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WEDNESDAY



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FRESH INVESTMENTS IN BIKE BUSINESS
EXHIBITOR NEWS | PRODUCT HIGHLIGHTS

PRODUCT ROUNDUPS: MID-DRIVE MOTORS | CHAINS | SMART CYCLING LIGHTS | SADDLES | GREEN PRODUCTS | BAGS & PANNIERS

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TOMORROW
29°C
 PARTLY CLOUDY



WHAT'S ON TODAY

EVENT TIME	EVENT NAME	LOCATION
09:00-18:00	Outdoor Demo	Outdoor booth at TaiNEX Hall 1
09:00-18:00	OUTDOOR TAIPEI	Outside of TaiNEX Hall 2
09:00-18:00	TAIPEI CYCLE Live Studio	Booth# L0128, 4F TaiNEX Hall 1
10:00-11:00	Opening Ceremony	Stage, 1F TaiNEX Hall 2



SCAN HERE FOR A COMPREHENSIVE GUIDE TO EVENTS

CONTACT US
 Here's how to reach the key staff of the Taipei Cycle Show Daily.

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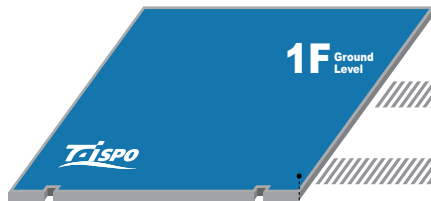
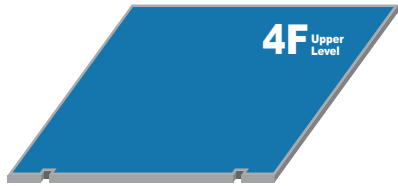
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TAIPEI CYCLE 2023 WELCOMES BACK THE WORLD CROWDS RETURN TO TAIPEI CYCLE

The first Taipei Cycle show with overseas visitors since 2019 sees 850 exhibitors return for a full-sized show focusing on growth and resilience.

TAITRA President Simon Wang opened the pre-show conference yesterday with the remark that cycling teaches us that we maintain our balance only by moving forwards. "After three years, we can finally meet again face to face. We're ready to hug everyone involved in the industry," he explained.

Wang highlighted how the return to international cooperation can be seen in the new pavilions, with the EU, Japan, and Italy now hosting dedicated spaces at Taipei Cycle. At the same time, Wang emphasised the show's new DigitalGo platform for those still unable to attend in person. This online portal offers both a shop window and a way for the world to do business with the expanded show.

As the exhibition returns to full strength for 2023, the TAITRA president proposed four key themes: internationalisation, electrification, micro-mobility, and sustainability. The first of these is covered by the

reconvening of the global cycling industry after a forced period of separation. Electrification represents the challenges and opportunities presented by the growth of e-bikes. Micro-mobility represents the diversification of the sector and the influx of new companies and ideas. Finally, sustainability means building the future in a way that respects the environment.

These themes were taken up by Robert Wu, Chairman of the Taiwan Bicycle Association. While emphasising the return to growth, he stuck to the classic formulation of 'reduce, reuse, and recycle.' This focus on sustainability was echoed in the Taipei Cycle d&i awards ceremony, which for the first time included a Green award for environmental excellence. Here Mr Wu was on hand to present several awards to firms, including new and established names within the industry. ■ JD (L)



TAITRA President Simon Wang and Robert Wu, Chairman of the Taiwan Bicycle Association at yesterday's pre-show press conference

D&I AWARDS 2023

SUSTAINABILITY TOPS THE AGENDA

At yesterday's Taipei Cycle d&i awards ceremony, the winners highlighted innovation across the industry. Among the 46 winners, the most exciting received the outstanding Gold award.

This year's recipients included a monocoque triathlon frameset from Cadex, an e-bike made to boost eco-tourism from Zektor Power, and a SmartTag system for locating lost bikes from RST Greenergy Technology. The winning products can be seen near the entrance to Hall 1. "We're honoured to host the Taipei Cycle d&i award for the tenth time," explained Uwe Cremering, iF International Forum Design CEO. "This year, the number of submissions has increased, showing a recovery in research and design following the pandemic."

Indeed, rebuilding a better normal has led to a renewed focus on sustainability. "The key starting point of all good design is now the question, 'how can the product have the greatest impact on sustainability?'" said Cremering. "These designs help avoid human dependence on natural resources. Sustainability is not a fad but a solution to the problems we all

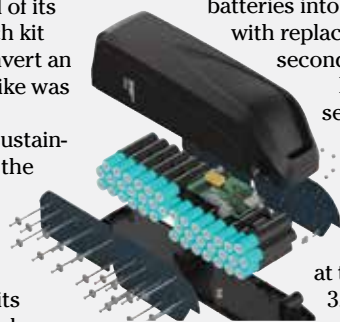
face. The bicycle is a symbol of this approach, a choice towards making a better and more sustainable future."

This view was reflected in several d&i winners. These include CKC's latest pedals which swap traditional plastic for a plant-fibre-based material utilising waste rice husk. In contrast, Gigantex composites has developed a carbon fibre wheelset which can be recycled at the end of its usefulness. The Swytch kit that allows you to convert an existing bike to an e-bike was also commended.

However, it was a sustainable battery that won the inaugural Green Prize. French battery maker Gouach impressed the panel of experts with its rebuildable battery and sustainable product development performance.

"Our product started from examining 40 tons of redundant batteries and discovering that 95% of the cells inside were still usable," explained Gouach CEO Alexandre Vallette. Unlike conventional batteries, where cells are spot welded into place, Gouach's power packs can be disassembled and rebuilt in minutes by technicians with minimal training. It aims to bring batteries into the circular economy, with replaced cells also going on to second-life applications.

In development for several years, the firm has recently released several market-ready products for commercial bikemakers who it's hoping to meet at the show. It's also secured 3.3 million euros in funding, to which it can now add a Taipei Cycle D&I award. ■ JD (L)



Gouach's Green prize-winning rebuildable battery



Robert Wu, Chairman of the Taiwan Bicycle Association and Gouach CEO Alexandre Vallette.

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LCD control panel

INTERVIEW WITH SHOW DIRECTOR ETHAN LIU

TAIPEI CYCLE SHOW: BACK BY POPULAR DEMAND

After 2019's record-breaking edition, the Taipei Cycle Show looked bound for further records. But then the Covid-19 pandemic changed everything. How did show director Ethan Liu navigate the last three years, and what's his outlook for this year's show?



The NEX2 hall will host the TaiSpo show and parts of the Taipei Cycle Show.



Taipei Cycle Show director Ethan Liu.

While Taiwan's bicycle industry surfed a wave of extremely high demand throughout the pandemic and set new records in terms of export volumes, the Taipei Cycle Show as Asia's leading bicycle trade show faced a serious challenge. After a record-breaking 2019 edition with the Nangang Exhibition Center's Hall 2 being used for the first time, the number of exhibitors that booked a booth grew again for 2020

– until the show had to be cancelled due to the Covid-19 pandemic. After an online-only show in 2021, the Taipei Cycle Show returned at roughly half of its pre-pandemic size and without overseas visitors in 2022.

For 2023, Taiwan's external trade development council (Taitra) as the organizer of the trade show is looking to get the Taipei Cycle Show back on track. The provisional exhibitor list shows that

this year's edition will reach about 80 percent of its pre-pandemic size – and keep in mind some traveling restrictions are still in place. With a strong focus on the electrification and digitalization of the bicycle and all aspects of sustainability, this year's show is looking to hold on to its position as the leading bicycle show for Asia and the Pacific region and a key meeting point for the global bicycle industry to get its supply chains sorted and running smoothly again.

Taipei Show Daily reached out to Ethan Liu, Taitra's Taipei Cycle Show director three weeks before the event to see how things were going.

Mr. Liu, could you tell us about the rollercoaster ride you encountered as show director between 2019 and 2023, from being Asia's leading show to having to cancel the event in 2020, have it run online-only in 2021 and getting back to a smaller edition without overseas visitors in 2022?

The Taipei Cycle team faced various challenges caused by the pandemic over the past three years. When we were

about to host Taipei Cycle 2020, with a record number of exhibitors, we had to first postpone and then eventually cancel the show due to Covid-19. Later, we adjusted our planning and had online shows and digital marketing for the next two years to continue our service to exhibitors and buyers.

The hybrid format in 2022 gave the show a new look. Even though international buyers were unable to attend in person, we actually used virtual booths, our TTS online matching system and a



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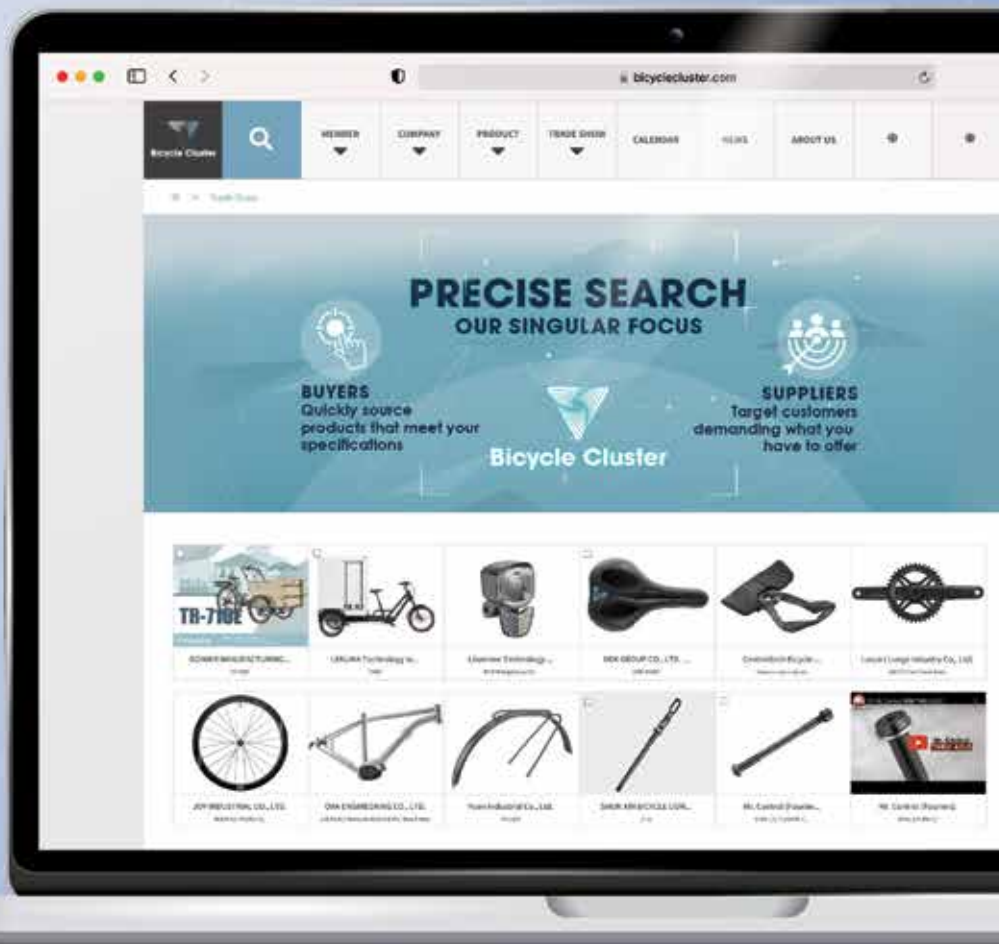


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virtual live tour to send out information overseas. Therefore, the 2023 edition will remain hybrid with enhanced planning to usher in a business exchange that's back to normal.

As the show organizer, how did you get a feel for the state of the industry, and how has this state changed over the three years of the pandemic?

At the beginning of the epidemic, various industries were affected to varying degrees by lockdowns and border controls, but the bicycle industry benefited from sharp growth amidst this crisis. We could feel the heat of the industry from 2021 to mid 2022. However, since the fourth quarter of 2022, there have been successive reports of crises, such as slowing consumer demand and inventory backlog. We expect the overall market to gradually return to normal after experiencing explosive growth and the current process of destocking. However, the overall industrial supply chain will also be reconsidered, and strategies from manufacturing to market sales will be adjusted.

Do these changes have an impact on the role of the Taipei Cycle Show as cycling's leading trade show in Asia?

Of course we hope to continue to make a contribution to the industry. As the leading B2B bicycle exhibition, we will pay close attention to market dynamics and turn industry trends into the main themes of the exhibition. For example, this year we have planned a Cargo Bike & Urban Mobility Pavilion, which will outline the R&D ecosystem



As the last edition before the pandemic, 2019's Taipei Cycle Show set new records.

of Taiwan's supply chain in this fast-growing product category.

On the other hand, we also pay attention to the sustainability issues within the bicycle industry. Whether it is product design or corporate responsibility, we will join hands with the industry to advocate for sustainability.

What are the most significant changes for the 2023 show in terms of floor space, halls used and the number of exhibitors?

This year's exhibition uses a total of 4 floors and 1st floor of Nangang Hall 1 and part of the 1st floor of Nangang Hall 2. Since Taiwan did not open its borders until October 2022, the registration of foreign exhibitors is only at 80 percent of pre-pandemic numbers, but we believe that the exhibition will return to its pre-covid scale in 2024.

Do you see changes regarding the origin of exhibiting companies, their respective core business and the kind of products on display? Do you see larger trends behind these changes or are they rather a consequence of the pandemic?

Except for Chinese exhibitors, the reduction in exhibitors in other regions is similar. We can see that some new exhibitors, especially cross-industry companies, have signed up for this year's exhibition because of the development of e-bike related products. With the development and growing popularity of e-bikes, the number of exhibitors in the electric bicycle exhibition area is continuing to grow, unaffected by the pandemic, and this year this segment has reached about twice the number of exhibitors than it had before the pandemic.

Which countries or trading blocks have booked a pavilion for its members at this year's Taipei Cycle Show?

Apart from the European manufacturers' organization Conebi, there is the Japan pavilion and the Italy pavilion. Due to ongoing traveling restrictions and visa demands there is no China pavilion this year.

What are the big topics of this year's TCS edition, and how will these be reflected at the show?

The main topics that Taipei Cycle Show

focuses on are supply chains and their resilience, digital connections, vibrant innovations, a dynamic lifestyle and all kind of sustainability- and ESG-related topics. This is reflected in the panel discussions, but also in the d&i Awards.

What are the main reasons why companies should exhibit at Taipei Cycle Show from your point of view?

The Taipei Cycle Show offers direct access to cycling's leading global brands and manufacturers. It is also a crucial gateway event for brands to reach the Asia-Pacific markets and a hub to exhibit and see the latest designs, innovation and R&D in cycling. And due to Taiwan's central role within the bicycle industry the show is a one-stop shop event to conduct business with stakeholders all across the global supply chain.

What are the show's highlights from your perspective this year?

Since it is the first time that we have set this up, the Cargo Bike & Urban Mobility Pavilion is one highlight. Another is the Taipei Cycle d&i awards where the prize-winning products will be on display in a pavilion. With the Green Prize Award we have a new category this year that reflects the importance of sustainability.

Apart from that the e-bike segment is still very dynamic, seeing a growth in exhibitors of 40 percent from the previous year. Last but not least both the Taipei Cycle and the Taispo Forum will offer valuable insights for decision makers, ranging from resilience to sustainability to general market trends and opportunities. ■ LVR

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VOX POP:

WHAT DO YOU EXPECT FROM TAIPEI CYCLE THIS YEAR?

As exhibitors set up their booths yesterday, the Show Daily asked about their expectations for the first Taipei Cycle Show with overseas visitors since 2019.



Hendrik Tafel
Sales Marketing
Manager Europe
Alex Rims

Our main objective at this year's show is to catch up with overseas customers, especially those who could not attend last year's Eurobike in person due to ongoing travel restrictions. Of course we're also looking to get a feeling for the market situation and how forecasts are developing to know where the industry is heading, and we are looking for new customers and distributors as well.



Dan Brauer
Global Brand Manager
Jagwire / Chia Cherne

Naturally we are excited to be back in Taipei and have the opportunity to meet our customers for the first time in four years - and some of them for the first time in person. Over the past years we have learnt that a lot of things can be done remotely, but personal contacts still are very much essential for doing business.



Samuel Chang
General Manager
Woho Bike

After the lengthy break due to the pandemic we are expecting to meet with and expand our clientele at the show. Since the electrification of the bicycle is expanding to more and more segments, we are also planning to expand our portfolio from backpacking and adventuring equipment to e-bike accessories. And we expect plenty of interest from overseas visitors in our upcoming products.



Jens Stahlschmidt
Vice President
Ergotec / Humpert

We are looking forward to deepening existing contacts with Asian assemblers and business partners and meeting partners and visitors from the Americas, New Zealand and Australia. We want to evaluate the situation within the industry and possible partnerships, looking to get back to normal business regarding the supply chain.



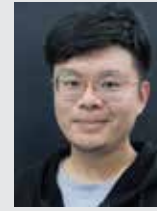
Ann Chen
Vice President Velo

Naturally we have high expectations. Not having seen each other for four years, there is a lot to catch up on but also to do business. Since the market situation is tricky and there are still some travel restrictions, we are looking to hear how the situation is developing in other countries and markets from existing customers - and also tell them what Velo has been up to and focusing on in the last couple of years.



Daniel Bremicker
General Manager
Mobile Security Abus

We want to meet Asian customers that we have not seen in three to four years and to catch up with personal contacts. We'll also meet with both existing and potential distributors - today I had the chance to meet our new Taiwan distributor for the first time in person. Last but not least we're also looking for first hand impressions regarding the needs and preferences in different markets and tap the pulse and mood of partners and markets.



Shawn Lin
Marketing Manager
Hyena E-Bike Systems

Since the market cooled down in the second half of 2022, the situation is not easy. But our OE partners are already looking beyond this and forward to 2024 and 2025, so we have to keep up with this pace. As service and software solutions are getting more important within the bicycle industry, we feel we are well positioned for this development and this may help us find additional customers for our assistance drive systems.



Marcel Spork
Distribution Manager
SKS

The overwhelming feeling is joy: it is great to be here after all these years and to meet our friends and customers again, especially those who could not come to international meetings and fairs. Of course the Taipei Cycle Show also is a highly welcome opportunity for networking within the industry, and for sure there's no lack of topics to discuss at the moment.

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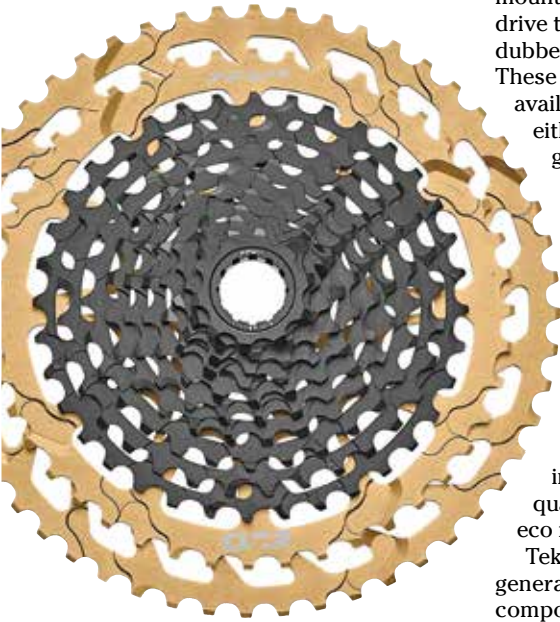


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TEKTRO-TRP STEPS UP ITS DRIVETRAIN GAME

Four years after the launch of its first derailleurs and shifters, Tektro-TRP (Hall 1, J0701) ups the ante with its EVO drivetrain. By adding cassettes, cranks, bottom brackets and a chain made by KMC, the company ups the ante and takes a firm aim at the OE market.



CS-M9050-12-Gold

mountain bike drive trains dubbed EVO. These will be available with either 12 gears for general trail riding or seven gears for gravity racing. And they are going to be shown at the Taipei Cycle Show as a world premier even before the Sea Otter Classic. The recent expansion of its headquarters in Changhua county has allowed Tektro-TRP to manufacture most of the parts needed in-house, improving both production planning and quality control while decreasing its eco footprint.

Tektro-TRP's first generation of drivetrain components, launched in 2019, only consisted of rear derailleurs and shifters, so bike brands could combine those with third-party crank arms, bottom brackets, cassettes and chains. The second generation is a lot more ambitious. While the company has found ways to further improve the design of the already existing parts, it is adding micro-spline-com-



SL-M9050 Gold

patible 12-speed wide-range cassette and a narrowly spaced 7-speed cassette to the mix, the latter being machined from a solid block of steel entirely.

The wide-range cassette offers a range of 520 percent, combining a durable block with ten cogs machined from a block of steel with the two largest cogs machined from aluminum.

Since the two parts are connected with six Torx screws, they can be changed independently – a wise decision from the consumer's perspective.

Crank arms made of either aluminum or carbon, both made in-house in Taiwan, and bottom brackets fitting



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FC-M9050-gold

various existing standards are the other new additions to Tektro-TRP's drivetrain offering. For impact protection the carbon cranks are fitted with rubber bash guards. With a focus on ergonomics and precise shifting and retention of the chain in rough terrain, the EVO drivetrain offers smooth gear changes even under load, while giving an acoustic feedback: you can hear the gear change has been done, but you can't feel it in the pedals. Designed to be mounted under the handlebar, the shifter features two levers, one for the thumb and for the index finger, a high degree of adjustability and a unique single-gear shifting mode that can be activated by a tiny switch. ■ LVR (L)



RD-M9050-L Gold

While market leaders Shimano and Sram are still struggling with long lead times for some of their key components, Tektro-TRP has been a welcome alternative for many product managers who found themselves in a tight spot. Now this ambitious supplier is increasing its appeal on the OE market even further with the launch of complete



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AFTER THE PANDEMIC

TRADE SHOWS GETTING BACK UP TO PACE

As the world is looking to return to a new, post-pandemic normal, some trade shows and events return while others have evolved. What is new in terms of business-oriented events, and what has remained the same?



Sea of flags at Sea Otter Classic in Monterey, CA

For almost three years the global economy and with it the bicycle industry had to get used to travel restrictions and quarantines that rendered physical meetings impossible. Many hours have been spent in video calls and online conferences that could not replace direct face-to-face communication ever since. In 2023, the era of cancelled or heavily restricted events seems to be over. After a three-year break overseas visitors will return to the Nangang Exhibition Center for the Taipei Cycle Show, and this is just one of many events on the calendar.

Over the years the **Sea Otter Classic** in Monterey, California has established itself on the calendar as primarily a consumer event that attracts a lot of media coverage. For the Northern American market, this event, held in mid to late April, has become the place to be for exhibitors with a strong emphasis on sports-oriented aspects of cycling. And due to the high media attendance and plenty of opportunities for meaningful test rides, many brands have opted to launch new sports-oriented products at the Sea Otter Classic in recent years and will continue to do so.

For 2023, **(e)volution**, a brand new show focused on e-bikes is launching its inaugural show. Produced by industry veteran Lance Camisasca with the support of leading e-bike brands, it will stage at the Colorado Convention Center and be co-located with **The Big Gear Show**, which announced its move to Colorado in the Fall of 2022. Both shows are introducing a B2B2C format, with the first two days offering a dedicated traditional B2B trade show and the last two days executing a new consumer-focused festival where brands and retailers can engage with the public. According to Camisasca, Asian manufacturers have shown considerable interest in exhibiting at the premiere of this new show

scheduled for June 8 to 11.

The world's largest bicycle trade show **Eurobike** made a daring move in 2002: after 30 editions on the shores of Lake Constance, the show moved from placid Friedrichshafen to the busy financial center of Frankfurt am Main. This move also signalled a widening of focus from the sports-oriented segments to utility cycling and micro-mobility. From its well-connected international airport to public transport to the fair grounds and an abundance of accommodations and restaurants at all price levels, the city of Frankfurt is more convenient for overseas visitors. While some of the big names of the bicycle industry still would not exhibit at Eurobike, relying on their own dealer events instead, the premiere in Frankfurt was very promising.

One complaint in 2022 was that the earlier date in mid-July clashed with summer holidays in many European countries, so the organizers decided to move the show by another three weeks to the end of June. One novelty of particular interest for suppliers from overseas in 2023 will be the B2B package that allows exhibitors with no consumer business to reduce their presence at the show and the resulting costs to three rather than five days, skipping the event-heavy consumer days. Exhibitors opting for this package will be put on a separate floor in hall 9 that can be closed entirely for the consumer days. This will allow for an undisturbed dismantling and packing of the booth. Due to strong exhibitor interest, a third floor will be added in hall 9 as well, further bolstering the b2b-oriented part of the show.

In 2021, Germany's largest automotive show moved from Frankfurt to Munich and rebranded itself **IAA Mobility**, signalling openness to other forms of mobility than cars. The Open Spaces concept in downtown Munich was praised for attracting



New event (e)volution will be held at the Colorado Convention Center



Eurobike got off to a roaring start in Frankfurt last year



Bike exhibitors will have more options at IAA in September

the public. But the decision to put bicycle and micro-mobility brands in two halls in the very back of the expo area with way less visitor traffic got a lot of criticism. As did the restriction to standard booths that may have reduced the cost of exhibiting but also the ways a brand could present itself and set itself apart from others.

For the 2023 edition to be held from September 5 to 10 the organizers of IAA Mobility have changed the concept and promised significant

improvements for bicycle and micro-mobility brands. Their booths will be placed depending on their focus and not in two halls off the big visitor flows anymore, and they will be allowed to use their own choice of materials to build a booth. While this sounds like a big improvement, it may as well make the differences in marketing and exhibition budgets between automotive and bicycle exhibitors even more painfully obvious.

If one event puts the business



Verbier eBike Festival

first, it is the **Taichung Bike Week**. Unsurprisingly this event was badly hit during the pandemic due to travel restrictions, with the year 2022 as a fitting example: After cancelling the 2020 and 2021 editions the organizers wanted the event to take place and the hosting hotels were not willing to step back from bookings either. But the industry clearly had other ideas. Since Taiwan's quarantine rules were still in effect in September, overseas visitors decided to skip the event. And within Taichung's tightly-knit bicycle business, there is no need for a central event that creates costs for hotel room bookings when business partners can easily visit each other at the respective headquarters on a day by day basis.

Given the many issues with supply

lines and product planning throughout the pandemic, there is no lack in topics to be discussed. And since most of the travel restrictions have been dropped the return of the Taichung Bike Week as a fixture on the calendar of the global bicycle industry is a safe bet, with the date set for October 3rd to 6th.

One obvious trend in key export markets such as Northern America and Europe throughout the last three years has been the blooming of consumer events that attract a lot of people – from Cyclingworld in Düsseldorf, Germany and the Sea Otter Europe in Girona, Spain to the Italian Bike Festival and Verbier's e-bike festival. While the attendance is a welcome indicator for a lively demand, most of the exhibitors are national distributors rather than manufacturers. ■ **LVR**

ANGEL REVO SADDLE VELO CELEBRATES THE YEAR OF THE RABBIT

Since the launch of its first Chinese Zodiac saddle in 2015, **Velo Saddles [J0717]** has continued the tradition of releasing a limited-edition Zodiac design each year. For 2023, Velo is adding the Golden Rabbit edition of its Zodiac series, featuring the Angel Revo saddle (MSRP \$110).

Past designs in the Zodiac series included fun features like a gold chain hanging on the Year of the Dog saddle or a bull ring hanging from the nose on the Year of the Ox. But this year's design has a more classic black and gold aesthetic. With the Year of the Rabbit looking to bring new hope to 2023, the design highlights black rabbit silhouettes across the saddle's Omni Cover, complete with a gold Euphoria Base shell.

Designed for enhanced comfort and confidence to tackle even the longest rides, the 112 gram Angel Revo is 148mm in width, 248mm in length, and includes Velo's patented pressure relief Y-Cutout. The Year of the Rabbit saddle is priced at \$110 USD

Velo created their Golden Rabbit design for the new Angel Revo saddle, its first saddle to incorporate AtmosFoam. This is a nitrogen-infused foam designed to enhance

performance and durability while minimizing the production process's environmental impact. Including nitrogen in the foaming process results in a lighter, more responsive foam compared to other compounds with finer pore structures. The micro-cells are more evenly distributed, providing consistent rebound and shock absorbing capabilities. It also provides lower thermal conductivity, keeping contact with the saddle cooler in hotter weather conditions

The Year of the Rabbit Angel Revo saddle also features WaveOn tech. This contactless technology allows Velo to offer additional customer support with just one tap of a smartphone. ■ **TK**



Announcing the New **Twin Mode** High-flow and Cooling spray mode "SprayMe" Series Bottle from V-Grip



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HALL 1 BOOTH I1318



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E-BIKES LAMP
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Booth: Hall 2.1 / **Q0924**
30 years of professional manufacturing experience
Let E-BIKE be equipped with safe STVZO lights

JING YI®

120 LUX

JY-7280E-3

High and low beam for E-bike use, combines energy efficient LEDs with sophisticated styling, using advanced double-lens technology, greatly reducing the energy loss of illumination, ensure the best ratio between illumination and energy consumption. Switch the handlebar mounted button to change from low beam to high beam, creating a more wider field of view. Even in the darkest light conditions, it ensures that the cyclists can see and be seen. The light adopt high quality aluminum shell for body design, to ensure the best heat dissipation effect. With metal bracket to improve the safety performance and a detachable reflector, brings more security for cyclists.

• No light
• Low beam
• High beam

HIGH-LOW BEAM LIGHT FOR E-BIKE

Low beam High beam

INVESTMENTS FLOW INTO THE BIKE INDUSTRY

BIKE BUSINESS ATTRACTS FRESH MONEY

Although inflation and low consumer sentiment have throttled demand for bicycles lately, plenty of mid- to long-term trends still are very much in favour of cycling. This has attracted a lot of fresh money, both from private equity investors and other industries.



PON Swapfiets

Market surveys by Deloitte, Cycling Industries Europe, among others, showed the mood in the bicycle industry was decidedly upbeat well into the year 2022. Inflated preorders and a drop in consumer confidence caused by Russia's attack on Ukraine and its consequences for fuel and energy costs caught the industry on the wrong foot, leading to high inventory levels and cash squeezes at all levels of the business. Still, the mid- to long-term perspective for cycling both as a sport and even more so as a mode of transport is very promising. As a consequence, fresh money is being invested.

As the Dutch distributor of Volkswagen, PON was an early mover in this regard. Its first step — buying Gazelle — may have been partly motivated by nostalgia, keeping the iconic Dutch manufacturer afloat. However, the subsequent acquisitions of Derby Cycle (with brands such as Kalkhoff and Focus Bikes), Cérvelo, Santa Cruz, Urban Arrow and Veloretti showed an unsentimental strategy at work. And by taking over the Cycling Sports Group with brands such as Cannondale, GT, Mongoose, Schwinn and Kid Trax from Dorel Industries, **PON Bike** has overtaken the Accell Group to become Europe's largest bicycle manufacturer. And if that is still not enough for you, PON Bike is also active in the fields of long-term rental bikes with Swap Fiets and in terms of fleet management and mobile repair services with Fiets Ned. Recent investments in factories in both Germany and Lithuania are meant to consolidate this status.

Another example of a manufacturer of motorized vehicles entering the bicycle business is the Pierer Group. This Austrian corporation is behind motorcycle brands such as KTM, Husqvarna and Gasgas. At first it took some shares in Pexco as the new e-mobility company of Felix and Susanne Puello. Soon enough Pexco with its



Pierer booth at Eurobike 2022

brands Husqvarna and R Raymon got taken over entirely, and from there the pace of acquisition accelerated: after launching the Gasgas brand for e-bikes as well, the Pierer Group expanded its **Pierer New Mobility** subsidiary with brands such as Felt Bikes, Johansson Bikes, Liteville and Syntace. In the summer of 2021 Pierer announced a joint venture with leading Bulgarian bicycle manufacturer Maxcom. To further strengthen its position in the heart of Taiwan's bicycle industry, the Austrians opened an Asia office in downtown Taichung in 2022.

With Porsche, a well-known manufacturer of sports cars has shown significant interest in cycling as well. Late in 2021 **Porsche** took over Rimac, a Croatian manufacturer of electric super sports cars — and with it the subsidiary Greyp Bikes that is known for its advanced software that works with made-in-Taiwan MPF Drive mid-motors. Last year Porsche acquired 20 percent of the shares of German start-up Fazua that has made the headlines with its lightweight assistance drives. In June 2022, Porsche decided to up its involvement and take over Fazua entirely. Another move by Porsche indicates ambitions that go much



Porsche moves into e-bikes



Johnson Electric Pendix eDrive

further. Through two joint ventures with Ponooc Investment, a subsidiary of the Dutch PON group, Porsche wants to develop its own e-bikes and micro mobility solutions and become a player in these markets as well.

One company that has been profiting from the push for e-bikes and the rise of utility bicycles without a doubt has been German transmission specialist Pinion. By diversifying its line-up, it has managed to cover a larger spectrum of price points, becoming a supplier of more than 100 bike brands and working with over 600 dealers as service contacts worldwide. This did not go unnoticed, as Canadian corporation **BRP** (Bombardier Recreational Products) took a majority share in Pinion back in August. The Canadians see a lot of potential in Pinion's sealed transmission technology, not only for bicycles but also in its core businesses of power sports and maritime applications and for other human assist vehicles.

As one of China's leading manufacturers for electric motors of all sizes, the Shenzhen-based **Johnson Electric Group** is a well-known supplier of motors, actuators, motion subsystems and related electro-mechanical com-



BRP Pinion SmartShift

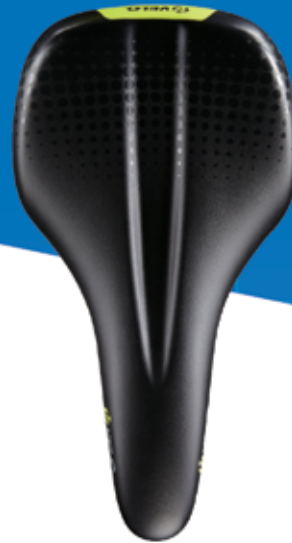
ponents for automotive, industrial and medical applications. Counting 35,000 employees in 22 countries, it's also an industrial player of serious size, netting an annual revenue of US\$ 3.45 billion. And while Johnson Electric is highly likely to have supplied electric motors for e-bike assist drive systems in the past, the corporation intends to increase its bicycle-related footprint. To speed up this process, Johnson Electric has purchased 80 percent of the shares of German start-up **Continued on page 14**

VELO E-PRODUCTS

Velo E-Bike saddles are uniquely designed for heavy loading E-Bikes.



VL-3575



VL-3580



VL-6535

Velo E-Bike grips feature Velo's proven Microtech technology to increase positive and comfortable contact with the handlebar.



VLG-1985D3



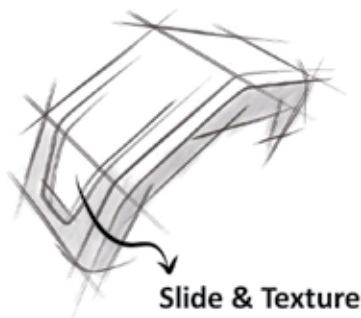
VLG-1909



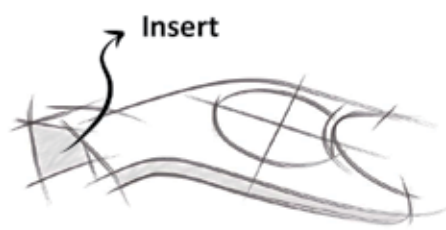
VLG-1891

VLG-1859

Velo E-bike parts are custom molded parts--accommodating different E-bike designs.



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Insert



Dual injection



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J0717

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Continued from page 12



Darfon president Josh Tsai

Pendix. Originally known for its retrofit assist drive systems, this company has recently expanded its business, presenting a serial hybrid drive system for heavy cargo bikes. For Johnson Electric, this acquisition is not only about the established brand but also about the profound knowledge of the booming e-bike market.

As one of Taiwan's first electronics corporation to enter the bicycle business, **Darfon Electronics [N0810]** has been operating the BESV and Votani e-bike brands for some time. During the pandemic the company's involvement in the bicycle industry further deepened, as Darfon now holds 60 percent of the shares of OE manufacturer and assembler Kenstone. In 2020 Darfon

bought Hsinchu-based TD Hightech, a specialist in custom battery solutions, and integrated this company in its Darfon Energy division. Thus the company now not only offers standard battery packages but can also come up with customized solutions. Last but not least, Darfon has founded a joint venture with well-known frame manufacturer Astro Engineering in a push to bring its electronics and IT know-how to e-bikes.

A lot of additional funds have been flowing into the bicycle industry through various private equity investors as well. Attracted by dynamic growth, they have been putting their money into companies such as tire specialist Vittoria, carbon frame and parts maker 3T and transmission specialist Enviolo. The latter was taken over by British investors **Inflexion** in February 2022. And while no numbers were communicated officially, Dutch financial specialist estimated the amount paid for Enviolo to be in the range of US\$ 250 million. Another big deal has been in the making in spring: having lost its patience with its Amprio subsidiary aimed at building mid-motor systems for e-bikes, German defense manufacturer Rheinmetall has been looking for a buyer. While the change of ownership has been confirmed, no buyer has come forward by late February 2023 – but SRAM has been rumored to be that buyer.

Given the current issues with high inventory levels and limited cash flow, there may be a lot more acquisitions of companies from the bicycle industry around the corner. After all the long-term perspectives for this industry are still highly favorable despite the recent dent in growth. ■ **LVR**

NEW PRODUCTS

JIASHAN SHENGGUANG ELECTRONICS JING YI COB LIGHT



This COB carrier light for e-bikes has a slim and modern design. Combining COB+LED technology, the light's function modes and brightness bring a different experience, including a brake function that provides additional safety. There is also an integrated Z reflector with a unique angle surface design. The light is

available in a choice of 50 mm or 80 mm mounting widths, for easy mounting on luggage racks and perfect visual integration with modern e-bikes. It is StVZO certified, with a wide 6-48V voltage input, suitable for most e-bikes.

G0924

FPD INDUSTRY CORP. NEW COMPOSITE MATERIAL PEDAL



FPD has developed a new composite material with carbon fiber injection for higher strength and less weight. With this new material and process, strength is increased by 20% and weight reduced by 15%, which also increases the power output while pedaling. FPD is initially using the

new material for its higher end sealed bearing pedal, targeting pro riders. Having developed the production process, FPD plans to apply this material to other products.

J0307



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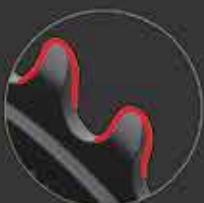
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The chainring roller seats between teeth are perfectly matched to KMC chains.



Shield Tech

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Optimal Tooth Design

Chain retention is enhanced to hold the rollers in place while preventing chain drop and reducing friction.



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OVERVIEW: SADDLES

GET COMFORTABLE WITH SADDLES THAT MAJOR IN ERGONOMICS AND MATERIAL TECHNOLOGY

The highest compliment you can pay a saddle is to say you didn't notice it. The best models disappear into the background. However, this trick isn't easily achieved. Instead, it requires vast research and a keen understanding of material technology. In a sector that's forever refining its designs, saddle makers know the rider searching for a comfortable perch is a genuinely motivated consumer. Below you'll find the latest designs competing for their attention.



Velo Angel Revo

Velo [J0717] has just launched the Angel Revo, which utilises the firm's new nitrogen-infused Atmos Foam. This unique material is designed to enhance performance and durability while minimising the environmental impact of the saddle's manufacture. It offers a lighter, more responsive performance than similar compounds, with more evenly distributed microcells providing consistent rebound, shock absorption, and heat-dissipating capabilities. The shape of the Angel Revo then combines elements from the firm's Senso and Angel time-trial saddles. It also features Velo's patented pressure relief Y-cutout. However, this is now longer than on any of its previous models to maximise rider comfort. Atmos Shaping technology that seamlessly combines the cover with its base is used across the saddle, resulting in a smooth exterior that's also entirely waterproof. Designed for long rides and athletic performances, the saddle is 248mm long, and 148mm wide and comes with lightweight,

shock-absorbing titanium rails. Launched in three striking colourways, these include a limited edition created by Santa Barbara-based designer and artist Molly Lofton.

This year **All-Wings [I0012]** presents the fourth generation of its Super Hornet saddle. Its radical winged design aims to solve the problem of perineum compression and seeks to alleviate numbness and pain while cycling. Ideally suited to distance riders, the design can be adjusted by swapping in a thermoplastic rubber pad that adapts it to suit either conventional or those in the ultra-endurance category. Almost as unique as the saddle's cut-back design is All-Wings' desire to allow users to do away with conventional chamois padding in the interest of keeping cool and fresh on longer rides. It also aims to apply across various applications, from road cycling to commuting. Having won several awards, a previous version is now held at the Taiwan National Science & Technology Museum.

DDK Group [J0417] has applied its VM Fit technology to the new VP-38201 saddle. This system of vacuum bonding the pad to the shell ensures greater comfort and durability while creating a streamlined look. The VP-38201 uses it to create a lightweight performance saddle without nails or staples. It measures 141mm in width

and aims to suit athletic riders with decent flexibility. Like the firm's other racing saddles, it uses a pressure relief cut-out to ensure comfort and avoid damage to soft-tissue areas. As part of DDK's efforts to improve its environmental, social, and governance commitments, it'll arrive in compostable and eco-friendly packaging. Elsewhere the firm also claims to have adjusted its production line to reuse water while utilising solar panels to generate 16% of its energy requirements.

Youth-focused bike and component maker **Da Bomb [I0503]** has three new saddles on show this year. These are the downhill and enduro-focused Flap-X and Motion models, plus several versions of the dirt jump and street-focused Badass. The Flap-X uses an AirForm upper, which claims to provide an extra 30% shock absorbency compared to standard polyurethane to aid in general comfort. Although mostly made for going downhill fast, it features an extra skidproof strip towards the rear that will prevent you from sliding backwards when riding uphill. By comparison, the Motion offers an open-channel construction for increased ventilation and better ergonomics in an aggressive saddle. This sees its increased width married to a shorter nose to support the rider's sit bones with less rubbing on the inner thighs. Finally, the

Badass goes all out with a shape that includes an anti-impact hard rubber section at the back that can also function as a handhold during aerial tricks.

Sunstar [M0808] is a Taiwan-based distribution agent for many premium brands. Among these, it represents Selle Royal and Brooks in the region. If you head to its stand, you'll



Da Bomb Badass

be able to find classic leather saddles from the British maker, including its famous B17 Special. This saddle twins the firm's renowned leather construction with hand-hammered copper rivets for a timeless appearance and long-lasting comfort. Selle Royal's ergonomic Vaia Saddle offers pressure relief via its cut-away profile if you're after something more modern. An economical and popular model, it's



Sunstar Brooks B17

already proved a hit with a wide range of cyclists and includes an ICS clip system attachment, which allows a range of accessories to be fixed to the saddle.

WTB [L0818] will again exhibit its entire line of tried and trusted saddles. These include the versatile Volt, the firm's most popular saddle, along with the more race-focused Silvardao. Sure to be popular with adventure cyclists is the Koda which has been developed with feedback from ultra-endurance rider Rebecca Rusch. Made for the most extended stints on the saddle, it offers a generous open channel that divides supportive outer zones to alleviate pressure on sensitive bits. Its stubby nose makes getting up and off the saddle easy, while a mild upwards swoop allows you to brace against it. Although female-focused, it joins the firm's Deva in offering a shape that will appeal to a range of riders of either sex.



WTB Deva



All-wings evo4 Super Hornet

DDK 38201



JD

E-CARGO BIKE

Urban commuting has transformed from individual cycling to now cargo transport. Whether you need to simply get from point A to point B, or to transfer large loads to desire places, e-cargo is the bicycle line that can satisfy your need.

Imagine a bike with multiple combinations that enable customization based on your daily needs. Be it a weekday work where you need to move packages to places, or just a casual ride with the kids and family at a park, you can equip the bike the way you like it and be on your way!

If you are the type of traveler that goes far, we've also got that covered. Dual battery from Bosch is also possible to give you the performance and range you are looking for.

EG4A-B11

Material	Aluminum #6061
Mfg. Method	Tig Welding
Frame Size	51cm
HT	1-1/8"
Seat Post	Ø34.9mm
Motor System	Bosch Drive Unit Cargo Line, Gen 4
Battery	Bosch Power Pack 800Wh*2
Rear Hub	142 x 12mm E-thru System
Dropout	Post Mount
Tire	Front-20.0" x 2.15" Rear-26" x 2.35"
Weight	9.4Kg(Frame)



Meet us at booth I1117



OVERVIEW: LIGHTS

LATEST TECH IS BRIGHT, COMPACT, AND ENERGY-EFFICIENT

Lights have always been an essential accessory. Now, as designers seek to offer riders a more complete package, they're increasingly fitted as standard when purchasing a bike. A trend driven by the e-bike market, lighting is now a big selling point, with an explosion of OEM lighting solutions for bikemakers. The retail market isn't far behind. Wired in or rechargeable, riders now expect their lights to offer something extra. Whether this is increased brightness or supplementary features like braking sensors, you'll find some of the most exciting designs below.



Crops Scenes SC100Rb

At this year's show Japanese light maker **Crops [L0924]** is introducing a very smart tail light. Its tiny Scenes SC100R unit offers serious visibility thanks to an array of 35 LEDs. With eight function modes, if you select the light's auto function, it will automatically turn on when needed. This is especially useful in daytime conditions when passing through tunnels or swapping between light and dark areas. The compact light features an integrated clip that can be attached to the rider or straps to secure it directly to the bike. Cleverly, the light can function while charging, allowing you to power it via a remote battery pack in your saddle bag if needed.

New from **Sigma [M1205]** is the Buster range. This covers four front lights and two matching rear units, each of which can be adapted to the needs of their user. Up front, you can pick from 1,100, 800, 400, and 150-lumen max outputs, while the rear lights offer 150 or 80-lumens. All front lights feature five preset mode profiles. These include options like one designed for commuters, which displays just the night and day flashing modes and negates the need to scroll through multiple redundant options. High-power options also feature LEDs from Osram or Cree paired with innovative lenses designed by Sigma, while all models feature a compact design and provide detailed live battery information. Pairing perfectly are the matching Buster RL 150 and RL 80 tail lights. These have been designed to work with the front lights to provide almost all-around visibility. Noticeable from up to 2km away, the RL150 also features an automatic brake light function.



Sigma Buster 1100 Buster RL 150 K-set



Litmove SE90AD

Litmove [N1225] is looking to expand on the success of its MTi optical technology. Its new AEW-230 headlight provides a 230-lux/950-lumen output and features dual high and low-beam options. It's explicitly designed for e-MTB riders and offers a ten-metre wide beam and illumination at distances of up to 300 metres. Tailoring it to this riding style are multiple mounting options covering the handlebar, stem, and fork, plus a control switch that can be mounted on either side of the handlebar. The SE-90A is another smart front light. It uses Litmove's



Jiashan Shengguang Electronics JY-7280E-1

MTi technology and a built-in ambient sensor to vary its output between 30 to 90-lux as it switches between day and night-time use. It also features a clever power-saving auto brightness function.

The new JY-7280E-1 from **Jiashan Shengguang Electronics [Q0924]** is an e-bike-specific front light with high and low-beam functions. Combining energy-efficient LEDs with an advanced double lens, it promises to strike a perfect balance between illumination and energy consumption. It can be controlled via a handlebar-mounted switch for

greater convenience and safety and allows the user to select either a 100-lux low-beam setting or a broader 120-lux high beam. It's wrapped up in a stylish and compact aluminium body, a construction that aids cooling. Certified to the StVZO standard, the light's wide voltage input design runs from 8 to 48V, making it suitable for a wide range of e-bikes.

Gaciron [Q1028] offers a bunch of innovative products. Its latest V20-1500 model combines a front and rear light into a single unit housed within a waterproof aluminium casing. Allowing you to see and be seen, it can fire out a maximum of 1,400 lumens ahead of its user while providing up to 100 lumens at the rear. The light can work automatically, thanks to an intelligent mode that adapts to ambient light levels. Both ends can be used as daytime running lights, while each also benefits from a broad flood of light for illumination at night. The unit can be installed in multiple positions, fixed on top and below your handlebars, or mounted on your helmet. Also of interest will be the W03 smart brake taillight with laser light. This projects a powerful laser beam onto the road to highlight the rider. With an integrated braking function, it also



Gaciron V20-1500 Front



Meilan Cute-Eye

boasts an ambient light sensor and a clever magnetic mounting system.

The **Meilan [L1230]** Cute Eye is an intelligent taillight. Five years after its initial launch, this updated version is smarter, smaller, and with a greater range of features. The redesigned unit now includes remote-activated turn indicators, automatic brake detection, and a bright laser safety light. Its broad and slim profile sits neatly below the saddle for a slickly integrated appearance, while IPX6 waterproofing ensures it works in all weather. The light's functions can be operated via a compact and tactile Bluetooth BLE 4.0 remote, so it can be controlled from the handlebars. The light itself is visible at a distance of up to a kilometre and will alert any following traffic to your presence and intentions.

Component manufacturer **Büchel [M0203a]** has five new lights on show this year. We're most excited by



Büchel Edge detail



ReadyGo Lumis

the Optical 150, a headlamp that can be mounted almost anywhere. On the handlebar, in front of the stem, under the eBike display, or mounted on the fork? Its bracket can manage all these, while the light's mixed aluminium and plastic design is lightweight and stylish. The lamp itself can produce a sizable 150-lux and offers high and low beams that can be activated from the handlebars. It would be well paired with the firm's new Edge ST-E rear light. This innovative design claims to be the first sensor-controlled brake light with an emergency braking indicator to meet the new StVZO and ECE directives. Its Stoptech function has been created in collaboration with the Fraunhofer Institute in Dresden and does away with the need for a physical connection to the bike's brake lines. The light's obligatory Z-reflector is then integrated into a minimalist design that mounts to the luggage carrier.

ReadyGo's [Q0223a] Lumis system combines a bright rear light with a series of practical accessories. At the system's heart is a bright 140-lumen rear light that mounts solidly beneath the saddle rails. On to this can be attached accessories that include a dedicated tool storage box or rear fender. When used together, the system streamlines the mounting of these items and ensures their addition enhances visibility. Lightweight and aerodynamic, the system is particularly at home on racing bikes, where integration is a crucial concern. With multiple modes and a run time of up to eight hours, the light unit weighs just 28g.

Smart connectivity is a big selling point for the brand **Eesens [digital show only]**. Its shield system comprises a light for the back of the bike plus a sensor attached to the helmet. This sensor can detect gestures and activates a turn signal when you indicate that you're about to divert from your current course. The light also includes a motion sensor to provide brake light, fall detection, and theft alarm functions alongside its 70 lumens of illumination and 220-degree visibility. All these can be controlled via the firm's companion app, which can personalise settings and show the status of each device.

Finally, **Lezyne [L0517]** adds several new models to its well-known line-up. The Super HB E1000 unit sees it expanding further into the e-bike market. This powerful StVZO-certified e-bike headlight offers 600 or 1000-lumen modes that can be selected via a handlebar-mounted button. The



Eesens

system unit arrives with an integrated 130cm cable to connect it directly to the e-bike's power system. The lamp itself comes housed in a machined aluminium body with cooling fins while further thermal management is built into its programming. Moving to lights that can be mounted on the rider, the **Helmet Lite Drive 1000XL** offers up to 1,000 lumens of output and features similar aluminium construction and heat management properties. The light also uses a GoPro-style mounting interface and Velcro strap. Once in place, it provides excellent line-of-sight illumination, boosted by the firm's Maximum Optical Reflection lens. ■ JD



Lezyne HelmetLiteDrive1000X

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Intelligent Lighting Systems



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LITEMOVE'S HIGH-TECH E-BIKE LIGHTS ARE TURNING GREEN

Innovative bicycle light manufacturer Litemove is going green with its next-generation products. Established in 2019, the company uses its expertise in optics, electronics, and mechanical engineering to design award-winning bicycle headlights. Litemove received Taipei Cycle Gold d&i Awards in 2020 and 2021, as well as Innovation design awards in 2022 and German design award - excellent product in 2023.



The young company has prioritized green manufacturing from the beginning. "Green products come down to two things: reducing waste and maximizing resource efficiency," says Litemove's General Manager Ning-hsin Wei. "In pursuit of that we have shifted to toxic-free materials

and environmentally friendly production processes." For example, from this year power cables and switch control cables will be coated with TPU instead of PVC. TPU not only lacks PVC's toxicity, it is highly flexible and abrasion resistant. Best of all it is 100% recyclable. Packaging is also an

important part of the sustainability equation, and Litemove has used eco-friendly plastic-free packaging for its products from the beginning.

While product design upgrades always aim to improve on user experience and technical excellence, reduction of waste in production is a very high priority at the firm. To reduce the amount of material that cannot be recycled post-production, Litemove will produce high beam switches that have water resistant connectors. Changing to these adds to switch longevity, and they are easier to maintain. Both factors ultimately prolong the switch's life since they are more easily repaired than discarded. "That's a win for the environment, plus it reduces costs for the company," said Wei.

Wei points to the Circular Economy Action Plan, part of the European Union's Green Deal initiative, which aims to promote a

circular economy with longer product lifespans, and easier repairs and recycling. She says that "making sustainable products is in our DNA - our lights are not just high performance and easy to repair - we ensure a long lifespan by conducting reliability tests."

Litemove's factory is certified under the IAF-16949, ISO-14001, and ISO-9001 management systems. This assures increased productivity, reduction of unnecessary costs, and ensures the quality of processes and products. **Hall 1 N1225**



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PORTUGAL BIKE VALUE AT TAIPEI CYCLE

Portugal, Europe's largest bicycle producer, is once again present, with some of the best representatives of the Portuguese two-wheel and soft mobility industry, participating under the ABIMOTA FEST 2020 program, co-financed by COMPETE and Portugal 2020. Portugal Bike Value can give you the answers you need. Visit booth M301 and you will find production, assembly, testing, and even solutions to install your company in a unique cluster, which allows you easy access to markets, qualified labor and being present in an ecosystem conducive to the industry of two wheels and smooth mobility. Portugal Bike Value has a space, where together with ABIMOTA, the Portuguese association that represents the two-wheel sector, representatives of eleven Portuguese companies linked to the sector are present. The Portuguese cluster of two wheels and soft mobility, has six dozen

companies, which, due to their location, are always less than two hours from an international airport, an hour from a sea port and close to the Portuguese main road and rail axes.



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BICYCLING ALLIANCE FOR SUSTAINABILITY TAIWAN'S "GREEN A-TEAM" READIES FOR EU CARBON TAX

With the European Union set to introduce the world's first carbon border tax from 2026, Taiwan's bicycle industry is preparing to reduce its carbon footprint. Over 30 companies have taken a lead in this effort with the formation of the Bicycling Alliance for Sustainability (BAS).



BAS founding members

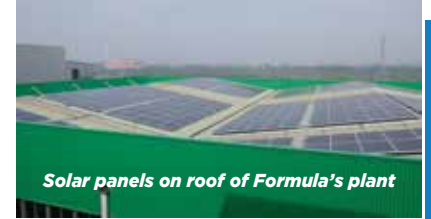
The planned carbon tax is part of a package of EU climate change policies aiming to reduce emissions by 55% by 2030 from 1990 levels. The levy is designed to prevent domestic industries from being undercut by cheaper goods made in countries with weaker environmental rules. First measures will be implemented as early as October 1st 2023 in a transitional phase. Thus producers and importers get some time to adapt to these new rules and procedures before the permanent system enters into force as per January 1st 2026. Companies who do not succeed in reducing emissions of greenhouse gases in their production risk losing

competitiveness under the EU's new rules. At the same time more and more investors are putting an increased emphasis on ESG (environment, social and governance) aspects when deciding where to move their money.

Taiwan's bicycle industry responded rapidly to these developments. In an effort to lower its carbon footprint, representatives from over 30 companies gathered at the beginning of June 2022 in Taichung to set up the "Bicycling Alliance for Sustainability". The goal of the Alliance is to create a coalition for the industry to interact, share ideas and develop new ESG initiatives to help the bicycle industry move toward

more sustainable production practices, making sure that not only the product is eco-friendly, but also the way it is being made on an industrial scale. A second BAS meeting was held in late October, hosted by the Giant Group in its new headquarters at the outskirts of Taichung as part of the company's 50th anniversary celebrations.

Apart from the founding members, the "Get Greater - Sustainable Future Summit" saw a high-profile attendance including John Burke of Trek Bikes, Scott Sports-CEO Beat Zaugg, Sram Asia's general manager Bob Chen and Shimano president Taizo Shimano. According to Young Liu, CEO of Giant Group, the BAS is inviting businesses in the supply chain to join the effort. Liu argued that if investments in carbon reduction create long-term profits, they should be regarded as a corporate investment and promoted proactively. The Bicycling Alliance for Sustainability is happy to welcome more manufacturers to join in its efforts to improve industrial production in terms of sustainability, to exchange experiences made along the way and



Solar panels on roof of Formula's plant



Velo recycles foam for its saddles

to set best practice examples.

One potential headache for manufacturers is the backlog regarding the official certification of reduced carbon footprints. This includes on-site audits and thus is slowing down the process. Taiwan's Cycling and Health Tech Industry R&D Center, known as CHC in short, is lending a helping hand and offering consultancy to make sure the process is as efficient as possible. ■ LVR

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OVERVIEW: SMART CYCLING PRODUCTS

GET CONNECTED WHEN YOU'RE RIDING

It's never been easier to keep an eye on your data when you're on the bike, and share it with your friends once you've finished your ride, and there's more choice for e-bike riders too

Bafang's DP C010.C/CB display can sync with its smartphone app



The Bafang GO+ app allows customisation of your bike setup

The newer displays from **Bafang [M0112]**, such as the DP C010.C/ CB (pictured) can also extend their functionality by connecting to your smartphone. The Bafang GO+ app offers a range of functions: the app can display your bike's location, and also notify you

if it is moved. The app gives access to a wide range of settings for Bafang motor systems, and you can share details of your riding with other users of the app.

Sigma [M1205] is demonstrating its ROX 11.1 EVO GPS computer which packs over 150 functions into a compact head unit. Navigation information and ride data can be read very easily on the 1.77-inch high-contrast colour display. The ROX 11.1 EVO is ANT+ and Bluetooth BLE compatible for connection to a wide range of sensors, and the unit comes shipped with Sigma's magnet-free speed and cadence sensors. The ROX 11.1 EVO will sync with the Sigma Ride app on your smartphone for on-screen notifications and ride uploading, and the unit also offers a Crash Alert



ROX 11.1 EVO gives you masses of functionality in a compact package



Lezyne's Mega XL GPS has best-in-class battery life

function that will notify your emergency contacts if you come off your bike.

The **Lezyne [L0517]** Mega XL GPS is well-known for its best-in class battery run time: the unit can record for up to 48 hours on one charge, so it's perfect for long-distance or multi-day rides. It uses GPS and GLONASS satellite triangulation for quicker and more accurate positioning. When paired with the Lezyne Ally V2 app, the device provides live turn-by-turn navigation and phone notifications (incoming calls, texts and message app notifications). It also provides offline navigation, and the data screens on the 2.7-inch 240x400 screen can be fully customised.

The new flagship GPS from **Bryton [K1121]** is the Rider S800. The large 3.4" display uses MIP (Memory



The Bryton Rider S800 screen is designed to be clear in bright sunlight

In Pixel) technology with an internal reflection layer which Bryton says gives a better outdoor viewing experience without any shadowing. The new display panel is also very efficient, meaning that battery life is much improved. Bryton says battery life is up to 36 hours, or up to 40 hours if screen and processor intensive mapping



The Climb Challenge screen on the Bryton Rider S800 gives details of upcoming climbs

TAYA

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BOOTH K0708

pages are not being displayed. The Rider S800 pairs with the Bryton Active app, and Bryton's Explore feature is perfect when riding in a new area: select how far you want to ride and then Bryton will generate up to three routes from your current location. For quickly searching addresses or points of interest when you're riding, the Rider S800 supports Google voice search to eliminate the need for fiddly on-screen keyboards.

The S800 also features Bryton's Climb Challenge feature which is designed to help you pace your efforts up any climbs on the ride. There's also a live tracking feature for sharing your real-time location with friends and family. By generating a sharing link on your phone you can send this through any messaging app, or links can automatically be emailed to your chosen contacts when you ride.

Visa difficulties prevented Hong Kong firm **Meilan** from visiting Taipei this year, where it had planned to exhibit its new E1 ebike display, a GPS-enabled ebike display that offers a range of functions similar to a standalone bike GPS. You can display a selection of over 60 data points on up to 11 different screens, and it can be paired with Bluetooth cycling sensors to extend its capability. As well as ride reporting the E1 display can also talk to the Meilan app on your smartphone to offer notifications and also navigation from your display. The app



The Meilan Cute Eye can signal turns from your ebike route navigation

can track your bike usage and store your historical riding data. Meilan also offers the Cute Eye, a smart rear light that's been in development for the past two years. The Cute Eye can be connected to the E1 ebike display, as well as Meilan's Finder GPS, for full functionality. As well as red LEDs the Cute Eye has a laser array for projecting a virtual bike lane behind the rider, and amber turn signals. The Cute Eye can be used with a bar-mounted Bluetooth remote, but when paired with the E1 display in navigation mode the Cute eye will signal left and right turns along the planned route. The unit is IPX6 waterproof and USB-C rechargeable, and can be mounted on the seatpost or the saddle rails. ■ **DA**



The Meilan E1 offers standalone GPS features in an ebike display

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For 2023, an Enduro E-MTB with a full-suspension aluminium frame is now presented as the ninth model platform with Brose GEN 2 drives and 720Wh battery. With 170 mm of travel at the rear, it is more downhill-

oriented and has useful details such as integrated cable routing and a stable 34.9 mm seat post.

Also new is the carbon full suspension SUV bike with Brose GEN 2 drives. A luggage rack was developed especially for this bike. An aluminium mudguard can also be integrated. Visit Messingschlagler at Taipei show in Hall 1 / Booth J0512

for more information. **J0512**



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OVERVIEW: MID-MOTOR DRIVES MORE TORQUE, RANGE AND EXTRA FUNCTIONS

The majority of mid- to top-end e-bikes and e-mountainbikes in particular are built around mid-motors. Since the maximum power output is limited by law, manufacturers try to set themselves apart by offering more range, more torque and additional functions.

Shimano EP6 Drive Unit



The number two mid-motor supplier behind Bosch eBike Systems, **Shimano [Hall 1, M0814]** launched the EP6 as a more affordable option of its second-generation assist drive system for the 2023 model year. Just like the EP8, it delivers a maximum torque of 85 Nm, but its housing is slightly less compact and it weighs 300 grams more. The biggest innovation however is not linked to the motor, but to the combination of its Steps assistant drive systems with the latest generation of electronic mountain bike drivetrains. Both the XT Di2 and the more affordable Cues Di2 drivetrains are built to work flawlessly with EP8 and EP6 drive units. Syncing the motor's action with the drivetrain promises smoother gear changes and less wear of the chain and cassette.

E-mountainbikes are in high demand in both Europe and in North America. These products are perfect to go for a fun-oriented ride after a long day on a physically demanding job or to enjoy multiple long descents when a destination has no shuttles. For most of the pandemic, demand exceeded what the industry could produce, causing extended lead times and shortages in the market. For this reason, the market remains attractive for additional manufacturers, but the costs to develop and market a mid-motor system should not be underestimated. Large corporations such as Continental and Rheinmetall lost patience and dropped out despite having promising products as they could not break into the OE market.

Bafang M510 system



Shimano EP8 complete system XT Di2



Bafang M410 system



technology allows for gear changes without the need to pedal. This technology only works with the new XT Di2 drivetrain and comes in handy in twisty technical sections where you can't see far enough ahead to always switch to a suitable gear in time. The second new function is called Auto Shift and works with both the XT Di2 and the Cues Di2 drivetrains. When using this mode, the software decides which gear is best based on data from the drive unit and various other sensors. This optimizes range and allows for the rider to fully focus on line choice and braking.

As China's leading manufacturer of electric assistance drive systems, **Bafang [Hall 1, M0112]** is showing two next-generation engines for the e-mountainbike segment at Taipei Cycle Show. The M510 is the successor to the proven M500 and boasts a maximum torque of 95 Nm – which is a lot. Since this support is being dished out up to a cadence of 120 rpm and the torque sensor is highly sensitive, you get a feel of properly dynamic support. Thanks to the new magnesium housing, Bafang has managed to shave 500 grams off the drive unit which weighs 2.9 kilograms – on a par with the latest offerings from Bosch eBike Systems and Shimano. And since the new drive unit also features a 12 V light module, it has become even easier to put decent lights on e-bikes with the M510 system.

As Bafang's second-tier system for e-mountainbikes, the M410 still delivers up to 80 Nm of torque – again up to a maximum cadence of 120 rpm. So you get the same kind of dynamic support and almost the same amount of torque. When compared to its M400 predecessor, the M410 has become a full 700 g lighter, weighing 3.2 kilograms. Thus this

drive unit is a good choice not only for e-mountainbikes, but also for e-trekking and e-cargo models. Both the M510 and the M410 drive units can be combined with batteries of various sizes and with a selection of displays and controllers, allowing product managers to find the ideal combination for the respective e-bike at hand.

Okawa Motor Technology [Hall 2, Q0327a], an ambitious manufacturer of electric assist drive systems from China enters the market with some fresh ideas. Okawa's very compact new A70 mid-motor comes at a claimed weight of 2.6 kilograms – which would make it one of the lightest mid-motor drive units out there. It does not skimp in terms of support however, cranking out up to 90 Nm of torque.

Powerful, quiet and offering flexibility in terms of mounting it to the frame: these are the strong points of the MM18 drive unit from **Neco Technology Industry [Hall 1,**



Okawa's light and powerful A70

J0632]. At 3.6 kilograms this is not the most light-weight mid motor, but it makes up for that with a maximum torque of 100 Nm. Sensors for speed, torque and cadence constantly feed data to the controller for the right amount of support.

With a storied background in motor sports, **Polini [Hall 1, M2022]** entered the e-bike business a few years ago and managed to find OE

Neco's MM18 offers 100Nm oof torque





Polini EP3+



Polini EP3+ MX for e-MTBs

customers such as Austrian cargo bike specialist Gleam Bikes during the pandemic. The E-P3+ is the lat-



Complete Karmina HD700 system fits into oversized downtubes



Karmina D700 motor drive unit

est generation of its mid-motor, ticking all the boxes to be competitive: at 2.95 kilograms, the motor is both light-weight and compact while allowing for the combination with quality cranks thanks to the splined axle. Based on the data of the cadence, torque and speed sensors the algorithm adds the exact right amount of support – up to 75 Nm with the normal version and up to 90 Nm with the MX version for e-mountainbikes. As for the battery, Polini offers the choice of intube models with 500 Wh or 880 Wh and an optional range expander with 250 Wh that fits into standard bottle cages.

KHGears [Hall 1, N0224] is a Chinese specialist in transmissions of all kinds and targets the market for e-bike assistance drive units with its new Karmina brand. The HD700 system fits into oversized downtubes and consists of a drive unit with a splined axle, a motor and a controller unit. Weighing in at 2.67 kilograms and delivering up to 70 Nm torque, this system can be combined with Karmina's own in-tube battery pack or with batteries of a third party.

Sadly Bosch eBike Systems, the undisputed market leader in quality mid-motor systems, is not exhibiting at Taipei Cycle Show. But the Performance Line CX Smart System, the latest top-of-the-line assistance drive system from the German manufacturer, will be on display at the booth of **KTM Bikes [Hall 1, L0828]. ■ LVR**

VLS

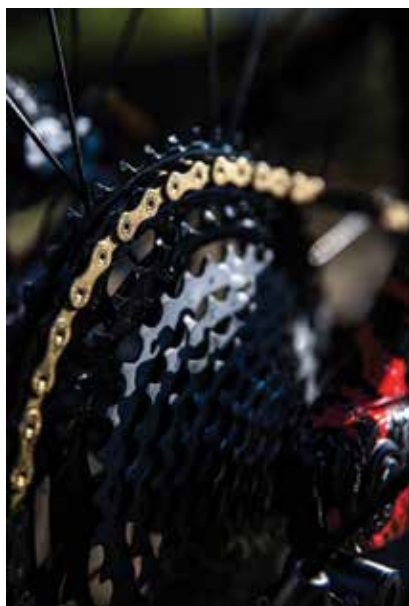
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OVERVIEW: CHAINS**UNsung HEROES OF THE DRIVETRAIN**

Without a chain, you're not going anywhere. One of the less glamorous drivetrain components, their usefulness isn't always reflected in their desirability. This is a shame because riders ask a lot of the assembled pins, plates and rollers that make up their chain. Now, as drivetrains sprout more sprockets and more bikes gain electrical assistance, we're asking them to take on an even more difficult job. Below you'll find out how some of the most innovative makers are keeping up.



Taya's radical chains use a rollerless design to reduce maintenance and increase load-bearing capacity

Taya [K0708] is based in Taiwan and makes a vast range of high-quality chains for various disciplines. Among its key innovations is its rollerless design, which does away with the traditional rollers found sandwiched at the end of each link.

Instead, the outer plate also includes a raised surface that occupies the space where the roller would previously have been. This drastically reduces the number of parts in each chain. Taya also claims this design simplifies maintenance and improves load-bearing capacity. It's a technology now employed across the firm's road and mountain bike-focused products. Another technology developed by Taya is its Diamond Hard Technology (DHT). This process supposedly increases the surface hardness of its chains by up to 125% for excellent wear resistance. Both technologies



Taya's TOLV chains were used by the BH racing team during their successful 2022 Enduro World Series campaign.

have been demonstrated at the highest levels by the firm's sponsored athletes. These include the BH racing team, who used the brand's TOLV chains during their successful 2022 Enduro World Series campaign.

Last summer **Shimano [M0814]** announced the launch of its mid-range 105 Di2 12-speed groupset. As the products made their way to market, 12-speed shifting moved from the preserve of a few to a more mainstream proposition. One upshot is that riders using any of Shimano's higher tier 12-speed groupsets now have a greater range of accessibly priced components to call on. With chains and cassettes being one of the most frequently replaced items, we can see Shimano's cheaper 105 12-speed products also proving popular with Ultegra and Dura-ace users. However, riders have actually had a more affordable 12-speed chain option for a while. Shimano has long combined chains for its road and MTB groupsets. This means that the preexisting CN-M7100 12-speed SLX chain now also serves the 12-speed version of the 105 groupset. With updated packaging and a slightly longer length, it's a move that makes it easier for shops to hold stock and should improve availability.



Shimano simplifies things by using the same chain for its 12-speed road and MTB groupsets

KMC [J0118]

brings several innovative ranges to the show. Key among them is its e-Bike Solution chains and chainrings. These combine the firm's Chain Mate system, whereby the roller seats between the chainring's teeth are perfectly matched to the chain rollers for exceptional engagement and efficiency. This improves retention while also reducing friction, even at extreme chain angles. Chains in this service also utilise the firm's Shield Tech e-pins, which use a larger surface area for a bigger and stronger rivet resulting in an industry-leading pin power of over 450kgf. The new eGlide is KMC's latest chain and combines technology from both X-Series and e-Series chains. eGlide chains are hardened through heat treatment and feature an internal double X-Bridge between chain plates to provide excellent durability and smooth shifting performance. They also promise market-leading tensile and torsional strength and are compatible with Shimano's Linkglide (LG) system. KMC has also upgraded



KMC's Chain Mate system synchronises the chainring's teeth to perfectly match the chain's rollers for exceptional engagement and efficiency.



The new eGlide chains combine technology from KMC's X-Series and e-Series models.

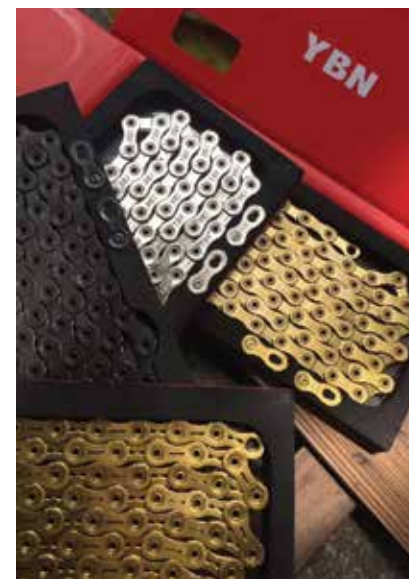


The X12 gets expanded spacing, updated pin power, and unique Ti-N Gold or Jet Black treatments

its popular X12 chain. Its Double X internal bridge design expands spacing between chain plates, providing smoother chain-teeth interaction and better-shifting performance despite the increased demands of working alongside a 12-speed cassette. Further suiting it to such uses is an updated pin power of 400kgf. Finishing and aesthetics have also been addressed via unique Ti-N (Gold) and Jet Black treatments that boost performance while adding visual interest.

Dedicated maker **YBN [K0602]** produces a full range of chains and includes several innovative products in its catalogue. Perhaps the most notable are its titanium chains which it claims are the world's lightest. With a weight supposedly 30% less than comparable steel models, the chains are also processed with a Ni-PTFE Teflon coating and the firm's SLA Superior Lubricating Aid. They also

A rare titanium chain from YBN that promises supreme lightness and an extended lifespan.



YBN has updated its e-bike chain to deal with the most powerful mid-motors

benefit from a chromium carbide treatment for increased hardness and service life. YBN claims the resulting chains should have a lifespan in the range of 6,000-8,000km, about twice as long as you'd expect of a conventional chain. Another new addition to the firm's offering is its e-bike-specific chain. This has been made to deal with the increased strain created by powerful mid-drive motors.

Not a chain maker itself, **CeramicSpeed [Q0828]** nevertheless offers a range of products and services for cutting resistance from your drivetrain. Along with oversized pulleys, bearings and lubricants, it's perhaps best known for its UFO chains. This



A low-friction coating is visible on one of CeramicSpeed's specially treated chains.


sees the firm take high-end chains from makers like Shimano, Sram, and KMC before stripping them of their standard lubrication and replacing it with CeramicSpeed's own UFO coating. This takes place by hand at the firm's facility in Denmark. Each chain arrives with a small sample of the firm's Drip lubricant, which you should consider applying after around 650km. Although the firm is tight-lipped about what goes into both its lubricants and coatings, it claims a treated chain can save 2-5 watts that would normally be lost to drivetrain resistance. Offering products for both road and track applications, all are best saved for dry days. ■ **JD**

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TAIWAN EXPORT STATISTICS

GROWING PAINS MEET SLUMP IN DEMAND

For Taiwan’s export-oriented bicycle industry 2022 was a year of extremes. At first all signs seemed set for new growth records. But inflation and a drastic drop in consumer sentiment in key markets threw a spanner in the works, and business was sluggish for many Taiwan-based manufacturers in the second half of the year. All the same, the numbers look pretty good.



Goods pile up due to order cancellations and slumping demand

There’s no doubt that the Covid pandemic has put some great strain on societies and health systems in various countries. But at the same time the market for bicycles, parts and accessories saw a strong boost throughout the pandemic. In key markets such as the European Union and the United States, people swapped workouts in gyms for training rides, trips on public transport for bike rides and holidays abroad for stays at domestic destinations, exploring their own backyard on foot or by bike. The result was a high demand for bicycles that provoked persistent bottlenecks in merchandise and pushed the bicycle industry to the very limits of its production capacity and beyond. To counter the bottlenecks, bicycle dealers and distributors further increased their orders, resulting in a

bow wave of backorders and lead times that multiplied.

Factories in Taiwan were running at more than full capacity to keep the situation under control and customers happy. In 2020, the exports of Taiwan’s bicycle industry grew by 18 percent in volume and 14 percent in value, and this was just the beginning of a wild but short-lived boom. In 2021, the exports of conventional bicycles grew by 17 percent in units and by 19.7 percent in value while the exports of e-bikes grew by a staggering 30 percent in units and 33 percent in value. Parts and components fared even better with a plus of 44.15 percent in tonnage and 58.2 percent in value. The supercharged growth of Taiwan’s exports continued well into 2022, with overall exports growing by another 28

percent from January to April. Again parts and components showed the strongest growth at 42.7 percent, with conventional bicycles posting year-on-year growth of 20 percent and e-bike exports growing by 12.8 percent.

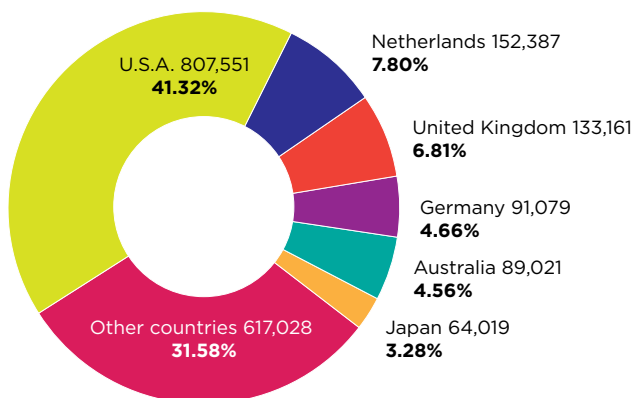
Just when the pandemic seemed to ease off and people were looking forward to return to a new normal, Russia’s attack on Ukraine sent prices for energy and many raw materials soaring. The resulting inflation tanked consumer sentiment in key markets, and as a consequence inventory levels quickly grew to worrying levels at bicycle dealers and distributors. This provoked a cascade of cancellations: a seven-digit number of bicycles disappeared from order books, cutting into the business of many suppliers and bicycle manufacturers in Taiwan and

causing issues with storage capacity and cash flow. When the Taipei Show Daily visited manufacturers in Taiwan in November 2022, the mood was decidedly somber – due to external factors the gold rush seemed to be over. And roughly a quarter of expected business had disappeared at short notice.

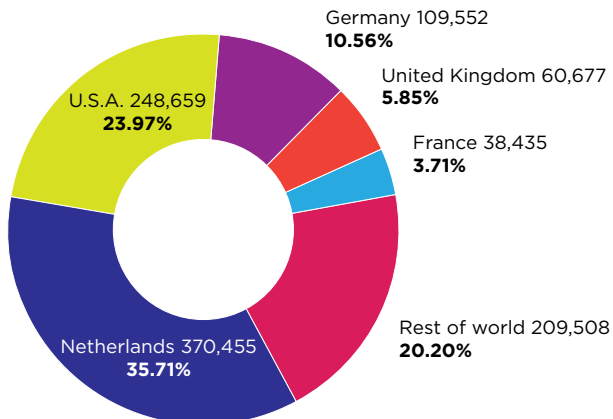
So how did the situation look at the end of the year 2022? The Taiwan Bicycle Association (TBA) provided provisional export numbers, and these do not look all that bad seen the recent doomsday reporting in many publications. Keep in mind that these numbers for 2022 are being compared to a very strong year 2021 that had lifted Taiwan’s bicycle industry to new record levels. At the end of the year 2022 Taiwan had exported more than one million e-bikes for the first time ever. The export counter stopped at 1,037,286 units, resulting in a growth of 5.1 percent. Since the average value of exported e-bikes grew by 12.5 percent to US\$ 1497.5, the overall value of these exports stood at US\$ 1.553 billion, a growth of 15.9 percent. The most important markets for these exports were the Netherlands, the United States and Germany, accounting for more than two thirds of Taiwan’s total e-bike exports.

As for conventional bicycles, Taiwan’s exports in 2022 came to a total of 1,954,246 units, marking a 2 percent drop year-on-year. But the value of these exports still grew by 20.6 percent to US\$ 1.617 billion. This increase most likely can be credited to Taiwan’s focus on mid- to high-end

Conventional bike exports 2022 (units)



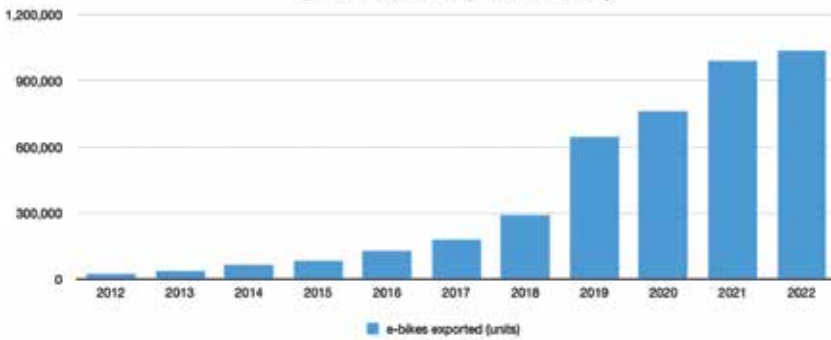
E-bike exports 2022 (units)



Total 1,037,286
Source: BOFT Information Center/ Taiwan Bicycle Association

Source: BOFT Information Center/ Taiwan Bicycle Association

Taiwan's exports of e-bikes (units)
(Source: Taiwan Bicycle Association)



models that were less affected by the slump in consumer sentiment than entry level and low-end models. The fact that the average price of Taiwan's exported conventional bicycles grew by 25 percent to a new all-time high of US\$ 827.73 year-on-year supports this explanation. For conventional bicycles the United States is Taiwan's most important market by far, accounting for over 40 percent of exports. The Netherlands, the United Kingdom and Australia account for less than 10 percent each. Made in Taiwan folding bikes did very well as the exports grew by 5.4 percent year-on-year to 15,161 units and by 36 percent in value to US\$ 10.375 million. The key markets for these bicycles were South Korea, China and Japan.

A serious portion of Taiwan's bicycle-related exports are not complete bikes but components and parts, ranging from frames and forks to wheels, products covering various contact points and spare parts. This category showed little sign of weakening in 2022: while the exported tonnage

only grew by 4.06 percent, the value of these exports jumped by 26.43 percent to US\$ 3.013 billion. This amount almost equals the combined exports value of e-bikes and conventional bicycles. While wheel-related parts, derailleurs and brakes saw significant growth, the export of electronics, saddles, pedals and inner tubes all suffered set-backs of various degrees in terms of units exported, but not necessarily in the resulting value of the exports.

For 2023, Shimano is forecasting a drop of 23 percent for its bicycle components business. This reflects the ongoing slump in consumer demand, the insecurity caused by the war in Ukraine and the sluggish business due to order cancellations. At the same time the pipeline is full with inventory that covers demand for an entire year. It will be interesting to see how Taiwan's bicycle industry copes with this challenge in 2023. As a silver lining the current situation lends itself to training new staff – if they can be recruited – and to optimize the set-up and the procedures within existing factories. ■ LVR



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OVERVIEW: GREEN PRODUCTS & SUSTAINABILITY

ECO-INITIATIVES IN THE BIKE INDUSTRY

Bicycles have always been an environmentally-friendly mode of transportation. However, as the focus on sustainability has grown, the industry has started shifting its attention to more sustainable production of bicycles and their components. This shift reflects a growing awareness that the environmental impact of a product is not just limited to its usage but also includes the entire lifecycle of the product, from manufacturing to disposal. As a result, many bicycle companies are adopting sustainable practices throughout their supply chain, such as using recycled materials, minimizing waste, and reducing carbon emissions during production and transportation. This emphasis on sustainable production is not only beneficial for the environment, but it also resonates with consumers who are looking for products that align with their values and have a minimal impact on the planet.



BAS members meet monthly to share best sustainability practices

Giant Group [4F, M0820] initiated the formation of the Bicycling Alliance for Sustainability (BAS) in Taiwan last year, with an initial invite extended to 33 industry leaders. The coalition was established with a focus on reducing carbon emissions and promoting sustainable production practices. Currently, BAS boasts a membership of around 65 companies and is organized into three distinct teams - the Environmental team, the Social team, and the Governance team - with each member company allocating 1-2 individuals to each team. Through regular monthly meetings, the alliance offers an invaluable platform for industry leaders to exchange ideas and formulate novel ESG (environmental, social, and governance) initiatives, thus advancing the sustainability agenda.

In October 2021, Giant Group embarked on an arduous task, given the Group's size, of taking inventory of their greenhouse gas emissions. The process, which spanned seven months, had the primary objective of achieving at least 70% coverage of their global operations, facilitating detailed analysis of the gathered data. They have since looked at improving data quality by employing new calculation methods that are recognized by ISO certifications.

They are actively exploring ways to reduce their carbon footprint, not only by utilizing recycled raw materials or

solar energy for their facilities, but also by advocating for alternative modes of transportation such as bicycles. One such initiative is their YouBike program, which has been found to lower CO₂ emissions by 65g per kilometer compared to scooters or taxis for the last mile of commuting. Another novel venture in this direction is their recently-opened museum in Taichung, dedicated to promoting cycling culture and awareness.

Since 2012, when it received the first carbon footprint certification for a chain manufacturer, **KMC [1F, J0118]** continues to maintain its focus on eco-friendly commitments and dedication to recyclable package designs, low-carbon technical development, and integrated supply chain management to name a few. From raw materials supply chain to global products delivery, carbon emission from every step is calculated to make sure that the green cycle standard is achieved. KMC is applauded for not only providing quality products, but also enabling a more eco-friendly product lifespan. As such, KMC's 11 speed lightweight chain - X11SL - has been awarded with a carbon footprint certification.

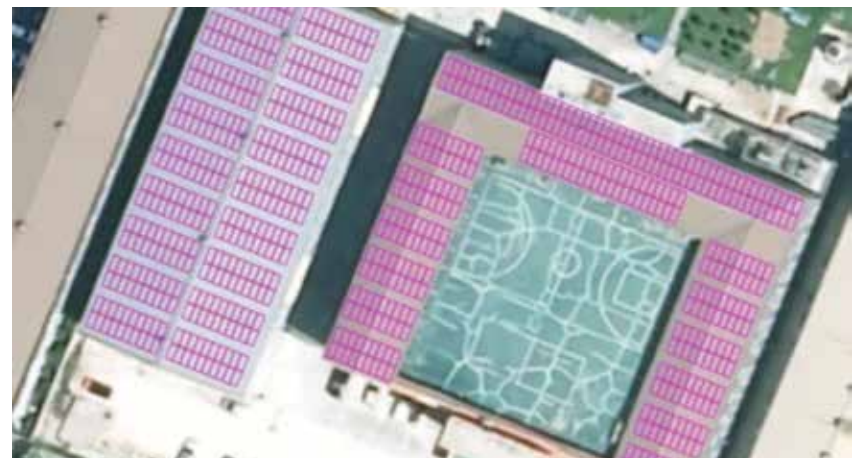
Over the next decade, KMC will be dedicated to reducing its carbon footprint by at least 3% every year by introducing a digital carbon management platform allowing them to check the carbon footprint of every single product. On a side note, this year's booth at the event is also constructed using reusable materials.

GW Manufacturing [4F, N1218], headquartered in Taichung, Taiwan, boasts years of experience in designing and manufacturing quality products, including hubs, thru axles, headsets, and chain guides, among others.

To further their sustainability objectives, starting this year, they have incorporated the 3R concepts - reduce,



KMC's 11 speed lightweight chain has been awarded with a carbon footprint certification.



Tannus facility has a 349.2kW solar panel installation

reuse, and recycle - into their R&D and production processes, with a focus on utilizing recycled raw materials in all their aluminum products. To bolster their environmental commitments further, they have established a dedicated Carbon Management Team, aiming to secure multiple ISO certifications by the end of the year.

As a member of BAS and a publicly-traded company since 2014, **JoyTech [1F, I0922]** boasts 52 years of experience and specializes in manufacturing bicycle hubs and rims from a variety of materials, including alloy, steel, and carbon. They are committed to sustainability and have taken several measures to reduce their environmental impact, such as using recycled paper mesh as packing material. Furthermore, they have obtained the ISO 14001 certification, which relates to environmental management.

Founded in 2003, **Tannus International [4F, L0718]** is a South Korean based company that specializes in producing innovative puncture-resistant solid tires. The company has demonstrated a commitment to sustainability through a multi-faceted approach. Firstly, their products



GW Manufacturing aims to secure multiple ISO certifications by the end of the year.

incorporate a minimum of 10% recycled material and are produced using Super Critical Fluid (SCF) foaming technology which minimizes water and energy usage, and allows for 100% recyclability.

Furthermore, they have installed an impressive 349.2kW solar panel installation on their facility's roof, and closely monitors their carbon footprint by measuring CO₂ emissions across five stages: Material, Process, Transit, Use, and Disposal. This holistic approach towards sustainability underscores the company's dedication to reducing their environmental impact. ■ **MW**



Member of the BAS, Novatec uses recycled paper mesh to protect their hubs during shipping.

New Ratchet System Hub

Proven durability, Low MOQ

- Fatigue test 190Nm impact 200,000 cycles, 100rpm
- MOQ: 100 sets for KT Open Model
- MOQ: 300 sets for customized hub shell



**Single speed
now
available**



- Available for Road and MTB

Options: • 36T standard or 54T advanced engagement



36T



54T



kttw-hub.com

KT Taiwan has independently perfected the technology to come up with our own MIT ratchet system hub. The process is highly technical and extremely difficult to get right. We have done it and are now looking to ramp up production in the face of strong demand. Get in touch with us now for a discussion on how we can help you. **Booth I0218**

OVERVIEW: BAGS AND PANNIERS**BAGS OF OPTIONS TO CHOOSE FROM**

The range of luggage and carrying options for transporting stuff on your bike is as wide as it is varied. From simple backpacks that work just as well when commuting on foot to hyper-specialised bikepacking bags for making sure you can eat while racing, here's a run-down of what's new this year at Taipei.



Dog-carrying pannier for the Brompton by Bee Sports/Trigo



Bee Sports/Trigo backpack lets you carry a Brompton on your back

be deployed easily yet zip into place for effortless transportation of the bike. The bag is made from water-resistant 600D polyester fabric, and there's also an additional rain cover for really wet days. The attachment should be solid, and the release straightforward thanks to a KlickFix UniKlip adapter that mounts to the bicycle carrier.

Bee Sports Co [M1208]

predominantly makes products for the ever-popular Brompton folding bike. It's exhibiting several new products at the show. The most exciting is a very smart backpack for packing a Brompton bike. Capable of containing and carrying the folded bike for transport, its straps even let you carry the bike on your back if needed. However, once the bike is reconstructed, the pack can fold down to the size of a conventional backpack. Perfect for travelling with your Brompton by air, it'll appeal to jet-setting users. Of more niche interest but likely to be indispensable to a small number of riders is the firm's dog-carrying pannier for the Brompton bike. Providing your puppy with a pleasant place to stay, it fits Brompton's super-secure front mounting block and lets your dog travel ahead of you so you can keep an eye on it.

Ride for More's [L0305]

Agile Multipurpose bike bag is ideal for urban commuting. It attaches easily to the bike's handlebar or rear rack via Ride for More's proprietary mounting system. This lace-type fixing mechanism consists of a Fidlock Winch magnetic lock that uses the strongest Dyneema cord sleeved with abrasion-resistant S-Hypalon material to attach the bag to the bicycle securely. Once detached, this stylish carryall converts to a shoulder bag for easy once you're off the bike. The bag's main flap is also secured with a Fidlock magnetic snap lock as easy and quick closure. With exterior zippered pockets for easy access, further secure stash spaces for holding small items and cycling essentials are located inside.

Moving onto bags that attach to the bike and not the rider, we find the trend for bikepacking is continuing to drive the creation of new designs. Ride for More has jumped aboard with a new range of bikepacking bags.



Infinity Universal luggage rack system by SKS



Keeper Bike Box by Vincita: ideal for transporting compact folding bikes



Vincita Big Nash

From bags that attach to your bike to bags for transporting it. **Vincita's [M1202]** Keeper Bike Box is ideal for transporting a Brompton or other compact folding bike. Boosting



Ride for More Agile Multipurpose bike bag

the convenience of these already functional machines by allowing you to travel without fear, they're suitable for protecting your bike from damage or stopping it from making other items dirty. The bag comes in two sizes for 16 and 20-inch wheel bikes and features a belt lock and strap to keep the cycle from moving around while in transit. With a built-in handle for easy manoeuvring, the bag's easy-access front cover can be opened and closed with a simple zipper. Like the bikes they're designed to contain, the bags fold flat to occupy a minimum of space when not in use. Another product for folding bikes from Vincita is the Big Nash rack bag. Folding bikes sit much lower than regular bikes. As a result, many panniers won't fit with them. However, rack bags offer limited space. The Big Nash combines the two styles to provide 20 litres of storage. Its fold-down sides can



Ride for More's Airship Tootube Bag

The Infinity Universal luggage rack system by **SKS [L1032]** can be attached to sporty bicycles such as mountain or road bikes. Each can be fitted rapidly and removed just as quickly. The system is the first time SKS has offered a lightweight aluminium luggage rack. Its adjustable mechanism allows the rack to be adapted to any geometry. Once in place, the tilt and height of the mounting system can be adjusted individually. This ensures any bags sit at just the right position. Equipped with a MIK adapter, this click-to-attach system makes it incredibly easy to secure your packs. A perfect partner for the system is the SKS Infinity Universal bag which transports up to 12kg of luggage. Cleverly, the system still allows the use of a rear light and mudguard if desired.



Woho Saddle Bag Dry S



Bikepacking UL Pannier Dry

newly updated model showcases the firm's design techniques and sports a durable and waterproof construction. Allowing you to tailor its volume between five and seven litres, it uses a three-point attachment system and roll-top closure. Interestingly for a firm focused on bikepacking, Woho has also moved into the production of more traditional pannier bags. Its 19-litre Bikepacking UL Pannier Dry models take the lightweight ethos of bikepacking and apply it to a pannier designed for situations where you need to carry a little extra. These rack-mounted bags can be used at the front or back of the bike and are totally waterproof.

Its Airship top tube bag sports an aerodynamic shape to reduce wind drag. It offers a minimalist roll-top closure and zipperless design that's easy to operate while on the fly yet still provides excellent security. The bag's large compartment is designed to safely hold all your cycling essentials, while its interior divider helps you tailor their stowage. The bag is made from ripstop nylon and is attached using durable sewn hook and loop straps with anti-slip bands at the bottom and front to maximise stability. The closure then relies on a Fidlock magnetic lock and bungee cords. Inside, the interior is bright green to help users locate their items more quickly. Finally, additional daisy chains allow you to lash other items on as needed.



LezyneEnergy Caddy XL

Hong Kong's Simple Product [M1208]

makes many lovely-looking bags. Its new models employ subtle colours and retro styling while using Cordura's famously durable and weather-resistant fabric. The 26-litre Cube2 is ideal

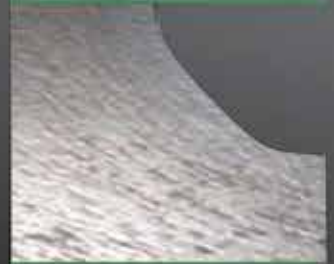
for daily use. It features a structured shape that keeps it upright and a lid-like opening that makes it easier to access your stuff while helping prevent people from stealing items while the bag is on your back. Inside, there's a compartment made for storing laptops up to 15 inches, while on the outside, there's a side zipper pocket for small objects or a water bottle. If you're heading further afield, the firm's larger Zizou bag offers 35 litres of stowage. With on-trend retro styling, it provides a vast selection of different pockets. Its separate bottom section sits below the sizable main compartment. It's ideal for transporting shoes and will keep the stink out of the rest of the bag. There are also two front pockets for storing water bottles or other mid-sized items. Inside the main compartment are two hidden zipped pockets, while access can be gained either from the top or via a zipper on the side of the bag. ■ JD

Simple Cube



Simple's 35-litre Zizou

A SINGULAR FOCUS



Compare a welded steerer tube joint with our one-piece design. Welding presents risk in the quality of the joint while our is safer, stronger and more beautiful.



3D TECHNOLOGY

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BOOTH J1018

CARGO BIKE PAVILION AT TAIPEI CYCLE 2023

COMPONENTS THAT HANDLE HEAVY LOADS

While the absolute numbers may still be relatively small, the cargo bike market has been growing dramatically in recent years. Taiwan's bicycle industry certainly does not want to miss out on this trend, and suppliers are exhibiting cargo-specific parts and components at this year's Taipei Cycle Show at a dedicated Cargo bike pavilion in Hall 2 (1F, Q1123).



The cargo bike segment has grown remarkably over the past few years

To limit climate change, many city councils and countries in Europe and parts of North America are pushing for a higher modal share of cycling in traffic. Cargo bikes play a key role in getting families aboard – transporting children, groceries or bulky goods like bags of potting compost or parcels. From the Netherlands and Denmark where they have been in use for decades, cargo bikes have now expanded to other European countries and even to urban centers in the

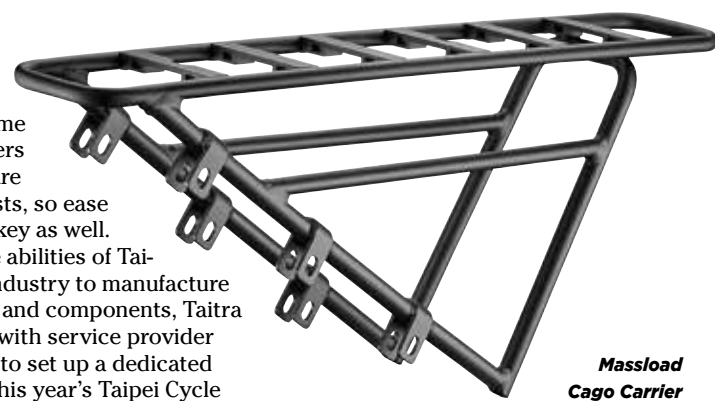
United States. The category has become more diverse as well, stretching from compact models like Tern's HSD and GSD to heavy XXL models with three or four wheels designed for commercial use –

from urban logistics to food trucks. The dynamic growth of the cargo bike category has accelerated the business of established specialists such as Urban Arrow or Riese & Müller and attracted additional players such as Cube or Kettler. Trek is the latest addition, launching two cargo bikes under the Fetch+ model line this spring. BMW has dabbled in the segment, teaming up with bike brand Cube, Volkswagen has given it a try and Toyota is about to start selling cargo bikes of French manufacturer Douze Cycles at 300 of its sales points all over France. At the heavier end of the spectrum, Renault Trucks has announced a cooperation with French compatriots Kleuster to start the production of large cargo trikes in one of its truck factories.

For the bicycle industry, cargo bikes are an opportunity and a challenge alike. While the growing market promises extra business, the higher weights put more stress on parts and components. So these need to

be redesigned to withstand the forces at hand. At the same time many buyers of cargo bikes are no skilled cyclists, so ease of operation is key as well. Showcasing the abilities of Taiwan's bicycle industry to manufacture matching parts and components, Taitra has teamed up with service provider Bicycle Cluster to set up a dedicated Cargo Zone at this year's Taipei Cycle Show, with products ranging from powerful disc brakes with a parking function to kickstands with a wide base, along with sturdy carriers, reinforced suspension forks, tires and chains.

This cargo zone offers an opportunity for product managers to check out a wide variety of made-in-Taiwan parts and components to complete their cargo bikes, all in one spot. **Tektro-TRP** was early to the game with hydraulic disc brakes specifically designed for beefier rotors with a thickness of 2.3 mm



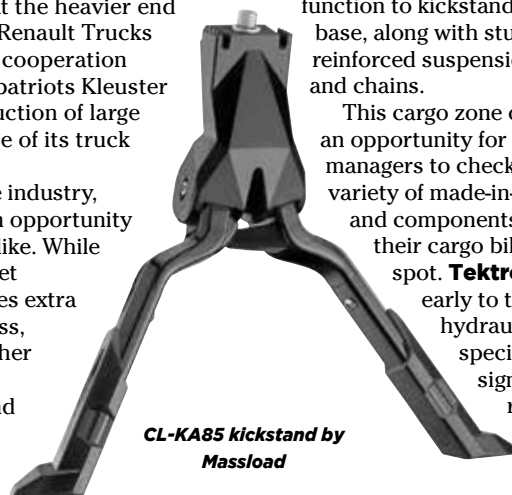
Massload Cargo Carrier

rather than the ordinary 2 mm. In the Cargo Pavilion, the highlight is the Auriga Twin+. This hydraulic disc brake comes with either two- or four-piston calipers and resin pads for reliable braking – and for big cargo trikes, you can get set-ups with a matching number of calipers as well. To keep the cargo bike in its place, a parking function (or parking brake) has been built into the design. It is controlled by two switches on the long brake levers.

An often overlooked but crucial part for handling and loading cargo bikes is a solid kick stand. On display at the Cargo Pavilion, the CL-KA85 kickstand of **Massload** is built from stainless alloy to safely carry a load of up to 60 kilograms – so you can



Tektro's Auriga Twin+ hydraulic disc brake



CL-KA85 kickstand by Massload

NEW PRODUCTS



V-GRIP (CHEN WHUA INTERNATIONAL) WAVE SPORT BOTTLE

This 750ml bottle features the two-mode "SprayMe" system, offering a high flow stream or cooling shower spray. Safe mode switching using pull action or by mouth. All parts are removable for easy cleaning and are dishwasher-safe and recyclable with BPA/FDA/rohs approval. **I1318**

HAFNY HF-1550 COMPOSITE PEDALS

What do you get when you combine high quality smooth bearings, a wide and light-weight composite platform, and nine adjustable anti-slip pins? With these pedals on your bike, you'll

feel locked into place whether you're commuting home on a rainy day or racing through the trees on a bumpy trail. **L0405**



HYENA E-BIKE SYSTEMS E-ROAD AIR DRIVE SYSTEM UNIT

Hyena has released their lightest drive system yet: the E-Road AIR. Weighing just 3.2kg, this system provides 30Nm torque to the rear hub axle and has a 250Wh battery that can be extended with an additional 180Wh range extender. It comes with a frame-embedded LED display and a two-button remote control, allowing riders to switch the assist level without removing their hands from the handlebar or brake lever. **N0616**



VELO ENTERPRISE CO., LTD. ANGEL REVO

Angel Revo (VL-1B96) includes Velo's patented pressure relief Y-Cutout. The saddle features the longest cutout of previous models providing enhance comfort for long rides. Atmos Shaping technology is also used which combines the saddle cover and the base without visible seam, making it 100% waterproof.

Velo's new AtmosFoam, a nitrogen-infused foam designed to enhance performance and durability

while minimizing the production process's environmental impact. AtmosFoam is lightweight and provides incredible support for the rider's sit bones, improving comfort and performance.

The Angel Revo also introduces Velo's new proprietary EuphoroBase shell, a non-petroleum-based hybrid bioplastic using plant-based materials and glass fiber. The new Omni saddle cover utilizes recycled knitted fabric instead of microfiber substrates. **J0717**



TAYA CHAIN E-BIKE CHAIN SERIES

TAYA's e-bike chain series is the preferred choice of pro cycling teams and riders who demand high performance from their equipment. These chains are designed to withstand the high torque of mid-drive systems, making them ideal for e-MTB. TAYA's exclusive DHT technology enhances chain surface hardness, increasing durability and longevity. Trust TAYA's e-bike chain series to deliver unparalleled performance and reliability. **K0708**



KMC eCargo chain

built with strength and durability as top priorities. Thanks to reinforced plates and premium pins, it boasts a tensile strength 50 percent higher than the industry standard. With **Lixing**, a second chain manufacturer shows its PYC eNova chains. Specifically reinforced for the use with mid-motors, these chains are available for 8 through to 12 gear drivetrains.

One key factor for any bicycle's handling are its tires as the contact surface to the ground. Due to loads of 250 kilograms or more, cargo bikes require special products. Meeting the criteria of the ECER75 certification for e-bikes and speed pedelecs, the Metroloads models of **Maxxis Tires** come with a four-season compound. For commercial use, its Pro version is built to last for up to 10,000 kilometers. Another tire manufacturer to launch a new tire series for cargo bikes at this year's show is **GMD**: its G912 tire is available for 20, 24 and 28 inch wheels and

RST Beast suspension is cargo-bike specific features reinforced sidewalls to safely carry loads of up to 180 kilograms. The tire tread has been designed to perform well on different surfaces and offer smooth cornering.

With its Beast series, **RST Suspension** aims at the cargo bike market: built around disc brakes and thru-axles, these forks are available for 20 or 24 inch wheels and with stanchion diameters of up to 36 mm for plenty of stiffness. The optional mount for Bosch eBike Systems' second-generation ABS module shows that RST is ready for the latest developments. Of course, cargo bikes also need electric drive systems that pack plenty of torque. In the Cargo Zone, the E-Utility drive system unit of **Hyena Tek** is being highlighted: its rear hub motor dishes out 750 Watt and 70 Nm torque – a whole lot for a hub motor. Built to fit cassettes with 8 to 10 speeds, this system runs on 48 V for fast charging. Thanks to a battery capacity of 810 Wh, you get a more than decent range as well. **LVR**



E-utility drive unit by Hyena

put a child into its seat and secure it with a harness with no worries. When folded up, a mechanism reduces the width of the stand so it does not get in the way when pedaling. Also made of alloy but made for slightly easier loads of up to 35 kilograms, **Nuvo's** Double Leg Kickstand is a viable alternative that fits a wide variety of bicycle frames and even wheel sizes thanks to its adjustability. For easy loading and unloading its rubber feet prevent slipping and keep the cargo bike safely in place.

Catering to all those compact longtail cargo bikes, **Massload** presents a fitting alloy carrier long enough

to mount two child safety seats. Since the Cago Carrier is compatible with the MIK HD system, you can easily mount various baskets and bags as well for even more flexibility. Another item subjected to significantly higher loads on cargo bikes is the chain. **KMC** is showcasing its eCargo chain that has been



Maxxis Metroloads tire



GMD's G912 cargo bike tire



NEW PRODUCTS

A-PRO TECH E-CARGO EG4A-B11

Urban commuting is transforming from individual cycling to cargo transport. Whether you need to simply get from point A to point B, or to transfer large loads to desired places, e-cargo is the bicycle line that can satisfy your need.

Imagine a bike with multiple combinations that enable custom-

ization based on your daily needs. Be it a weekday work where you need to move packages to places, or just a casual ride with the kids and family at a park, you can equip the bike the way you like it and be on your way!

If you are the type of traveler that goes far, we've also got that covered. A Dual battery option from Bosch is also possible to give you extra performance and range.

I1117



CROPS SCENES™ SC100R

This auto rear light with new "A-LINK" function features 35 LEDs and 8 selectable lighting modes. The A-LINK function allows the light can be used while charging, so it can also be used continuously by connecting a mobile battery in a saddlebag. The light is designed for ease of use, with multi-functional yet intuitive operation and a design that matches any bicycle.

The clip and hard bracket design allows the light to be mounted in a variety of locations besides the seat post. The flat body reduces light shaking caused by vibration.

L0924

KMC E-BIKE CHAIN

KMC's e-bike chain uses Shield Tech e-pin and e-rievting technology and upgraded market-leading pin power allowing it to overcome the high torque and torsion caused by mid motors. A special chainring tooth profile design perfectly matches chain rollers to efficiently reduce friction and drag. Durable and highly efficient with a better life span for long distance riding.

J0118



NECO TECHNOLOGY INDUSTRY CO., LTD/ MID-DRIVE MOTOR MM18

This motor constantly samples data at a frequency of up to 80KHz via a torque sensor and two speed sensors. The resulting information on crank torque, vehicle speed and pedal rotation is made available to the controller, ensuring precise control while

achieving maximum efficiency. In spite of the generous power output and maximum torque of over 100Nm, the motor operates in virtual silence. The modular motor design and integrated controller make disassembly easy.

J0632



LITEMOVE AEW-230 E-BIKE HEADLIGHT

Building on the success of its optical MTi Technology, Litemove launches its new AEW-230 dual options (high and low beam) headlight with 230 lux/ 950 lumens output. With a 10m wide beam and up to 300m distance of visibility ahead, AEW-230 is designed especially for e-MTB riders.

The Litemove AEW-230 received the "German Design Award 2023" and the World of MTB's "Best of 2022". The light has multiple mounting options (e.g. handlebar, stem, fork) in one housing. The L type control switch allows mounting on either the right or left side and makes for a clean cockpit installation. Designed for for 25km e-bike / EPAC, the headlight is compliant with StVZO K-Mark & EN-15194-CE, ROHS, and REACH. info@lite-move.com

N1225



BAFANG 3-SPEED AUTOMATIC GEAR HUB

A new era of automatic riding experience. Weighing only 1.7kg, Bafang's 3-speed automatic gear hub has precise shift points (25km/h or 32km/h) and there is no need for an additional shifter and shift cable. It is particularly suitable for e-trekking, e-city and e-cargo. Less distraction with more riding comfort and safety – just enjoy the ride!

M0112



MEILAN CUTE EYE

Cute Eye is Meilan's second-generation smart tail light: smarter, smaller, stronger and sharper than the original. Smarter with Bluetooth IC for a better connection. Smaller — more than 20mm narrower than the original. A 90 Lumens brighter beam for extra safety. A IPX6 waterproof, TYPE C charging port is stronger than the first generation Cute Eye.

meilancycling.com



KT TAIWAN RATCHET SYSTEM HUB

The rings of KT Taiwan's ratchet system precisely engage for instant acceleration and are extremely durable. Cyclists can choose the basic 36t ratchet or the advanced 54t. Compatible with all types of derailleurs. For detailed specifications and further information on the complete range for Road and MTB visit us at booth I0218.

I0218

TINO INDUSTRIAL REUSABLE ECO- FRIENDLY CABLE TIE

Tino's cable tie solves the problem of single-use cable ties. The unique mechanism enables the user to pull the cable tight yet release it with the flick of a finger. Pull the tab away from the cable to free the locking mechanism. Or push in to lock. Each non-toxic tie can be reused up to 500 times.

Q0834



KIND SHOCK HI-TECH CO., LTD RAGE-IS

RAGE-iS is not just a dropper post, it's a reminder that you don't need to break the bank to access cutting-edge technology. With its adjustable suspension, RAGE-iS empowers riders of all levels to take on the toughest terrain with confidence and control. Go ahead, push your limits, and let RAGE-iS inspire you to reach new heights.

I0818



台湾からベトナムへの投資

ベトナム：新たな製造の中心地

台湾の自転車産業では、製造拠点の分散化に重点が置かれています。若い人口、大規模な労働力、EU との新たな自由貿易協定によって、ベトナムは主要な投資先となっています。



アストロエンジニアリングベトナム

21世紀を迎える頃、多くの台湾メーカーが中国に投資を行いました。その主な理由は、台湾における熟練した産業労働者の慢性的な不足、賃金の安さ、環境保護規制の緩さでした。しかし25年が過ぎ、中国では高齢化および賃金上昇によって、人口変動の問題に直面しています。新型コロナウイルスの感染拡大を通じて、中国での

事業が容易ではないことが明らかになりました。厳しい隔離規制によって対面での訪問が難しくなったとともに、独断的なロックダウンが繰り返し供給を妨げ、詳細な生産計画を立てることができなくなりました。それに加え、ダンピング防止税と輸入関税の引き上げにより、EUや米国などの主要な輸出国において、中国製の製品は大きく競



アストロのサミュエル・フー

争力をそがれました。

端的に言えば、中国は大規模な工業生産の拠点としての魅力を大きく失いました。台湾メーカーにとって、多くの場合、中国での生産を台湾へ戻すのは現実的ではなく、熟練労働者の不足がさらに悪化し、給与が上がったことで、自動化の推進や稼働労働者への依存が必要な状況が生まれています。欧州の自転車生産拠点である東欧やポルトガルへ生産を移すことは、欧州市場でのみ合理的なケースとなりま

す。新しい工場を建設するための代替地を探していたとき、台湾の自転車産業はASEAN 諸国へ再び注目し、ベトナムが特に魅力的であることを発見しました。

この主な理由は、ベトナムの人口層が若く、それほど高齢化が進んでおらず、給与が依然として低いことでした。もちろん、台湾と比較して、工場建設用の土地を取得する価格も安く済みます。それに加え、ベトナム製の自転車とその部品に対して米国でかかる輸入税がずっと低くなり、EUは近年、ベトナムと自由貿易協定を結んでいます。ベトナムは共産主義の一党独裁政権ではありますが、台湾とは良好な関係を築いています。反対に、台湾と中国は相互不信をつのらせています。これらすべての理由により、台湾の自転車産業は、ベトナムのホーチミン市北側にあるビンズオン省において、すべての供給ラインを精力的に設立しています。

おそらく、台湾の自転車産業でベト

WELLGO PEDAL'S CORP. URBAN PEDAL C368

Wellgo C368 is an extra-large urban pedal which has two different slip resistant surfaces. The combination of different materials gives a modern look and offers better grip for excellent stability and comfort. The main structure of the pedal (478g/pr) is made of impact-resistant, high-strength engineering plastic injection molding which increases the safety of the pedal. **J0517**



ESEENS INC. SHIELD PRO BIKE TAIL LIGHT

The Shield Pro bike taillight from Eesens combines the best long-distance wireless technologies, sensors, and sensor algorithms to provide users with versatile safety features. Using sensors, The Shield Pro provides the best riding safety with head-controlled



turn signals, fall light alarm, brake light and daytime flash light. Bike security features include a theft alarm and instant alert to user, and "find bike" functionality using a paired controller. **DigitalGo! only**



JETSET RIMS AE-30 RIM

The AE-30's rim spoke hole has been redesigned to exactly fit the spoke nipple which increases the wheelset's lifetime. **J1002**

ALEX RIMS PATENTED ONE-PIECE FORGED FORK



Alexrims' subsidiary company, 3D Technology, Inc. has developed an innovative bicycle front fork constructed from aluminum alloy forged as a single part without seams or welds resulting in a significantly stronger and safer front fork. A variety of fork designs can be produced using our 3D-forging technology to suit bicycles of every category. **J1018**



ビンズオン省のベロ工場



Veloのアン・チェン

ナムに初めて工場を設立したのは、Astro Engineering社です。大量生産を行うために、同社以外のほぼすべての企業が中国への投資を決定した中、共同創業者のSamuel Hu氏はそれに従わず、早くも2000年にベトナムへと投資することを決定しています。ベトナムでの生産はすぐに台湾の10倍に達したため、Hu氏は2017年に新たな工場を開設するとともに、特にeバイクとeマウンテンバイクの人気による需要の増加に対応するため、その1年後には熱硬化性カーボンフレーム生産専用の工場を開設しています。Samuel Hu氏は、その他の大多数のフレームビルダーに先駆けて、この2分野に注目していました。現在、Astro Engineering社は、ベトナムにおいて台湾の10倍に及ぶフレームを製造しています。また、合計3,500名の従業員のうち、3,250名はベトナムに在籍し、台湾に在籍しているのはわずか250名です。

ベトナムに早期から投資していたもう一社は、サドルとグリップの専門メーカーであるDDK Groupです。同社のベトナム工場の建設は、2000年6月に早くも開始されていました。2005年、ビンズオン省にあるこの工場はISO認定を取得し、2006年にはトヨタ生産システムが導入されました。しかし、この工場での生産量は毎年300万台にとどまっていたため、2011年にビンズオン省で第二工場の建設が開始され、生産量を1,000万台に押し上げています。元の工場から新工場へ生産設備を移管した後、DDK Groupは旧工場を売却しましたが、急増する需要に対応するため、2021年にこれを買戻しています。さらに同社は、ベトナム・ホーチミン市の北90kmに位置する工業団地の別工場にも投資しています。この工場では当初600万台の生産量が予想されていましたが、1,500万台にまで拡大できる可能性があります。

台湾の自転車産業における主要企業の1社であるサドルとグリップの大手メーカー、Velo社も、近年ベトナムへの投資を行っています。Velo社の副社長であるAnn Chen氏は、次のように説明しています。「ベトナムにおける生産には労働力と税金の面で多くのメリットがありますが、Veloがベトナムの施設へ投資する最も重要な理由は、東南アジアからの組み立てや配送など、お客様のニーズに応えることでした。Velo Vietnamは28万平方メートルの敷地面積を有し、投資額は100万米ドルです。当初は、ベトナム・ビンズオン省にある当社の

新工場は2020年9月に稼働を開始する予定でしたが、新型コロナウイルスの感染拡大によって、計画は予定通りに進みませんでした。2022年の10月には生産を開始し、Velo Vietnamでは年間35万個のサドルの製造が可能です。最新の最も効率的な設備を備えたVelo Vietnamでは、当社の全製品を製造することができます。

工場の設立場所に関する条件を尋ねられた際、A-Forge社の創業者兼社長・George Chang氏は、非常に現実的である、次のような回答を述べました。「最も主要なお客様が存在する場所へ進出する当社は、eバイク市場と共に成長しており、より一層の統合化を推し進めています。中国にある当社の工場はジャイアント社とメリダ社の大型工場にそれぞれ近接していますが、当社は2017年にベトナムで24,000平方メートルの土地を取得しました。この主な理由は、フレームと自転車のメーカーがEUと米国で中国製フレームに課される税金から逃れるため、中国を離れたことによります」。A-Forge社のベトナム工場は2つの建物で構成されており、今年中に完成し、試運転を開始できる予定です。また、フルラインでの量産は、2024年に開始される見通しです。鍛造から液圧成形やチューブの引き抜き、重力鍛造に至るまで、新工場はあらゆる先端技術を提供でき、ハイエンドなeバイク用フレームに必要な、複雑な部品のワンストップショップとして機能します。投資総額は2,400～3,000万米ドルに及び、A-Force社はベトナムで最大500名の現地雇用を生み出す予定です。



ジョージ・チャン、A-Forge社長



建設中のA-Forgeベトナム工場

台湾の自転車産業においてベトナムに投資したもう一つの主要企業は、リムとホイールのメーカーであるAlex Global Technology社です。この合金とマグネシウムの専門企業は、台湾・台南地区の本社よりわずかに小規模な工場をベトナム・タイニン省に設立しました。タイニン省はホーチミン市の北西約60kmに位置し、ベトナムでの工場設立場所として大多数の台湾企業が選択している、ビンズオン省に近接しています。2021年、Giant Bicyclesはビンズオン省へ4,800万米ドルを投資して工場を設立することを発表しました。同工

場では2023年後半に生産を開始する予定で、年間100万台の生産量が見込まれています。

著名な組立専門企業である順捷社は、特に野心的なプロジェクトを発表しました。この「バイク・バレー・ベトナム」の構想は、フレーム、コンポーネント、部品、電気モーター、バッテリーのメーカー10社を集め、同じ場所にすべての工場を設立することで、工業生産のための緊密なクラスターが形成され、工場間での長い輸送や時間を解消することができるというものです。

■ LVR



Eベトナムバイクバレー(イメージ)



フリッツ・ジョー

Tinoの再利用可能なケーブルタイ：便利で環境にやさしい

2011年に設立されたTino Industrial Co., Ltd. (諦諾実業有限公司)は、環境に配慮した製品の研究に重点を置き、EUの特許を複数取得して、産業の幅広いニッチな分野で省エネや環境保護に関連した製品を開発しています。

今年初めて台北国際自転車見本市に出展する**Tino Q0834**は、同社で最近開発された、従来の使い捨てケーブルタイに代わる再利用可能なケーブルタイを出展します。毒性のないこのケーブルタイは、最大500回の再利用が可能だけでなく、締緩操作が非常に容易です。指で軽く押さえるだけで、工具を使わずに簡単に開閉できます。タイは多様な幅と長さで提供されており、対応している最大荷重は56kgです。

自転車産業において、ケーブルタイは完成車や中・小部品の梱包によく使用されます。ブランドや消費者がパッケージや完成車を受け取ったとき、これらのタイは通常切断されて廃棄され、最終的には埋立地や環境中に捨てられることになります。しかし、例えば自転車店では、ケーブルタイを回収し、自社の梱包や作業場などで再利用することが可能です。

当然、これらのケーブルタイは、自転車だけでなく、幅広い用途に使用でき

ます。ケーブルタイは特に自宅周辺や庭での、修理や手入れに非常に役立ち、付帯的な用途が無数にあります。この再利用可能なケーブルタイの採用を促進することで、Tinoは現在の切って捨てられるケーブルタイの問題を解決し、より持続可能な世界の実現に貢献したいと考えています。詳しくは、ブースQ0834にお立ち寄りください。

■ GR



サイクリング&ヘルステック工業研究開発センター

30年にわたり台湾の自転車産業に貢献

台湾のサイクリング&ヘルステック工業研究開発センター（CHC）は、その設立以来30年間にわたり、裏方の仕事に徹し続けてきました。しかし、メーカーが早期に課題を特定して解決する支援をすることで、CHCは台湾の自転車産業が最先端の位置付けを維持するために重要な役割を担ってきました。

オープンでグローバル化した市場において、コンシューマー向け製品の生産者は、自社と自社製品を差別化する戦略を選択する必要があります。1つの戦略は、数量と規模の経済に基づいて最低価格を提供することです。しかしこれは、得られる利益が非常に限られる底辺への競争であることが証明されています。台湾の自転車産業はそうなる代わりに、經濟部と対外貿易発展委員会（TAITRA）両方の指導の下で、革新と品質の追求を選択しました。そこで、1992年という早期に、自転車産業と政府は共同で、グローバル市場への輸出に向けて台湾メーカーを強化することを目的として、サイクリング&ヘルステック工業研究開発センター（CHC）を立ち上げました。CHCが初期において焦点とした1つは、メーカーによる生産工程へのトヨタ生産方式とリーン生産方式の導入を支援することでした。

長年にわたる着実な改善と、新しい素材や生産方式の研究により、品質の証として「Taiwan Excellence」ブランドが確立され、台湾製の自転車や部品の評価が高まりました。これは、中国へのアウトソーシングの流れに対抗するべく、2003年にA-Teamを設立したメーカー同士の緊密な協業によって実現されました。その活動の一例として、ジャイアントグループがそのYouBikeシェアリング自転車システムの独自認証を取得する際に提供された支援があります。また、カーボンに関するトレンドに先駆けて、さまざまな大学や台湾の大手自転車メーカーの1つであるメリダが連携し、フレーム構築にマグネシウム合金を使用することを可能にした例もあります。より最近では、受賞歴を有する、Smiling Elements International Corporationのライフスタイル提案型eバイク、Uni Mokeの開発の最終段階において支援を提供した例があります。

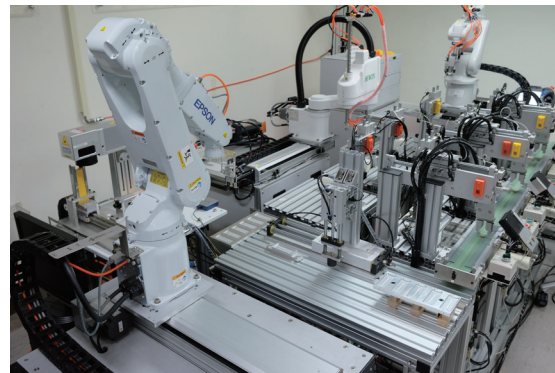


オリンピック自転車競技台湾代表選手・Hsiao Mei-yu氏のためにデザインしたトラックバイクと共にポーズをとるCHCのMark Tsai副総経理（左）とJohnson Wu総経理。

CHCの台中本部および嘉義支部では、91名の優秀なスタッフが働いており、その52%が修士号、44%が学士号の保持者で、スタッフの52%が各々の分野で10年以上の経験を擁しています。「私たちのラボ設備はおそらく台湾で最も充実しており、完成車、システム、個々の部品およびコンポーネントに対するあらゆる種類のテストが可能です。これらの設備は、メーカーが革新的な製品を開発し、輸出市場に必要な認証を取得することを支援するために使用されています。こういったプロセスはコストが高く、企業によっては負担が大きい可能性があるため、私たちは積極的に設備と専門知識を活かした支援を行っています。しかし、私たちが民間企業の目標を定義することはなく、目標達成のお手伝いができるだけです」と、CHCのゼネラルマネージャー、Johnson Wu氏は説明しています。

主要な輸出市場であるEUで炭素税の導入が差し迫っていることから、最近では台湾メーカーのカーボンフットプリントを評価し、その改善策を見つけることに重点を

置いています。CHCは、ゼロカーボン製造推進の一環として、持続可能性を実現する自転車同盟（BAS：Bicycle Alliance for Sustainability）にも創設メンバーとして参加しています。このような環境に配慮した製品への注目の高まりは、持続可



試運転でサプライヤー3社のロボットが連携したペダルの組み立て。

能性が大きなテーマとなる今年のデザイン&イノベーションアワードにも表れています。CHCは30年近く前から独自のコンテストである国際自転車デザインコンペティション（IBDC：International Bicycle Design Competition）を開催し、イノベーションを推進してきました。CHCで長年にわたりゼネラルマネージャーを務めた故Francois Liang氏は、デザイン&イノベーションアワードの審査員を長い間担当し、現在はその役割をJohnson Wu氏が引き継いでいます。

自転車の電動化、アシストドライブの各種コンポーネントのシームレスな統合、スマートフォンやクラウドとの接続による消費者、小売業者、メーカー向けの追加機能など、近年のメガトレンドに促され、CHCは



CHCが台湾の自転車産業に提供できる最も重要なサービスの1つである、独自の高度なラボ試験。

研究分野を新たに広げています。「ICTの統合は、消費者とメーカーの両者にとって、より大きな価値を生み出す力強いトレンドです。データの取得も含めれば、交通計画にも役立ちます。データの分析は潜在性の高い将来的な関心分野であり、ICTと自転車製造の

両面において大規模で革新的な台湾は、これを主導する最適な位置付けにあります」と、Johnson Wu氏は述べています。

CHCの台中本部には、スマートマニュファクチャリングに特化したセクションがあり、溶接ロボットや塗装ロボット、ロボットに依存したアセンブリラインなどで、自動化を強力に

推進しています。台湾の自転車産界におけるさまざまな企業が定義する目標は、生産の自動化と最適化の両方に頼りながら、限られた労働力で生産量を増やす方法を見出すことであり、これは台湾で優れた産業労働者を見つけることが困難であるという事実を反映しています。CHCの業務のうち80～90%は、未だに自転車産業に特化したものですが、台湾の高齢化社会のニーズによって、フィットネスや医療品、高齢者の健康という新たな活動分野が開かれています。こうした中で、CHCの専門知識は、輸出に重点を置く自転車産業だけでなく、台湾の人々の生活の質にも貢献しています。

■ LVR



CHCの専門知識が活かされた製品の最近の一例である、ライフスタイル提案型eバイクのUnimoke。

概要：ホイール&ハブ**グラベルライダーのニーズが新しいテクノロジーの進化を主導**

デダ・エレメンティの最上位カーボンホイールSL6は価格以上の性能を実現

昨年のジロ・デ・イタリアで2023年のホイール製品を示唆する軽量ホイールを発表した後、**デダ・エレメンティ M0814**は、2023年に向けてその製品レンジをさらに磨くことに専念してきました。デダ社によると、大きなニュースとなるのは、新しいホイールのSL6 DB、SL4 DB、RS3 DBと、タイムトライアル用チューブレスロードホイールのHero DBの発売です。RS3 DBホイールは、一部に同じフック付きリム、ディスクブレーキ、チューブレス対応技術を採用しながらも、ラインナップ上位のセラミックベアリング搭載RS4 DBカーボンホイールの半分以下の価格で入手可能な6061合金製ホイールです。製品レンジを通して際立つ特徴は、新しい7075合金製RSシリーズのハブで、前世代の製品と比較して80gの軽量化と、**シマノ M0814**、**スラム M0612**、**カンパニョーロ F0404**との互換性を実現しています。特に、デダ社によれば、SL4とSL6は魅力的な希望小売価格（それぞれ1350ユーロ、1450ユーロ）の最上位カーボンホイールとなっています。これら2つのホイールセット（およびRS4 DB）は、デダ社がロードホイール大手企業の間でその評価を確立するための重要なステップとなるものです。

そういった大手企業の1社であり、数十年にわたりホイールの設計および製造を行ってきた**レイノルズ L1028**も、ロードサイクリングのルーツから進化を遂げ、グラベルを積極的に取り入れることに成功しています。Gシリーズのホイールには「オールロード」あるいは「ロードプラス」といった要素はなく、フックレス、チューブレスのリムチャネル設計を採用し、特徴的な幅広グラベルタイヤの低圧運用を可能にしています。

フックレス技術は、他のチューブレスホイールと比較して、低圧での衝撃保護の向上とセットアップの容易さから、文字通りグラベルホイールにおける牽引力となっています。シリーズには650と700の両サイズがあり、それぞれにPro、Expert、Gの各モデルが用意されています。リムは深さ26mm、幅25mmで、アクスルはいずれもフロントが12x100または15x100、リアが12x142で提供されています。Sapim CX-Ray ブレードスポークと、ProおよびExpertモデルの浅く非対称のリムプロファイルは、クラックセットで生成されるトルクを維持し、ホイールの横剛性を向上させるために役立ちます。つまり、レイノルズ社によると、この設計は瞬時の加速と容易な登坂を実現します。すべてのホイールは、シマノHGR11sp、カンパニョーロN3W、スラムXDRと互換性があります。

レイノルズのBlacklabelシリーズはブランドの最高レベルのホイール製品を提供



混合地形でより速いホイールを求めるグラベルレーサーやライダーのニーズに応える形で、フックレスやチューブレスなどのホイールテクノロジーが進化しています。カーボンファイバーは、あらゆる分野で高性能ホイールの素材として選ばれていますが、カーボンファイバーの構造はブランドによって異なり、それが価格にも影響しています。当然、誰もがスピードを求めているわけではなく、信頼性と耐久性を重視するサイクリストたちが求めているホイールは、単に円形であればよいというものではありません。スポークやリムはハブがなければ役に立たず、そのため共同体として、以下のメーカーには「ライダーの前進する力を進化させる」という共通の目標があります。

大量生産型ホイールではなく、競技サイクリストのニーズに応える製品で知られる**BLKTEC M1030**は、「正しくやろうとしないなら、やる価値がない。最高を求め、最高を期待し、最高のものに乗る。」というその理念に共感した多くのファンを獲得しています。台湾に拠点を置く同社は、フックレス技術を採用したノンラジアルスポーク指向の一体型フルカーボン設計によるC1Dホイールで、ホイールの専門技術を完成させています。C1Dホイールは、ライダーの力を前進力に転換する湾曲のない剛性設計、ディスクブレーキの互換性、タイヤ幅25～35mmへの対応など、BLKTEC社のこれまでのホイールモデルの長所を具現化しています。同社は、このホイールにはロード用およびオールロード用のカーボンファイバーホイールにおける最新技術が結集されていると述べています。BLKTEC社は、設計から製造までの完全な管理にコミットしているため、その点は確約されているはずだ。

ミケ M2026は、1919年にイタリアで自転車部品の自社生産を開始して以来、100年以上にわたる歴史を擁しています。同社は、伝統と情熱、最新のテクノロジー、そして意欲的なイノベーションを融合することで、進化し続ける市場で巧みに舵取りを行ってきました。ミケ社は、これらの価値観をイタリアの製造・試験施設で発揮させており、同社の名を冠した製品は、最も厳



BLKTECのC1Dホイールは、競技サイクリストのニーズに応える同社の極めて高い専門技術を具現化

格な基準に準拠して製造・試験が行われています。このイタリアのブランドは、台北国際自転車見本市への出展という機会でも、同社がこの数か月間で市場に投入した最新製品の一部を展示します。Super-type Disc DXは、製造者が特定の品質基準を満たしたことを保証する政府の認定である「Made in Italy」エクセレンスから生まれた、革新的なプロジェクトです。この凸レンズ型ディスクブレーキ対応ホイールは、カーボンファイバー製のリムに異なるラミネーションと3K仕上げを巧みに組み合わせることで軽量化と高剛性を実現し、このカテゴリーにおける最上位のパフォーマンスを誇っています。ミケ社は停止アシストにシマノのセンターロックディスクブレーキハブを採用し、低摩擦のセラミックベアリ



ミケのSupertype Disc DX凸レンズ型ディスクホイールは最高レベルの性能と「Made in Italy」のエッセンスを融合



DT Swissは、同社の350ハブのアップグレード版をリリース



ノバテックはeカーゴバイクや電動アシストマウンテンバイク向けの2つのハブで耐久性と信頼性を実現

ングで滑らかな回転を維持しています。ディスクホイールが過剰であれば、UDと3Kカーボンファイバーを精密かつ慎重にラミネートして非凡な剛性と空気力学性能を実現した、Supertype SPX 5 DX ホイールがあります。アルミニウム合金 7075 T6 のハブは、セラミックベアリングと組み合わせ、ライダーが提供するすべての前進力を最適化します。SPX 5 は、センターロックディスクブレーキとリムブレーキの両方に対応しています。

ケーブルレス技術をサポートする部品から、同社の名を冠したハブや完組ホイールまで、さまざまなソリューションをヨーロッパやアジアの優良顧客に供給する強力なホイール専門メーカーとして評価されています。Realworx社は、安定性と信頼性に優れたホイールセットの提供に注力しており、同社のエンゲージ角3度または6度のストレートプル高性能ハブを搭載した、グラベル用カーボンホイールや合金ホイールなどがそれを実証しています。また、ディスクブレーキ対応のロード用カーボンホイールや、マウンテンバイク用カーボンホイールで競争力を発揮しており、いずれも Realworx 社のハブを搭載し、リムの幅や深さに対する現在の市場需要にえています。さらに、CNC D 型スルーアクスルや自社の特許取得済みスルーアクスル QR も手頃な価格で提供しています。

しかし、ホイールにはより多様化したニーズがあり、幅広いホイールソリューションを実現するためには、ホイールの設計と製造における高精度の専門技術が必要となります。Realworx **[1401]** は、チ

ホイールメーカーをサポートする **DT**

Swiss F0534 は、人気の 350 ハブをアップグレードして、より汎用性を高め、軽量化し、ライダーの入力により迅速にตอบสนองして作動するように改良しています。350 ハブはドライブトレインに依存しないプラグイン構造により、わずか数秒で異なるドライブトレイン規格に変換することができます。この工具不要のコンセプトは、メンテナンスの容易さと、フリーハブ本体の高い汎用性をユーザーに提供するために生まれたものです。また、エンゲージ角度を調整するためのラチェット交換も容易です。軽量化を図るため、DT Swiss 社はハブシェルとアクスルの設計を見直し、この新しいバージョンの前身のものと比較して、クラシックハブで 5%、ストレートプルハブで 10% の重量削減を実現しています。新しい 350 ハブは、36 歯（旧モデルは 18 歯）で、各サイドのエンゲージメントをより迅速化し、より多くの表面積にわたって力を均等に分散させます。デザインがアップグレードされた新しいエンドキャップは、グリップ力が向上し、分解が容易になっています。

常に速く、軽くするのではなく、一部のハブでは e カーゴバイクや電動アシストマウンテンバイクの需要に対応するための耐久性が求められています。ノバテック **[0922]** は、そういった需要に応え、より頑丈な自転車向けに 2 つの専用ハブを提供しています。ミッドレンジの Team ハブは、33 のラチェット歯と 3 つのツメを持つ、耐久性の高いクラシックな設計です。アップグレードされたハブシェルとオーバーサイズのベ

アリング設計により、他のノバテック製ハブに対する強度を向上させ、交換可能な 7075 合金アクスルと 7075 合金カセット本体により、ユーザーによる標準的なマウンテンバイクハブへの切り替えを可能にしています。また、Team レベルは、142mm または 148mm のスペーシング、センターロックまたは 6 ボルトディスクブレーキローターの互換性を提供します。より上位モデルの Pro ハブは、Team ハブよりさらに高強度で、耐久性に優れ、長寿命です。Pro はより大きな 40 のラチェット歯と 4 つの各ツメにより、より迅速なエンゲージメントを実現しています。さらに、耐久性に優れたハブシェルとカセット本体の設計により、ノバテック社の他のマウンテンバイクハブよりも強度が 30% 向上されています。また、Pro はセンターロックと 6 ボルトローターに対応しており、12x148mm のスペーシングも用意されています。Team と Pro はいずれも、シマノ HG 11sp、シマノ MS 12sp、スラム XD と互換性があります。

このようなホイールとハブのソリューションは、速さや空気力学から、堅牢性や軽量性、最高レベルの性能、手頃な価格など、ライダーのさまざまな需要を網羅しています。これらの需要に対応した新しい技術トレンド、素材、設計、エンジニアリングが、ホイールの製造ビジネスを進化させ、最終的には「ホイールの革命」をもたらすかもしれません。 ■ **WB**



台湾における自動化への投資

ロボットが製造の課題を解決

台湾の製造業が常に抱える課題の一つに、熟練労働者の不足が挙げられます。これは、自転車産業においても例外ではありません。新型コロナウイルスの感染拡大中に大量の注文を抱えた際、多くの企業が生産量を上げるために、ロボットに注目するようになりました。



Marwiの新しいSmart Pedal Factoryには、人間よりも多くのロボットがいます。

熟練労働者が不足し、電力が安価で金利が低い状態においては、自動化への投資は産業メーカーにとって容易なことのようには思われません。しかし、すべての作業内容や生産方法が、自動化に等しく対応できるわけではありません。Sram AsiaのジェネラルマネージャーであるBob Chen氏は、2019年に次のように述べています。「ロボットは同じ作業を繰り返しこなす場合は非常に効率的で信頼できます。しかし、同じ生産ラインでの異なる製品の製造といった、柔軟性が求められる場合においては、人間の方が適しています」。台湾の自転車産業では、初期投資が必要であるだけでなく、チップと半導体が不足していることが、製造に導入されるロボットの増加の勢いが減速している要因であると言えます。しかし、それでもロボットの導入は増加しています。

ロボット導入の先駆者の一人に、Marwi Groupの創業者であるPatrick Pai氏が挙げられます。2014年よりPai氏は、Marwi社の本社一階にある同社の射出成型部門での製品の流れを確保するため、日本製ロボットへの投資を行っています。その投資開始から数年後、同氏はペダルの組み立てを補助するため、より小型な類似の台湾製ロボットの試験的生産ラインを上階で導入し、人間の作業の一部を担当させ、生産性を向上させました。新型コロナウイルスの感染拡大中、Marwi氏は本社の隣に新たなペダル製造施設を建設して「スマート工場」と名づけ、施設と内部の機械に5億新台湾ドルを投資しています。このスマート工場の稼働後、Marwi氏は180名の従業員を採用し、42台のロボットを本社で導入しています。これは、ロボットと人間の比率が台湾全体と比較して10倍高いこととなります。



Shutter PrecisionのCNC旋盤に未加工のハブシェルを供給するロボット。

労働力不足を解消する以外にも、ロボットへの投資によって、Marwi氏の事業で最も大きな割合を占めるペダル生産において、生産性と安定性が改善されました。スマート製造を推進する一環として、製造工程におけるあらゆる関連データの分析が常にリアルタイムで行われます。この種のテクノロジーに投資することで、潜在的な問題を早期に発見し、製造を最適化することができます。また、クラウドへと接続された製造システムによって、完全に自動化された倉庫と同様に、製造計画が容易となります。さらに、Marwi氏は新しい製造施設の屋上に大量のソーラーパネルを設置し、消費電力の10%を賄っています。これに加え、室温を下げることで、新しい施設におけるカーボンフットプリントを大幅に減少させることを狙っています。

高度な自動化のもう一つの例は、コンポーネントサプライヤーのTektro-TRP社です。台湾・彰化県の本社における最新の拡張は大規模なもので、4階建ての大きなビルを2棟増築し、スカイウォークをつないで床面積を倍増させています。Tektro-TRP社のマネージングディレクターであるLeo

Chen氏によると、従業員が2020年の600名から2022年の900名に増え、生産能力は40%増加しています。品質管理を改善し、搬送用のトラックによる二酸化炭素の排出量を減らすため、鍛造、押出切断、熱処理を含むブレーキキャリアの製造段階を内製化しており、CNC旋盤からのスクラップはペレットへ圧縮され、合金のサプライヤーへ返送されます。5万平方メートルの床面積が追加されたことで、同社は今年度の展示会で注目を集める、ドライブレイン技術の推進に必要な面積を確保しています。

しかしながら、Tektro-TRP社が大量のロボットに多額の投資を行っていることは、最も重要な点と言えます。ロボットはCNC旋盤への供給から、最初の脱脂、続くブレーキキャリアとレバーのスプレー塗装、さらには一部の簡単な組立工程に至るまでの作業を担当します。新しいホール内では自動運転カートが使用され、個々の部品や製品を製造部門間で移動させています。最終製品の梱包とラベル付けも、すべて完全に自動化されています。モニター画面に製造全体で収集されたデータが表示され、すべての活動をリアルタイムにモニタリングでき、まさにスマート製造の見事な例と言えます。製品としての自転車は電子化が進み、より自動車に似通ってきているため、Leo Chen氏は同社の製品についても電子化の導入にメリットがあると見ています。

Astro Engineering社の台湾本社でフレーム製造工程を見て回ると、人間と自動化の作業が混在していることがわかります。そこでは、大量の溶接ロボットが作業し、チューブの切断と内部のケーブル配線に必要な穴あけも、ロボットが担当しています。需要の高まりに応じて、Astro Engineering社では近年、年間売上高の最大30%を再投資しています。Astro Engineering社の創業者兼ジェネラルマネージャーであるSamuel Hu氏は、次のように述べています。「当社は、機械とテクノロジーの両方に対する投資を近年強化しています。経営が健全であるため、銀行から妥当な条件で資金を借り入れられます」。2018年の時点において、すでに32台の溶接ロボットが稼働していましたが、これらのロボットを100台に増台することが計画されてい

ます。また、同社のフレームの90%を製造するベトナム工場にも、継続的な投資が行われています。

Samuel Hu氏が現在熱心に取り組んでいるプロジェクトは、熱可塑性フレームの自動生産です。この製造工程は、エアバス社などの企業から長年にわたって採用されてきましたが、これまでフレーム製造に採用されることはありませんでした。基本的には、熱と圧力を加えることで、熱可塑性素材のシートからフレーム部品を片方ずつ形成でき、長い炭素繊維の撚り線で強化されます。続いて、これら2つの部品がシームレスに結合されます。この結果、使用寿命に達した際にリサイクルが可能な、台湾製フレームが完成します。これは、まさに同社のユニーク・セリング・プロポジションと言えます。この自動工程とそれを支えるロボットの空間を確保するため、本社に4階建て、各1,650平方メートルの新たな工場部門を建設しています。Astro Engineering社はまた、OE顧客とのミーティングを容易に行えるよう、台湾・台中の南屯産業園区に営業拠点を開設しました。

30名の従業員を抱えるシャッター・プレジジョン社などの比較的小規模な企業であっても、製造における特定の作業を支援する自動化およびロボットは必須です。ハブダイナモの内部には、高精度・高安定性の製造が必要な、複雑な部品が格納されています。製造工程の最後では、2本のロボットアームが完成したハブを適切な場所に配置し、モデル名、シリアル番号、製造日がレーザーエッチングされます。これにより、各ハブを正確に追跡できるだけでなく、少人数の従業員でより多様な作業を行えるようになります。従業員の一部は東南アジアからの出稼ぎ労働者であるため、新型コロナウイルスの感染拡大中、帰郷から戻ってくるできない従業員もいましたが、シャッター・プレジジョン社の自動化に対する投資は、こうした状況でも効果を発揮しています。■ LVR



Tektro-TRPは、塗装工場でもロボットに依存しています。

新品大觀園：「輕助力」電機系統

運動用 e-Bike，少即是多的設計理念

越來越多的電機品牌商，打造出更為輕巧的馬達，搭配纖薄的電池，雖然助力輸出沒那麼強大有力，卻很適用於運動用的性能車款。這種「輕助力」的概念已發展成一股風潮，在今年北展您可以看到如下品牌帶來的新品。



Bafang M820 system

輔車款。這一顆身型精實的花鼓馬達，可以產生 150 瓦的輸出功率以及 30 Nm 的最大扭矩。E-Road Air Drive 的控制器可以整合於車架上管，並且其 BB 中軸的兩側內建感測器，可以偵測扭矩和迴轉速，採用 ISIS 的軸心規格。Hyena 這套系統方便讓品牌商搭配使用，並提供各種規格。花鼓馬達的棘輪座可以適配 HG 系統，適用於 9-11 速飛輪，但也適配其他品牌的飛輪。

下管。這顆電池的重量約 2 公斤，電池可以獨立拆裝進行充電。對於愛好長途騎乘的使用者，還可以選配重量 1.9 公斤的增程電池，可以固定於一般水壺架。

Bafang (八方, 1 館, **M0112**) 帶來了另一種輕量化的思惟，其 M820 中置電機採用鎂合金作為本體來削減重量。這顆中置馬達僅重 2.3 公斤，雖然相較本文介紹的輕助力電機系統來得重，但明顯低於市場領導地位的 Bosch 和 Shimano。最大扭矩 75Nm 相較之下也比較溫和，但卻可以搭配體積較小的電池 — 例如 BT F050 管內電池僅重 2.2 公斤，電池容量為 360 Wh。整套系統的重量低於 5 公斤，在扭矩輸出部分比起花鼓馬達來得強大。為了吸引更多以運動性能為導向的品牌，Bafang M820 電機採用 ISIS 軸心規格並且擁有較窄的 Q-Factor。

Alber (1 館, **F0535**) 旗下成立的輕助力品牌 Neodrives，是一個聚焦於城市車、旅行車、Cargo 車款的電機系統。在台北展，這間來自德國的系統供應商，帶來一套全新的輕助力系統。這套系統名為 Nano，其特點是可以使用 142x12mm 的貫通軸，馬達外徑為 120mm、重量約 1.8 公斤。Nano 電機可提供高達 32 Nm 的扭矩和 250 瓦的功率，並且搭配 360Wh 的管內電池可以安裝於 Oversized 的車架

遺珠之憾是，德國 TQ 集團缺席了今年的台北展，他們的 HPR50 電機系統也很有看頭。這一套中置電機系統僅重 3.9 公斤，已經被許多知名品牌包括 Trek、Scott、BMC 和 Simplon 等搭載於 2023 年新車款式。另一個輕量化電機品牌則是來自瑞士的 Maxon，搭載其中置電機系統的全避震 e-MTB 可讓整車重量下探 15 公斤。最後，德國的 Fazua 也是輕助力系統的領航者，雖然沒參加北展，但新聞話題總是少不了它，因為該品牌在去年被保時捷品牌收購。在 **LOOK** 自行車品牌的攤位 (2 館, **Q0831**) 你所看到的 E-765 公路電輔車，搭載的正是 Fazua 的輕量化中置電機。



Mahle X20

為電動公路車開創出全新市場。而其動力部分是來自後花鼓馬達，精巧的體型幾乎不易被察覺，恰好被飛輪及碟盤給隱藏住了身影，因此搭載 X35 系統的 e-Bike，看起來並不像是 e-Bike，更像是一輛性能跑車。因此，X35 系統在 OE 市場很快就佔有一席之地。

Mahle 的創新腳步持續增速。其花鼓馬達的全新作品 X20 系統，在輕助力的市場奠定新標竿，整套系統重量下探 3.2 公斤，並且最大扭矩提升至 55Nm。至於電池，品牌商可以選配 250 Wh 或 350 Wh 版本，350 Wh 電池在體積上略胖一些。而針對熱愛爬坡或是挑戰長距離的使用者，也可以選購 Mahle 的增程電池，可以額外增加 172 Wh，其外型就像是一個水壺，適配於一般的水壺架。另外，其 BB 中軸就像是人體的神經，搭載可以偵測腳踏功率以及迴轉速的 BB 感測器，透過即時的腳踏監控，為騎士帶來自然且源源不絕的動力輸出。

Hyena Inc (凱納, 1 館, **N0616**) 是一間台灣的電機系統品牌，將在北展帶來全新的輕量化 E-Road Air 輕助力系統。根據資料，整套重量為 3.2 公斤，搭配 250 Wh 的纖薄電池，適配於公路電輔車、平把運動電輔車以及 Gravel 電



Hyena E-Road



Fazua Look E765

新品大觀園：避震器

坑疤爛路也讓你如履平地

避震器不再是登山車專用，也很適配於重負載的車款。目前就有許多品牌，推出避震前叉以及後避震器來適配包括 e-Cargo 載貨電輔車、e-SUV，當然 e-MTB 就不用說了，必須使用進階的功能包括調整壓縮速度以及回彈速度。而來到日常應用，避震器不管是在石板路、坑疤爛路或是林道險境，都可以讓你如履平地。來到 Gravel 礫石騎乘，使有一款具備避震功能的升降座管，不僅可以達到減震，更可以吸收來自路面的「餘震」。本文將介紹一些在避震界享譽盛名的品牌，透過全新的產品設計來跟上不斷變化的騎乘需求，讓騎車這件事變的更愉快。總之，透過本文你會了解會需要避震器的，不只是登山車。



Kind Shock Rage-iS 是一支搭載氣壓式避震的升降座管。



SR Suntour SF23 MOBIE34 CGO

Kind Shock (凱薩克, [0818]) 是一家以升降座管聞名全球的台灣品牌，這一次帶來了 Rage-iS，是一款俱有 30mm 避震行程以及 65mm 升降行程的複合功能座管。這支座管擁有極佳的性價比，並且對應 27.2mm 管徑，可以適配更多不同的車架，包括 Gravel 礫石車或是旅行車等。使用避震座管的好處有很多，例如目前在歐美蔚為風潮的 Gravel 或是單車露營，不僅可以減震，更可以消除來自路面的高頻震動。Rage-iS 這一支升降座管的最大亮點，在於搭載氣壓避震，並且可以調節預載和回彈速度。座管本體採用一體式鍛造工藝，在其頂部搭載可調式的空氣閥門，控制線允許隱藏內走，讓整車呈現簡單俐落的高級感。要作為一支稱職的座管，其座管夾具當然要可以微調座管的前後位置以及角度，並且搭配防水 O-Ring 輔以

CNC 精密加工的座管本體，透過優良的製程來減少公差，降低在長時間使用後的維修及故障。Rage-iS 可以另外選配包括 Southpaw、KG、Westy 等遙控把手搭配使用。

SR Suntour (榮輪科技, [0818]) 今年歡慶 35 週年，長期以來他們靠著避震器縱橫天下、享譽全球。這間日資公司的成功，歸功於在全球各個製造節點，並且齊心協力為業界開發出品質更佳的避震器和傳動系統，打造出一系列適配不同價格帶的產品，從世界盃的選手到城市通勤，又或是小孩子的第一輛腳踏車，都可以看到 SR Suntour 的身影。今年北展帶來的新品，是專為 e-SUV 以及 e-Cargo 而生的重負載避震器。隨著 e-Bike 已成為趨勢並且重新定義對於避震器的需求，Mobil 避震前叉系列就是針對城市通勤和自行車旅行的經濟選擇。其完整的規格，可以適配 20 吋輪徑的載貨車、輕助力電輔車，又或是重負荷的旅行車。另外，隨著 SF25-MOBIE36 的推出，這是一款

運用高性能登山車的避震科技，適用於 Off-road 以及 On-road 可提升騎乘安全的新品。搭載了高品質 PCS 卡匣式套件和 EQ 氣壓式彈簧，讓你擁有與世界盃和奧運選手一樣的技術，而如果不比賽的你，Mobil36 還搭載擋泥板固定架、燈座固定架和 ABS 安裝界面，讓你的安全性及舒適性更上一階。SF25-MOBIE36 可以適配 27.5 或 29 吋輪徑，避震行程則提供 120-150mm。

Cargo 載貨自行車正在改變城市的短程移動，尤其是接送小孩或是載運貨物。Cargo 騎乘是一種結合運輸與運動，讓你在完成載運任務的同時，也讓身體適當地運動，這是一種邁向健康與永續環境的生活方式。當然，在接送小孩或是載運貴重物品時，騎乘安全是絕對必要，同時也不可以犧牲舒適性。SR Suntour 帶來 Mobie A32 進軍 Cargo 市場，目前可在許多 Cargo 載貨車看到它的身影；而另一款 Mobie 34 CGO 則是充滿未來設計的新品。它的本體採用鎂合金一體成型來達成輕量化，搭配 34mm 粗

勇的外筒身來提升剛性，同時增加筒身間距來適配各種車款。根據資料，這支避震器透過更優秀的結構剛性，可以提升騎乘轉向的精確度，並且擁有一系列的前叉肩蓋規格，可以滿足各種 Cargo 載貨車的規格。這款避震包括內部與外部結構都提升剛性，確保在重負載騎乘下的平穩騎乘，另外還搭配燈座固定架以及 ABS 安裝界面。

轉換到挑戰極限的登山車運動，玩家一個比一個更重口味。SR Suntour 帶來這一款新品 RS24-EDGE X，就是要讓你在崎嶇不平的惡路險境，可以儘可能保持平穩的騎行。原本 Edge 系列是要作為林道越野車適配的中行程避震，而冠上了「X」封號則是強化結構剛性，適配於全避震車款。它的亮點在於全面升級的加粗心軸，不僅提升剛性，更帶來更絲滑的作動，讓你在重負荷的情況下，依然感受得到避震作動帶來的輪胎順應性。簡單一句，Edge X 結合了舒適與性能，這是一款可以讓你在林道越野時保持穩定騎乘的氣壓式後避震器。



SR Suntour SF25 MOBIE36

DNM (克佳興業, **N1229**) 秉持一個信念：做好避震器，把避震器做到最好。這一款 RCP2 彈簧式後避震器，搭載高速和低速阻尼可調功能，回彈速度也可以微調。進階版本的 RCP2PLUS 可允許使用者掌控更全面的可調性，依不同地形來設定避震作動。RCP2PLUS 可以滿足重口味的技術騎乘，無論是林道越野、FR 自由騎或是下坡車都適配，並提供三種尺寸、60-80mm 避震行程，以及 220-265mm 的上下鎖點間距。另外，DNM 針對輕度越野還帶來兩款新品：TRU-8RC 和 AO-8RC，這兩款氣壓式



DNM RCP2PLUS彈簧式後避震器。

避震的回彈速度可調，並且可進行鎖死，提供 7 種長度和避震行程可選。

X-Fusion (野實科技, **L1123**) 是一個令人信賴的避震器品牌，隨著消費市場的改變、騎乘挑戰更重口味，X-Fusion 也持續精進壯大產品線。提供的避震行程 80-200 mm，可以涵蓋各種騎乘領域，包括林道越野、Enduro、下坡車等，並且對應多種規格。雖然 X-Fusion 避震器多年來維持一樣的經典設計，但其產品更重視的是高性價比以及實用性。例如 Trace 36 Coil，是一款專為 29 吋 Super enduro 而生，提供高達 170mm 避震行程和第二個備用彈簧，可以在行程觸底前觸發。此外，10mm 為單位的微調間距，可以讓專業騎士處理最刁鑽的賽道，無論是陡坡或是急降，都能給你恰到好處的性能。至於後避震也帶來了兩款新品，H3C RCP 是彈簧式，而 O2 Pro RLX 則是氣壓式，提供騎士三種避震設定以及回彈壓縮調節。考慮到彈簧比較重，X-Fusion 將 H3C RCP 定位為 Enduro，而訴求輕量化的 O2 Pro RLX 則適配於林道越野以及 All mountain。

越來越多國家的交通政策鼓勵騎乘自行車，減少開車，並且預期在 2030 年前會有更積極的自行車友善政策。而未來的避震器設計，不管是氣壓式、彈簧式、優力膠等，其終極目標就是要帶給騎士更快意歡樂的騎乘體驗。 ■ **WB**



X-Fusion-Trace 36

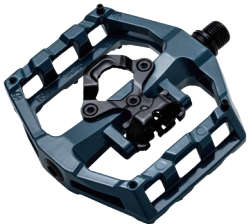
中文

NEW PRODUCTS

WELLGO B365 雙用卡踏

這款具有超大踩踏平台的雙用卡踏，採用耐用的爪形設計，可更換式的防滑釘以及零件防掉的設計。雙用卡踏的好處，同時可以滿足專業騎士以及休閒玩家的需求。這款卡踏相容於 SH-51 SPD 鞋底扣片。另外，Wellgo 最新設計的零件防掉設計，可避免零件遺失。

J0517



八方 M510 中置電機系統

M510 是一款專為高性能 eMTB 而生的中置電機系統。與前作相較，M510 的最大扭矩維持在 95Nm，但重量減輕了 18%，並且最大迴轉速可支援至 120RPM。

M0112



3X3 9速內變花鼓

3X3 Nine 是一款 9 速內變速花鼓系統，適用於多種車款以及騎乘環境。由於擁有極高的換檔效率，因此不僅適用於傳統自行車，也非常適配於 e-Bike。這套系統最高可承受 250Nm 的最大輸入扭矩，因此幾乎可以搭配各種電機系統使用，並且其齒比範圍來到 554%，登山車也非常適用。產品堅持德國製造，並採用業界領先的工業 4.0 製造技術。

F0100



VELO 維樂 泡棉回收再生座墊

在座墊生產的過程，泡棉會是最大宗的廢棄物。過去，這些下腳料會被運送到特殊的廢物處理廠。為了達到永續環保，Velo 開發了一種創新製程，可以透過回收這些原本要被廢棄的泡棉，降低製造時對於環境的影響，並且所有製程都在廠內完成，將回收的泡棉再製成座墊。

當然，最重要的是不會影響到產品的品質，座墊採用短鼻頭設計，也符合目前的消費市場需求。

J0717

HAFNY 後照鏡

HF-M958S-FR011L 車把後照鏡，本體採用陽極鋁合金打造，並搭配汽車級的高透亮玻璃。這款後照鏡堅固耐用，適用於各種天候及環境，並且具備兩個轉軸機構，可讓鏡片調整到適合的角度。可固定於登山車的 21~26mm 車把。另外，這款後照鏡也適配於 E13 標準的高速電輔車 (Speed Pedelecs)。

L0405



新品大觀園：車燈

輕巧又省電 為自己點亮前方的光明路

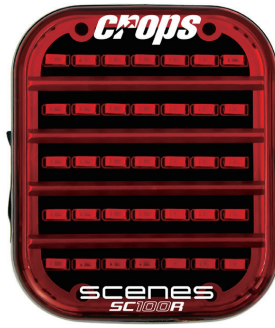
外出騎乘要安全，車燈是必不可少的配件。時至今日，車燈的地位已經升級，不再只是配件，而是作為許多種車款的標配。隨著 e-Bike 的爆發式成長，車燈照明也是一大重點，也因此許多 OEM 車燈廠商的業績跟著井噴。另外，AM 零售市場表現也不俗。無論是有線車燈還是可充電式車燈，使用者希望一顆車燈的功能不只是車燈，還需要搭載更先進的功能。透過本文介紹，您可以找到一些新世代的車燈設計。

Crops L0924 是一家來自日本的車燈品牌，在今年帶來一款非常聰明的後燈。這顆精巧的 SC100R 車燈本體搭載 35 個 LED 陣列，提供出色的警示效果。具有八種功能模式，其中自動模式可以依環境光源來自動開關，在需要時自動開燈。尤其是在白天穿過隧道或是極端明暗環境下時發揮功能。這款身型精實的后燈自帶一組尾夾，可以掛在騎士身上或是固定於車上。更聰明的設計是，這款後燈可以邊充電邊使用，你可以放一組行動電源在座墊袋，就不必擔心沒電了。

Sigma M1205 帶來全新 Buster 前燈系列。這一系列共包括四組前燈以及兩組後燈，可以互相搭配，並提供不同的亮度規格。以前燈來說，可以選擇 1,100、800、400 和 150 最大輸出流明；而後燈提供 150 或 80 流明。這一系列的車燈均內建五種車燈模式。其中一種是專為通勤者設計的日、夜間閃爍模式，並且具備操作記憶功能。針對較高輸出流明的款式，車配標配 Osram 或 Cree 的高品質燈泡，並搭配 Sigma 設計的反射鏡片，所有款式的體型精巧，可以即時掌控電量。要達到更好的適配性，後燈可以選擇 Buster RL 150 和 RL 80，可以發揮接近 360 度的照明與警示。RL150 還具有自動煞車燈功能，其警示距離最遠可達 2 公里。



Crops Scenes SC100R



Gaciron W03



Gaciron V20-1500 Front



Litemove AEW230



Litemove SE90AD alt



Jiashan Shengguang Electronics JY-7280E-1



Meilan Cute-Eye



Sigma Buster 1100
Buster RL 150 K-set



Litemove (益亞科技, **N1225**) 獨特的 MTi 多光束整合技術有新的進展。新登場的 AEW-230 前燈提供 230 Lux 照度 / 950 流明輸出，並具有雙眼遠光燈和近光燈功能。這款車燈專為 e-MTB 而生，提供寬達 10 公尺和最遠 300 公尺的照明。另外，安裝位置有相當多種，包括車把、龍頭、前叉都可以，並且在車把兩側配置了兩組遙控按鈕。而另一款 SE-90A 智慧型前燈，同樣搭載 MTi 多光束整合技術以及自動環境光偵測，可在白天和夜間時自動調整亮度，使其輸出在 30 到 90 Lux 照度範圍，也具備智慧型自動省電亮度功能。

Jiashan Shengguang Electronics Q0924 帶來一款新車燈 JY-7280E-1 專為 e-Bike 而生，俱備遠光和近光功能。採用省電的 LED 燈具並搭配先進的雙透鏡，在性能與能耗之間取得平衡。安裝在車把上的開關控制器，不僅方便操作，也提升騎乘安全性，其近燈為 100 Lux 照度、遠燈 120 Lux 照度。這顆精巧的車燈本體採用鋁合金打造，達到最佳的散熱性。通過德國

StVZO 標準認證，電壓輸入允許範圍 8 至 48V，適用於各款 e-Bike。

Gaciron Q1028 帶來一系列的創新車燈。其全新登場的 V20-1500 結合了前燈與後燈，本體採用鋁合金打造，兼具防水功能。前燈的亮度達 1,400 流明，後燈的亮度達 100 流明，讓你不僅照亮了前方道路，同時也閃亮自己。這款車款搭載環境光感測器，可以讓車燈進行自動開關。無論是前燈還是後燈，都可以作為日行燈，並且照明及警示的效果都很好。這款車款可固定在多個位置，包括車把的上方或下方，或安裝在安全帽上。另外，還有一款 W03 智慧型煞車後燈，其設計也相當有趣。它會將打出一道雷射光束到後方的道路，進一步提升後方車輛的警示性。此外，也俱備自動煞車燈功能、環境光感測器，以及一組磁吸式的固定座。

Meilan L1230 帶來的 Cute Eye 是一款智慧型後燈。其首作在登場五年後，新改款的 Cute Eye 不僅變得更聰明、小巧，而且功能也更齊全。新品的亮點在於遙控啟動方向燈、俱備自動煞車

警示，以及更亮的燈具。這款後燈的大小，剛好可以安裝在座墊下方，達到符合空力且簡約的高級感，本體設計符合 IPX6 防水規範，外騎遇到刮風下雨也不怕。在無線連接部分，搭配一顆藍牙 BLE 4.0 無線控制器，安裝在車把上很方便操作。這款車燈擁有高達 1 公里的警示範圍，提醒後方車輛注意你的騎乘動態。

Büchel M0203a 今年的氣勢磅礴、一舉帶來五款新燈。其中最令人矚目的是 Optical 150，這款車燈的亮點在於其極大的適配性。無論是要安裝在車把、龍頭、e-Bike 控制界面下方，或是在前叉上，通通都沒問題。並且車燈採用複合材質製造（鋁合金和塑料），打造出輕量又時尚的風格。在輸出部分最高可達 150 LUX 照度，並且具備近光燈和遠光燈的功能。要達到近乎完美的車燈搭配，可以選擇全新的 Edge ST-E。這款

後燈搭載其自家的首款智慧感測器，俱備緊急煞車燈，並且達到德國 StVZO 和歐洲 ECE 認證規範。這款車燈俱備的 Stoptech（煞停科技）是與德勒斯頓的弗勞恩霍夫研究所合作開發的，不需要連接自行車上的煞車管線。而車燈的尺寸恰到好處，正好可以裝進後貨架下方的位置。

ReadyGo's（彌勒設計，**Q0223a**）推出的 LUMI 城市生活單車包以警示 / 收納 / 移動三大功能出發。該單車包搭載一顆明亮的 140 流明後燈，可以牢固地安裝在座弓下方。此外，它們還推出包括迷你棘輪單車工具組以及輕量化光束泥除，這些升級配件容易安裝，並可以提升騎乘的安全性。對於追求速度的性能騎士，會喜歡它們的輕量化以及空力設計，整體外型也非常優雅。車燈具有多種模式功能和長達 8 小時的續航力，燈具僅重 28 克。



ReadyGo Lumis Fender



ReadyGo Lumis

Eesens 是一個新創的車牌品牌，其最大亮點在於智慧連結。它們的 Shield 後警示車燈系統，包括一組後燈以及安裝在安全帽後方的感測器。這顆感測器具備全方位功能，可以偵測騎士的頭部動作來啟動方向燈。此外，此燈還俱備一組加速度感測計，可提供包括煞車警示、跌倒偵測以及防盜警報功能，其照明亮度達 70 流明並具備 220 度的警示效果。可搭配使用供免費下載的專屬 APP，透過手機連結可設定進階功能

及掌控車燈情況。
Lezyne（蒼鑫，**L0517**）持續擴展其車燈的產品線，今年帶來了 Super HB E1000 前燈專為 e-Bike 而生。這款強大的德國 StVZO 認證電動自行車頭燈，其近燈為 600 流明、遠燈為 1000 流明，可透過安裝在車把上的遙控器進行切換。此車燈系統標配一條 130 公分的電線，可以連接至 e-Bike 系統的電池直接供電。其車燈本體採用鋁合金打造，並且搭載散熱鰭片以及熱能管理機制，讓車燈在長時間使用下避免發生過熱。另一款新品，則是固定在安全帽上的 Drive 1000XL，提供高達 1,000 流明的輸出，本體採用鋁合金打造並具備出色的熱能管理機制。這款車燈的固定座也很特別，除了魔鬼氈綁帶外，也兼具 GoPro 固定座方便安裝。固定在安全帽的好處之一，在於可以提供優秀的照明效果。 ■ JD



Buchel Edge



Buchel Optical150b



Lezyne HelmetLiteDrive1000XL



Lezyne SuperHB-STVZO-E1000-AL

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