format is different to previous years. I think it's better separated. We have a lot of people

coming to test the bikes, but they are dressed casually and this is not appropriate for testing the bikes properly. When we had a separate Demo Day, people came to us to test the bikes and then came back for meetings with suppliers. Now we are sharing the days. I'm not sure if it will work so well.



Kerstin Nicklaus
Winora Group
Sennfeld, Germany

I'm not sure yet, but I think it's a good decision because everyone gets more time to test the bikes. Also we have less work to do as we don't have to build the demo day stand and then take it down again the next day. So it's easier to handle, and I think it's a good idea. I like the new test track here. It's easy for people to do short test rides. It's going to work, I think.



Lukas Winkler
KTM
Mattighofen, Austria

It's my first year at Eurobike, so I don't have past knowledge of Demo Day. It's going fine, though — we have had lots of people trying out our bikes. The fat bikes and e-fat bikes are the most popular with the testers.



Kai-Uwe Frank
Passione Bici
Kirchheim, Germany

Testing the road bikes is quiet so far. We find it's the e-bikes that people are mostly asking to test. I think the road bikes will be more in demand on Saturday and Sunday when the public are here. But it's a good idea, and we have a larger space, so we can show more over the five days. Last year it was so compressed, so many people in such a short space of time. We couldn't handle it. Then we only had seven or eight bikes on show, now we have 15 bikes available to test. So now we can cater for all sizes of bikes, and that's better. Today we had less people testing the bikes, but we had more time to spend talking to them. We will see in the next few days.

Eurobike panel honors 12 Gold Award winners

Eurobike handed out 12 Gold Award winners Wednesday evening, honoring the best of the 472 entries it received for this year's Eurobike Awards. The jury recognized a total of 51 new products with its awards.



The Supernova crew celebrates their Gold Award for Taster.

"In terms of truly high-end innovation, the emphasis was on the tech winners, but we were unanimous that all twelve thoroughly deserve the accolade," said Rik de Bruin, who served on the jury. All the winning products are on show in the Innovation Area.

The Uvex Jakkyl HDE won gold for a mountain bike helmet that transforms from half-shell to full-face in seconds, while the Red eTap system by SRAM combines a wireless electronic shift with disc brakes, creating interesting future prospects for the racing bike segment.

"The wireless sequential shifting



Chien King pedals

technology from SRAM has been augmented by hydraulic disc brakes to produce an impressive combination that will change the market," the jury said.

The Quick Motion by Elite is a roller trainer featuring numerous practical details that convinced the judges of its merits.

"A durable and well-made design that folds away into an impressive space-saving format," they said.

WTB impressed the jury with its Horizon Road Plus Tires, which extends the plus-sized tire concept to road bikes.

"This tire size produces an incredibly comfortable ride with low rolling resistance for gravel bikes," judges said. The panel also rewarded another gravel bike entry, the 3T Exploro — which the company describes as an aero gravel bike with plus-sized tires. "This bike will open your eyes to a completely new segment: bike racing on gravel," the judges said.

The TTiR from Parlee Cycles was cited for what panelists called its innovation, sleek design and "aerodynamic disc brakes that raise safety to a new level."

Giro's Factor Techlace, which combines rotary closure and Velcro fasteners, allows for quick and accurate adjustment. Other details that helped to secure the Eurobike Award were outstanding materials and workmanship.

The by.schulz Stem Twist system is already established as a popular solution for saving space while transporting and storing bicycles. It now features a number of smart details such as an SDS front cap for devices including a phone, light, or GPS.

From Spanish manufacturer Rotor, its 2INpower power meter combines a respected drive technology with a system for power measurement that the jury praised for setting the benchmark in both functionality and price.

Supernova's Taster provides a neat way of integrating the control buttons for light and horn on an e-bike.

The experts considered it an all-round success, calling it "a simple and useful innovation that provides a clever solution to a real industry problem with fast e-bikes."

Lumen Labs' Lumos Helmet has integrated large front and rear lights along with yellow turn signals. The panel judged it to be "a useful contribution to cycling safety."

At Bike Ahead, NSA stands for No-Slip-Application and describes a new surface technology for carbon bike components that considerably reduces the torque settings required for assembly, significantly simplifying the mounting of lightweight carbon components. It also makes them less prone to failure.

Finally, the jury gave this year's Green Award to Taiwanese company Chien King Industrial. The company uses the husks of rice grains as the raw material for the plastic in its CK-UB2RH FPC pedals. ■ GS



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Booth A6-104
DemoArea: DA-415

What's on today: Thursday, Sept. 1

All Day Events

Eurobike Show Hours
9 a.m. – 6 p.m.

Outside B halls
Demo Area
Test some 3,000 bicycles on a 10km (6-mile) test track

Administration Offices (near West Entrance)
Demo Area
Test bikes on a designated pump track

Foyer West
Aero Show
See the possibility of aerodynamic velomobiles as future car replacements.

Foyer West
Vision Area
Test recumbent trikes or bikes, cargo bikes, tandems and other special bikes.

Foyer West
Bike Book Show

Passage East
Women's Area
Women from the bike industry can relax and network at this "chill-out zone." Includes refreshments, an info counter, a nail salon, hairstyling services and foot and neck massages.

iXS (B2-202)
WC Race Kit contest
Win a race kit including helmet, kneeguards and gloves

Thun (A1-407)
Veuve Cliquot champagne and canapés

Scheduled Events
9.00

Room London
Eurobike Academy
The effect of omni-channel fulfillment and how it will influence your supply chain set-up in Europe.
John Rave, DSV Solutions. In English

9.30
Room Berlin
Eurobike Academy
LBU-Seminar at EUROBIKE 2016: Fundamentals on bicycle retailing and the German cycling-branch. Andreas Lübeck, Ulf-Christian Blume. In German with English translation. €49; register at seminar@lbu-beratung.de.

10.00 - 11.00
Rocky Mountain (B4-200)
Geoff Gulevich autograph session

10.30
Olimpia (B2-402)
New Product Introduction

10.30 – 12.00
Conference Center West, Room Schweiz
Shimano Urban Sports seminar
Advance registration required.

11.00 – 11.30
Foyer East
Eurobike Fashion Show
The ultimate catwalk for bikewear

11.00 – 11.30

Open Air Grounds West
MTB Trial Show with Thomas Öhler
The Red Bull athlete has thrilled thousands in more than 15 countries

11.00
Room London
Eurobike Academy
Magic Moments: Creating the WOW! Effect in the life of the customer. Steven B. Cook. In English

11.00 – 11.20
CeramicSpeed (B1-204)
Oversized Pulley Wheel System introduction

11.00
Demo Area (DA-416)
Reifenhebe Challenge
Show how strong you are to win tires or Adidas Terrex shoes

11.30 – 12.30
iXS (B2-202)
iXS Playground Selfie Session
Take your selfie with Richie Schley, Brett Tippie, Geoff Gulevich, Hans Rey, Thomas Genon, and Cedric Gracia

12.00
Room London
Eurobike Academy
Environmental compliance for e-bikes – focus on take-back of batteries. Solveig Legler. In English

12.00 – 12.30
FSA (A3-301)
Jakob Fuglsang
Autograph session with Rio silver medalist

12.00
CicloSport (A4 – 501)
Presentation HAC Navigation

13.00 – 14.00
Conference Center East, Room Paris
Taiwan Products Launch

13.00 - 14.00
Northwave (A7-401)
Cedric Gracia and Jordi Bago

13.00 - 15.00
BMC (B3-302)
Greg van Avermaet
Press conference and autograph session with Olympic gold medalist

13.00
Room London
Eurobike Academy
Additive Manufacturing (3D Printing) of Metallic and Ceramic Parts – Status and Current Developments. Olaf Andersen. In English

13.00
Room Berlin
Eurobike Academy
Bicycle trade 4.0 - multichannel strategies in the bike industry. Ralf Kindermann. In German with English translation

13.00
Demo Area (DA-416)
Reifenhebe Challenge
See above

13.00-15.00
Room Rom
New EU type-approval rules for electric

bicycles

Join Bike Europe and AVERE LEV-TF for luncheon discussion of new EU e-bike rules going into effect on Jan. 1. €80 / €40 Bike Europe subscribers / free, AVERE-TF participants and media

13.30 - 14.00

Open Air Grounds West
MTB Trial Show with Thomas Öhler
See above

14.00 - 14.30

Tacx (A1-08)
Dominik Nerz
Autograph session

14.00 - 14.20
CeramicSpeed (B1-204)

Bottom Bracket focused session
Maintaining bottom brackets with CeramicSpeed products.

14.00 - 14.30

Foyer East
Eurobike Fashion Show

14.00

Room London
Eurobike Academy
Hooray, a Complaint! Marius Graber. In German

15.00

Room London
Charge Control doubles E-bike Battery Lifetime & Optimal Design of E-bike Batteries: better features - lower assembly cost.
James Post, Michael Pecht. In English

15.00

Demo Area (DA-416)
Reifenhebe Challenge
See above

15.00 - 15.30

Foyer East
Taiwan Fashion Show

16.00 - 17.30

Haro (A1-403)
Luis Brethauer
Visit with German BMX Olympian

16.00 - 16.30

Foyer East
Eurobike Fashion Show
See above

16.00 - 18.00

Livall (A4-501)
Booth party

16.00 - 16.30

Open Air Grounds West
MTB Trial Show with Thomas Öhler

16.00

Room London
Eurobike Academy
Qualified Mechanical Labor as Competitive Advantage. Uwe Wöll. In German

17.00 - 18.00

Evoc (B4-201)
Booth party, with beer

17.00 - 21.00

GT (B2-100)
Hans Rey: 30 years with GT Bikes
Celebrate with bikes, beef and beer

17.00 - 19.00

SRAM (A3-300)
SRAM Women's Happy Hour

Meet and greet for women of the bike industry

17.00 - 18.00

Room Berlin
Symposium: Biking 3.0 - the future of networked cycling. Featuring experts from the tourism and bicycle industries.
In German

17.30

Entrance West
Rapha's Eurobike Invitational Rides
Escape the hustle and bustle of the show for an after-hours ride through the countryside.

18.00

MRP (B1-414)
20th Anniversary
Celebrate MRP's 20th anniversary with Beer Thursday and meet the mayor and city manager of Fruita, Colorado about moving your business there.

18.00 - 19.00

Foyer East
Talk Round
Remembering Eurobike's first 25 years, with Masaki Miyake, Shimano; Beat Zaugg, Scott Sports; Valentino Campagnolo, Campagnolo; Dirk Janz, Bike Action; Tom Ritchey, Ritchey; and Samuel Hu, Astro.

19.00

Open Air Grounds East
Eurobike Party
Happy Birthday, Eurobike!

18.00-21.00

Zeppelin Hanger Restaurant
LEVA Networking Dinner
€65 members / €100 non-members
Register: info@LEVAassociation.com

18.00 - 21.30

Continental (B3-100)
Booth party with the "Downhill Elite"
Booth party and autograph session with Danny MacAskill, Nicolai Rogatkin, Martin Söderström, Anton Thelander, Sam Pilgrim, Tomas Lemoine, Fabio Wibmer and Richie Schley

Press Events

10.00 - 11.00

Room Paris
Diavelo press conference
Introducing the Pininfarina E-voluzione

11.00

TQ Systems (A4-812)
Press Conference

12.00 - 13.00

Livall (A4-501)
Media Lunch for helmet launch

13.00-14.00

Room Paris
Taiwan new products launch
Join officials of TAITRA and Taiwan Bicycle Association for new products from five leading Taiwan manufacturers.

17.00

Selle Italia (B5-404)
Prosecco and line overview

Hosting a party, an athlete appearance or another special event at Eurobike? Send us your information no later than 3 p.m. for the next



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FSA's electronic groupset is a WE-for-all

FSA lifted the covers on its long-anticipated electronic groupset Tuesday, on the eve of Eurobike. The K-Force WE (for "Wireless Electronic") is due to reach the market in May.



Douglas Chen

Douglas Chen, managing director of FSA parent company TH Industries, said the K-Force WE has been "over five years in development. It's a very important product for us."

The 2,090g (4 pound, 10 ounce) groupset includes what **FSA A3-301** calls "game-changing" front and rear derailleurs, a hidden long-life battery pack, new carbon shift levers in two sizes, redesigned K-Force crankset, chainrings, and cassette and upgraded brakes.

Maurizio Bellin, general manager of FSA Europe, said the groupset is the realization of a long-cherished goal for the company.

"When Douglas started FSA Europe

with Claudio, the cranksets, which are now a core product, were just the first step in the mission of the company," Bellin said, referring to Claudio Marra, FSA's director of international sales and marketing. "The goal was always to produce a complete groupset. We were a little bit late with our mechanical groupset, but we spent a lot of time now to develop something new, something with a great concept behind it."

That concept, he said, was to design the system from a user's perspective. For example, a dedicated app gives riders the ability to fully customize and diagnose the system.

The app "adds value for the user," said Alfredo Sala, R&D lead on the project. "Already some systems on the market allow you to customize your shifter, but we added more information — shift count data, battery life calculation and so on. This advanced power management system provides the user with the most accurate estimation of the battery life."

FSA calls the K-Force WE a "hybrid wireless system." Front and rear derailleurs and the battery pack are connected via a cable hidden in the driveside chainstays and seat tube. The rider-configurable shifters are wireless.

Each are powered by a light, long-lasting battery.

Bellin said the hybrid approach allowed FSA to optimize the design.

"The brake levers are totally wireless and we have a slim tube battery with just two cables — one each for the front and rear derailleurs," he said. "This combination is the best because the front of the bike is free of cables and looks clean — best for aero frames."

He said the main battery pack is "fit and forget." Once it is installed in the tube it never needs to be removed. It recharges through a charging cable. One charge lasts 4,000 to 6,000km (2,485 to 3,730 miles) — a "very long life," Bellin said.

FSA uses a custom ANT protocol to transmit shifting data from the levers to the rest of the system, but the system is also compatible with the ANT+ open protocol, so data can be shared with power meters, cycling computers and other sensors.

The front derailer houses the K-Force WE's digital control box, which receives the wireless signals from the



The K-Force WE front derailer houses the system's digital control box.

shifters and relays them directly to the front derailer and by wire to the rear.

The rear derailer is not a traditional parallelogram design, but uses a gearbox that moves the cage across the cassette with precision.

"The design is based on three timing gears, constantly aligned," Sala said. "This solution is unique in the bike business but you can see it in robotics. It is excellent for electronic motor actuation, with highly accurate positioning." ■ TK

HEARING

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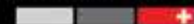
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Weaker sales 'don't make us nervous,' ZIV head says

Although the German bicycle market — Europe's largest — was soft during the first half of the year, industry executives said e-bikes are carrying the day.



Stefan Reisinger and members of the Eurobike industry panel.

Despite weaknesses in traditional bike sales, "in e-bikes we've got a real boom in the market. The forecast for the bicycle industry as a whole is still really positive," said Siegfried Neuberger, manager of ZIV, the German bicycle association.

Neuberger and others discussed the state of the industry — the German industry, at least — at the traditional pre-Eurobike conference on Tuesday.

ZIV said e-bike sales are expected to rise by 5 percent to 560,000 this year. But overall sales, including conventional bikes, are expected to drop by 5 to 8 percent for 2016 as a whole.

"Consumers were not in any real mood for bikes up until June.

Nevertheless, the figures reported by bike makers and part producers for the first two quarters were surprising," ZIV reported in its first half summary.

German suppliers produced 1.6 million bikes and e-bikes in the first half, just below last year's numbers, while retailers sold some 2.7 million bikes in the same period.

Neuberger said weather affected first half sales, but added the bike industry is used to these kinds of year-to-year fluctuations.

"This doesn't make us nervous as an industry. You can't control the weather," he said.

Frank Peiffer, managing director of Shimano Europe, said families continue



Frank Peiffer

to be involved in cycling.

"Tourism is still an area where bicycles are booming," Peiffer said. "On German motorways, every second car has a bicycle rack loaded with the family's bicycles."

Thorsten Larschow, owner of Rad und Tour, a bicycle retailer and rental shop in Cuxhaven, said rental shops are also driving e-bike sales.

"We are currently retrofitting our bicycle fleets and including more e-bikes," Larschow said. "As bike rental companies, with perhaps 300 to 700 bicycles, change their fleets over to e-bikes, that generates a lot of sales."

Panelists noted that Germany has supplanted the Netherlands as the largest e-bike market in Europe.

Winora Group CEO Susanne Puello noted that the German market supports a wider range of e-bikes than the Netherlands, where they are typically city bikes.

"In Germany we have a much broader target group," she said.

Although Eurobike is celebrating its 25th anniversary this year, Eurobike head Stefan Reisinger said he preferred to look ahead.

"A quarter of a century actually sounds like a history book — a museum," he said. "Eurobike is a trade show that is looking into the future."

Asked about the absence of some of the top bicycle companies who have opted for "house shows" for their own retailers, Reisinger said they were missing out, especially with the expanded consumer days this weekend.

"We also expect 35,000 end consumers this weekend and we have gigantic international media coverage. This is what the companies that did not come will miss," Reisinger said. "This is not just a B2B trade show — we want to become the most important event in the year for the bike industry." ■ DM



Susanne Puello

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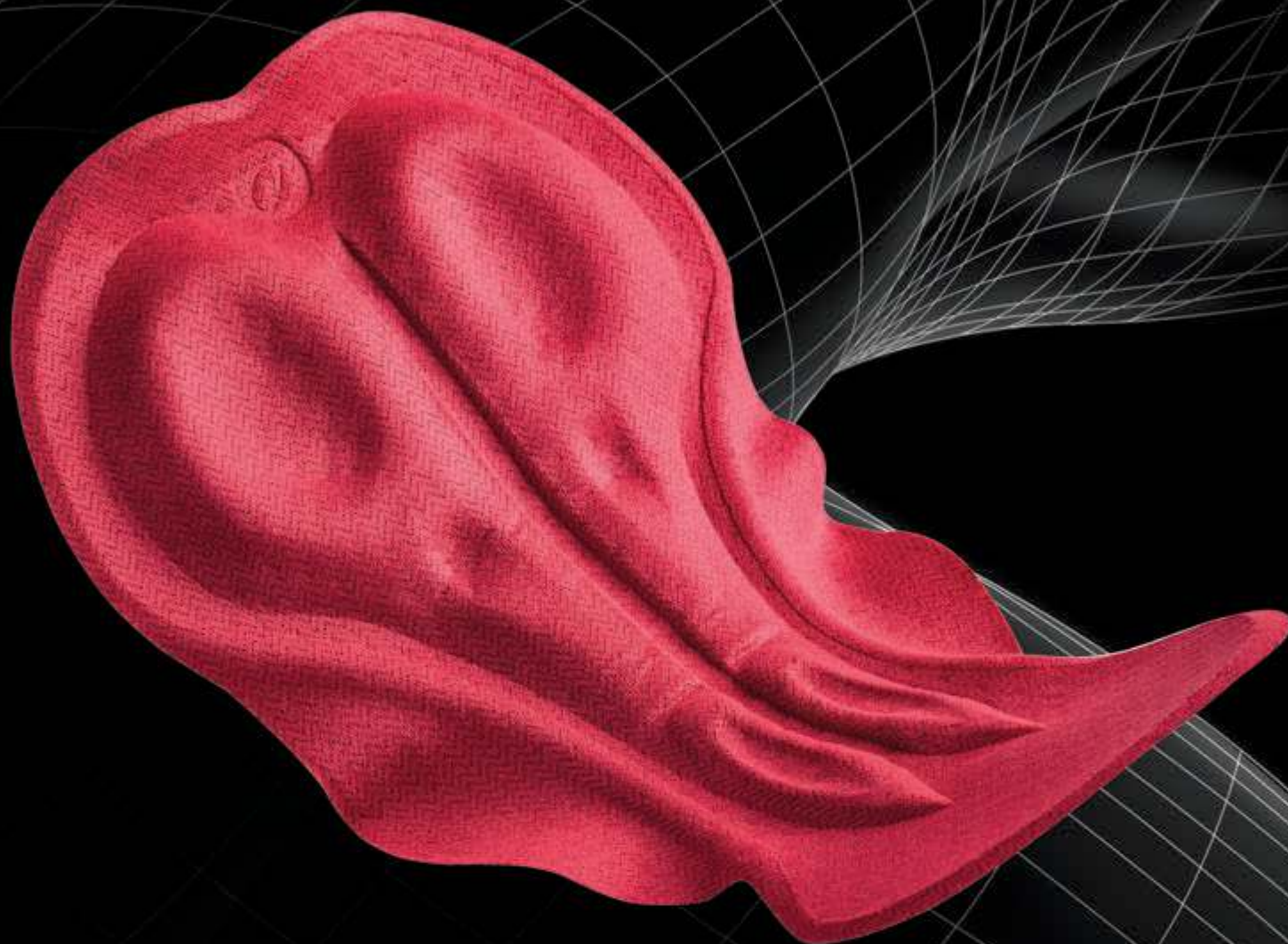
AP-48BT
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Kenda keeps a grip on trends in Europe, U.S.

Kenda is one of the world's top five makers of bicycle tires. But success is more than just huge factories. It also relies on keeping a closer eye on its ultimate markets.



Jimmy Yang (Photos: JB)

"Today it's not all about sales, but also brand building and close-to-the-market marketing," Kenda president Jimmy Yang said. A third of Kenda's **A5-501** sales are bicycle tires, making them the company's major product category.

Yang said 90 percent of Kenda's bicycle tire production is for its own brand, and only 10 percent for OEM customers.

"At the present time we see no reason for further growth of our production capacity. We are in a good position," Yang said.

The Taiwan manufacturer maintains a European headquarters in a scenic region of Bavaria, in southern Germany.

"We wanted to be where mountain

biking is actively practiced, so that meant being close to the Alps and to some Eastern European countries such as the Czech Republic," said Riko Vodan, head of European sales and marketing for bike tires. "We are also easy to reach from the Munich international airport."

In the U.S., Kenda opened the American Technical Center for bicycle tires last November in Akron, Ohio — once known as "Rubber City" because it was the center of the American tire industry.

Earlier this year, Kenda hired Alan "Al" Clark as global product manager for bike tires. "Alan analyzes global trends so that we can roll competitive innovative products into the market," Yang said.

The European and U.S. offices help Kenda stay on top of trends.

"Due to targeted sponsoring within the mountain bike segment we have been able to improve our brand image. But with an eye on new products we have to do much more," said Damon Tsai of Kenda's marketing department. "That's why we have people in Europe and America. We keep in touch with them and have regular contact and discussions."

Vodan said about 60 percent of Kenda's total bicycle tire production is mountain bike tires.

"That's where we successfully built our image," Vodan said. "Now we have to transfer this success to other bicycle tire

segments."

Sometimes the two regions have very different view of the market.

"Take e-bike tires, for example,"

Vodan said. "Right now they play the least important role in North America, the land of the mountain bike. But in most parts of Europe they are currently playing an important role. We can't ignore this trend and have to react promptly."

Kenda responded with its EMC,

or "E-Mountain Casing," process that creates a reinforced tire carcass to handle the greater stresses imposed by the heavier weight of an e-bike.

The company also was able to respond quickly to the rapid growth of 27.5-inch wheels.

Yang said Kenda's longtime goal is "to be one of the world's leading bicycle tire producer by volume, as well as owning one of the leading premium bicycle tire brands." ■ **JB**



Hubert Hager (left) and Riko Vodan of Kenda Europe

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Overview: Trainers

New trainers keep it real with better app integration and ride simulation

Combining better mechanics with immersive digital integration, the current crop of turbo trainers will have riders swearing they were on the road.



Tacx Magnum

Getting out on the bike is almost always a joy, but sometimes it's just not practical. Whether it's the weather that keeps a cyclist indoors, or the desire to attempt a particularly taxing training session, the holy grail for training at

home is recreating the feeling of real-world movement.

Most trainers accomplish this through some type of fixed resistance, but **Tacx AI-408** takes a fresh approach with its

Magnum trainer. It's a treadmill for bikes (as well as a conventional treadmill for runners). Cyclists simply ride aboard on their favorite bike, and away they go.

The Magnum can incline up to 15 percent and reach a top speed of 30 kph (19 mph). To keep cyclists on the straight and narrow — since falling off the back is not a good idea in this situation — the Magnum uses an array of sensors that communicate with its powerful, direct-drive motor.

Let up, and the treadmill surface slows down; edge forward and it speeds up. Automatic upward or downward tilt keeps the rider safe and centered.

Because the bike is untethered, cyclists experience the same freedom of lateral movement and balance as if they were on asphalt.

The system is compatible with Tacx and third-party apps.

Tacx is also stirring up the market for conventional trainers. It launches the Flux, which is a sibling of its space-aged Neo Smart trainer introduced last year.

The Flux offers many of the features of the Neo Smart at a lower price point. It can generate leg-achingly high resistance levels. Thanks to a

continuous motor and the ability to control moving parts thousands of times a second, it can realistically recreate the sensations of being on the road, and even of freewheeling or descending.

When paired with the Tacx Cycling app, the system faithfully replicates the sensations of rolling over different road surfaces. Riders don't have to go to France to experience the cobbles of Paris-Roubaix, or trek to Tuscany to feel the Strade Bianche; instead, they can just load them up on the app and get pedaling.

Virtual training apps have exploded this year. These expansive digital worlds



Tacx Flux





Bkool Go

are not just a gimmick. Because they let riders compete with rivals — real or fictional — the “gamification” of solo training can go a long way toward keeping cyclists motivated.

Just as Strava has made the real world more digital and competitive, so indoor training apps like Zwift make the digital

compatible, the Go is Plug & Play ready, so no setup is needed. It folds compactly so it takes up little real-world space after a cyclist leaves the virtual world.

A division of Saris, **CycleOps A3-109** makes trainers that are known for their lifelike road feel. At the heart of its new Magnus trainer is a 1.8kg (2.6 pound) precision-balanced flywheel regulated by a fast responding electromagnetic resistance system.

This sizable flywheel and robust direct mount design provide resistance of up to 1,500 watts at 20 mph. Anyone able to put out that sort of pro-level power will probably be puffing and panting — which means they won't hear the noise of the trainer itself.

Thanks in part to a precision-machined alloy roller, even at full whack the Magnus will barely reach a noise level of 70 decibels, which is about the same as having a conversation with someone five feet away. The neighbors upstairs will be happy.

The whole assembly is contained within CycleOps' rugged Classic series trainer frame. To its mechanical engineering, the company adds a



CycleOps Magnus

world feel more like the outdoors. Digital connectivity and the ability to use an app to control a trainer's resistance is therefore a big trend.

Normally, that comes at a cost. Now, **Bkool www.bkool.com** provides an affordable entry into this virtual world with its new Go smart model. The trainer connects with the Bkool cycling simulator to automatically control resistance and simulate a virtual course provided by the software. The system simulates gradients of up to 8 percent along with effects of inertia, so the sensation is far closer to real-world riding than what most users would expect from a turbo trainer.

Riding a virtual course is more engaging than watching a DVD while struggling through a workout. But the Bkool system also lets riders team up with friends across the world to compete and form leagues, boosting motivation.

Wireless, ANT+ and Bluetooth Smart

heavy emphasis on compatibility, both real-world and virtual.

Integrated dual ANT+ FE-C and Bluetooth 4.0 technologies mean the Magnus happily talks to most sensors and accessories. It connects with CycleOps' own VirtualTraining program and with Zwift, TrainerRoad and other popular apps.

The Magnus also provides accurate power readings with technology from PowerTap, the power meter brand that is also part of the Saris portfolio (see related story, page 32.)

In the quest for an indoor trainer that realistically simulates the sensation of actual riding, all trainers made by Minneapolis-based **Kinetic B4-303** have a unique feature.

While there's no escaping the fact that someone on a trainer isn't going anywhere, the Kinetic Rock and Roll trainers at least allow cyclists to move more naturally by replicating the side-to-side motion of the road, particularly when out of the saddle.

This additional movement not only feels more natural but also helps develop stronger core



Beto Magnetic Trainer

muscles. The Rock and Roll uses a large flywheel combined with electronically controlled resistance and super-quiet operation, so it's a perfect companion to one of the new breed of training apps.

For riders who haven't settled on a favorite third-party app, each Kinetic trainer comes with a

Continued on page 18...

sponsored by



The Hammer

A3-109

The Hammer is a direct drive trainer with unparalleled bike compatibility and device connectivity. Bikes with thru-axle widths of 142 or 148, as well as quick release fork widths of 130 or 135 can be easily mounted to The Hammer. The heart of The Hammer is its 20 pound flywheel, while its soul is the innovative, fast responding electromagnetic resistance. The result is a direct drive trainer with rapid response resistance, maximum power and the sensation of rolling on smooth asphalt. Its robust design and direct frame-to-trainer

contact allows the Hammer to stand up to 2000 watts at 20 mph, and the ability to simulate grades up to 20%. Integrated dual ANT+ FE-C and Bluetooth 4.0 technologies connect The Hammer to more devices and riding applications, including popular training software such as CycleOps' own VirtualTraining, Zwift, Trainer Road and more. Retail price for the Hammer is €1,200. Come see and test the Hammer at Eurobike.

www.cycleops.com



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Bluetooth v4.0/ANT+ Cycle Computer



Mirror 100 mirrors the data from the mobile phone app Echo WellFit.

To sync Mirror 100 with the Echo WellFit App, you have some options.

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- * You can ride the bike with Mirror 100 and the smartphone paired with Bluetooth 4.0 sensors.
- * You can ride the bike with Mirror 100 without any speed sensor. (Real-time GPS speed can be shown on the Mirror 100 screen.)

The riding data, smartphone incoming calls, message indicator from the app can be shown on the Mirror 100 screen.



Magnet-less ANT+ Bike Sensors

Track bike speed/cadence without using magnets
Compatible with ANT+ cycle computers



MLT20 : Hub Speed Sensor

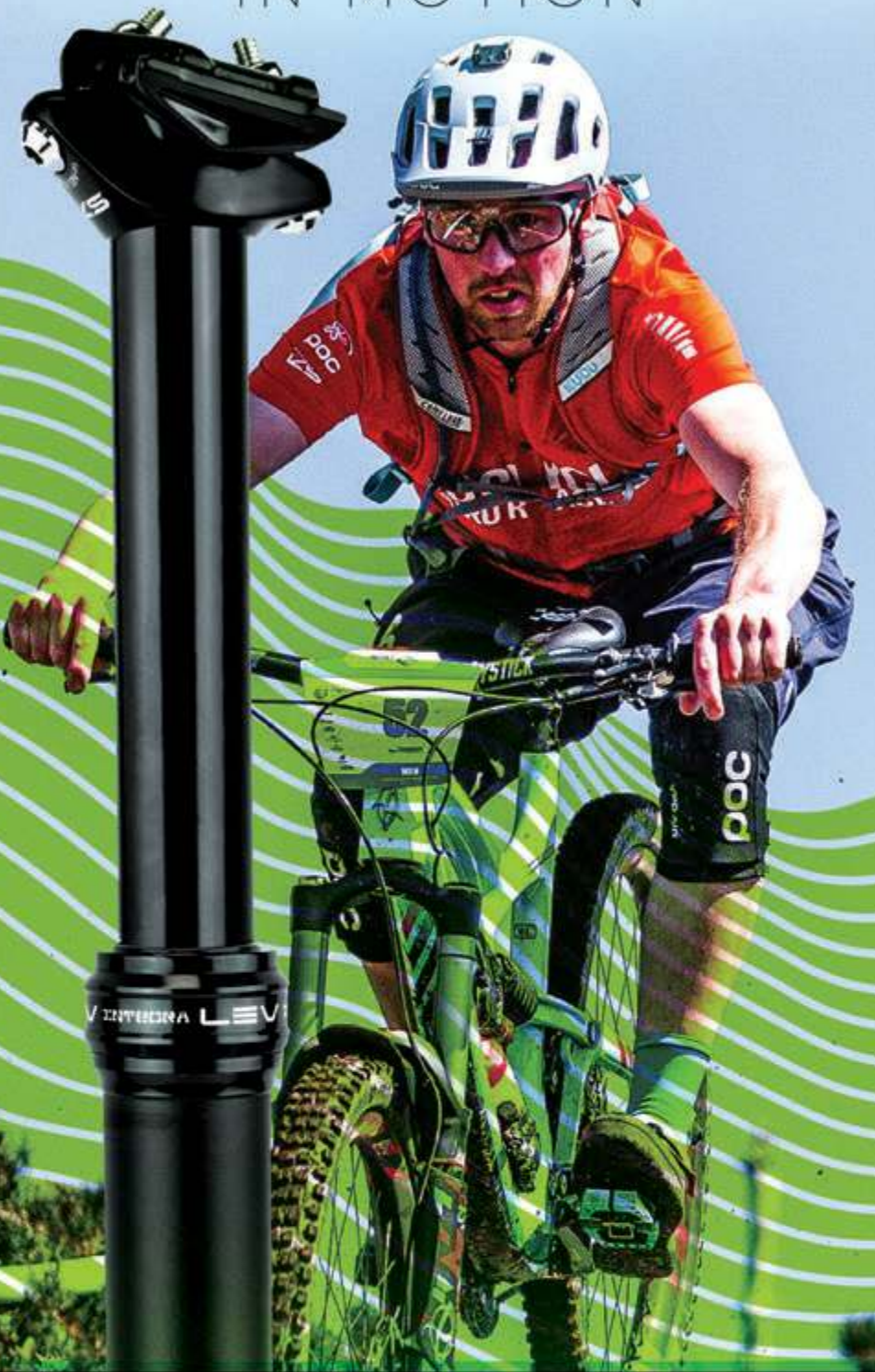
The silicone strap makes the setup over the wheel hub easy.



MLR20 : Crank Cadence Sensor

The cadence sensor is attached to the crank arm.

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Kinetic Rock and Roll

... Continued from page 17

free six-month subscription to the company's Kinetic Fit app.

Owners of existing Kinetic models will also be happy to know that the resistance unit in the Rock and Roll can be purchased separately to fit older frames.

Not all innovations in trainers are focused on the virtual world, or on replicating a realistic ride feel. Many people have pedaled away on a trainer and wondered if they couldn't be doing something with their upper body at the same time.

The team at **Varibike FW-309** had

the same question. They designed a range of trainers that exercise the entire body, not just the legs.

The line, already popular with professional gyms, adds a set of cranks so riders can work arms, shoulders and core while pedaling. The cranks can be locked out so the trainer acts just like a conventional stationary bike, but using them opens up a wide range of additional workout options.

As an extra bonus, the upper part of the trainer is adjustable, letting riders achieve a wider array of positions than are possible on most stationary bikes.



Varibike

For those who don't want to venture to the gym and don't need to escape to virtual reality, **Beto A5-507** makes a range of affordable turbos for every rider. The Magnetic Trainer is a conventional-looking turbo packed with unconventional features. It accommodates wheel sizes from 24 to 29 inches, and the front legs adjust to match different frame sizes, so the bike retains its lowest-possible center of gravity. An oversized steel frame ensures stability. A quick release mount opens and shuts with one hand, so mounting and ejecting the bike is easy. A remote attaches on the handlebar and provides five levels of magnetic resistance. ■ JD

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Magnetic Trainer

- Fits 24" to 29" bike
- 5 resistance levels w/bar mount adjuster
- Height adjustable frame
- QR wheel lock for easy mounting
- Quick release skewer included
- Precisely-tuned 5-equal increment of magnetic resistance.
- Sturdy over-sized steel frame for superb stability.
- Quick release wheel lock

This usual looking trainer is packed with unusual features:

- Length-adjustable front leg fits various frame size for lowest possible center of gravity.
- Angle-adjustable resistor-unit fits wheel size from 20" t 29".
- Handle-bar-mount remote control resistance adjustable unit.

A5-507



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127gr



Angel Dive
273 * 125mm



Angel Ride
273 * 144mm



Angel Fly
273 * 125mm



Angel Rise
256 * 144mm



Angel Flow
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BOOTH : B5-403

Overview: Off-road apparel Apparel that performs off-road — and off the bike

It's not (just) about the bike. Because cyclists are also runners and hikers — and even like to relax — bikewear brands are designing off-road clothing that riders will want to keep on, even when they are off the bike.



Ion Paze shorts

Triple2 Sportswear **A7-407** has built its brand around this concept. "The bike products are designed for cycling but you could use them for almost any other outdoor activity," said Matthias Dreuw, chief executive of the German apparel maker. He said the brand sometimes borrows ideas from other styles of sportswear.

Its Barg shorts for women are a case in point. The hip-warming waistband on these light, stretchable shorts is more commonly found on yoga or running pants. But Dreuw says it also works for cyclists because it prevents cold air from flowing into the pants at the small of the back. "We know women really don't like that," he said.

When rolled down, the waistband works almost like a belt, and the shorts are suitable for hiking and other outdoor activities. Like all of the brand's products, the Barg shorts are made in Europe.



Sportful Giara jersey.

sponsored by



Leatt MTB Apparel

B2-205

Leatt – the well-known protective gear manufacturer, famous for the neck brace – launches a full mountain bike apparel collection for 2017. Overall 42 styles include jerseys, shorts, jackets and a big line of gloves with and without protection features. The technical garments for all-mountain, enduro & gravity riders cover different price points. Top of the line styles feature laser cut and tape bonded seam constructions of four-way stretch fabrics that are moisture wicking and water resistant. Water proof shorts and jackets (hard- & softshells), are available as well. All gloves use the unique NanoGrip inner palm material, known for its durability, breathability and superior wet and dry grip properties. Each fiber of the NanoGrip is 7,500 times thinner than a human hair, making it super comfy and touch screen compatible.



www.leatt.com



Rotwild RCD Melange hoodie

Triple2 strives to use natural or recycled materials in its products.

With **Zimtstern A7-404** entering the outdoor market this year, it is learning first-hand about the overlaps between outdoor apparel and cycling. While its mountain biking range has a number of functional features, its design is understated.

The Swiss company's latest cycling garments include a "feather light" range made with light, eco-friendly polyester and four-way stretch fabric. Examples include the Fleza jersey and Feliza shorts for women.

Rotwild B1-402 infuses its newly expanded RCD apparel range with an urban flavor. The RCD Gradient shorts look more like board shorts, while its hybrid shorts are decidedly urban. The Melange hoodie is at home in the city but incorporates plenty of details that make it comfy for off-road rides, even if the weather turns. Rotwild also offers a slim-fit jersey with climate management features.

Ion's A7-307 origins in board sports inform its new Paze range of cycling apparel. With Paze, Ion is moving into a new category: apparel for mountain bikers who do long-distance rides, cross-country training and racing.

Ion describes its Paze short, for endurance riding, as a functional alternative to bib shorts.

"As a brand that comes from the board sports market, we think that bike shorts always look better than tights," said Andi Lipp, international marketing manager for bikewear. "With their slim fit and light weight, the Paze shorts work for performance-oriented riders who have an eye on style and don't want to wear bib shorts."

A slim fit maintains aerodynamics, and ventilation holes at the inner legs aid comfort on long rides.

The shorts are part of what Ion calls the Climate Control Combo, which also includes the Tee Full Zip, a jersey with a full zip up the front, and bib shorts made to wear beneath the Paze shorts.

Sportful A7-311 says its Giara apparel range, "for men and women who aren't limited to riding on paved roads," is versatile enough for riding gravel,

asphalt, canal paths or for heading down to the café.

Highlights are the Giara jersey and overshorts.

They include practical touches such as three rear pockets on the shirt, reflective bits on the jersey, four-way stretch on the shorts and fabric treatments that repel dust and dirt. But because the toned-down styling doesn't shout "bike nerd," they are suitable for other adventures.

While versatility is a trend, some brands new to cycling are eager to display their technical chops. **Leatt B2-205**, known for its protection gear for gravity riders, is debuting its first line of mountain biking apparel this year — and hardcore riding is what it is all about.

The South African brand started making neck braces and other protective gear for motocross riders. It moved into the gravity bike market in 2010, and has expanded into a new cycling category every year, most recently gloves and helmets.

"People who buy our protection or neck braces are very technical-minded and educated consumers, so when we move into a new category we always find a technical angle," said Erik Olsson, Leatt's general



Leatt jersey

manager. "When we looked at off-road cycling apparel, we saw that the market for smart and technical garments wasn't all that crowded."

Its new line includes garments with three-layer materials and taped seams. Leatt also borrows a feature from a glove line it launched last year, where welded protection on elbows and shoulders serve as brush guards.

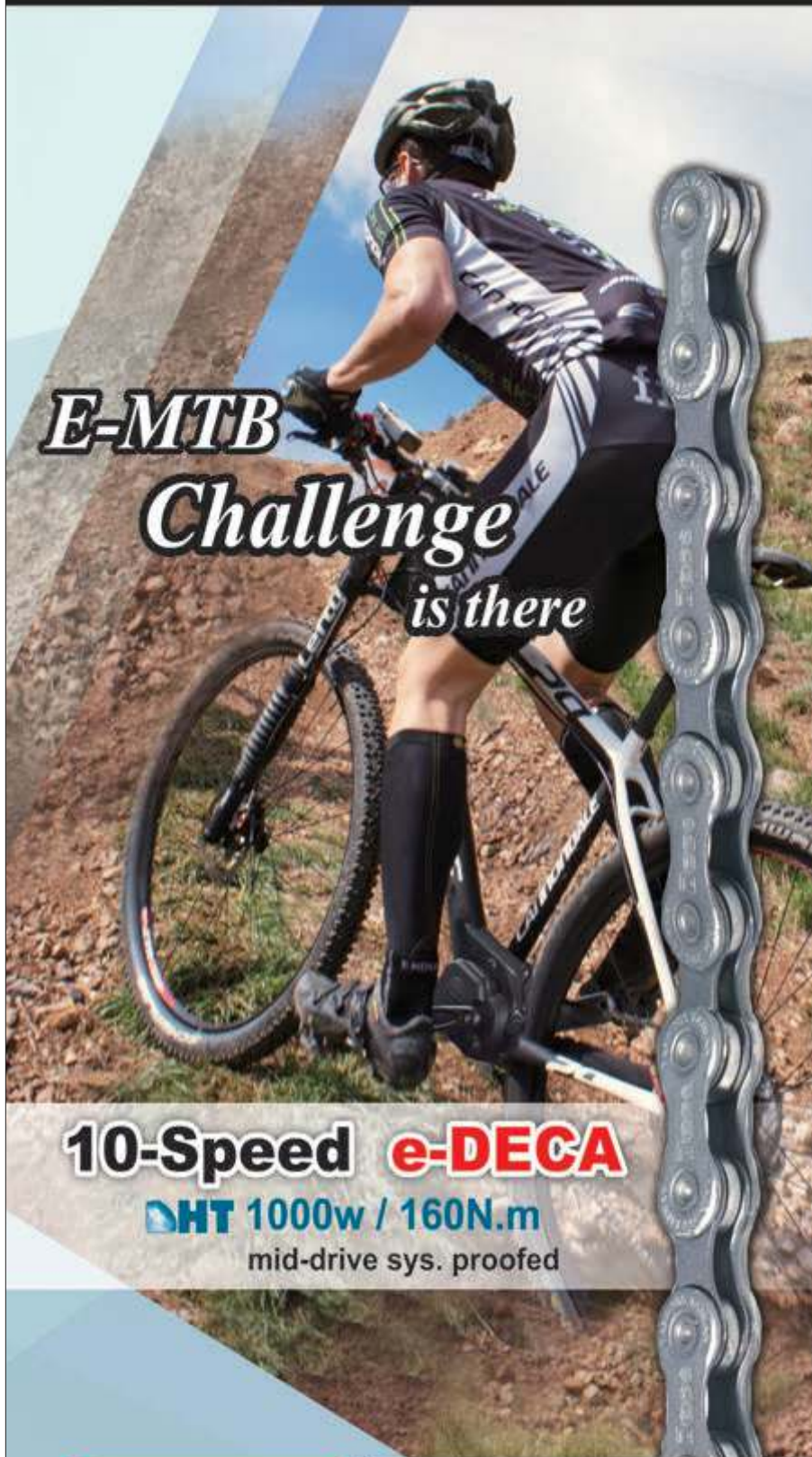
"The garments have a modern fit, quite tight but with enough space to wear protection," Olsson said. "It's a key statement for us that the fit works for consumers who wear little protection, but also for those who want a lot of protection."

■ BS



Matthias Drew with the Triple2 Barg shorts.

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His dislike of 'ugly' e-bikes led Brian Hoehl to help build the award-winning Protanium

After working for 20 years at a top Danish advertising agency, Brian Hoehl was ready for a change.



Brian Hoehl

Before going into advertising, Hoehl had been involved in the competitive side of cycling and was an industrial designer. He still had an address book full of contacts from the bike industry and had the financial resources to take a career break.

He was also intrigued by electric bikes, but thought most were, as he put it, "very ugly." "There was a very big opening there — a virgin market," Hoehl said. In 2006, Hoehl joined with e-bike pioneer

Lars Munksoe to start Protanium.

Ten years later, **Protanium** **FG-A9/2** has collected a host of international design awards (22 of them so far, he says, but who's counting?). Despite its small size it has produced some of the most innovative e-bike concepts around.

Munksoe invented, and patented, the concept of a removable battery housed in an e-bike frame. Protanium was also the first to use lithium batteries in e-bikes.

"Specifications aren't where I am coming from," said Hoehl said. "It's the impact the whole bike will make on a customer that is important to me."

Among those who took note of Protanium was the Accell Group. At Eurobike nine years ago, Accell officials approached Hoehl and Munksoe, and in 2008 acquired majority ownership of Protanium.

Munksoe has since sold his remaining shares to Accell and founded a new e-bike company, Positive Energies. Hoehl remains at the helm of Protanium with nearly carte blanche to "explore innovative, holistic design approaches."

This year at Eurobike, Protanium is showing a diverse assortment of potentially trailblazing products that cross categories.



CarQon

There are disc brake rotors made of a silicon carbide ceramic that, he says, is so hard a laser won't cut it; a three-wheeled e-cargo bike that tilts into corners; a futuristic speed pedelec helmet that projects a heads up display of ride data on the visor; and a carbon pedelec range designed with Pininfarina, the Italian design company famed for its work with Alfa Romeo, Ferrari and other car companies.

Diavelo, a Protanium sub-brand, maintains a headquarters in Denmark with a staff of four, but Hoehl spends much of his time at its research and development office in Croatia.

Croatia?

"All the guys I work with here come from the carbon fiber industry, and are specialists in working with it," Hoehl said. "It's a great material for prototyping, as the soft-tooling process means you can produce small runs economically. If we take things on to production mode then you really have to open your wallet and this process here allows us to have confidence that we are ready to do that."

Hoehl also praises the work ethic of the Croatian staff.

"The Croatian team is highly skilled in handcrafting and they understand my ideas and are able to produce working models for testing very quickly," he said. "They are also willing to work day and night with me if necessary!"

The HUD helmet (for "heads up display") is perhaps the most futuristic product in development.

"This is a safety product," Hoehl said. "At 45 kph [28 mph] you don't want to be looking down, but you need all your feedback in front of your eyes."

The concept arises from Hoehl's obsession with a "haptic" approach to e-bike design, where the bike interacts with the rider's touch and other senses.

The helmet is currently compatible with the Brose mid-drive system.

Hoehl is also energized by the prospect for a new line of road and mountain bike disc brake rotors, which will be sold under the Rhaun brand name.

The rotors are made from a proprietary silicon carbide ceramic material.

"It's a secret recipe plus a

special production method that produces a disc so hard it can't be cut by diamond or laser," Hoehl said.

The rotors come in standard dimensions and can be swapped out with existing rotors with no modifications. Nor do they require special brake pads.

Although they are intended for the aftermarket, "we also think quite simply these could be the new disk rotor, offering lighter weight and great performance," he said.

Another new product that may make it to market more quickly is the CarQon. It's a three-wheeled e-cargo bike with tilting wheels so that it handles like a conventional bike, allowing the rider to lean into corners, but has the stability and carrying capacity of three wheels.

The CarQon will be offered in four models, all electric, featuring varying carrying capacities and components.

CarQon is a joint project of Diavelo and Babboe.

"My specialty is two-wheel bikes, and Babboe have real expertise in cargo bikes and trikes, especially in marketing and distribution," he said. "I was quite surprised when I learned that Babboe have networks in places like the U.K. and the U.S. — certainly not traditional cargo bike markets. We have even had inquiries from places as disparate as Hawaii and India."

Diavelo is also showing the Pininfarina range of three pedelecs that powered by Brose motors. The carbon fiber bikes incorporate the batteries and lights in the frame and carry distinctive design touches from Pininfarina.



Rhaun disc brake rotor

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Overview: Plus-sized MTBs

Across categories, brands supersize MTB lines with plus-sized models

Plus-sized mountain bikes were a big trend last year at Eurobike. Fast-forward to model year 2017, and everything is getting supersized, from e-mountain bikes to adventure road bikes.



Merida Big.Trail 900

The idea behind the plus concept is simple: Take a slightly smaller rim and slap a voluminous, wider tire on it.

The result is a wheel with a very similar outer diameter — so it fits into existing frames without upsetting the geometry — but with a lot more cushion, traction and puncture resistance for rougher surfaces.

This only works on bikes with disc brakes, as a different sized rim can't be used with rim brakes. And the frame needs to offer plenty of clearance for these ample tires. Happily for plus-size proponents, disc brakes and roomy frames happen to be trending for both mountain and road bikes.

For mountain bikes, the new Boost axle standard provides crucial extra room for wider tires. The standard adds three to five millimeters on each side — which may not sound like much to a casual cyclist, but to engineers it's a game-changer.

On the road side of the ledger, gravel bikes are already a hot concept. And since gravel bikes are built around tires wider than 30mm, that's all you need for plus-sized wheels.

There is a mind-boggling selection of plus-sized mountain bikes here at the show.

Plus-sized road bikes are still relatively rare, but just wait: Several wheel and tire manufacturers are showing their initial road-plus products this year, laying the



Giant XTC Advanced Plus

groundwork for complete plus-sized road bikes in the near future. (See page 26 for a story on plus-sized MTB wheels and tires.)

The first plus-sized mountain bikes to hit the market, like the Sherpa from **Rocky Mountain B4-200**, were relatively tame affairs built to haul lots of gear on long, adventurous rides.

For 2017, though, brands have expanded the concept of what a plus-sized mountain bike can do.

This is also due to a growing and more diverse choice in tires and wheels. For now, tire manufacturers are settling on two plus-size widths: 2.8 and 3 inches.

Less skilled riders, and riders who prefer hardtails, profit greatly from 3-inch tires. On full-suspension bikes, meanwhile, slightly narrower 2.8-inch tires seem to have become the norm. They offer more agile handling without losing the other benefits of plus-sized tires such as traction, comfort and puncture protection.

Because the large volume of a plus-sized tire can at least partly compensate for a lack of suspension, putting them in a hardtail frame makes sense.

Indeed, several Eurobike exhibitors are showing new models that combine plus-sized tires with either unsuspended frames or suspension forks. Add a dropper post and these hardtails are perfectly capable of tackling rugged terrain.

For examples, see the Scale 710 Plus at **Scott B1-200** and the Big.Trail from **Merida A3-200**. They feature a slack and low geometry for confidence and fun in technical terrain.

Giant B3-300 has modified its carbon XTC race hardtail frame with a Boost rear axle and a cable routing for dropper posts. This frame can be ridden either with 29-inch or with 27.5-plus wheels. Thanks to sliding dropouts, it can

also be built up as a single speed.

For anyone seeking an efficient and light plus-sized full-suspension model, Scott has extended its already large line of plus-sized bikes with the Spark Plus line.

The top-tier Spark 700 Plus Tuned model weighs about 12 kilograms (26 pounds). The Spark Plus line is in a category of its own, at least for now, with its combination of 120mm of travel and 2.8-inch Schwalbe tires. Apart from carbon and aluminum frame options,

Rocky Mountain Pipeline platform that rolls on 2.8-inch Maxxis tires and offers a generous 150mm of travel up front and 130mm in the back.

Designed to shine on the twisting, turning, root-infested singletrack of Canada's West Coast, the Pipeline ploughs through rough stuff as if it's on rails and delivers superb traction for steep, technical ascents.

The Austrian brand **Simplon B1-401** designed its new Rapcon all-mountain and enduro platform to accommodate either ordinary 27.5-inch wheels or



Stevens e-Sledge Plus

Scott also included a Contessa frame for women. Clearly, Scott believes the plus-size concept is for all riders.

27.5-plus wheels.

Either way, the Rapcon bikes offer either 140mm or 160mm of travel. To

Cannondale B2-100, on the other hand, is showing one of the most playful plus-sized bikes around. With the Bad Habit, Cannondale puts its proven trail bike platform with 120mm of travel onto 3-inch tires, and combines them with a geometry that emphasizes agility. The main frame and upper shock link are made of carbon, while the swingarm and Boost rear axle are aluminum.



KTM Macina Kapoho

Another assortment of plus bikes is for experienced riders who charge hard on the descents. A prime example is the

minimize changes in geometry and ensure the frame can accommodate the more voluminous wheels, Simplon uses an off-center thru-axle mount in the rear.



Scott Spark 700 Plus Tuned



Cannondale Bad Habit

The Linkin Trail LT from the young Swiss company **Bold Cycles B1-310** offers 154mm of travel in the back and 150mm up front, and can be built up with either 27.5-plus or 29-inch wheels. That lets

riders choose between a fast, efficient bike or one with extra cushion for rough terrain. (See Wednesday's *Eurobike Show Daily* for a story on Bold Cycles.)

Santa Cruz B1-309 applied that dual-purpose concept to its Hightower. With

35mm of travel in the back, the Hightower can be built with either 140mm or 150mm forks. The **Pivot B1-410** Switchblade also takes 27.5-plus or 29-inch wheels. With 135mm of travel in the back and built for forks with up to 160mm of travel, it's equally at home as an all-mountain or as an enduro bike.

a Bosch Performance Line mid-drive system.

Stevens A3-306 puts its E-Sledge+ and E-Whaka+ models on plus-sized tires. The bikes use Shimano's new E8000 Steps system for e-mountain bikes.

Other e-MTBs getting plus-sized are the Uproc7 from **Flyer FC-A8/1**, the Sduro Fullseven from **Haibike B2-300** and the Full-E+ 0 from **Giant. ■ LvR**

The extra traction that results from the fatter footprint of a plus-sized tire is especially handy for e-mountain bikes. The wider tires are a perfect complement to the additional weight and torque of an e-MTB.

Since this is a fast-growing market with huge potential, no manufacturer wants to be left behind. So Eurobike's halls are full of e-MTBs that roll on plus-sized tires.

Some of the more prominent examples are the Macina Kapoho LT from **KTM AG-200** and the Moterra from **Cannondale**. Both use



Simplon Rapcon



Flyer Uproc7



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Overview: Plus-sized tires/wheels Wheel and tire brands rush to keep up with plus-sized trend

You can't make a plus-sized mountain bike without plus-sized wheels, rims and tires.

Many wheel and tire makers had to scramble to get their first plus-sized products to market for 2016 model year bikes. Now they can expect to be even busier, as brands significantly expand their plus-size lines for 2017 (see related story, page 24).

Here are some of the wheels and tires on display here that will support next year's expected expansion of plus-sized bikes:

This spring, **DT Swiss A3-400** launched new versions of its top-tier Spline One wheels with internal widths of 35mm and 40mm. Here in Friedrichshafen, the Swiss wheel specialist has premiered the more affordable M1700 Spline Two 30, with an internal width of 30mm.

Stan's B1-505 has expanded its third generation of NoTubes rims. The Flow MK3, the widest of its offerings, boasts an inner width of 29mm and is ready for 2.8-inch tires.

Taiwanese wheel specialist **Novatec B1-201** debuted four new plus-sized wheels at the show. The Diablo XL and Sycamore feature aluminum rims and will be marketed under the Novatec brand. Under the Factor brand, the 735 and 748 wheels come with carbon rims, with internal widths of 35mm and 48mm, respectively.

The choice of plus-sized tires has been growing throughout 2016, and there are interesting new products for 2017 on display at the show.

Schwalbe A5-300 rolls out the Nobby Nic, Smart Sam and Rocket Ron in a new 65mm width (about 2.6 inches).

Maxxis A5-402, which has had great success with its Icon and Recon tires, now has 2.8-inch, plus-size versions of its most popular gravity models: the High Roller II, Minion DHF and Minion DHR II.

Hutchinson B3-409 joins the party with its 2.8-inch Koloss. Because it is reinforced,



DT Swiss M1700 Spline 30



Stan's Flow MK3



Novatec Sycamore

the company also recommends the Koloss for e-mountain bikes.

Keeping up with these well-known aftermarket brands is Taiwanese tire maker **Innova A3-809**, which debuted a 2.8-inch version of its Transformers 27.5-inch tire.



Maxxis High Roller II

Chinese tire giant **Chaoyang A3-704** has adapted its fat bike tires Big Daddy and Grand Canyon to fit the plus-size trend.

One rather surprising twist to the plus-size concept first appeared at the Taipei



Schwalbe G-One

Cycle Show earlier this year, when **WTB B3-204** rolled out its Horizon slick — and launched the road-plus trend. The 650b x 47 tire is designed to fit all frames built for 700c x 30 tires.

Meanwhile, **3T B4-305** has built the Discus Plus, a set of 650b wheels with full-carbon clincher rims and disc brake mounts on the hubs. The company also introduced the Exploro, which it describes as an "aero gravel bike." The Exploro has plenty of room for wider tires.

Schwalbe has added 40mm and even 70mm-wide 27.5-inch versions of its G-One gravel tire to its line-up. **Clément** also presents a couple of plus-sized 650b tires, on display at **Cosmic Sports B1-303**.

And **Hutchinson** bridges the gap from ordinary gravel tires to road plus tires with the gravel Override, in a new 38mm width. **LVR**



Innova Transformers



Factor 748

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Now siblings, Dainese and POC still go separate ways

Dainese and POC may now be sister companies, but in the cycling market they continue to go their own ways.



Cristiano Silei

Investcorp, a private equity firm based in Bahrain, owns both: It bought an 80 percent stake in Dainese in 2014, and last year acquired POC, a Swedish company that makes helmets, apparel, protective equipment and other gear for skiing and cycling, from Black Diamond.

“We are helping POC to develop its own path,” said Cristiano Silei, the chief executive of Dainese. “We may eventually look at synergies, but for the time being

€57 million.

Silei joined Dainese in April 2015 after two decades as a top executive at Ducati Motor Holding, the Italian motorcycle manufacturer. Joining other new executives, chief marketing officer Mario Spitzner came on board in December after several years at Mercedes-AMG. The company expects to hire other managers soon.

Although Silei formally oversees POC

“We are helping POC to develop its own path”

— Cristiano Silei, CEO of Dainese

we are supporting the POC group to explore opportunities in various areas, including cycling performance.”

Silei said there are few overlaps between the two companies’ products. They maintain separate booths at Eurobike: **Dainese A7-304** and **POC B3-405**.

POC, which got its start in ski helmets, is expanding its presence in road cycling and is entering the commuter market this year. It is also launching apparel for cross-country mountain bikers. (See related story on page 30.)

In cycling, Dainese is focused on protection gear for mountain and gravity riders and last year launched an outerwear range. Cycling accounts for just a sliver of its business; the Italian company is best known for its motorcycle protective gear.

Investcorp bought an 80 percent stake in Dainese in November 2014, valuing the enterprise at €130 million (\$147 million). The other 20 percent remains in the hands of its founder, Lino Dainese.

It acquired POC for the equivalent of

as well as Dainese, POC founder Stefan Ytterborn continues to manage that company from Sweden with a high degree of independence.

He said the two companies don’t have any joint projects in cycling, but said Dainese’s infrastructure is a resource.

“The fact that we are able to test helmets in Dainese’s lab and accelerate on-site innovation is a wonderful benefit for all helmet categories, not only cycling,” he said.

Cycling accounts for less than 5 percent of Dainese’s sales, which rose by 12.7 percent in 2015 to €144.7 million.

POC’s 2014 sales were €30.7 million.

Cycling accounted for about 30 percent of POC’s sales at the time of the acquisition, and Ytterborn believes it will equal winter sports sales within about three years.

POC and Dainese maintain separate offices in Europe and the United States. POC’s U.S. office is in Park City, Utah,

Continued on page 29...

Body armor built for the trail, not the Middle Ages

Giovanni Fogal recalls the days in downhill when “it was cool to look like a knight from the Middle Ages.”



Dainese Rhyolite 2

Flexagon. It is a layer of shock-absorbing material that adjusts to the body’s shape and movements. The shoulder area is constructed to protect the collarbone and rotator cuff.

Dainese has improved its Trail Skins, an all-mountain and enduro “pedal-in” kneepad, which has won kudos for its low profile and breathability. The Trail Skins 2 boasts better protection and ergonomics, thanks to a pre-shaped form.

“If the Trail Skin before was considered a pedal-in kneepad, something you can put it on and keep it on for the entire ride, that’s even more true for the new model,” Fogal said.

■ BS

But the product manager for Dainese’s multisport division reckons that apparel requirements have changed. Not everyone who goes down takes the lift back up.

Fogal said hard-climbing riders will appreciate the lighter pieces in the Dainese line. The Trailknit is a functional base layer in which riders can insert protection on the go. Pro Armor back and shoulder protectors go in a small pack when not in use.

For particularly hairy climbs there’s the Rhyolite 2, an updated, thinner version of the Rhyolite jacket. “It’s even more low-profile than before, so you can barely notice you’re wearing an upper body armor underneath the jersey,” Fogal said. “We think that’s going to be the key to make the end consumer more sensitive for concerns about wearing protection.”

The front body construction uses one of Dainese’s proprietary technologies,



Dainese Trailknit

... Continued from page 28

while Dainese USA has long been established in Costa Mesa, Calif.

Dainese intends to increase its presence in cycling and skiing. “Whatever distinctive technology and ideas we have in the Dainese group, we’ll use in these sports so that we can fulfill our mission, which is to provide and advocate safety for those who are involved in dynamic sports,” Silei said.

Dainese had rejigged its entire cycling range in the last three years with more category-specific products.

Across its apparel lines, Dainese employs “a protective concept utilizing the same technology shoulder to toe,” said Giovanni Fogal, product manager for Dainese’s multisport division. Fogal says that the cycling range’s sales soared by about 40 percent in 2014 and increased another 25 percent in 2015.

Dainese has also harmonized the design across categories.

In addition to a research and development office in Molvena, Italy, Dainese has an agreement with Lino

Dainese to commercialize any technology developed at D-Lab, a research facility he established after the Investcorp sale.

“We have the right to acquire anything that would be viable for us to bring to the market,” Silei said. “It’s a fantastic solution because it allows Lino Dainese to pursue his ideas, and at the same time we have access to the innovations that the lab develops.”

Dainese owns another R&D office that focuses on its D-air airbag technology. Best known in competitive motorcycling, Dainese has adapted the technology for skiing. The vest-like airbag was called into action for the first time recently, when Matthias Mayer crashed at a World Cup downhill race in Val Gardena.

D-air may someday migrate to the peloton, but Dainese said it would be years before that happens.

“The brain of the whole system is the algorithm that detects crash conditions and decides whether it deploys or not. It really depends on the specific dynamics of the sport, which takes a lot of research in the field,” Fogal said. ■ BS

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POC puts its safety focus on commuter apparel

From mountain to road, and from helmets to jerseys, POC has gradually expanded its reach in cycling.



An iPhone in the C.ME pocket doubles as a voice-activated turn signal.

It's targeting another big segment this year as it moves into commuter cycling, with a characteristically smart range of apparel and equipment.

POC B3-405 said the commuting line is an important step for the Swedish brand. As a company whose corporate mission is "to do the best we can" to save lives and reduce the consequences of accidents involving cyclists, POC knows the hazards of riding and commuting on urban roads.

The inaugural POC and Forth range is for daily short-distance commuters. It includes "jackets that will protect urban commuters from cold, wind and rain whilst enhancing safety through connectivity and interactivity," along with a stylish helmet and other accessories.

As an example of this connectivity and interactivity, the C.ME pocket at the back of the commuter jackets will allow

riders to indicate when they are turning left or right — via voice control through a smartphone. It could serve as an extra light at night as well.

The Corpora AID helmet has an accelerometer linked to a rear brake light. It lights up when it senses sudden braking to warn those behind.

A built-in crash sensor will automatically call emergency services or other pre-programmed phone numbers (such as family members), if the rider is

involved in a fall and is unresponsive.

POC is also introducing Resistance Pro, a new range of cross-country apparel, which joins lines for downhill and enduro.

Oscar Huss, head of product development, said the line was built with "progressive fabrics and materials" for protection against impacts, penetration, friction, UV and abrasion.

POC launched the cross-country range as a counterpoint to tight shorts and jerseys.

"We wanted to ensure that XC riders could have bespoke mountain bike apparel with the best performance possible, through weight, ventilation and flexibility, yet still have protection to support them on a regular XC ride and in the event of a fall or crash," Huss said.

Special materials provide crash and abrasion protection in strategic areas.

"We have also sought to give XC riders the option of having a choice between tight and slightly more relaxed XC apparel so that they have more flexibility according to terrain and conditions," he said.

Along with jerseys, jackets, shorts and bib shorts, the Resistance Pro line includes gloves, sleeves, zip tees and other pieces.

The company is also updating some of its more traditional products. It debuts a new helmet, the Octal X, to go with the Resistance Pro line.



POC Corpora AID helmet and Commuter Wind jacket

The Octal X is based on POC's Octal road helmet, but improves structural integrity and protection against impact penetration. An extended helmet shell covers more of the liner for strength without a correspondingly big increase in weight.

It's also updating its line of protective backpacks, featuring 13-liter and 8-liter models and a light vest. ■ BS

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MTB-AL-3520BT/ISO-M

MATERIAL: ALLOY BUTTED BAR BORE: Ø35 WIDTH: 720 740 760 780 800
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TD5-RD005-BFDV150-M
MATERIAL: 30-FORGED ALLOY SIZE: 45-50
WEIGHT: 117g FINISH: [Color swatches]
FINISH: SAND BLASTED AN BK or SILVER

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Overview: Power meters

Plummeting prices, broader choices bring power meters to the people



Rotor 2INpower

By delivering real-time performance data, power meters have profoundly changed the way cyclists train and race. Although power meters have been on the market for 30 years — ever since Ulrich Schoberer from SRM patented his mobile power meter in 1986 — they have typically been too expensive for anyone who isn't a pro or a coach.

Not any more. Plummeting prices, broader choices and easier operation are putting power meters into the hands of everyday cyclists.

Don't expect this trend to stop any time soon: Zwatt, a Danish start-up company, just ended a Kickstarter campaign to develop inexpensive power meters. At press time, the company had already exceeded its \$100,000 goal. It plans to offer systems to a range of cyclists and use their data to crowdsource further development. The Danes want to bring the price down to a point where every bike could come with a built-in power meter.

Another sign that power meters are going mainstream is Shimano's decision to enter the market.

Why would a cyclist want to use a power meter, anyway? Power output, measured in watts, is perhaps the most objective measurement of a cyclist's performance. While heart rate measurements are another popular gauge of performance, they are influenced by variables like heat, stress, altitude and age that don't necessarily

translate directly to power.

There is also a lag between a change in a cyclist's power output and his or her heart rate. With a power meter, cyclists can monitor their performance in real time — a huge advantage not only when working out, but when racing.

"Power meters are easily the best way to assess and improve cycling performance and we want more cyclists to have access to power data," said Géraldine Bergeron, PR manager for SRAM European road products. "We see removing these obstacles, and offering increasing value for money, as the biggest innovations in this market."

Power meters offer much more than race training. The data can be used for rehabilitation after an injury by gauging the relative strength of

each leg. Cyclists can tweak their pedal stroke technique for better power output, or find the optimum saddle position.

Many systems let cyclists upload

ride data to other devices, including computers, so they can analyze and compare performance and fitness levels over time.

Power meters use a variety of methods to calculate power output. They fall into two broad categories: non-direct and direct.

Non-direct power meters use algorithms to calculate power by measuring something else, such as heart rate or cadence.

Direct systems measure actual power output through strain gauges that are mounted on various points of the drivetrain, on the rear wheel hub or on the pedal axles.

Non-direct systems are typically much less expensive than direct systems, although they are not as accurate.

The PowerCal system by **PowerTap A3-109**, for example, uses a sensitive heart rate monitor to calculate power output. It uses sophisticated algorithms to correct for some of the physiological issues that can interfere with accuracy.

The PowerPod from **Velocomp FG-AK/5** is a step up. It calculates power output by measuring wind speed, bicycle speed and cadence, while other sensors monitor inclination, vibration, and left-right and front-back movements.

It's one of the lowest-priced systems even if it doesn't offer right/left measurements, and it weighs just 32g. Accuracy is acceptable but not scientifically useable, but it is a low-risk way for cyclists to try a power meter.

Riders who choose a direct system still have other decisions to make. Do they want to measure the power output of one leg or two? A single-leg system is less expensive, but a dual-leg system is more accurate and can help during rehab.



Quarq DZero



PowerTap pedals

Do they want to measure at the crank, the pedals or the rear hub? Do they need the power meter to communicate with a display unit through ANT+ or Bluetooth, or would they rather buy a unit that uses both protocols?

The systems work with cycling computers, so cyclists can monitor their power output instantaneously on the head unit's display screen.

Supporting a number of high-profile racing teams, **Rotor A1-206** is a popular choice for a crank-based system. After launching its INpower single-sided system last year, Rotor is debuting the upgraded 2INpower (pronounced "twin power"), bringing two-legged measurements to the market.

The 2INpower system adds a strain gauge on the right crank, coupled with a strain gauge in the BB axle for the left crank, which is part of the original INpower system.

By combining accelerometers with

measurements of the pedal rotation and the crank's precise angle, this new system delivers highly precise data for each leg. Thanks to a built-in battery and transmitter, Rotor's system looks very tidy.

The system is compatible with all 30mm Rotor cranks for mountain bike, road and triathlon/TT bikes. The company claims an accuracy of plus or minus 1.5 percent.

Because the 2INpower builds upon the INpower system first and then upgrade it to 2INpower.

For 2017, **Verve Cycling B2-102** has improved its original InfoCrank design, released in 2014, so it is compatible with almost every frame on the market.

The British company developed its chainwheel crankset from scratch as a power meter. Verve claims an unusually high accuracy of plus or minus 1 percent. The system uses four strain gauges in

each crank and says calibration is not needed. Its proprietary Crank Position System (CPS) technology measures torque at 256 samples a second for precision.

Earlier this year, Verve released a firmware update that eliminates the need for magnets and other additional sensors. It also announced a four-year partnership with the UCI World Cycling Centre to supply their athletes with power meters.

Yesterday at Eurobike, **Quarq A3-300** debuted its new generation of DZero power meters, with Bluetooth low-energy technology and broader compatibility. For 2017 Quarq also introduces the Prime Carbon and Aluminum Power Ready Cranksets.

These OEM cranksets are based on the SRAM Force and Rival cranksets, but offer an easy-to-install upgrade using a DZero power meter spider, which is packed with the same technology as

and Bluetooth). Strain gauges built into both hollow crank arms allow for precise individual measurements of power from each leg.

The power meter will be an option on the new DuraAce 9100 group in 2017. It adds only 60 or 70g to the total weight, and Shimano says it is accurate to within 2 percent. Owners will be able to update the system firmware wirelessly with their smartphones.

Although this is its first commercial system, Shimano has some 20 years of experience with power meters through its Bikefitting subsidiary.

In 2012, the Colorado company **Stages A5-202** helped popularize power meters with an affordable left-side crank system.

Stages is now working on fitting its compact, light Power Gen 2 system on the latest generation of cranks, including Shimano's new DuraAce system. Bluetooth data transfer



Verve InfoCrank

Quarq's assembled power meters.

With the launch of its own neatly integrated system, **Shimano B5-300** has given the power meter market its stamp of approval. From the outside, all one sees is a tiny box wedged in between the crank's spider and the chainrings. The box is the brains of the system and houses the battery and wireless transmitter (the system supports ANT+

and accelerometers render magnets redundant, making the Stages system easy to set up.

The company has released a new power meter system for carbon cranks, while its other systems fit road, triathlon, cycle-cross, mountain bike, downhill, track and BMX bikes.

Other power meter systems mount strain gauges between the spider and the

Continued on page 34 ...



Stages Power Gen 2

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STAGES DASH

A5-202

Stages Cycling redefines power training with the Eurobike announcement, and early 2017 availability, of two new products—Stages Dash and Stages Link. These new products serve to complement the Stages Power meter and complete the Stages performance ecosystem. The Stages Dash GPS cycling computer puts a premium on collecting the metrics that improve a cyclist's performance. Stages Link, an adaptable, cloud-based coaching and analysis service takes a rider's goals, schedule and daily training data into account when automatically creating

custom training plans for every rider. Stages Link then coaches riders by continually evolving these custom training plans as the rider completes each workout and uploads training data. These new Stages Cycling products work with a variety of third-party devices, however, when paired with the Stages Power meter, this new integrated system provides a clear, simple path to your best performance.

www.stagescycling.com



The power meter is barely visible on the Shimano Dura-Ace spider.

... Continued from page 33

chainrings. Probably the best known is the pioneering system from **SRM A2-306**, still a household name to many professional cyclists around the world. In January, SRM announced it was lowering prices by a substantial 30 percent.

Its top-of-the-line model, the PC8, is known for its bulletproof manufacturing quality. SRM says the system is accurate to within 1 percent. Although the battery lasts for up to 3,000 hours, the system has to be returned to the factory to replace it.

Power2max B3-502a positions itself as a more affordable alternative to SRM. Without compromising on quality, its Type S power meter, combined with an FSA Gossamer crankset, costs much less

than the same power meter combined with a Rotor 3D+ crankset.

The German company presented its first power meter in 2010. It uses strain gauges on the crank spider to measure power on both legs and accelerometers to track cadence. The company claims accuracy of within 2 percent.

Pedal-based power meters are also popular, especially because most can be quickly transferred from one bike to another. They incorporate strain gauges in one or both pedals.

Popular pedal-based models include the Thrust-E from **Xpedo A4-101**, the **KéoPower** from **Look A4-302** and the Vector 2 and Vector 2S systems from **Garmin A5-201**. New from Garmin is an adapter for Shimano Ultegra pedals.

Look developed its system jointly

with Polar. Riders can buy a single sided system and later upgrade to a two-sided system.

Scottish company **Limits Technology FG-B9/5** used Indiegogo, another crowdfunding site, to raise startup capital for a particularly affordable pedal-based power meter, Limits. The compact, all-in-one unit screws into the pedal thread of the crank and thus can be easily swapped from one bike to another.

PowerTap A3-109 offers its customers all of the options. Its P1 pedal-based power meter system gets a more affordable, single-sided system, along with upgraded software.

Its C1 Chainwheel power installs in the spider and is compatible with cranks from the major manufacturers.

The G3 PowerTap hub uses strain gauges mounted between the sprocket cassette and hub, and can be used on other bikes by transferring the wheel. A new G3C version is a lighter option.

A newcomer to the market is **Innotorq AG-205**, a young German company. Its system uses a magnetized shaft in the freewheel body, with contact-less electromagnetic measurement, so it is compatible with most rear hubs. It's easy to install, and to swap between bikes.

■ GE/LVR



Limits power meter



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A little notoriety went a long way for Vivax

There's nothing like a scandal to stir up free publicity.



Ulrike Treichl with the Vivax Optimo (Photo: JB)

Earlier this year, the Austrian company that makes the small Vivax e-bike drive found itself making global headlines, and not just in the cycling press.

Authorities busted Femke Van den Driessche of Belgium for racing at the U-23 world cyclocross championships with a Vivax motor hidden in her bike. Van den Driessche was banned from competing for six years.

"Yes, the cheating with our hidden seatpost motor within the race scene made our system popular," said Ulrike Treichl, marketing and public relations manager for **Vivax B3-507**.

Although Vivax sells its e-bike system to other OEMs, that is a small part of its business. The system is a popular retrofit option, and Vivax also offers a line of complete e-bikes — five mountain, one 'cross, one step-through commuter, and one road bike.

To celebrate its 10th anniversary this year, Vivax is launching an e-hardtail mountain bike, the Optimo, which shows off the Vivax system's biggest selling point — its size.

"With a total weight of 12.9kg, [28.4 lbs.] including motor and battery pack, this e-MTB is definitely the world's lightest off-road e-bike," Treichl said.

The Vivax drive system is a 1.8kg kit that is hidden in the seatpost, with a battery pack in the saddlebag. At the press of an unobtrusive button, the motor delivers 200 watts of assistance through a special geared crankshaft.

Vivax is looking for retailers to carry its full range of products, from complete bikes to the system. "Today we are looking for partnerships with what we call Vivax premium dealers that offering both our Vivax Drive for the aftermarket and our Vivax e-bikes equipped with our drivetrain," Treichl said. "These sales are really picking up." ■ JB



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Overview: E-city bikes

E-city bikes get creative with cleaner lines, sleeker frames, smaller motors



Biomega OKO

There's something about a city bike that gives designers free reign to be imaginative.

The creativity behind the latest lines of electric city bikes is especially notable. Because e-bike technology is maturing so rapidly, with batteries and motors shrinking, designers are increasingly able to mimic the clean lines of a non-powered bike. It's become a sort of competition among bike brands to see which ones can do the best job of making battery, motor and frame a seamless

whole.

While the greater e-bike market moves toward mid-drive motors, hub motors are also getting better. They remain a good choice for city bikes, where suspension and weight distribution are not so critical.

City bikes are also getting sportier — a trend driven in part by the popularity of e-mountain bikes. Manufacturers are releasing models in their high-performance lines with slightly more aggressive geometries than their siblings.

More compact drive systems make electric folding bikes practical without being awkward.

Klever B2-103 embraces the stripped-down urban look with the Klever X. It's available in four builds: X Raw, a single-speed; X Commuter, made to appeal to "a new generation of e-bikers"; X Raw Carbon, with electronic Di2 shifting and a rigid carbon fork; and the X Speed, a speed pedelec with a 600W version of Klever's Biactron hub motor.

"We already know that our powerful and super-quiet Biactron drive system has proven itself over the last five years as top class for e-bikes," said Fritz Baumgarten, Klever's general manager.

The Klever X is clean-looking, with integrated cabling and angular frame lines. Instead of hiding the battery, Klever makes it a central feature by integrating it in the main "loop" of the frame. The curved top tube, a feature of a creative reimagining of the double

triangle, lowers the step-over height for unisex appeal

The LCD display is Bluetooth-enabled, and cyclists can install customized profiles to suite their riding style and terrain. iPhones can communicate with

clean look. The bike uses an oil-free Gates Carbon belt drive. The OKO weighs less than 19kg (41 pounds, 14 ounces).

"This is by far the most ambitious urban mobility project Biomega has undertaken to-date, eclipsing even the original Marc Newson bicycle," Biomega founder Jens Martin Skibsted said. The OKO's design was a collaboration between Biomega and the Danish design group KiBiSi.

Biomega has put in a lot of effort to ensure the extra weight of the battery and motor is centralized so it doesn't affect the OKO's handling. The hub motor has two assistance levels, and Biomega claims a range of 45 to 65km on a charge. It is available with a two-speed SRAM Automax or eight-speed Shimano Alfine hub.

Speaking of striking designs and extensive integration, the legendary Italian design firm Pininfarina has partnered with **Diavelo FG-A9/2** on the Evoluzione, a line of three sleek flat-bar e-bikes.

The battery, mid-drive engine, handlebar, stem and lights are integrated in the carbon frame, and the display is embedded in an elegantly flared toptube. The Evoluzione line pairs a Brose mid-drive system with a maintenance-free belt drive. Hydraulic disc brakes and Shimano components complete the package. By using carbon in the wheels, handlebars and seatpost as well as the frame, Diavelo has brought the weight of the complete bike to 16kg.

Models are the Elegance, Hi-tech, and Dynamic, the latter sporting ceramic



Klever X-Raw

the Klever system through an app.

All Klever bikes have an electronic anti-theft alarm. Each bike contains a unique digital code that identifies the bike's serial numbers.

The OKO from **Biomega A4-905** is another striking city bike. Integration is a key theme: the carbon frame features integrated front and rear mudguards, and 356Wh battery pack is integrated into the toptube, from where it powers a front hub motor. Cables run internally, too, for a

carbide carbon brake disc rotors. (See our related story on Diavelo, page 22).

The Radar line of urban e-bikes from **Winora B2-300** also embraces system integration. An oversized alloy frame hides a 500Wh Lithium-ion battery, which powers a TranzX M25 mid-drive motor.

The Radar is available in four builds. The Radar Plain is the base model, while the Radar Urban adds mudguards and the Radar Tour a rear pannier rack. They use



Wallerang



Pininfarina Hi-tech

10-speed Shimano XT transmissions and Tektro Gemini hydraulic disc brakes.

The fourth version, the Radar Speed, is a speed pedelec with upgraded brakes and the 400W version of the M25 motor.

The Radar uses the Cobi system, which is controlled by smartphone. It includes front and rear running lights and a six-button handlebar remote. The Cobi app provides navigation, anti-theft

and fitness capabilities along with the usual bike computer metrics.

Momentum FG-A9/4 launches a new top-end model, the VIT-S, a sporty urban machine built around a new mid-motor system from **Nidec Copal AG-310**.

The motor is currently spec'd on only three bike models, and the VIT-S is the only urban bike using it. The 48V, 250W

motor, with a peak torque of 95Nm, is paired with a 379Wh Panasonic battery. Four levels of assistance are available though the LCD display.

"VIT-S is the result of one of the smallest electric bike companies in Europe and one of the biggest motor manufacturers in Japan," said Yin Tsao Tan,

CEO of Momentum Electric, referring to Momentum and Nidec Copal. "Our goal was to create a bike with sleek, reduced design and the most powerful motor, to take commuting to the next level."

The "sleek, reduced design" results from a hydroformed alloy frame and full carbon fork. The motor drives a NuVinci N360 continuously variable hub via a Gates Carbon belt drive.

Momentum claims a weight below 21kg and a range of up to 160km in Eco mode. It will launch a Kickstarter campaign in September to help finance the bike.

Also from Momentum is a new 20-inch city bike, the Twenty, with an Autorq torque sensor and front hub and SRAM Automatix 2-speed, auto-shifting hub. Folding pedals and rotating handlebars minimize its footprint when stored.

The E-Silence range, a new city bike line from **Scott B1-200**, takes integration about as far as possible with today's components. A 508Wh battery is integrated with an oversized down tube, which makes a smooth transition with the compact Brose mid-drive motor. Cables are run internally and lights are integrated on the frame. With its E-Silence name, Scott is emphasizing the qualities of the Brose motor, which is the quietest of the

mid-drive systems on the market.

The top-of-the-range E-Silence Evo pairs the Brose motor with a NuVinci Harmony auto-shifting hub and high-quality Supernova lights. It uses a Continental belt drive for oil-free running and includes mudguards and a

Continued on page 38 ...



Momentum VIT-S



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Kettler Paramount

credentials of the motor and gears, the Paramount is a fully loaded city bike. The alloy frame — available in diamond, semi- and full-step-through builds — has an integrated rear rack, with mudguards, lights, chain case and adjustable stem as standard equipment.

The Swedish company **Walleräng A4-806** describes the M.01 as a “modular smartbike.”

The modular part is the luggage system: A front porteur rack and rear pannier rack can each be installed or removed with one tool. A Shimano Steps mid-drive system provides the power.

Walleräng has announced a step-through version of the M.01 and will offer a version with a suspension fork. Also upcoming are additions to the modular rack system.

Among its variety of city e-bikes, **Stevens A3-306** has a sportier range with the E-Urban / E- Cross.

One of the most interesting bikes in the range is the E-Carpo, which marries a stylized alloy frame with a Bosch Performance Line motor and a Nuvinci Harmony auto-shifting hub gear.

It's practical, too: where some performance-oriented city e-bikes forego mudguards, racks and lights, the E-Carpo is fully spec'd for year-round use. A lower top tube makes for easier mounting.

Folding bike brand **Tern B4-406** is launching the Elektron, a folding pedelec that packs a Bosch Active Line mid-drive system, Shimano Deore transmission and hydraulic disc brakes into a 20-inch folder.

In fact, Tern says the Elektron folds to

... Continued from page 37

rear rack. The Evo build has a rigid fork, while the lower spec 10 and 20 models use RockShox Paragon 60mm suspension forks.

The E-Silence will also be available as a speed pedelec using the higher-output Brose motor. Scott also plans two s-pedelec models equipped with Shimano XT or Deore groups and rigid forks.

While the big news from **Kettler A6-301** is its first full range of e-MTBs, it has included some interesting urban bikes in the new lineup.

One standout is the Paramount, a top-end urban machine that uses the new Shimano Steps E8000 motor and a 500Wh battery integrated into the downtube. The bike has an XT Di2 electronic drivetrain with a super-wide 11-46 cassette. Despite the MTB



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Scott E-silence

the smallest size of any of its bikes so it is easier to take on board buses and trains.

"E-bikes are fundamentally transforming the way people get around in cities," Tern founder Josh Hon said.

He added, "They flatten hills, make headwinds disappear, and reduce commute times – that's why people love them."

But full-size e-bikes are difficult to keep in an apartment or take on the train, problems the Elektron is made to solve.

The bike has a 300Wh battery for a range that Tern says is between 50 and 100 km (30 to 60 miles) on a charge. With a low-step

frame and patented adjustable stem, the Elektron accommodates riders from 140cm to 195cm (4 feet 7 inches to 6 feet 5 inches).

Height adjustments are simple, so one bike can serve several people. It accepts Yepp and Thule child seats. ■ DA



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Bosch eBike Systems



Overview: Mid-drive motors

Bigger brands seek exclusivity, as smaller makers promote flexibility

Mid-drive motors, which directly drive the chainring rather than a front or rear hub, are increasingly the standard for e-bikes, especially at mid- to high-end price points.



The Shimano Steps E8000 motor housing has cooling fins to dissipate heat.

While every system has its drawbacks, a mid-drive motor has several advantages. The sensing and driving components can all be housed in one place. The position, low in the center of the frame, is better for handling, especially on a mountain bike.

Cabling is simpler too, since the control cables can generally be hidden in the downtube for a cleaner look.

For manufacturers, the main downside is the need to produce a frame specific to the motor being used. There's no mount standard, so each of the major drive systems — like those from Bosch, Yamaha, Brose and Panasonic — require a different bolt hole configuration.

That inflexibility has created an opening for a few companies that are seeking a way into the market. They have created mid-drive systems that fit standard bottom brackets and can be retrofitted to most conventional bikes.

Many of these systems, which move away from the bolt-on motor and gearbox, are on display at Eurobike. It will be interesting to see if any of them represent a new direction for the market.

The big news for **Shimano BS-300** is its move into the booming e-mountain bike market with its E8000-series Steps system. Since it introduced a mid-drive system a couple of seasons ago, Shimano's offering has been confined bikes for the road. Its move into e-MTBs shows how important that segment is becoming.

The new mid-motor design of the E8000 is more compact than its original E6000 unit. This allows manufacturers to design frames with short chainstays for better trail performance. It's more powerful, too, delivering 70Nm of torque. Cooling fins on the housing of the motor dissipate heat generated by the motor.

Instead of a large central display unit, the Steps E8000 system uses a smaller, bar-mounted display that sits behind and under the bars to protect it from damage. A color LCD screen displays normal bike computer data, plus battery charge, assist mode and also gear selection when used with Shimano's electronic Di2 gears.

Instead of using buttons to change the power mode, the E8000 shifter has paddles not unlike those you'd find on a RapidFire gear shifter. With a single

chainring (34T or 38T) up front, there's always space on the bars for it.

Also bringing a new drive unit to Eurobike, **Yamaha AT-309** is keen to show off the PW-X, the successor to the PW, which will remain in the line as well.

Yamaha managed to lose 380g (13 ounces) from the new unit while maintaining comparable performance — a significant savings.

The PW-X is also smaller, taking up 13 percent less volume than the PW.

cadence. Where the old PW motor drops off to zero assistance at around 100 rpm, the new unit provides assistance up to a cadence of 120 rpm and beyond.

The Japanese e-bike pioneer **Panasonic AG-402** introduces an interesting twist in mid-drive motors. Its new Center Unit Multi Speed Assist System incorporates an internal two-speed gearbox in the central motor unit that offers both a direct drive and an overdrive at a ratio of 1:4:1.



The MD250 is Dapu's second-generation mid-drive system.

Internally it features a new four-pawl engagement with a finer ratchet for much quicker pickup. To go with the PW-X motor, Yamaha has designed a more rugged display unit and a higher-capacity 500Wh battery.

Yamaha has given the PW-X motor a much shallower power curve against

In other words, a 29T chainring provides the equivalent of a 45T/29T double chainring without the need for a front derailleur mount or the issues of front shifting under motor load.

Panasonic claims several advantages for the system in addition to the convenience of a wider range. Those



The Wheeler i-Riser SE is equipped with the new Yamaha PW-X drive system.

include quieter running and less transmission wear than with an equivalent double chainring system.

The payback is weight: The new Panasonic motor weighs 4.8kg, 800g heavier than the company's equivalent single-ratio motors. The Multi-Speed motor is available in 250W pedelec and 350W s-pedelec versions.

Brose AG-404 offers a speed pedelec version of its existing mid-drive system, which has been well received for its quiet belt drive design and compact housing. The s-pedelec version offers assistance of up to 45 kmh (28 mph) and walk assist.

"This product responds to the rising interest in faster e-bikes and continues Brose Antriebstechnik's mission to enable e-bike design and a riding experience that excites," the company said. The first motors have already left the factory and the system has been spec'd on some 2017 model year bikes. Like its original 250W motor, the new unit is made in Berlin.



The components of the Sunstar Virtus make it easy to adapt a conventional bike to an e-bike.



Riders can attach and detach the Relo-Steckantrieb system in seconds.

With a new second-generation mid-drive motor system, **Dapu FO-06100** continues to make a name with its impressively high torque, at 100Nm, combined with a peak efficiency of more than 80 percent.

The torque sensor and motor controller are integrated into the motor body, and the system includes an LCD display and remote control.

It will make 250W and 350W versions available for the European, U.K. and U.S. markets. Dapu is promoting the 5.5kg MD250 as a high-quality, yet very affordable, option to other mid-motors on the market.

There are no new motors from **Bosch AG-202**, which continues with its four systems: the Active Line, Performance Line, Performance Line Speed (for S-pedelecs) and Performance Line CX units for e-MTBs.

But Bosch has introduced some interesting developments outside of its motors. The most noteworthy is a new dual battery setup, which means bikemakers can incorporate a total battery capacity of up to 1,000Wh by using either two frame

batteries or one frame and one rack battery. That should especially interest the long-distance touring market. Bosch also offers a compact travel charger for en-route top-ups.

On the MTB side, Bosch offers a new display, the Purion. It's a smaller unit that combines the assistance buttons with the LCD display. It sits on the left-hand side of the bars, where the Bosch Inuvia or Nyon remote would normally be mounted.

TranzX AG-406 also focuses on integration. The TranzX Integra is available in two builds, for city bikes and e-MTBs. Drive unit and battery are integrated directly into the frame, so e-bikes equipped with the Integra drive unit have a very clean look. The central distribution of weight improves handling and stability.

The TranzX FleXpack battery is available in 336 Wh or 400 Wh capacities. It's flexible, which makes insertion and removal from the frame easy, and the in-tube mounting position means that it is well protected.

The **Sunstar AG-303** Virtus mid-drive system is intended for the retrofit market and for smaller manufacturers that can't afford to make dedicated frames for other mid-drive systems.

The Virtus, which recently picked up a German design award, is designed to work with almost any conventional bicycle frame by fitting to the existing bottom bracket shell.

"We see good chances for Virtus, especially in the cargo bike section and also in the retrofit market," said Peter Silberbauer, general manager for Sunstar in Europe.

Sunstar has made pedelecs for Japan since 2003. In Europe it has concentrated on its universal bottom bracket motor systems.

The **Binova AT-504** Flow is the first gearless mid-drive motor. The Flow uses a brushless motor that replaces the chainring. It fits quickly on most bikes for a simple, low-maintenance mid-drive solution that doesn't require a frame redesign.

The 6kg motor puts out 60Nm of

Continued on page 42 ...



TranzX is going for a sleek integrated look with its Integra mid-drive motor system.



Riders can easily remove the battery and motor of the Fazua Evation as needed.

... Continued from page 41

torque. Because the motor is gearless, it's quiet and efficient; and because it is directly connected to the cranks, it accommodates bikes with rear coaster brakes. That's not possible with most mid-drive motors, which incorporate a second freewheel.

Binova offers the Flow as a complete system, with 417Wh and 522Wh battery options that either mount on the rack or the frame. Binova also offers a remote and a backlit display with a charging port for a smartphone.

The Flow uses the EnergyBus protocol, which means it integrates with other CAN devices such as Shimano Di2.

From **Relo-Steckantrieb M-814** is a system that expands on the concept of a retrofit kit: Riders can install and detach the motor and battery in seconds, so one bike can be both a conventional bike or an e-bike.

The gearbox, which remains on the bike, fits to a standard bottom bracket and takes about half an hour to mount. The motor and battery are housed in a single unit that slots into the gearbox.

Relo uses a magnesium housing on the gearbox to get its weight down to 1.5kg, while the complete system weighs 3.7kg.

The battery is only 100Wh, so it's

designed for shorter journeys or for intermittent assistance on a longer ride.

Because it weighs just 760g, riders could certainly carry a second battery to extend the system's range.

Riders control the Relo-Steckantrieb with Relo's wireless computer, a thumb remote on the handlebars, a smartphone or even an Apple watch.

Built in Relo's factory in Nürnberg, Germany, the system recently won a 2016 Red Dot design award.

The Evation drive system from **Fazua AG-107** is also a modular design. A removable drive unit and 250Wh

battery connect to the bottom bracket gearbox.

Unlike the Relo-Steckantrieb system, the Fazua system is designed to be installed during the manufacturing process and isn't made for retrofitting.

A simple thumb remote gives riders access to three levels of assistance and it communicates with their smartphone via Bluetooth. The Evation is also CAN-compatible. The whole system weighs just 4.7kg.

(See our story on the next page for more about the Fazua system.) ■ DA



The Binova Flow, the first gearless mid-drive motor, replaces the chainring.

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Fazua's removable motor is set for production

Two years ago at Eurobike, Fazua presented an intriguing concept: a light, detachable e-bike motor and battery that was housed in one long cylinder. You could put it on the bike when you needed a boost, and take it off when you don't.



The Fazua Evation battery and motor detach quickly from the bike.

Now, **Fazua A6-107** is putting its concept, called the Evation drive, into production early next year.

"From 2014 to the present we have been constantly working on the series development for the drive system," the company's Marcus Schlüter said. He said Fazua hopes to start doing business with OEMs soon.

In the past two years, Schlüter said Fazua has improved the functionality

and riding behavior of the Evation system. "Fazua is now known by countless OEMs, from the biggest to the smallest, and we have had some great feedback," he added.

The Fazua system is interesting technically as well as conceptually.

A brushless DC motor, housed under the downtube, drives through planetary gears via an interface to the special bottom bracket. The system has sensors

that measure torque at both pedal cranks and cadence.

With a Bluetooth-compatible handlebar control, riders set one of three assistance levels — including Rocket Mode, which delivers power up to 400W. The bottom bracket delivers torque of up to 60 Nm.

Fazua gives the weight of the removable motor drive and battery as 2kg (4.4 lbs.), while the non-removable bottom bracket weighs 1.4kg.

(Fazua is one of several interesting drive systems coming to market; see our story on page 40 for a look at what else is on display at Eurobike.)

Focus used a Fazua system on its Project Y, a sub-13kg hardtail e-MTB. A Focus official said the Fazua could provide a way out of the "arms race" currently being waged in the market for performance e-bikes.

"The world of performance e-bikes is heading for a dead-end. Their development has come to the point where it's now based upon just two simple customer demands: loads of power and enormous range. This leads to an 'arms race' amongst the large, dominant manufacturers

and in turn results in ever-more powerful bikes," said Silke Siebert, e-bike brand manager for Derby Cycle, the parent company of Focus.

Siebert said the Fazua motor offers "uncompromising handling, balanced weight distribution, and agility."

Company founders came together at the Munich University of Applied Sciences, and the company is based in Munich.

Johannes Biechele, who invented the Evation drive system, founded Fazua in 2013 along with Schlüter, Sebastian Boss, Philipp Kalläne and Fabian Reuter.

The name "Fazua" is derived from the Bavarian dialect spoken around Munich, where the phrase "fahr zua" means to "drive ahead." ■ **RP**



The battery (right) slips into a protective sleeve that also houses the Fazua motor.

Marketing at the speed of pigeons

Long before there were text messages, there were pigeons carrying messages at the speed of flight from one town to the next.



Ben Liao

Ben Liao, a former bicycle stunt rider and professional mountain bike racer, thought messenger pigeons were a good metaphor for his new company, which helps OE manufacturers build their individual brands by working together.

Liao founded **Pigeons Action A5-413** to work with Chinese and Taiwanese manufacturers who need help marketing their products.

"The bicycle industry in China has very competitive production, no matter whether it is in price or quantity," Liao said. "However, they lack R & D and marketing strength. That's why they cannot build premium products or brands."

Liao has recruited 17 manufacturers from Taiwan and China who are participating in Pigeons Action. Most concentrate on making entry-level components. By cooperating, he said

Pigeons Action is able to source entry-level mountain and road bikes that cost about 30 percent less than similar products from more established brands.

Pigeons Action doesn't sell the bikes, but helps its partners to market them.

Even though the Chinese market is suffering, Liao believes the entry-level segment there still has room to grow. He said most of the 17 companies that are part of Pigeons Action have been able to increase sales while most brands are hurting.

Pigeons Action seeks to provide services from product design to marketing — everything except for manufacturing itself.

The company is attending Eurobike to recruit distributors and other manufacturers.

The 17 member companies currently focus on different components, although the Liao would like to beef up some component areas such as suspension forks.

He said Pigeons Action targets markets where brands are not as important to consumers, such as China and southeast Asia. One clue is whether consumers in a country buy generic smartphones instead of brand-name phones.

"As long as local sales of Android phones are more than iPhones, generally we will have better sales," Liao said. ■ **AZ**

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Overview: Weather protective apparel

New technical wear for iffy weather keeps riders protected — no ifs, ands or buts



Gore One Giro GTX Active jacket

Bring on the rain, the wind or the sun: Cyclists can tame the elements with technical apparel that takes advantage of the newest performance fabrics.

“Versatility” is another catchword for the new apparel lines on display at Eurobike. Europe’s recent spells of unpredictable weather have inspired apparel makers to design pieces that adapt to fast-changing conditions.

Many of the advanced membranes and fabrics that do the hard work of

blocking wind and rain are also very light and pack small. That means cyclists can always have protection at hand when warm sunshine turns to cold rain.

Gore Bike Wear A7-206 calls its One Giro GTX Active jacket a high-tech reincarnation of its first Gore-Tex cycling jacket, released 30 years ago. The contemporary version comes with two-layer Gore-Tex Active fabric and a durable water repellent surface. It weighs little more than 100 grams (3.5 ounces).

With the “shake-dry effect,” the jacket can be shaken dry with a single motion and stowed away in seconds. A slightly heavier version, the Giro GTX, uses Gore’s latest three-layer laminate with a textile surface.

Castelli, A7-319 the Italian company behind the Gabba jacket, knows a thing or two about weather protection. It uses Gore-Tex Active in its latest range, including the Idro Jacket.

“It’s permanently water-repellent, from the moment you buy the product until the end of its lifetime,” said Edoardo Civiero, marketing manager for Castelli in Italy.



Scott Trail MTN Aero WB

pockets, and reflective elements.

Inspired by sailing, the new Castelli Vela Vest protects riders from the wind. It weighs just 65 grams and packs small. Because it’s see-through, a racer’s jersey number remains visible underneath.

The Trail MTN Aero WB windbreaker from **Scott B1-200** also ticks the box for lightness, weighing 115 grams for a men’s large. Fabian Heigemeir, product manager for bikewear at Scott Sports, said the windbreaker is durable and repels water. Four-way stretch fabric, laser-cut ventilation holes and reflective elements keep riders comfortable and safe.

“You may start with the windbreaker but then take it off, or the other way around, and you want to be able to stow it away easily,” Heigemeir said. “I found that out myself when I did the Bike Transalp and always had such a windbreaker with me.”

The waterproof, breathable Oro Jacket from **7mesh A7-406**, the young Canadian cycling apparel brand, weighs 95 grams in size large. 7mesh uses Gore-Tex Active and dispenses with a face fabric in favor of the permanent beading surface of the Gore-Tex material.

Other features that enable 7mesh to reduce weight include intricate patterning that reduces seam bulk, a directly laminated zipper, and a welded raw hem edge.

Giordana A7-214 says its latest range marks the beginning of its next generation of cycling apparel. “A new manufacturing facility, new machinery, new fabrics, and a new focus have all led to our most technical and highest performing cycling apparel to date,” vice president Giordana Andretta said.

The new range reflects Giordana’s

That’s due to the permanent beading effect of the Gore-Tex material, which causes raindrops to roll off the fabric.

The jacket weighs just 123 grams in size large, and fills only half of a pocket when packed.

For comfort and performance, Castelli adds elastic bindings on the cuffs and hem to keep the jacket in place, a zipped opening on the back for access to jersey

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The original GIRO Jacket was the first ever GORE BIKE WEAR® product, and more importantly, the first ever GORE-TEX® cycling jacket on the market. By being both waterproof and breathable at the same time it revolutionized comfort and protection for cyclists. Today we have a new ground breaking technology that sets a new standard as much as we did over 30 years ago. Built on the same core values, the ONE GIRO GTX® Active Jacket is engineered with the brand new lightweight GORE-TEX® Active fabric that permanently repels water and increases breathability in even the wettest conditions.

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A7-206



Castelli Vela vest

and provides a controlled level of humidity," Yung said. "You don't want to be too sweaty, but it's a function of sweat to keep you cool, so you shouldn't be too dry, either." And it won't cling to skin.

Mavic B3-207 uses a fabric made in Switzerland for moisture management on hot summer days. The French company says the material used for its new Cosmic Ultimate Jersey increases absorption, while Coldblack technology from Schoeller keeps things pleasant when the sun is blazing. Coldblack keeps dark textiles from getting hot in sunlight, so they stay about the same temperature as light-colored jerseys.

Pro-Fit construction ensures the jersey doesn't flutter in the wind. Ultrasonic welding and silicon waistbands make the jersey more comfortable.

Löffler A7-302 also aims to banish that wet and sticky summer feeling with its Pro Plus line of light, high-end roadwear. Its pro jersey uses Sensor Light material, a woven fabric with an open structure for climate management. The jersey is light, breathable and fast drying, while the bib pants have comfortable padding and compression.

The Austrian company's new slogan, "made for better," encapsulates its focus



Giordana A+V 200 Short Sleeve jacket

partnership with eVent, a U.S. supplier of breathable, waterproof membranes.

Giordana's new A+V 200 Short Sleeve Jacket, for example, uses a light version of eVent's DV Stretch to produce a full-membrane garment that retains heat and manages moisture while defying wind and rain.

Although it is designed for mild winter weather, cyclists can combine it with layering and arm warmers in chillier conditions.

"Only eVent's membrane allows moisture to escape instantly, ensuring the

. "It is deceptively warm, yet is excellent at wicking away moisture so you don't overheat in milder temperatures or during aggressive exertion," the company says. Funkier says the Baricella fits like a jersey and protects from wind and water like a jacket.

The same could be said for the P.R.O. Pursuit Wind Jersey from **Pearl Izumi B5-302**, which

joins two existing pieces in Pearl's Wind Collection. Pearl describes the Pursuit Wind as a "simple and highly versatile solution for lightweight wind protection in transitioning temperatures." The jersey has wind and water blocking materials across the chest and arms and a summer-weight back panel.

"As part of our hybrid philosophy, Softshell Lite fabric on key areas provides breathable wind and water protection with unrestricted mobility, while the P.R.O. Transfer fabric moves moisture off your skin to keep you dry," the company says.



Maloja Beyond the Mountains range



Funkier Baricella jersey

rider stays dry and maintains a consistent core temperature from the start to the finish of the ride," Andretta said.

Because DV Stretch can stretch by 50 percent and fully recover, it provides the right balance of wind proofing, water resistance, breathability and comfort, according to eVent. Giordana's latest range incorporates several eVent membranes and fabrics.

Also made for iffy weather is the Baricella jersey from **Funkier Bike A4-403**

Delta fabric from **Polartec A7-306** helps keep riders cool. Eric Yung, Polartec's European sales director, describes jerseys made with Delta as "the shirt you wear when you wouldn't want to wear a shirt." A dozen apparel companies have incorporated Delta in their lines. Polartec, a mainstay in the outdoor industry, is exhibiting at Eurobike for the first time to highlight its push into the cycling industry (see our story in Wednesday's *Eurobike Show Daily*). With Delta, Polartec says it now makes fabrics for all four seasons.

"The cooling factor in Delta is inherent to the knit construction

on high-performance clothing that is manufactured in Austria and Europe using sustainable production techniques.

With e-bikes increasingly used for sports, **Maloja FG-B6/4** offers functional apparel with climate management features adapted for them. The idea is that e-bike riders sweat less when climbing but go faster on the downhill. The Bavarian brand's solution is a series of tops that have a slightly warmer front than its conventional cycling apparel. Maloja uses Primaloft or Gore Windstopper. ■ BS



7mesh Oro Jacket

A squeaky wheel gets Gigapower brake pads

Chun Ling Yeh likes grease about as much as he likes squealing brakes. Yeh, the founder of Genuine Products, has spent three decades perfecting brake pads so they don't squeal and won't overheat rims.

Now, **Genuine A3-901** is rolling out a line of pads that the company says will provide instant braking power even if the rim is coated with grease. The pads are currently compatible only with aluminum rims.

With three decades in the industry, the 77-year-old Yeh is an elder statesman who earned his reputation the old-fashioned way. During the company's first year, Yeh was experimenting with the blend of organic ingredients that go into Genuine's brake pads when something exploded and he was injured.

"Failure is the mother of success," says Yeh, who adds that he is the kind of hardworking business owner that is typical in Taiwan.

Along with brake pads that don't squeal, Genuine is also known for its Gigapower Ceramic brake pads that won't overheat expensive carbon fiber rims. Yeh said the pads use a proprietary ceramic compound, comprised of more than 40 organic ingredients, that keeps rims from getting hotter than about 100 degrees Celsius (212 degrees Fahrenheit).

Genuine Products is a relatively small company compared to competitors from the United States, Switzerland and other countries. Its China factory employs about 50 and its Taiwan headquarters is also small.

But it also has deep ties in the bicycle industry. Genuine is the official brake pad supplier to Giant and supplies it with about 18 million brake pads a year.

In all, Yeh says Genuine ships more than 30 million brake pads a year and expects that to increase this year. Now that's something to squeal about. ■ **AZ**



Gigapower anti-grease brake pads for mountain bikes

Its headsets didn't come off, but Neco's business took off

Many wonder how the Taiwan manufacturer Neco got its name. Was it someone's nickname, perhaps, or their initials? Actually, Neco was named after the company's first product, made in 1986. It was a headset that, founder and general manager Jin Yuan Wang said, would "NEver Come Off."



Jin Yuan Wang (photo by Jacky Tseng)

While its headsets never came off, **Neco A5-108** soon took off as a component supplier to the bike industry. Over three decades, Neco has expanded to produce tens of millions of headsets, cranksets, pedals and hubs from four plants, three of them in China.

Neco focuses on entry-level products and expects to produce some 24 million headsets this year, although a weak Chinese market may force it to cut production to about 18 million units.

Neco's R&D center in Taiwan focuses on high-end products, including a new range of integrated components it sells under the Neco brand name.

The range includes the Neco 1 semi-integrated threadless headset; the Neco 3 portable charger, and the Neco 4 dynamo hub.

The Neco 4 hub provides stable DC power to the Neco 3, which consists of a rechargeable battery that is housed in a protective aluminum casing and then stowed inside the steerer, where it is almost invisible. Instead of a top cap, the Neco 3 sports USB ports where a rider can plug in a smartphone or other electronics and keep them charged.

The Neco 1 headset, meanwhile, keeps a bike clean and uncluttered by routing cables into the downtube.

Ming Yu Ho, who works in Neco's R&D department, said the system has been designed to be weatherproof so water can't leak through and damage the electronic components.

Neco also says the Neco 4 dynamo hub is the most efficient on the market and can generate the equivalent of 12 watts. ■ **AZ**



Neco 4 dynamo hub



(Patent pending)

Recommend ITT tire
27.5x2.5 & 26x2.5
SCHIST

Feature:

The upper side acts like tubeless Liner in the bottom works as tube



Why ITT tire?

Liner hold tire and rim together
No pinch flat
No run out of rim
→ **Safety**

Regular Rim
Easy Fitting
Easy Pumping
→ **Friendly & Economic**

Innova has developed a Integrated Tubeless Technology (ITT). ITT tire is suitable for any rim; the fitting and inflation process is same as the tire with tube but lighter in weight. Adding sealant is necessary. ITT can protect the tire free from pinch flat when hit the hole on road; also a guarantee that tire will not run off the rim when the pressures dramatically drop by cut. ITT tire is safer, more economic and easy assembly.



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Overview: Aero apparel

From head to toe, these suppliers know what works for watt worriers

After getting the aero wheels or even the complete aero bike, where can a watt worrier turn next?

its nature is imprecise and forgiving, or we wouldn't want to wear it?

Apparel makers have a few tricks up their sleeves to cut drag.

Their first priority is minimizing the rider's front by wrapping it with a tight, athletic fit. Then they can position seams away from the air draft, design special aero zippers, and ensure cuffs and collars are flat and tight if used at all.

Structured fabrics placed in strategic positions optimize airflow around the rider. One-piece skin suits also cut drag, and are becoming more popular among enthusiasts.



Scott
Cadence Plus



7mesh Highline jersey

they supplied would have the absolute latest.

All that time and money spent in the lab and the wind tunnel eventually trickle down to consumers — provided they are willing to pay for it.

Many do. The growth of Strava and affordable power meters (see related story on page 32) have made performance metrics accessible to enthusiasts, and given them the motivation to do something with it.

We already see road bikes fitted out with aero rims and wheels, and aero helmets are becoming common in many races, not just time trials.

Above speeds of 20 mph (32 kph), wind resistance becomes the cyclist's No. 1 enemy, surpassing mechanical factors such as rolling resistance and resistance in the axle bearings.

The laws of physics have more bad news: Wind resistance grows exponentially with speed.

For racers who consider 20 mph a recovery ride, optimizing their aerodynamics is the most logical way of gaining an advantage.

Marketing departments have hammered the message home, like Specialized and its "Aero is everything" slogan touting its wind tunnel. A number of Belgian companies joined forces to build a wind tunnel for bikes as well.

It's one thing to fine-tune the shape of a carbon component or the angle of a helmet vent to microscopic specifications. But what about apparel, which by



Northwave Extreme RR

Pro Road. The Italian brand uses a one-piece construction of AeroFlow Compress fabric that it says offers several advantages.

A seamless shoulder area and flat collar, four-fold flat seams and the absence of cuffs at the sleeves all help to cut drag. The top-of-the-range TC Pro Team is made for long days in the saddle.

Belgian company **BioRacer A7-301** has a lot of experience with apparel aerodynamics, thanks to its work with professional racing teams and national federations. All of this experience has gone into its

Speedmaster 2.0 skin suit.

Finely corrugated Stripe fabric at the shoulders and upper arms channel airflow, while the bib shorts, the back and the torso are made of Speedsilk, a fabric technology that improves the aerodynamics of Lycra. Flat hems and the lack of cuffs further add to the aerodynamics. Tools and snacks fit into



Giro Aerohead

That's when it's time for them to take a good look at themselves from head to toe. From helmets to shoes, brands continue making strides in their way their gear cuts through air and reduces drag.

Enthusiasts can thank the professionals and the Olympics for some of these developments. Performance cycling is all about eking out marginal gains. Thanks to better ways of measuring performance and efficiency, athletes, national federations and suppliers have been systematically hunting down methods of saving crucial watts.

The Rio Olympics spurred many manufacturers to double down on product development, so the athletes

Originally focused on mountain biking, Canadian brand **7Mesh A7-406** takes aim at the performance road market for the first time in 2017 with the Highline jersey. Made of lightweight, woven fabric with high stretch, the jersey fits like a second skin. Ultrasonic stretch seam construction, a minimalist collar and lack of cuffs add to the seamless look. The full-length zipper is neatly integrated.

Swedish sportswear brand **Craft A7-308** also targets performance road riders with its Aerotec Series. Both jersey and bib shorts have flat, wide cuffs and cleverly positioned seams. Craft relies on fabrics from Schoeller that offer a slight compression effect and built-in UV protection. New Energear technology from Schoeller is said to preserve energy by reflecting far infrared rays back into the body.

For a performance-oriented skin suit aimed at enthusiasts, **Sportful A7-311** has the Bodyfit



Bell Zephyr with MIPS



Craft Aerotec Jersey



Briko Ventus

ventilation and aerodynamics. Vertical vents up front suck in air without creating turbulence. For minimum drag the top and the side sections of the EDAero are mostly closed and smooth. For fit the helmet comes with a Boa adjustment.

Bell A4-200g rolled out a top-shelf aero helmet, the Star Pro, last year. For

2017, the helmet specialist launches the Zephyr, combining sufficient ventilation with optimized aerodynamics. A sleek,

with a shell made of lightweight, tough TeXtreme carbon fiber.

As a supplier to the Orica-Bike Exchange racing team, **Scott B1-200** set out to develop two aero helmets – one for flat sprint stages and one with better ventilation for mountain stages. The Cadence Plus is the sprinter, with few, large vents up front and in the back for minimal drag and plenty of ventilation. The Centric Plus is the



Uvex EDAero

Lycra back pockets.

The helmet is perhaps the most obvious place to seek aerodynamic assistance.

Aero helmets have already taken the pro peloton by storm and changed the look of pro cycling with their distinct design. Almost every helmet manufacturer that supplies a top-level road racing team has developed such a helmet. Instead of an outer shell with several vents, aero helmets rely on fewer, cleverly positioned vents for cooling while directing the air flow around it as smoothly as possible.

Uvex A4-400 is presenting the new EDAero. The letters ED stand for “every day,” and the helmet combines proper

technology. The Extreme RR also incorporates Northwave’s top-tier Ultralight Carbon 15 sole.

Swiss cycling shoe specialist **Suplest B3-110** worked with Swiss track athletes on the design of its minimalistic Aero model. With a super stiff Ergo360 carbon sole and a seamless synthetic microfiber upper, this shoe is lightweight and built for the most efficient transfer power.

■ LVR



Lake CX301

semi-rounded profile and relatively compact size reduce drag, but there’s still plenty of ventilation and a classic look.

For triathletes and time trial enthusiasts, **Giro A4-200h** has the Aerohead helmet. Its drop shape and integrated high-quality visor from Zeiss cut wind when riding in a low aero tuck. Strategically placed large vents still channel plenty of cool air to the head for necessary cooling. In addition to a version with a polycarbonate shell, Giro has the Aerohead Ultimate,

climber. Scott-sponsored athletes rode it to two Olympic gold medals.

With the Gass, **Briko A4-402** already has one aero road helmet in its line-up. For 2017 the Italian maker adds the Ventus. This aero helmet combines some of the distinctive design features of the Gass, with more vents for hot days or long climbs.

Footwear does its job through light, minimal construction. A fine example is the new CX301 from **Lake B4-302**. At a claimed weight of 186g per shoe (in size 44), this shoe includes a stiff carbon sole, mesh tongue and a lightweight, perforated synthetic upper. A Boa dial ensures proper fit.

At 220g per shoe, the new Extreme RR from **Northwave A7-401** is very light as well. To eliminate pressure points from its SLW2 twist closure, Northwave reinforces the shoe’s synthetic upper with XFrame



Suplest Aero



Sportful Bodyfit Pro road



UltraWide E-Bike Light

German High Performance Light
70Lux

ROXIM X4E
50 Lux / 400 Lumens



50 Meters Outdoor Phtos



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New Products 2017

Dosun SF90

A tiny light for big adventures, despite its minute size and a weight of only 27 grams, the SF90 can produce 90 lumens. Wrapped in a stylish aluminum housing, a special lens design focuses the beam on the road and reduces wasteful diffusion. **A5-207**



Airace Handy

This neatly sculpted tool marries tire levers and a CO2 inflator to give riders what they need to get rolling again after a flat. Its cast aluminum body provides leverage. An embedded plastic rim protector and twist-to-release design ensures wheels remain undamaged, and inflation is easily regulated. **A5-107**



M-nova FSIR Spin Bike

It takes just one fold for the FSIR to show off its unique design. It uses an integrated rotational system instead of a hinged frame, avoiding the well-known hassles of conventional folding bikes. It's sturdy and folds easily for transport or storage. **B1-504**



Schwalbe Marathon GT 365



The Schwalbe Marathon GT 365 tire will serve city riders all year round, even when the first snows fall. A four-season compound stays soft and keeps its grip even in cooler, wetter conditions, up to a light snowfall. A two-layer DualGuard puncture protection keeps foreign objects away. **A5-300**

Santini Iride Speedsuit

Created with the Slovakian National Cycling Team, the Iride road promises to be breathable, form-fitting and light for raceday. On the front is Spider 700 mesh, while the back, in Lycra Monica, adheres to the body for better aerodynamics. **B5-201**



Elastic Interface Combi Men

The Elastic Interface Combi Men chamois is made for ultra-distance, off-road rides. In addition to ultra-high density ischiatic inserts, a unique multi-directional curvature enhances fit and stability in the saddle. A central channel improves blood flow and reduces numbness. **A7-212**



Powerway Elegant Racing Hub R51

Powerway's patented hub design has a special spoke thru-way for easier fitting and maintenance. A wide flange on the drive side boosts torsional stiffness. The hub's centers are finished with unidirectional carbon tube for aesthetics and a very low weight of 297 grams per pair. **A5-207**



BionX Smartphone App



The new BionX app supports Android and iOS devices with mapping, voice commands, assistance indicators, tracking, and statistics that can later be viewed on your desktop. It works with the BionX Bluetooth Module and appears on many new bikes powered by BionX. **A6-407**

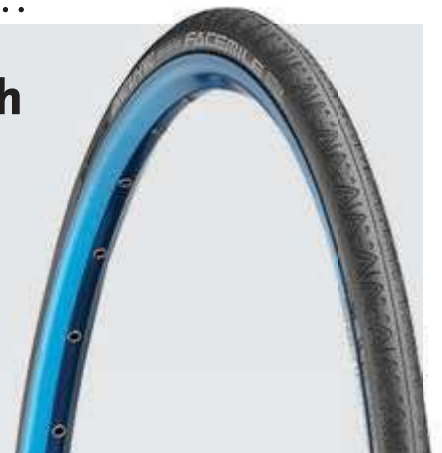
Ming E-Strida

The E-Strida has the lightest motor in its category and is configured for stability. An integrated torque sensor provides power as needed. It even goes with you on the plane — just remove the portable battery. **A5-504**



Innova Zoom Tech

Developed for high-pressure road tires, Zoom Tech is fast and supple with low rolling resistance and grip. The Facemile, Innova's premium tire using Zoom Tech, is intended to compete with the performance of tubular tires. Rated up to 145 PSI, it's available in sizes 700x23c, 25c and 27c. **A3-809**



New Products 2017

Bkool Pro Trainer



This trainer and simulator combo recreates in 3-D real terrain and landscape features, so cyclists can ride virtually any route in the world. Riders from anywhere can come together and train or race as a group. www.bkool.com

ControlTech Falcon

The Falcon finishing kit brings integrated aero design to any bicycle. The Falcon road ergo bar is for all road riders. A sleek stem/bar interface reduces drag and simplifies the bike's profile for wind-cheating performance. A complete Falcon gruppo including speed saddle, rear hydration systems, bottle cage and water bottle is also available. **A4-205**



Seatylock Foldylock Compact

This premium folding bike lock combines neat design, low weight, and robust security. A composite polymer covering on the hardened steel links protects that nice paint job. It folds into a rattle-free case that can be mounted to the frame. **A1-316**



Alex Animal 3.5/4.5

Alex introduces the plus-size Animal 3.5 and 4.5 wheelsets. Featuring 35mm and 45mm interior width rims, respectively, both use hoops drawn from Alex's proprietary EXA super alloy material. They are compatible with almost all plus-sized tubeless tires, and a stout 32-spoke, 3-cross lacing ensures a strong build. **A5-205**



Velo Angel Eden

The Angel Eden brings the latest saddle technology to e-bikers. Because e-bikes are heavy, the Angel Eden has a solid handle at the rear for easy lifting. Navigating tight spaces becomes a lot easier. **A4-103**



Crops Lum120

The little sibling in Crops' new lighting range produces 120 lumens despite weighing a scant 80 grams. The battery is USB-rechargeable, and an indicator lets you keep an eye on the five-hour run time. A new universal bracket fits easily without tools. **A5-204**



Echowell Ops 200

Simple and stylish, the Ops 200 optical sports watch accurately measures heart rate without a chest strap. With a continuous real-time heart rate display, the watch helps you target your zones or hold a steady pace. Audible cues and a battery capacity indicator keep you on track. **A4-115**



Chosen Smart Hub

Featuring zero internal friction and silent operation, the Close Drive System lets racers attack from behind without warning. The pawls physically close when the hub is idle. Pedal, and the pawls engage instantly. No continuous internal contact also makes for extended wear. **A5-414**



Stromer ST2 Solar Impulse LTD

To celebrate its partnership with Solar Impulse, whose solar aircraft was the first to fly around the world, Stromer launches a special edition version based on the ST2. It's fitted with Stromer's highest-powered battery that, at 983Wh, is the most powerful unit on the e-bike market, allowing a range of up to 180 km (112 miles). **A6-302**



Berenis Power HL

Berenis' bestseller gets a new HL version made with Focus Carving Technology. The pad features a core of high lift capacity foam, mixed with a medium density cover, for protection and lift capacity that's more compact and weighs less. **A7-212**



New Products 2017

Ningbo Nanyang Tumbler

The Tumbler is an electric fat-tire cargo trike with Shimano eight-speed gearing, an 8Fun motor and disc brakes. Cleverly, the front cargo area is a dedicated child seat with built-in storage or can be swapped out for use as a cargo box — great for families who'd like to ditch that second car. **ZH-200**



Standwell Carrymore

Standwell designed the CarryMore carrier in 2012 to meet the growing popularity of system-carriers across Europe. It now includes a wide range of accessories and can be found fitted to many leading bike brands. A compatible aftermarket accessory line is available from distributors throughout Europe. **A5-207**



FPD Odin-X

The Odin-X has a replaceable alloy tubular cage that enhances its mud clearing abilities. It's Shimano SPD-compatible, with a multiple spring rate adjustment for different riders. Sealed bearings and a hardened chromoly axle add durability. **A3-811**



Magura Vyron Elect



No cables means no laborious cable routing. The Vyron Elect Seatpost with wireless remote control just received a gold in the Design & Innovation Award 2016. Its stepless adjustment range of 150 mm lets riders pick the best saddle position whether they're headed for trail or road. **A2-205**

Kryptonite Street Light Series



Kryptonite has been keeping bikes safe for years. Now it wants to keep riders safe with a line of USB rechargeable lights. The series' five compact, high-quality models have front and rear options and are backed by a two-year limited warranty. **A4-200c**

Kind Shock LEV Ci

The LEV Ci internally routed carbon dropper seatpost expands with new travel options of 100mm, 125mm and 150mm. Used by top XC racers and gravity aficionados worldwide, it's the only dropper with a carbon fiber mast, head clamp and remote lever, making it one of the lightest out there. **B1-206**



Stages Dash

The Dash GPS cycling computer collects key performance metrics with the Stages Link program, an adaptable, cloud-based coaching and analysis service. Stages automatically creates custom training plans based on a rider's goals, schedule and data. It coaches riders along by adapting its plans as they complete workouts and upload training data. **A5-202**



Uebler Concept 2017

The Concept 2017 bike rack combines exceptionally low weight with an optimized folding function. Solid struts secure the frame and housing for both wheels. The way the bikes mount is different than anything on the market. **B2-107**



Cateye Loop 2 Bar end

The latest addition to the Cateye Loop 2 family is these bar end lights. Easy to install, they fit drop bars and run for up to 50 hours on a charge. Constant or flashing modes keep riders visible at night. **B5-403**



Novatech Diablo XL

Novatech's Diablo wheels go XL. Built on Boost spec hubs with rapid engagement, a simple conversion system allows the Diablo XLs to run with all current and past frame standards. Even though they are beefier to fit wider tires and broader hub standards, the pair still weighs less than 2 kg. **B1-201**



New Products 2017

Miranda ICG (Integrated ChainGuard)



Cranks with Miranda's patented ICG (Integrated ChainGuard) system protect the drivetrain and chain, keeping the chain away from the rider while working to prevent it from jumping off of the chainring. The upgraded design of the ICG is lightweight yet offers improved mud clearance. **B5-306**

Hutchinson Koloss

For plus-compatible rims, the Koloss front tire sports an aggressive tread for rough terrain. Its central part is designed for strong braking stability, while its lateral knobs are sharp and free to distort as required due to their strong supports. **B3-409**



Neco 3 Intelligent Portable Charger

The Neco 3 is a portable charger with a capacity of 3000mAh and an output of 5 volts 1 amp. Neatly integrating into the steerer, it's compatible with the Neco 4 dynamo hub. Combining the two allows riders to power a smartphone or other portable electronics. **A5-108**



Dr Pad DOC 125

Made for hard days in the saddle, the Doc 125's shape, thickness and density provide long-distance support. 120 kg/mc density foam guarantees comfort in all riding situations. No padding parts are sewn or glued, so hard threads won't become annoying when damp. Breathability is uncompromised. **A7-410**



Beto 3-Valve Roto Head

Rolling out across a range of formats, covering both floor and mini pumps, Beto's new push-on-and-off head design is fast and easy to use, even one-handed. With two holes to cover Presta, Dunlop and Schrader valves, it's likely to be a hit with cycle shops and clubs. **A5-507**



La Fonte Vortex Sat Man

Made for demanding long-distance bikers, the Vortex anatomic 3D-shaped chamois combines perforated high-density foam and fabric technologies for superior elasticity, freedom of movement, breathability and moisture management. Its exclusive SAT — Shock Absorption Technology — neutralizes 80 percent of the energy generated from impacts with the ground. **A7-413**



HP Velotechnik Scorpion plus 26

With automatic shifting and an electric drive, this easy-riding comfort trike makes cycling available to older riders, people with special needs, and others who are unable to ride a conventional pedelec. The Scorpion plus 26 uses the Shimano Steps mid-drive system with Di2 shifting. It's easy to get on, and folds for convenience. **FW-300**



Shimano XC9

The XC9 cross-country shoe transfers power like it was made for the road, but shrugs off the elements like it was made for the dirt. The combination of materials in the outsole, and asymmetrically positioned studs, cuts weight and boosts traction over rocks and roots — while always ensuring the shoes will clip back in. **B5-300**



Tern Elektron

With a Bosch Active pedelec drivetrain, integrated Valo 2 light and all-weather Shimano hydraulic disc brakes, the Elektron is compact yet powerful. The Elektron combines the benefits of folding bikes with the convenience of electric assist. **B4-406**



Taya Onze 111 TiGold

Taya's DHT treatment boosts surface hardness by up to 25 percent without accelerating wear to cassettes and chainrings. Its mud- and dirt-shedding ability and self-lubricating function, coupled with improved anti-elongation characteristics, should extend the life of drivetrain components. **A5-412**



New Products 2017

Novatec Alpine

Designed for enduro, all-mountain and trail despite a reduced weight of 1,680 grams, the Alpine is at home on aggressive, technically challenging terrain. It's tubeless ready and available in 27.5- and 29-inch versions along with a Boost version. See it at the Messingschlagler booth. **B1-201**



Kenda Havok EMC

The increased weight and high-torque engines of e-mountain bikes can be hard on tires. The Havok EMC (E-Mountain Casing) is ready for the job with a reinforced ply of woven fabric and an additional layer of aramid particles under the tread. On an e-MTB, it gives better handling and improved puncture protection than a standard MTB tire. **A5-501**



Rotor Hawk

For all-mountain and enduro bikes, the Hawk is designed with a modular concept in which crank arms are available independently of an axle and chainrings. It fits standard, Boost, and downhill axles. Rubber bumpers protect crank arms. The Hawk comes in black, blue, green, yellow, red, pink, or orange. **A1-207**



Roxim R1

From a minimalist design comes a maximum spread of illumination. Delivering an output of up to 50 lumens, the R1 works day and night and complies with German regulations. A powerful battery boosts run times, and it remembers the light mode you left it in the last time. **A5-212**



Cratoni C-Pro

The C-Pro performance helmet is made for any cycling style — road, mountain or trekking. Its strong, dynamic design is aerodynamic and comfortable. **A4-502**



Coboc Seven Vilette

Designed for women, the Seven Vilette pedelec is sleek — its 350 Wh battery is hidden in the down tube — and made to go anywhere. It's equipped with disc brakes, kickstand, mudguards, and a rear rack that follows the shape of the rear wheel. The integrated tail lamp was designed by Coboc. **A6-204**



KTM Macina Kapoho LT



With 160mm of travel and broad tires, the Macina Kapoho aims to tame. Hydroforming, drop forging, CNC processing and gravity casting are some of the processes that go into every frame. Bosch components are fully integrated, and P.O.P. (Pedelec Optimized Pivot) damping reduces the influence of the strong Performance CX engine. **A6-200**

Sigma Topline 2016



The Topline 2016 range has models for beginners to aspiring pros. The BC 5.16 packs the five most important functions in one small device, while the BC 23.16 STS, best for athletes, includes altitude and cadence functions. **A5-200**

Richmond E-Monta 8.0

Whether you choose an aluminum or carbon fiber frame, the E-Monta 8.0 gets you going with a Shimano E-8000 Steps mid-drive motor system. Eco, Trail and Boost modes let the rider choose the right amount of assistance from the 250-watt motor. **A5-207**



Polartec Castelli Potenza Jacket

Straddling the line between a jersey and a jacket, the tight fit of Castelli's warm Potenza depends on Polartec Power Stretch fleece to keep heat in and let sweat out. The fabric is extremely stretchy but still water repellent. **A7-306**



New Products 2017

Bafang Front Drive System

Smooth, silent, small and elegant, Bafang's front drive system works with all styles of bikes, including those with V-brakes, disc brakes and roller brakes. It is compatible with 100mm forks. Dual pedal torque sensors provide accurate feedback to the system. **A6-210**



Bosch DualBattery

DualBattery is the solution for tour bikers, long-distance commuters and bike cabbies. By combining two batteries — either two on the frame or one on the frame and one on the rack — it extends the battery capacity of e-bikes to a maximum of 1,000 Wh. The system switches intelligently between the two batteries when charging and discharging. **A6-202**



DT Swiss PR1400 Dicut OXiC

These are the first wheels that DT Swiss has produced with its OXiC technology. A ceramic surface coating improves rim brake performance. Wide, asymmetric, and lightweight rims improve the stiffness-to-weight ratio, and they are tubeless-ready. The wheelset weighs 1,435g. **A3-400**



Bad Bike Mod.Beach

Talk about bad — Bad Bike has created an e-bike with a sidecar. Whether it's for taking the kid to school or the dog to the park, the Mod.Beach stands out. **A4-900**



Tektro Quadiem SL

Co-developed with Aaron Gwin, the Quadiem SL is a high-performance enduro/downhill brake that was raced to several World Cup podiums in 2016. A four-piston mineral oil system provides power, modulation and heat management. A smooth, exponential power curve lets riders slow without skidding. **A5-203**



TranzX Integra

- New, fully integrated frame and drive unit concept for e-bikes
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New Products 2017

Alpina S Way

Whether it's skiing, stand-up paddling or cycling, Alpina has sunglasses for every outdoor sport. The polarized, self-adjusting Varioflex model is made for cycling in changing light conditions. Fogstop coating defies high humidity. Water and dirt roll off the QVM+ and VLM+ models. **A4-401**



TranzX Citybug2S

Flit about the city and up hilly roads on the Citybug2S. A new 350-watt rear-wheel hub motor gets you going and the front wheel drum brake slows you down. It folds small to be the perfect city companion. **A6-406**



Burley D-Lite

Burley's top-of-the-line bike trailer maximizes comfort, performance and safety for children. It seats one or two children, and bowed-out sides give extra shoulder room. It can be optionally converted to a stroller, jogger or sled. With a plus-sized 16-inch wheel kit, the D-Lite also rolls on snow, sand, gravel and other non-paved surfaces. **A4-110**



Gaerne G.Hurricane

For training and racing, the G.Hurricane mountain biking shoe uses a soft microfiber upper that is laser perforated and has mesh inserts for breathability. The closure system is a Boa L6 micro-adjustable reel with a stainless-steel cable. A new MTB 3Density Sole combines nylon and fiberglass for durability and lightness. **A7-403**



Fuji SL 1.3 Disc

At 770 grams, the frameset is just 75 grams heavier than its rim-brake cousin. Flat-mounted disc calipers and 12mm thru-axles aid powerful braking and precise steering. With high compaction molding, fewer bonded joints and cleverly engineered injection-molded cable stops, the SL disc is one of the lightest bikes in the world. **A1-200**



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Dirk Zedler

Pedelec sales are rising in Germany, but pedelec lawsuits are booming

Pedal-assist bicycles, or pedelecs, have lifted the bicycle industry. Electric bikes have boosted sales, created new categories of customers, and inspired a host of innovative technology. They make retailers smile, and motivate engineers to be creative and squeeze top performance out of their products.



Lawsuits involving pedelecs now account for 38 percent of all expert's reports prepared by the Zedler loss adjusting agency.

There is a lot of light — but a lot of shadow, too, as many retailers and bicycle brands have also discovered.

As bikes become electrified, consumers demand higher quality and better service. Pedelecs appeal to different consumers, many of them new to cycling, who come into a bicycle retail store with high expectations and little patience.

When a retailer or manufacturer is unable to meet these expectations, pedelec owners are increasingly going to court, even for minor problems.

That costs a lot of time and money for retailers as well as for bike brands.

A market boom in lawsuits. E-bike sales in Germany increased to 535,000 in 2015 from 380,000 in 2012, according to the German bicycle association ZIV.

Their share of all bikes sold rose from 11 percent in 2013 to 12.5 percent in 2015, according to ZIV.

While their market share is growing slowly, the number of lawsuits involving pedelecs is exploding.

Lawsuits involving defective pedelecs account for a significant percentage of all expert's reports prepared for the courts by the Zedler loss adjusting agency.

Those reports are for bicycle-related lawsuits that involve motor vehicle accidents, personal liability claims, household claims, and accident reconstructions as well as claims for damages caused by product failures.

In 2013, cases involving pedelecs accounted for 19 percent of all expert's reports. That jumped to 43 percent in 2014 and 32 percent in 2015. So far this year, 38 percent of these expert's reports involve pedelecs — in other words, the number of court cases involving pedelecs is disproportionately higher than those involving conventional bicycles.

Recent cases involved serious injuries stemming from pedelec accidents caused by material failures such as broken forks, handlebars, stems and seatposts.

Small problems, big trouble. The most common pedelec lawsuits are over insufficient range or problems with a motor that is noisy, rough or jerky. Other top complaints involve battery capacity (usually involving a lack of understanding about the effect of age on battery life), or the fact that two seemingly identical pedelecs behave differently when ridden. Cases also involve software, shifting, brakes and instability.

The common denominator is that these complaints often have simple remedies. Yet it seems that retailers are unable to resolve them, and manufacturers are clearly failing to provide sufficient customer support.

Yet many of these unnecessary lawsuits could have been prevented with a little basic maintenance. Zedler loss adjusters, for example, were involved in a case that could have been avoided if a retailer had simply oiled the bicycle chain.

Cheap bikes vs. pricy pedelecs. Conventional bicycle parts also break, and retailers sometimes neglect to perform essential services. So why are lawsuits more common with pedelecs but not regular bikes?

The answer has to do with the bikes themselves as well as who buys them. The reality is that cheap bikes account for the biggest share of the market. If a substandard part breaks on a cheap bicycle, it is not a big financial loss.

With so little money at stake,

there is hardly a lawyer who would take the case. The customer will fix the problem, live with it, or get rid of the bike.

With high-end conventional road and mountain bikes, buyers tend to be enthusiasts who understand what they are getting into. If the bike is not running properly, these customers are often willing to put up with the repairs and delays needed to fix the problem.

With e-bikes, everything is different. Customers expect their new pedelec to function properly — no excuses. They've just spent a lot of money for a "bicycle," and expect it to run without problems.

That's often because a pedelec is more important to these customers.

In Switzerland, for example, about 18 percent of all cyclists consider a bicycle to be their second most important means of transportation. But for pedelec owners, it's nearly 80 percent. Pedelec owners expect their investment to give them "anytime mobility."

Lessons from car dealers. Bicycle retailers may not like the comparison, but their new pedelec customers may expect them to act more like car dealers. A dealership offers a friendly greeting at the reception counter and provides a waiting area with comfortable seats, free coffee and magazines. These conveniences are sorely lacking at most bike retailers.

Differences in the service departments are even more pronounced. The dealership uses computer software to read the car's diagnostic system and pinpoint the problem. Many dealerships wash the car before returning it to the customer. These things make an impression.

But with most independent bicycle retailers hardly able to offer the same level of service, it is little wonder that these new customers become more demanding and confrontational.

Our industry needs to change if it wants to satisfy its customers — especially pedelec buyers — and avoid expensive and time-consuming lawsuits.

We do not need to break new ground; we simply need to look at what other industries have done for years and adapt some of their best practices.

For examples, retailers should be honest about the real range of a pedelec. Manufacturer's claims that a pedelec can achieve, for example, a range of "up to 180 km (110 miles)" on a single charge are nonsense — maybe it can happen only under exceptional conditions.

Retailers also need to be upfront about the fact that components, such as the battery, degrade from time and use.

Room to improve. From the many court cases that Zedler loss adjusters have been involved in, it is clear that retailers have much room to improve. Manufacturers also need to do better job with technical documentation and the way they handle modifications.

Retailer training should not be a one-time event, or something that involves only the boss. All staff employees should know more about pedelecs. That's the only way to ensure that a simple complaint from a customer doesn't end up in court.

This dramatic rise in lawsuits involving pedelecs can have only one explanation: Manufacturers and bicycle retailers are not prepared to meet the increased demands of pedelec consumers.

They must realize that a pedelec is more than a frame, fork, a set of handlebars and a motor on wheels. It's a product that requires a lot of education through user manuals, riding classes, etc., and a much higher standard of service. That service doesn't stop when the pedelec is sold. Customers require after-sale service as well. ■ **DIRK ZEDLER**

Zedler-Institut

Since early 1993, graduate engineer Dirk Zedler has worked as an expert analyst who investigates bicycle accidents and material failures on behalf of courts, companies, insurance companies and private individuals. Since 1994, he has been recognized as an officially appointed and sworn expert for bicycles, and, since 2014, for electric bicycles. His team currently prepares about 800 expert's reports per year.

Zedler – Institut für Fahrradtechnik und -Sicherheit GmbH benefits from this wealth of knowledge to manufacture testing systems that enhance research and development efforts, leading to safer and better bicycles. It also supplies equipment for leading European special-interest magazines. These test systems are available for purchase by manufacturers, and are available to customers at the Zedler-Institut's test lab.

The Zedler-Institut also draws upon its background to write user manuals that



Dirk Zedler

help bicycle buyers understand how to use their bicycles and pedelecs appropriately, while releasing manufacturers from liability. Manuals are published in more than 30 languages.

In short, Zedler GmbH has set the standards for the bicycle industry. For more information, visit www.zedler.de. ■

Today's Advocacy Summit brings industry together

Today's Advocacy Summit is the leading event for industry and advocacy collaboration at Eurobike. This year, the summit will demonstrate how successful strategic plans for cycling are selling more bikes in cities, countries and regions across Europe.



Last year's Advocacy Summit attracted industry leaders from around the world.

The Advocacy Summit, 5-7 p.m. in Room Rom, is sponsored by the European Cyclists' Federation, which believes in the power of unity.

From bringing together top cycling industry executives to promote advocacy at Wednesday's Leaders' Ride, which kicked off the first day of Eurobike, to lobbying EU institutions and working shoulder to shoulder with advocates on the ground, the ECF pushes to get more people cycling more often at all levels. We need one another to grow.

The ECF is also the organizer of the Cycling Industry Club, which brings key leaders of the European bicycle industry together and is the biggest player in European cycling advocacy.

At today's Advocacy Summit, we will give specific examples of how investing in the Cycling Industry Club grows the market. Working with other advocates and committed politicians, we have helped grow bicycle sales in key markets.

In Spain, the bicycle market has grown by more than 10 percent in the past two years.

Not coincidentally, that is how long the ECF Leadership Programme has supported Spanish cycling advocates to help them advance their work. The advocates are making great progress lobbying for a national cycling plan.

Cities have been very active in advocacy, too. By establishing an level playing field, Munich, a member of the ECF Cities for Cyclists network, recently announced an investment of €220 million (\$250 million) in electric vehicles, including e-bikes.

The project has received more than 300 funding requests for pedelec and e-cargo bike projects in its first two months, and the list is growing.

Our next challenge? We are working on developing a Europe-wide cycling strategy that will boost sales and grow the market across the continent. At the Advocacy Summit we will explore the role of cycling industry in this process and the remarkable potential for growth.

The advocacy summit is also the place to learn first about the markets of

the future. We say that Europe is on the brink of a "Smart (R)evolution."

Because the ECF works with a diversity of cycling networks, we can detect new trends in policy and public investment.

This is valuable information for anyone who wants to see where the market is heading.

Take, for example, the emerging trend toward Smart Cities — without a doubt one of the greatest evolutions our urban model has ever experienced. Cycling needs to be at the center of the conversation if we are to unlock the great potential of the Smart City movement for the industry.

One key to unlocking that potential is data. In mobility, data is golden.

In 2014, the CEO of Cisco estimated that the market value of data was some \$19 trillion [€16.7 trillion] a year. Some \$4.6 trillion of that was public sector savings through cities working more efficiently through interconnectivity.

"To be competitive with other forms of transport, we need to develop commercial mechanisms to share data and push cycling use to urban planners for Smart Cities that place cycling high on the agenda," said Kevin Mayne, director of development for the ECF. "That is a multibillion market that cycling is not an active player in — and it has to be now."

Bike share is a particularly powerful source of information about people's mobility habits, because it integrates with public transport.

Combined ticketing and journey planning are important elements of what is called Mobility as a Service. This provides multiple opportunities for data capture, and subsequently for targeted advertising, informed product development and placement — or, in other words, business growth.

The Advocacy Summit is a continuation of a conversation at Eurobike that the ECF started on Tuesday at its Smarter Cycling conference. For more information on the Advocacy Summit and the Cycling with Leaders Initiative, email Mayne at k.mayne@ecf.com. ■ ELINA BALTATZI/ECF

**Advocacy Summit
European Cyclists' Federation /
Cycling Industry Club
5-7 p.m.
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Leading by example at the Leaders' Ride

There's no better way to open the world's biggest bike show than to have its leading executives go on a joint bike ride.

More than 100 industry executives joined the Leaders' Ride on Wednesday morning, making a short but symbolic journey from the Friedrichshafen railway station to the Messe in time for the opening of Eurobike.

"We organize this ride to show all those stuck in the terrible traffic jams — you are members of the bike biz, so take your bikes and ride!" said Manfred Neun, president of the European Cyclists' Federation. This is the second year that the ECF and the Cycling Industry Club have staged the event.

Many industry executives on the ride said they encourage their employees to ride to work.

"A lot of our executives ride to work. At our new headquarters, there's a big space for bicycle parking in the building," Yuasa Sato, senior executive vice-president of Shimano's bicycle division, said from the saddle. "One third of our employees use bicycles to get to work."

Getting more Europeans riding to

work can pay dividends for the industry, the ECF's Kevin Mayne said.

"We need more people to cycle to work," he said. "The potential market we're missing is worth five billion euros."

Bob Margevicius, executive vice-president at Specialized, said cycling advocates need to work more closely with the industry to promote cycling around the world.

"We have low oil prices all around the world. The automobile industry is working very aggressively to stimulate people to drive more," he said. "As an industry, we have to gather together and identify ways to get people to use bikes more. I don't think we've done a great job of communicating that position, and we're fighting other industries that have much more power, much more influence, and a lot more opportunity to communicate their messages."

The bike-to-work message doesn't even get through to Eurobike visitors.

"More people on bicycles would be



More than 100 industry members joined Wednesday's Leaders' Ride.

good for the show, and good for the whole of society, of course," Eurobike head Stefan Reisinger said.

He noted that Eurobike offers rental bikes for free during the show as well as

secure parking spaces for them.

"We tell people that the fastest way to arrive at the show is by bike," Reisinger said. ■ CR

Bottle cages aren't just for bottles anymore

Consider the bottle cage — that humble utilitarian component that doesn't get a second thought from riders.

Fortunately, a number of manufacturers have thought about them, and are rethinking what a bottle cage can do. They are adding value to a usually unspectacular product.

Essentially, a bottle cage is a very simple product. It mounts to a bicycle frame with two bolts, and apart from some aero variations it's one of the few almost standardized items — an exception in an industry rife with different standards. For a long time, the only reason for a bottle cage was to hold a bottle.



SKS Spacecage

Topeak B4-102 has been doing more with bottle cages for a while, and has four models in its Ninja series, which use a tiny plastic box with a hatch that houses a foldable multitool. For 2017, Topeak has added two new models. The Ninja CO2 features two tire levers, two CO2 cartridges and an aluminium chuck, while the Ninja Pouch comes with a zippered pouch for coins, keys or patches. Both come with a bottle cage or can be combined with an existing cage.



Topeak Ninja CO2

The Syncros accessories brand of Scott B1-200 introduces its Matchbox bottle cages for 2017. A box under the actual cage houses 14 chrome-plated tools, including a chain breaker, two spoke wrenches and a pedal tool. Made of a tough nylon and injection-molded plastic, the box and cage fit all kinds of frames. Apart from a tools-only version, the Matchbox is also available with a pump.



Syncros Matchbox



Blackburn Tallboy

SKS A5-400 is also adding functions to its bottle cages. While the Spacecage comes with a small compartment right under the cage that houses some small items, the Lockcage adds a small cable lock with a combination lock.

Last but not least, Blackburn A4-200b adds a twist of its own to the topic. Its Cargo Cage converts the bottle cage mount to a tiny carrier for all sorts of items, while the Tallboy Cage comes with a neoprene Koozy Sleeve that fits a 16-ounce beverage can — or a larger 24-ounce unit without the sleeve.

That's progress we can drink to. ■ LvR

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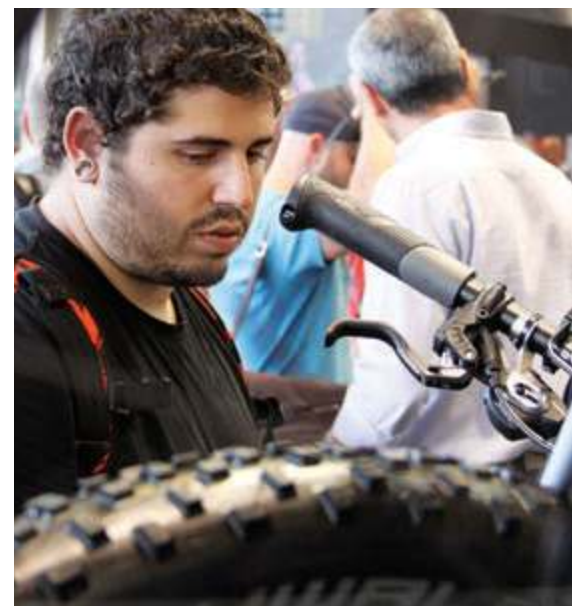
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Photos from Day 1





The women of Eurobike get a place of their own

Chat with other women in the cycling industry, sip a cappuccino and quickly get your hair done before a business dinner.



The Women's Area is in Passage East.

These are some of the reasons to head over to the new Women's Area in Passage East. Women can relax on purple couches and even get a manicure.

"There wasn't really any nice place for women to get away from their booths and meet other women from the industry," said Monika Fiedler, general manager of Fiedler Concepts, which oversees the Women's Area.

The space was initially intended as an information area about women's cycling products and events during the Eurobike Festival Days, the big consumer event on Saturday and Sunday.

But show organizers received positive feedback when they suggested

turning the space into a cozy women's networking lounge during the first three days of the show, which are only for the trade.

Fiedler said the idea germinated after discussions with other female executives such as Pamela Busch, marketing manager of Bergamont, and Johanna Schmude, who handles marketing at Paul Lange, the German distributor for Shimano and other brands.

Fiedler said she received more than 100 enthusiastic responses to a mailing blast she sent to some 260 female managers who work for Eurobike exhibitors. Many appreciated the personal touch of receiving an actual letter, which contained a pass for the Women's Area, instead of yet another email.

The Women's Area is a neutral space, so it has posters and flyers from various brands involved in women's cycling products and events. During Festival Days, the space will be used for presentations on women's cycling, and will be a starting point for tours of exhibitors that offer cycling products for women.

Men are welcome to sit down for a chat as well, although they may be less interested in the nail polish. ■ BS

Fizik's bib shorts appeal to a rider's inner animal

Snake, chameleon or bull? Fizik identified these three types of spinal flexibility when it developed a saddle range with three distinct profiles. Now it's applied the same concept to a new line of men's bib shorts.

Fizik **A5-301** debuted the line, consisting of three road bib shorts, Wednesday at Eurobike.

"We have adjusted the shape of the pads and the length of the suspenders depending on the person's flexibility," marketing manager Sarah Colpo said.

The "snake" refers to the most flexible riders, who can easily reach the bars and thus require longer bib straps. The more rigid "bull" has to make a pelvic rotation to reach a comfortable position when pedaling, which calls for more lumbar support and tighter bib straps.

Fizik will sell the bib shorts mostly through its online store, and in some retailer outlets in the U.K. and Japan starting this month.

"We aren't properly entering a new category. It's an accessory to provide extra fit and comfort to our customers," Colpo said.

Fizik calls the line Link.

Fizik will produce retail displays to help merchandise the bib shorts, and is launching a mobile app this year that will help riders identify their inner animal.

The three black bib shorts are made with a mix of elastane and polyamide that makes them particularly light. Fizik teased the launch on social media and was rewarded by a steady stream of visitors to its booth. ■ BS



Sarah Colpo of Fizik



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TW PAT. 1495788
CN PAT. 201310007301.2
USA PAT. 6,721,296



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Various patents patented & pending in various countries

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USA PATENT: 5,839,809 TW PATENT: IS09173
Various Patents granted or pending on various countries



BrakeForceOne debuts an ABS system for e-bikes

After launching an innovative water-driven brake caliper last year, BrakeForceOne has unveiled an anti-lock brake system for e-bikes.



Frank Stollenmaier with BrakeForceOne ABS system

The small automotive supplier also announced that it is entering into a partnership with Magura for research and development, and production of bike brakes.

"The market situation is very tight and the competition is very strong, but at the same time it opens new market possibilities for us," said Frank Stollenmaier, CEO of BrakeForceOne A2-310. "It is the right time for a strong cooperation."

The companies are located about 30km (19 miles) apart, south of Stuttgart.

The ABS system is designed to help inexperienced riders handle e-bikes that are heavier and faster than they may

be used to, especially on wet or rugged surfaces.

BrakeForceOne, which also supplies several automakers, adapted its water-based BFO-H20 system for the ABS system and reduced the water pressure in the hydraulic tubing. That enabled it to develop small actuators that incorporate the electronics, and can be installed anywhere on the tubing between the lever and the caliper. The system draws its power from the e-bike battery.

The lower pressure means riders can activate the brakes with less force.

Front and rear systems work independently.

Sensors and algorithms sense whether a wheel has locked up or if the rear wheel is lifting. The actuator immediately regulates the pressure of the brake fluid to avoid the wheel from locking up, assuring safe deceleration while turning.

BrakeForceOne expects the system to reach the market next year, and is releasing an OEM version for the front wheel next year as well. Stollenmaier said the company is working with two large OEM makers to test the system next year. ■ GE

Fast and foldable fun from Finland's Pole

Based in the Finnish university town of Jyväskylä, Pole Bicycles has set out to challenge the consensus on bicycle geometry. In doing so, the company has caused quite a stir in only its first year in business.

Pole Bicycles B1-507B was founded when Leo Kokkonen swapped his downhill for a trail bike in order to compete in an enduro contest.

"I couldn't get used to the bike's twitchy handling, caused by its steep head angle and relatively short top tube. So I decided to build my own frame with a very slack head angle and much more reach."

Kokkonen knew he was onto something when the longer the prototypes got, the better the times were

on test tracks. As soon as the geometry was dialled in, he ordered a first batch of frames from Taiwan.

During its first year, Pole Bicycles has generated considerable media interest. One of the reasons being that the Evolink kinematics of its fully suspended bikes allow the frame to be folded — ideal for transporting it in cars and planes. And all you need to fold a Pole bike is two 6mm Allen keys.

The company sells direct to both consumers and dealers, but Kokkonen is currently working on building a distribution network to improve customer service. Alongside that, the company is gearing up for further growth and wider availability by running a campaign on crowd-funding platform pocketventure.com. ■ LVR



Pole EVOLINK 140 DS


Booth Number **A5-207**

Front Light SF90

EXPLORING



 Side Light

 USB Rechargeable

 Aluminum

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Booth **Open Air Grounds West FG-B5/2a**



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YJ Solid Tyre 700X35C for Hybrid/City Bikes



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Fruita mayor says her town is ripe for industry offices

Cyclists have long been drawn to Fruita, Colorado, for its plentiful singletrack, free trailside camping spots and picturesque road riding.



Lori Buck (left) and Mike Bennett

other main driver: outdoor recreation. "It's not so volatile," Buck said.

MRP is located in nearby Grand Junction, where there is also a regional airport, and Fruita is eyeing companies of a similar size. Buck and Bennett realize the location might not register with large companies — although they did approach Canyon, which has announced its plans to open a U.S. office — but for a brand that values quality of life, community and business opportunity, the fit could be ideal.

The city has an inventory about 70 acres of privately owned, buildable land that's available for purchase or build-to-lease and offers an array of tax incentives to incoming businesses, particularly those bringing a product or technology that isn't currently being made in Colorado.

Want to hear more? Fruita and MRP are hosting a happy hour today following the show at Booth B1-414. Come for a pitch and stay for a beer. ■ NF

Now the small city in western Colorado wants the companies that make products for those cyclists to also realize its appeal.

Fruita's Mayor, Lori Buck, and city manager, Mike Bennett, are here at Eurobike to meet with companies that might be considering locations for a U.S. office, or hosting product launches and media camps.

Fruita is an oil and gas town, but as revenue from that industry fluctuates, the town is hoping to capitalize on its

Yeti fattens tires as it slims pricing

Yeti Cycles is unveiling several changes to its bike line at Eurobike, some you can see and others that take a bit more sleuthing.

One change you can see from Yeti B4-204 is the fatter tires on the popular SB5 model, which is now available in a "plus-size" configuration, with stock 2.8-inch tires and clearance for rubber up to 3 inches wide. The frame's elevated chainstay design and wider, 148mm rear axle spacing allow for the fatter tires, which is a growing sub-category of full-suspension bikes that is beneficial primarily for increased traction (see our overview of plus-sized bikes on page 24).

"These bikes aren't penetrating at a high level, but it made sense to see if we could do it," the company's Greg Fisher said.

The SB5 frame was redesigned to lower its standover height, to accommodate for the XS and small sizes under the Yeti Beti women's brand, and has internal cable routing and improved kinematics.

Yeti is also splitting its line into two categories: Turq at the premium level and Carbon for lower-priced but slightly heavier options.

Each of the brand's eight models comes in both options, in either five or six build kits, ranging from SRAM XX1



Yeti owner Chris Conroy with Yeti SB5+

Eagle drivetrains at the high end and Shimano XT/SLX or SRAM GX at the other end of the pricing spectrum.

This technology trickle-down allows for a broader range of prices, appealing to consumers who previously couldn't afford Yeti's \$6,000-plus [€5,300-plus] entry price for a complete build. The SB5, for example, previously started at \$6,900 and now will be available starting at \$4,700.

"So it's substantially cheaper for roughly 250 grams weight gain," Fisher said. "It's good value." ■ NF

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Europe yanks the supply chain away from Asia

Europe poised for a bikemaking renaissance, as speed to market begins to trump price.

“Speed is the way to attract customers and buyers nowadays,” said Jack Oortwijn, editor-in-chief of Bike Europe, organizer of Tuesday’s Eurobike conference on European Supply Chain issues.

He said European retailers should be able to place extra orders for best-selling bikes in May and have them on their sales floors by June — something impossible today, when lead times from Asian suppliers can reach six to eight months.

Oortwijn pointed to the example of Zara, the Spanish apparel retailer owned by Inditex, which is famous for its “fast fashion” business model of getting new designs to its stores in a matter of days.

The European bicycle industry is facing a fast-approaching deadline to tighten up its supply chains, Oortwijn added: Anti-dumping duties on Chinese-made bicycles, which have been in place for more than two decades, are set to expire in March 2019. Those duties have protected Europe’s bike industry for decades.

Two of Europe’s leading companies in the industry — Accell Group, a manufacturer, and Decathlon, a retailer — have been moving quickly to bring production back to Europe. The two companies combined account for about 15 percent of the European bicycle market,

Oortwijn said.

Oortwijn said supply chain delays create a significant financial issue for Accell. According to its 2015 annual report, Accell’s inventories — the amount of money it has tied up in products in production that have not yet reached retailers — amounted to some €340 million (\$385 million), or a third of its total sales for the year.

Its inventory expense rose by nearly 40 percent over 2014. The problem is worsening because of the growth in higher-priced e-bikes.

Decathlon, Europe’s biggest sporting goods retailer, is investing in bicycle production centers in Portugal and Romania, said Frederic Van Steirteghem, a strategic buyer for the chain.

Decathlon’s goal, he said, “is to produce the bicycle where we sell the bicycle.” From its AML bike factory in Lille, northern France, Decathlon is able to supply 74 of its retailers with bikes one day after receiving an order for them.

But with nearly 800 retail outlets across Europe, the company is looking at other regions for bicycle production, van Steirteghem said.

Decathlon is particularly interested in production centers in Portugal and Romania, where it plans significant investments in the next 10 years.



Jack Oortwijn

Portugal is already an up-and-coming production center for the new European bicycle industry, Oortwijn said. A new factory, Triangle’s — founded by suppliers Rodi, Miranda and Ciclo Fapril — is in the finishing stages of completing a factory that will produce up to 500,000 aluminum frames for bicycles and e-bikes a year when it reaches full production, which is expected in 2018.

Two other automotive suppliers are considering similar factories that would be on an even larger scale, he said.

The owners of Triangle’s expect to

invest a total of about €20 million in the company, which will use a fully automated, robotic welding system to make frames — a technology that is new to the bike industry and carries technical challenges.

Oortwijn said Triangle’s expects its e-bike frames will be competitive in price with those made in China, while conventional frames will be 10 to 15 percent more expensive.

But unlike Chinese producers, Triangle’s expects to deliver within two weeks of an order. ■ DM



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ECF encourages advocates to get smarter

Technology is not just for bikes, but can benefit bicycle advocacy as well, one of Europe's leading advocates said Tuesday.



Philippe Crist

"By the end of today, I hope the ECF will be on its way to founding a technology branch," said Kevin Mayne, director of development for the European Cyclists' Federation. Mayne was speaking Tuesday at the Smarter Cycling Forum, a discussion of how cycling can work with emerging "smart mobility" systems in cities.

"Technology is the key to unlocking the broader potential of cycling, but we know we don't have the knowledge to do that, which is why we're talking about this at Eurobike," Mayne added.

The ECF may be short on tech knowledge, but it has already made a

significant difference to cycling around Europe.

"In the five years that we've been lobbying the EU with financial support from the Confederation of European Bicycle Industries, we've seen €1 billion released by Brussels to fund cycling infrastructure, and the EU's 28 members recently signed a declaration of support for cycling," he said.

It is not, however, all good news.

"Cyclists are perceived by other road users as erratic and a nuisance, so infrastructure planners tend to prefer to move them out of the way," Mayne added. "As a consequence they are widely perceived as vulnerable road users, but I believe they should be regarded as valuable road users."

Philippe Crist, the new director of smart mobility for the Organization for Economic Cooperation and Development, said cycling helps keep cities 'messy.'

"Cities are not successful because they're smart, they're successful because they're messy," Crist said. "And the messy places are that

way because people socialize and interact there, and of course cycling is one very good way for people to experience the human side of a city."

The ECF promotes the role of data in encouraging a revolution in transportation that could also benefit cycling.

"Thanks to the fact that most people have smartphones that offer highly accurate location services, we have an opportunity to change the way that transport is organized — to make it personal," Crist said.

Crist said autonomous vehicles and high-capacity public transportation are two particularly promising areas.

"The challenge here is that cyclists are not represented in the discussions around the development of these services," he said. "They should be because the potential benefits to cyclists of a city where traffic volume has been significantly reduced are enormous."

For example, if cities eliminated street parking through car sharing and a more networked transportation system, emissions would drop by a third and significant public spaces would open up for social activities — including people on bikes.

"I support cycling," Crist said. "We too easily forget the truth about it, which is that it makes people happy."

■ GS

Today's lunch topic: e-bike regulations

The challenges posed by the boom in e-bikes is the topic of a lunch meeting today organized by AVERE and Bike Europe.

The meeting, from 1-3 p.m. in Room Rom, Conference Center East, will cover how newer vehicle types such as speed pedelecs and electric mountain bikes should be categorized, which technical regulations apply, the terms of use when it comes to helmets, insurance and their place on the road, and how to assess the quality of these new vehicles.

Jack Oortwijn, editor-in-chief of Bike Europe, will moderate the discussion.

Bram Rotthier of KU Leuven University in Belgium will give a presentation on the technical performance of pedelecs and the associated safety risks. Annick Roetynck, light electric vehicle policy manager for AVERE, will explain the details of the new type-approval system for electric bicycles, the terms of use that result from it and how the legislation may affect your business. AVERE is the European Association for Electromobility.

Roetynck will also offer a brief introduction to the REE4EU project, which seeks to recover rare earth elements from a variety of products including e-bikes.

Admission is €80 (\$90) for the general public and €40 for Bike Europe subscribers. Participants in the AVERE Light Electric Vehicle Task Force can attend for free. ■ GS

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Eurobites

Heading to dinner with a big group? These places can take the lot of you

It's been a long day at the show — now, where do you go to eat and relax? If you are with a large group of colleagues and friends, it's not always easy to find a Friedrichshafen restaurant that can seat everyone.



Traube am See Restaurant

We asked the helpful staff at the Friedrichshafen Tourist Information office (<http://en.friedrichshafen.info>) for advice, and they provided a detailed list of the restaurants, cafés and beer gardens on the lakefront in downtown Friedrichshafen, along with other places away from the lake and in the Zeppelin City's suburbs.

Our list shows what kind of food they serve — and, more important, how much seating they have. (A “winter garden,” by the way, usually refers to an enclosed patio.)

Of course, always call and make a reservation before heading out. With nearly 50,000 industry people in town for Eurobike, even the big restaurants fill up fast!

Hours and times apply to the week of the show. Phone numbers are listed for international visitors.

On the Eurobike grounds

Restaurant-Lounge Zeppelin Hangar FN

Messestr. 134
Regional dishes appeal to all ages; also has a large wine list.
Seats 110 in panorama hall;
Gondelzimmer room seats groups of up to 60. Accepts online reservations.
Tel. +49 7541 7005868
www.zeppelin-hangar-fn.de, info@zeppelin-hangar-fn.de
Open daily

Seepromenade (Lakeside Promenade)

Restaurant-Café-Bar Felders at the k42

Karlstr. 42
Dishes are crafted from locally sourced ingredients.
Sun terrace seats 160; restaurant seats 80.
Tel. +49 7541 391955
www.felders-restaurant.de, info@felders-restaurant.de
Open daily

Lammgarten

Uferstr. 27 (by the marina)
Located on the marina with a spacious beer garden and a winter garden.

Restaurant seats 50; beer garden, 400; winter garden, 100; sunshade bar, 20.
Tel. +49 7541 9558027
www.lammgarten.de, lammgarten@gmail.com
Open daily

Restaurant Seehof

Olgastr. 6
Seasonal cuisine with fresh, regional specialties.
Seats 100 indoors and 90 by the lake. Also has a winter garden.
Tel. +49 7541 27264
www.seehof-friedrichshafen.de
Closed Tuesday

Restaurant Ferdinand at the Graf-Zeppelin-Haus

Olgastr. 20 (on the lakeside promenade)
Fresh local food and international dishes. Accommodates groups of up to 150.
Tel. +49 7541 6033930
www.gzh.de, info@zehrerr-gastronomie.de

Restaurant-Café-Bar at the Zeppelin Museum

Seestraße 22 (on the lakeside promenade)
Regional delicacies, reasonably priced lunches and lake specialties in an historic space.
Seats 100, with more seats on lakeside terrace.
Tel. +49 7541 9530088
www.zeppelinmuseum-restaurant.de, info@zeppelinmuseum-restaurant.de
Open daily

Town Center

Hotel-Restaurant Buchhorner Hof

Friedrichstr. 33
International fine dining, dishes from the Lake Constance region, fish specialties and wines from an historic wine cellar. Four rooms seat 110-260.
Tel. +49 7541 2050
www.buchhorn.de, info@buchhorn.de

Lukullum Lounge

Friedrichstr. 21
Friendly service in a comfortable

restaurant with cozy wood paneling. Six rooms seat 250; beer garden seats 140.
Tel. +49 7541 6818
www.lukullum.de, info@lukullum.de
Closed Mondays

Hotel-Gasthof Schwanen

Friedrichstr. 32
In the pedestrian zone. Serves Swabian specialties, snacks, fresh Lake Constance fish, and fresh draft beer.
Tel. +49 7541 38550
www.hotel-schwanen-fn.de, info@hotel-schwanen-fn.de
Closed Wednesdays

SEHotel Restaurants Bodega and Uferlos

Bahnhofplatz 2
Contemporary international and regional dishes. Close to the train station, city center and lakeside promenade. End the night with cocktails at the Sonderbar. Seats 100 in three rooms.
Tel. +49 7541 3030
www.seehotel-fn.de, info@seehotel-fn.de
Open daily

Hotel-Restaurant Goldener Hirsch

Charlottenstr. 1
Regional cuisine with handmade specialties like spätzle and semmelknödel.
Centrally located and within walking distance of the lake.
Seats 30.
Tel. +49 7541 92330
www.gold-hirsch.de, info@gold-hirsch.de
Closed Sundays



Felders

Friedrichshafen and nearby

Hotel Gerbe

Hirschlatter Str. 14, Ailingen.
Fresh, regional and creative food, including an extensive children's menu. Five rooms seat 180; garden seats 120. Offers a children's playground and a hotel bar for adults. Bus parking.
Tel. +49 7541 5090
www.hotel-gerbe.de, info@hotel-gerbe.de
Closed Mondays

Hotel-Restaurant Knoblauch

Jettenhauser Str. 32, Jettenhausen
Serves fresh Swabian and regional dishes, fish and pasta, in a big garden terrace. Three rooms seat 120.
Plenty of parking.
Tel. +49 7541 6070
info@hotel-knoblauch.de, www.hotel-knoblauch.de
Open daily

Hotel-Wirtshaus Krone & Tenne

Ettenkircher Str. 28, Ettenkirch
Enjoy Swabian cooking in a big, cozy beer garden.
Seats about 120. Smoking and non-smoking areas available.
Tel. +49 7546 92320
www.krone-ettenkirch.de, info@krone-ettenkirch.de
Open daily

Hotel-Gasthof Rebstock

Werastr. 35, Friedrichshafen
Serves regional and international dishes and is close to town.
Three rooms seat 160; beer garden seats 120. Smoking allowed in heated winter garden.
Plenty of parking, including bus parking.
Tel. +49 7541 9501640
www.gasthof-rebstock-fn.de, info@gasthof-rebstock-fn.de
Closed Fridays

Restaurant Traube am See

Meersburger Str. 13, Fischbach
Creatively prepared regional cuisine. Three rooms seat 250.
Tel. +49 7541 4741
www.traubeamsee.de, info@traubeamsee.de

Restaurant Heuschöber

Allmannsweilerstr. 108, Ailingen
Menu offers Swabian dishes and changes daily. Will stay open past regular hours for groups.
Seats 130; roofed garden terrace seats about 80.
Tel. +49 7541 9413141
www.restaurant-heuschober.net
Closed Mondays

Ringhotel-Restaurant Krone

Schnetzenhausen and Kronenbar
Untere Mühlbachstr. 1, Schnetzenhausen
Features Lake Constance fish, locally hunted game, and regional wines. Menu changes monthly. Choose from more than 100 cocktails at the Kronenbar. Seats 180.
Tel. +49 7541 4080
www.ringhotel-krone.de, info@ringhotel-krone.de
Restaurant: open daily
Kronenbar: opens at 8:30 p.m. Tuesday – Saturday

Hotel-Restaurant Maier

Poststr. 1-3, Fischbach
Modern country cooking from mostly regional suppliers.
Tel. +49 7541 4040
www.hotel-maier.de, info@hotel-maier.de
Open daily

Spicy-Grill Taverne

Zeppelinstr. 140
Pizza and fresh grilled specialties including steaks and burgers. Parking directly in front of the restaurant. Seats 100.
Tel. +49 7541 31077
www.spicy-grill.de, info@spicy-grill.de
Closed Tuesdays

Transport Guide

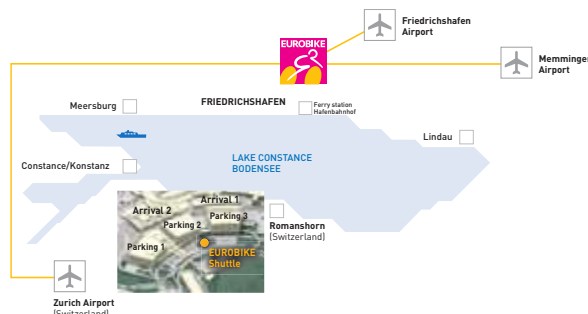
Eurobike Commuter Services

Whether you're arriving in Friedrichshafen by plane, ship or train, Eurobike offers many shuttles that bring you to the international hub of the bicycle world at Messe Friedrichshafen, and back again.

Hotel Shuttle

No stress and no cost

Take your time at breakfast. The Eurobike hotel shuttle will pick you up at your hotel, or close by. Ten shuttle lines connect the region between Dornbirn, Austria, in the east; Überlingen, Germany, in the west; and Weingarten, Germany in the north. There's no easier way to get to the show!



Airport Shuttle

Zurich, Friedrichshafen, Memmingen

Thursday:

After-Party Shuttle

Why worry about how to get back to the hotel when you'd rather be partying?

Relax. On Thursday, Sept. 1, Eurobike organizes a free After Party Shuttle Service. There will be four bus routes: Überlingen, Oberteuringen, Weingarten and Bregenz, Austria. Shuttles start at 23:30 from Entry West.

Airport & Train/Ferry Shuttle

At left is a table for bus shuttled running from Zurich Airport, Friedrichshafen Airport and Memmingen Airport to Eurobike and back. For Zurich & Memmingen booking during the show at the information desk foyer East

Ferry Services

You can also reach Eurobike by ferry across beautiful Lake Constance.

The Lake Constance ferry ("Boden-seefähre") connects Konstanz, southwest of Lake Constance, with Meersburg, east of Friedrichshafen. Or you take the catamaran from Konstanz directly to Friedrichshafen. Finally there is also a connection between Romanshorn, Switzerland, south of Lake Constance, to Friedrichshafen. Below are the schedules.



Table with 2 columns: Departure Time, Arrival Time. Rows for Zurich and Memmingen Airport shuttles.

Table with 3 columns: Bus Stop/Haltestelle, From/Von, Until/Bis. Rows for Friedrichshafen and Memmingen Airport shuttles.

Table with 2 columns: Departure Time, Arrival Time. Rows for Memmingen Airport shuttle.

Free Rental Bikes

During Eurobike a total of 500 rental bikes will be available at various locations — and they're free!

Visitors and exhibitors can make their way to the exhibition center easily and quickly. And what could be a more fitting way of arriving at the world's biggest bicycle show? In the evening, it's easy to get back to their starting point. Get in the Eurobike mode before you even reach the center. And the best thing about the bike rental service: it's free. For more details, see www.eurobike-show.com/eb-en/travel/bike.php

Rental Process

Call the Rental Hotline (24-hours daily from August 31 to September 4): +49 30 69205046.

A credit card is required when booking. You'll receive a number code to open a bicycle's lock. Off you go!

Rental Stations

- Exhibition Grounds Entrance West (staffed, open all day);
- ERIBA City
- Camping Park
- Main City Station
- Harbor Station
- Airport/DB stop

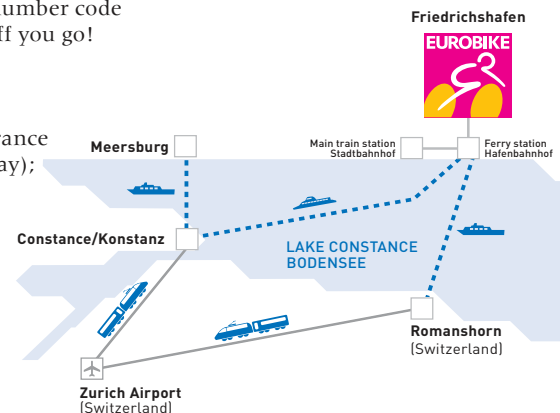


Table 1: Hotel Shuttle Überlingen - Uhdingen - Immenstaad - Fischbach. Columns: Bus Stop/Haltestelle, Tour 1, Tour 2.

Table 2: Hotel Shuttle Meersburg - Hagnau. Columns: Bus Stop/Haltestelle, Tour 1, Tour 2.

Table 3: Hotel Shuttle Salem - Bermatingen - Markdorf - Oberteuringen - Ailingen. Columns: Bus Stop/Haltestelle, Tour 1, Tour 2.

Table 4: Hotel Shuttle Weingarten - Ravensburg - Meckenbeuren. Columns: Bus Stop/Haltestelle, Tour 1, Tour 2.

Table 5: Hotel Shuttle Wangen - Neukirch - Tanna - Tettnang. Columns: Bus Stop/Haltestelle, Tour 1, Tour 2.

Table 6: Hotel Shuttle Nonnenhorn - Kressbronn. Columns: Bus Stop/Haltestelle, Tour 1, Tour 2.

Table 7: Hotel Shuttle Lindau Island/Insel. Columns: Bus Stop/Haltestelle, Tour 1, Tour 2.

Table 8: Hotel Shuttle Neuravensburg - Weilensberg - Lindau - Wasserburg. Columns: Bus Stop/Haltestelle, Tour 1, Tour 2.

Table 9: Hotel Shuttle Lindau - Oberdorf - Langenargen - Eriskirch. Columns: Bus Stop/Haltestelle, Tour 1, Tour 2.

Table 10: Hotel Shuttle Dornbirn (Austria) - Bregenz (Austria) - Lochau (Austria). Columns: Bus Stop/Haltestelle, Tour 1, Tour 2.

All timetables are also available on our website www.eurobike-show.com (Travel & Accommodation) or in our EUROBIKE app

naviki App: Use the free navigation app for Android and iPhone. naviki will always show you the best cycling route to the EUROBIKE. More information: www.eurobike-show.com



- 1 **Schlosskirche** – The palace church is the landmark of Friedrichshafen with its two 55 m high domed towers made from Rorschach sandstone. **Visiting times:** from Easter to mid-October, Mon-Thurs 9:00-18:00 and Fri 11:00-18:00. Closed for visits: during church services and wedding ceremonies. **Info:** Tel. +49 (0) 7541 21308, www.schlosskirche-fn.de
Schloss – The palace is now residence of Friedrich Duke of Württemberg (no inside viewing possible)
- 2 **Graf-Zeppelin-Haus** – Culture and Congress Center. **Info:** Tel. +49 (0) 7541 288-0, www.gzh.de
- 3 **Schulmuseum – School museum** – From convent schools to present schools – more than 1,000 years of school history. **Opening hours:** April to Oct. daily 10:00-17:00 / Nov. to March Tues-Sun 14:00-17:00. **Info:** Tel. +49 (0) 7541 32622, www.schulmuseum-fn.de
- 4 **Uferpromenade – Lakeside promenade** – Attractive lakeside promenade on Lake Constance.
- 5 **Post – Post office**
- 6 **Zeppelin Denkmal** – Monument, created by the sculptor Professor Toni Schneider-Manzell.
- 7 **Stadtbahnhof** – Main train station
- 8 **Tourist-Information – Opening hours:** May, June and Sept. Mon-Fri 9:00-12:00 and 13:00-18:00, Sat 9:00-13:00 / July and Aug. Mon-Fri 9:00-18:00, Sat 9:00-13:00 / April and Oct. Mon-Thurs 9:00-12:00 and 14:00-17:00, Fri 9:00-12:00 / Nov. to March Mon-Thurs 9:00-12:00 and 14:00-16:00, Fri 9:00-12:00. **Info:** Tel. +49 (0) 7541 3001-0, www.friedrichshafen.info
- 9 **Zeppelin Brunnen** – Zeppelin fountain – In the year 2000, the 100-year anniversary of the Zeppelin, the fountain was reconstructed according to the original, built in 1909.

- 10 **Musikmuschel** – Music pavilion – Promenade concerts during the summer months, Sun at 10:30. **Info:** Graf-Zeppelin-Haus, Tel. +49 (0) 7541 288-0, www.gzh.de
- 11 **Klangschiff** – After its long journey to Sarajevo, the twin town of Friedrichshafen, the Klangschiff (boat of sound), which was created by the Breisgau artist Helmut Lutz, finally dropped anchor at Friedrichshafen.
- 12 **Bootsvermietung** – Boat rental – Canoes, electric and motor boats, pedalos **Info:** Boot und Spass GmbH, Tel. +49 (0) 7541 289632, +49 (0) 176 80245306, +49 (0) 160 2501606, www.bootundspass.de. **Info:** Bootsvermietung "Fluck", Tel. +49 (0) 7541 21746, +49 (0) 171 6509249, www.bootsvermietung-friedrichshafen.vpweb.de
- 13 **Panoramatafel** – Panoramic display board – The alpine panorama at a glance. On a four meter long viewing board on the promenade you see the panoramic view from the Rätikon mountains to the Bernese Alps.
- 14 **Nikolauskirche** – Nicolas church – The Nicolas church was first mentioned as a chapel in 1325. The church was destroyed in 1944, and reconstructed from 1946 to 1949. The present interior design is from 1987.
- 15 **Rathaus** – Town hall – Right in the centre of town. Newly built in 1954-56 by the architects Tiedje and Kresse.
- 16 **Buchhorn Brunnen** – Buchhorn fountain – Designed by the artist couple Rumpf in 2001. The stylized tree, a beech tree together with a horn lying in the fountain basin, symbolizes the word "Buchhorn", the original name of Friedrichshafen.
- 17 **Rundfahrten** – Round trips (half hour) – on the on the nostalgic "Seeschwalbe" boat from Easter to late September at weekends and during school holidays (only in good weather). **Info:** Tel. +49 (0) 751 95116904, www.seeschwalbe-fn.de
- 18 **Moleturn** – Enjoy the unique panoramic view over Lake Constance and the alps from the 22 m high viewpoint tower at the boat harbour. A panorama display board gives you a detailed overview.

- 19 **Medien- und Geschäftshaus k42** – Town library with focus on new media, cabaret stage.
- 20 **Hafen** – Harbour for ferry, boat, catamaran – Round trips and regular routes during the sea son. Ferry to Romanshorn and catamaran to Constance all year round. **Info:** Bodensee-Schiffsbetriebe GmbH, Tel. +49 (0) 7541 92380, www.bsb.de
Catamaran – Reederei Bodensee GmbH & Co. KG, Tel. +49 (0) 7541 9710900, www.der-catamaran.de
- 21 **Zeppelin Museum** – The world's largest exhibition on the history of airship navigation as well as an important collection on art in Southern Germany. **Opening hours:** May to Oct. daily 9:00-17:00 / Nov. to April Tues to Sun 10:00-17:00. **Info:** Tel. +49 (0) 7541 38010, www.zeppelin-museum.de
- 22 **Hafenbahnhof / Busbahnhof** – Harbour train station / bus station
- 23 **Volkshochschule** – Adult education centre
- 24 **Cineplex Friedrichshafen** in the Bodensee Center, Meistershofener Straße 14, www.cineplex.de
- 25 **Bodensee Center** – Meistershofener Straße 14, www.bodensee-center.de

Further addresses (not indicated on map of town centre)

Dornier Museum Friedrichshafen – 100 years of fascinating aviation and aerospace industry. Claude-Dornier-Platz 1, Tel. +49 (0) 7541 4873600, www.dorniermuseum.de
Opening hours: May to Oct. daily 9:00-17:00 / Nov. to April Tues to Sun 10:00-17:00.

Flughafen Friedrichshafen GmbH – Friedrichshafen Airport – Am Flugplatz 64, Tel. +49 (0) 7541 284-0, www.fly-away.de

Messe Friedrichshafen GmbH – Trade fair centre – Neue Messe 1, Tel. +49 (0) 7541 708-0, www.messe-friedrichshafen.de

Zeppelinflüge – Zeppelin flights – Deutsche Zeppelin-Reederei GmbH, Messestraße 132, Tel. +49 (0) 7541 5900-0, www.zeppelinflug.de

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Druckhaus Mueller
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Supported by:
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