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THURSDAY



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WHAT
TO SEE
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INSIDE TODAY'S SHOW DAILY:

E-BIKES MADE FOR TWO | INVESTMENT IN VIETNAM
ROBOTS & AUTOMATION | FRAME MAKERS | FROM OVERTIME TO
OVERSTOCK? | SMART MANUFACTURING | PRODUCT HIGHLIGHTS
PRODUCT ROUNDUPS: HEAVY DUTY DRIVE SYSTEMS | HELMETS | WHEELS
LIGHTS | MTBS | ROAD BIKES | FOLDING BIKES | TRAINERS

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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 Workshop	Booth# L1306, 4F TaiNEX Hall 1
09:00-18:00	TAIPEI CYCLE Live Studio	Booth# L0128, 4F TaiNEX Hall 1
10:00-12:00	TAIPEI CYCLE Forum	401, 4F TaiNEX Hall 1



Dr. Ing-Wen Tsai, President of the Republic of China (Taiwan), opened the Taipei Cycle Show yesterday.

VOX POP WEDNESDAY MARCH 22**HAVE SUPPLY CHAIN PROBLEMS IMPACTED YOUR BUSINESS?**

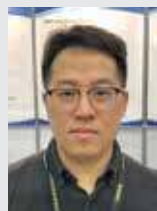
On opening day we asked a cross-section of companies about their approach to supply chain problems as a result of the pandemic.



Howard Hong
Sales Specialist
Coppercell Technology
Co., Ltd.

Being in the battery business we have cells in storage, but not so

many that we ever found ourselves in the situation of having too many on hand. Our business operates on the basis of processing orders from our customers when they have the need, a sort of 'just in time' system. Unlike bigger brands that had overbooking problems we operate on a smaller scale and are more flexible.



Alex Wu
Sales Representative
Kai Deng Sz Co., Ltd.

We were never affected very much since our production schedule is based on our custom-

ers forecasts and we have never needed to hold all that much stock. Plus our main market was in China. We have just commenced operations in our Portugal facility and with the supply chain outlook in general improving as things tend back towards normal, we expect the stability we've experienced in the last few years to continue into the future.



Hsiang-Jung Chen
Sales Representative
Yi Hsien Enterprise Co., Ltd.

We have not been impacted at all by supply chain issues. We

don't hold inventories but manufacture customers' orders as we receive them. Orders certainly slowed when the pandemic hit but we took the time to double the number of our machines across all our product ranges. As a result our production has doubled which still allowing us room to meet the expected increased demand.



Pier Wang
General Manager
Lekuma Technology Inc.

We took a different approach to most companies during the pandemic. While they

ramped up production to meet the exploding demand, we did not. It was a crazy time and we thought it would be high risk to stock all the parts. We just proceeded on the basis of the orders we had at the time and didn't second-guess the future making us relatively more stable than the others.



Sandy Chou
Sales Representative
Yota Cycles Co., Ltd.

In 2021 we were at full capacity but by the end of 2022 order volume dropped

strongly and our assembly capacity increased a lot. We had a stockpile of components we needed to get through. We are feeling good about the coming year though, despite it looking a little bit tricky, and are seeing a marked pickup in enquiries as customers look to 2024.



Tim Su
Assistant Sales Manager
Microprogram
Information Co., Ltd.

As recent entrants to the bicycle industry, we are in the process of developing our

customer base. The stock problem for us is obtaining electronic components — exposure to the electronics industry supply chain is our particular problem. We are facing lead times of more than six months in some cases at the moment.



Samuel Chang
Executive Vice
President
ZJ Co., Ltd.

The supply chain problems that have impacted other

companies as a result of the pandemic have not affected us. We have been focused on the R&D for our main product, IB Grips 2.0, over the last seven years to get it almost to where we want it. Moreover the electronic components we rely upon are small and specialized yet easy to get.



Totto Lin
Sales Representative
Sanfa Bicycle Industrial
Co., Ltd.

We experienced a lot of pressure. Bike assembly is our focus and our main problem

started out as one of undersupply of components—we experienced significant production delays as a result of the pandemic. And then customers asked us not to ship bikes, resulting in us stockpiling a lot of bikes in the second half of last year. The pressure has come right off this year though.

MPF'S ROAD-FOCUSED 3.0 MOTOR BALANCES WEIGHT AND POWER

Getting the right mix of weight, aesthetics, and power is crucial in creating a motor for the road market. Taiwanese maker **MPF [N0826]** believes it's struck the right combination with its new 3.0 unit. "We totally redesigned our motor structure, including our torque sensor and control board technology," explained MPF's Eric Hsieh at the show on opening day.



Jack Cheng and Eric Hsieh show off the new MPF 3.0 motor.

This process took more than two years. The result is a motor that weighs a svelte 2.9kg yet produces 75nm with a rating of 250w and peak power of 500w. It can also be easily serviced. "One new key feature is that the control board can be accessed without disassembling the motor," said Hsieh.

Durability is also vital to any high-mileage motor design. "One thing we believe is unique to us is that we only use metal internals," explained the firm's Jack Cheng. Another design challenge for lightweight motors is

achieving stiffness without adding excessive mass. "Rigidity and performance can interfere with each other," said Cheng. Compared to its cargo and hybrid-focused motors, the 3.0 fills a niche designed to appeal to road bike and lightweight hybrid makers.

"Integration is also very important to this market," said Hsieh. To this end, MPF has created slimline brackets for frame makers interested in utilising the motor. At the same time, the unit is compatible with the popular Bosch



MPF offers neat frame brackets to make integration easy for frame makers

standard, making it easily retrofittable. "Several firms are already working on prototypes using the 3.0 motor, but we're at Taipei Cycle to try and find more," says Hsieh.



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48V 750W



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Controller 36V/48V



Color screen panel



LCD control panel

KIND SHOCK SHOWS USD FORK PROTOTYPE

Known for its dropper posts, **Kind Shock [I0818]** has been working on suspension forks lately. At Taipei Cycle, the Tainan-based manufacturer is showing a prototype of an upside-down fork built for rough terrain.

The first prototypes of Kind Shock suspension forks were spotted in 2018. At last year's Eurobike, the company premiered forks for kid's bikes and gravel bikes. But the fork now being shown as a prototype at Taipei Cycle is of a different caliber. This upside-down fork comes with stanchions with a diameter of 36 mm, so the alloy upper tubes are significantly larger. With a steerer tube tapering from 1.125 to 1.5 inches and a boost-size thru-axle measuring 110 mm x 15 mm, the fork is built to be compatible with existing frames and wheels – a smart choice to break into this competitive market.

A pin and slot construction keeps the stanchions and uppers from twisting relative to each other, reducing flex. Built for fun-oriented e-mountainbikes, this fork comes with 165 mm of travel, an air chamber in the left fork leg and a damper unit in the right fork leg. Rebound damping can be adjusted with a knob on the bottom of the right fork leg, while the compression damping can be stiffened with a dial on its



Kind Shock's Martin Hsu and son Michael show the prototype fork at the company's booth

top. Kind Shock did not disclose the prototype's weight, but the target weight for the final product is said to be in the two-kilogram range.

TAKING THE RIGHT TURNS

Taiwan's bicycle industry rests on the shoulders of many family-owned small and medium enterprises, and **First Bicycle Components [K0102]** is no exception.

General Manager Johnson Li has nearly four decades of experience in the industry and a fine sense for trends and new standards.

This clearly shows at the manufacturer's booth. Apart from a selection of cranksets, First Bicycle Components shows some interesting solutions for headsets with integrated cable and brake line routing – a strong trend recently. The version for tapered steerer tubes with the popular 1.125 to 1.5 inch standard is available with a built-in steering angle limiter to prevent frame damage in case of a crash. "We also offer headsets for internal cable routing for straight 1.5 inch steerer tubes and for tapered steerer tubes with 1.125 to 1.8 inch diameter – a novel standard we expect to gain importance in the future on e-bikes", Johnson Li explained to the Show Daily yesterday.

In the past, eccentric bottom brackets were mainly used on tandems, but with the renaissance of single speed and fixed gear bikes and the recent trend towards low-maintenance belt drive systems, demand for eccentric bottom brackets is on the rise. First Bicycle



First Components' general manager Johnson Li showing some of his company's headset and bottom bracket solutions.

Components has the products in its line-up to mount high-quality cranks. The manufacturer not only covers the PF30, PF82 and PF90 standards, but also the T47 standard that has gained popularity with small high-end builders. Thanks to these eccentric bottom brackets, people can easily convert expensive frames to either single speed, fixed gear or belt drive builds.

E-BIKES MADE FOR TWO

Pillion passengers can hitch a lift on a motor scooter, so why not on an e-bike?

Electrical assistance and frames sporting integrated rear carriers mean it's increasingly possible to transport two adults aboard a single bike. "Many riders are starting with child seats, then switching to a bench seat as their child grows," explained Pier Wang of OEM maker **Lekuma [N1203]**, at the show yesterday.

"Our new cargo model can carry up to 200kg, so it's possible to have a passenger of around 100kg". Lekuma's latest bike uses the well-known MIK fixing system to accommodate many accessories for younger passengers. However, it can also transport a second adult via a bench-style seat on

the integrated rear rack.

"We're seeing increasing demand for bikes in this style," confirms Sandy Chou of Yota [N0626]. Yota's new bike also has a 200kg combined weight limit and can be customised with a range of seating options, including bench-style rests and running boards. Of course, balancing extra weight requires conscientious design. "The structure of the rack has become a part of the frame," explains Yota designer Ray Luo. "We also increase the width of the tyres for extra support".

Motor support is another critical consideration for designers. "At the



Yota designer Ray Luo with 200kg carry limit model

moment, many of our bikes could carry much more cargo or passenger weight, but it's meaningless if the motor can't support it," explains James Lee of **Mexller [N0116]**. Many territories currently enforce a 250w limit on e-bike motor assistance. As a result, the firm's carry limit is as dependent on the motor support as the robustness of the frame. Nevertheless, Mexller is still happy to offer several models capable of carrying a rider and passenger.

Europe, Australia, and the United



Pier Wang with the Lekuma MIK-enabled e-cargo bike

States are the main markets for this style of bike. "It's a development we saw take off in Scandinavia, but it's now also popular on the west coast of America," Lee explains. "With low carbon legislation being introduced in many cities, we think it's a trend that will continue."

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SNAPSHOTS FROM THE SHOW



Dr. Tsai Ing-Wen (centre), President of the Republic of China (Taiwan), at the opening of the Taipei Cycle Show yesterday.



Hsieh Cheng Kuan of KHS, Giant CEO Bonnie Tu, and Tseng Shang Yuan of Merida



KMC's Abby Chen and Jannie Wan with a promotional coffee cup made from recycled coffee grounds that represents the company's commitment to going green.



Multiple birthday celebration for the Drink & Dragon cycling club



Can-can dancers at the famous Velo/Wellgo party, back this year after a long hiatus. (At left) Velo's Ann Chen & Stella Yu lead a toast.



Giant's Phoebe Liu with the Dynamic Fit System

TAIWANESE INVESTMENT IN VIETNAM

VIETNAM: THE NEW PRODUCTION HOTSPOT

Taiwan's bicycle industry is diversifying its production locations. Thanks to its young population, a large workforce and a fresh free trade agreement with the EU, Vietnam has become a prime destination for investment.



Astro Engineering Vietnam

Around the turn of the millennium, many Taiwan-based manufacturers invested in China. The main reasons for this were a constant lack of skilled industrial workers in Taiwan, lower salaries and laxer rules regarding the protection of the environment. But 25 years on, China is facing a demographic challenge with an aging population and higher salaries. Throughout the pandemic, doing business in China proved to be tedious. Strict quarantine rules put high barriers to in-person visits and arbitrary lockdowns would repeatedly cause bottlenecks along the supply line, not allowing for any serious production planning. Added to this were the serious comparative disadvantages that made-in-China products face in key export markets such as the European Union and the United States due to antidumping duties and higher import tariffs.

In short, China has lost a lot of its luster as a place for industrial production on a large scale. For Taiwan-based manufacturers, bringing back Chinese-based production is not a realistic option in many cases. After all, the lack of skilled workers has only become more serious, and salaries have risen to levels that call for a push for either increased automation or resorting to migrant workers. Moving production to Eastern Europe or Portugal, the hotbeds of bicycle production in Europe, really only makes sense to serve European markets. When looking for alternative destinations to build new factories, Taiwan's bicycle industry switched its focus back to the ASEAN countries – and found Vietnam to be particularly attractive.

The main reason for this is that Vietnam's population is young and not aging quickly, while salaries are still relatively low. Plots of land to build factories are also affordable, certainly



Velo factory in Binh Duong province

when compared with Taiwan. Add the fact that made-in-Vietnam bicycles and parts profit from much lower import taxes in the United States while the European Union recently has signed a free-trade agreement with the country. And while Vietnam may be a communist one-party regime as well, it is on good terms with Taiwan while relations with Beijing are dominated by mutual distrust. Due to all these reasons, Taiwan's bicycle industry has been busy setting up entire supply lines in Vietnam's Binh Duong province, just north of Ho Chi Minh City.

Probably the first manufacturer from Taiwan's bicycle industry to set up shop in Vietnam was **Astro Engineering**. When almost all other companies decided to invest in China for all volume-oriented production, co-founder Samuel Hu did not follow suit – choosing instead to go to Vietnam as far back as 2000. Production in Vietnam quickly grew to tenfold of that in Taiwan, so Hu opened another factory in 2017 and a factory dedicated to building thermoset carbon frames the year after to meet the increased

demand stoked by the popularity of e-bikes and e-mountainbikes in particular – two segments that Samuel Hu had bet on earlier than most other frame builders. Nowadays Astro Engineering is producing ten times as many frames in Vietnam than it does in Taiwan. And of the overall staff of 3500 employees, 3250 are based in Vietnam and only 250 in Taiwan.

Another very early mover to invest in Vietnam was saddle and grips specialist **DDK Group**. The construction of its Vietnam plant started as early as June 2000. By 2005 this factory in the Binh Duong province had been ISO certified, and in 2006 the Toyota Production System was implemented. But as the capacity of this factory was limited to three million units per year, a second factory was built in Binh Duong province starting in 2011, bringing the capacity up to 10 million units. After the production capacity from its original factory had been transferred to the new site, DDK Group sold the older factory – only to buy it back in 2021 to meet the massive growth in demand. Additionally,



Astro's Samuel Hu



Velo's Ann Chen

the company has invested in yet another factory located in an industrial park 90 kilometers to the North of Ho Chi Minh City. While this factory is estimated to have an output of 6 million units initially, its capacity could grow to 15 million units.

Leading saddles and grips maker **Velo**, another big player of Taiwan's bicycle industry, has also invested in Vietnam recently. "Producing in Vietnam has a number of advantages in terms of manpower and taxes, but the most important reason for Velo to invest in our Vietnam facility is to fulfill our customers' needs in terms of assembling and delivery from South East Asia. Velo Vietnam covers an area of 280,000 sqm with a US\$ 1 million investment. Originally, our new factory in Vietnam's Binh Duong province was scheduled to become operational in September 2020, but the Covid pandemic threw this planning off the rails," Velo's vice president Ann Chen explains. "We managed to start production in October 2022, and Velo



A-Forge Vietnam factory under construction



FJ Vietnam Bike Valley (rendering)



George Chang, A-Forge president

A-Forge, is very pragmatic: "We go where our biggest customers go, and our company has been growing with the e-bike segment and the push for more integration. While our factories in China are close to large factories of Giant and Merida, respectively, we bought 24,000 square meters of land in Vietnam back in 2017. The main reason for this move was that frame and bicycle manufacturers were moving away from China to avoid taxes in the European Union and the United States that were slapped on made-in-China frames." A-Forge's Vietnam factory consists of two buildings, scheduled to be finished this year to allow for pilot runs. Full-line mass production is expected to start in 2024. From forging to hydroforming and drawing tubes to gravity casting, the new facility will be offering all kind of advanced technologies, serving as a one-stop-shop for the complicated parts needed for high-end e-bike frames. Investment is set to

Vietnam can reach an annual output of 350,000 saddles. With all the most modern and most efficient equipment, Velo Vietnam is capable of producing the full range of our products."

When asked about the criteria on where to set up factories, George Chang, founder and president of

total US\$ 24 - 30 million, and A-Forge expects to create up to 500 jobs locally in Vietnam.

Another big name in Taiwan's bicycle industry that has invested in Vietnam is rim and wheel builder **Alex Global Technology**. The alloy and magnesium specialist has built a slightly smaller version of its Tainan-area headquarters in Vietnam's Tay Ninh province, about 60 kilometers northwest of Ho Chi Minh City and close to Bin Duongh province where most other Taiwanese corporations have chosen to set up their factories in Vietnam. Back in 2021 **Giant Bicycles** also announced an investment of US\$ 48 million to set up a factory in the Binh Duong province that is scheduled to start production in the second half of 2023 with a capacity of one million bicycles a year.

Well-known assembly specialist **Fritz Jou** has launched a particularly ambitious project. The idea of his 'Bicycle Valley Vietnam' is to get



Fritz Jou

up to ten manufacturers of frames, components, parts, electric motors and batteries to all set up factories at the same spot, resulting in a tight cluster for industrial production that does away with lengthy transport and time lost to get from one factory to another. ■ **LVR**

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FROM OVERTIME TO OVERPRODUCTION PANDEMIC HANGOVER: BULLWHIPS AND BACKORDERS

For more than two years Taiwan's bicycle industry was running at full capacity to keep up with a demand that had skyrocketed during the pandemic. When consumer sentiment in key markets tanked in the spring of 2022, production kept going for a while, filling up inventories along the value chain and causing all sorts of issues.



While many sectors of the economy came to a grinding halt in the early months of the Covid 19 pandemic in the spring of 2020, the bicycle business was soaring to new heights. Some people opted to commute by bike to avoid the infection risk associated with using public transport, others resorted to bicycles for their daily workout as gyms closed doors due to the pandemic. And due to travel restrictions, entire families bought new bicycles to spend active holidays domestically. In key markets such as Europe and Northern America, these factors amplified the demand for bicycles. Surveys in key markets showed sales reaching new records, resulting in an annual growth of a staggering 20 percent in 2020.

Limits to fast expansion of the production

For Taiwan's bicycle industry, the pandemic posed a series of challenges. After an initial but short phase of restraint on behalf of large brands in both Europe and Northern America, these companies started to step up their orders as an answer to the increased demand. Reacting to such a fast growth in demand would have been a huge task for any industry in regular times. But these times were far from regular, with challenges and bottle-necks popping up at every corner. With its border-crossing supply chains and high dependence on migrant workers and sea freight, Taiwan's bicycle industry faced a particular set of challenges to meet the high demand.

As the island nation closed its borders in mid-March 2020 in a bid

to keep the virus out, recruiting additional staff in Southeast Asia was getting a lot more complicated. Resorting to automation may sound like a logical alternative, but shortages in electronics and chips put limits to this strategy as well, extending lead times for machinery and robots alike. As for sea freight, reduced capacities made for sky-rocketing fees to get standard 40-foot containers from factories in Taiwan to harbors in either Europe or Northern America. As a result, both 2020 and 2021 were marked by a shortage of merchandise as factories went into overdrive to cover the fast-growing demand and chip away at those backorders.

How lead times quickly multiplied

Due to the ongoing shortage of merchandise, bicycle dealers, distributors and brands all ramped up their orders first for 2021 and then again for 2022 and 2023. This further added to the existing pile of backorders that Taiwan's bicycle industry was struggling to handle. This tendency to inflate orders along the supply line in times of high demand is known as bullwhip effect in economics, and it certainly affected the bicycle business. While factories should have been running at full capacity, social distancing rules and squeezes in the supply of raw materials and sea freight throttled the output of many producers. Strict lockdown rules added to the problems, less so in Taiwan itself than in China and Vietnam, throwing a spanner into fine-tuned supply chains and causing lead times to grow from 60 to 360 days



Frames wait for painting at Astro's plant in Taiwan



Wheel makers like Formula are less affected

and even more in many cases.

Despite all these ongoing challenges most companies within Taiwan's bicycle industry posted record turnover for both 2020 and 2021. One example is KT-KunTeng, as the company's president Hubert Chen explains: "Thanks to our new

ratchet-style freewheel mechanism that works particularly well on e-bikes and e-mountainbikes we managed to get some new OE customers and to advance into new price segments. As a result, the turnover for 2021 grew by 80 percent when compared to 2019. Despite some cancellations 2022 will



Inventories have built up at complete bike makers.



Magnesium ingots at SR Suntour's Taiwan facility



Tektro-TRP has invested in automation to deal with labor shortages

still be far above the level of 2019." Another example is SR Suntour: this publicly-traded company known for its suspension products increased its turnover from US\$ 224.7 million in 2019 to US\$ 250.75 million in 2020 and US\$ 338.67 million in 2021.

Russia's war killing consumer sentiment

With the eventual loosening of pandemic restrictions Taiwan's industry bet on this upward trend to continue. But unfortunately Russian president Putin had different ideas. The attack on Ukraine in late February 2022 provoked a sharp rise in fuel and energy costs, stoked inflation and sent consumer sentiment rock-bottom in key markets such as Europe and the United States. This time bicycles as an expensive consumer product were no exception from the general sentiment, and demand saw a sharp drop in spring when it

normally should rebound after winter. As a first consequence, inventory started to pile up at retail level, with most of the pre-order still to be produced in Far East and to make its way to the markets due to extended lead times.

Bicycle dealers alerted their suppliers, mainly distributors about their worryingly high inventory levels and the latter alerted the brands of the issue at hand. In this situation, a number of high-profile brands were the first to move and cancel orders, starting as early as June 2022. According to estimates of industry insiders the number of cancelled bicycles and e-bikes easily exceeds two million units. While utility bikes and e-bikes and the higher price segments are less affected, the low- to mid-price segments and sports-oriented bicycles took the hardest hit. Due to the ongoing focus on model years, many brands and their assembly partners are now

facing a risk of discounting that cuts into their margins.

Higher costs and cancellations hurt cash flow

At the same time, high costs for fuel, electricity and transport and increased interest rates are all factors that add to the operating costs of companies along the supply chain. Producers of parts such as pedals, saddles, wheels or handlebars are less affected as their goods are not subject to a clear model year and thus see less pressure to discount the product at a consumer level. But both assemblers and brands face a real challenge and possible squeezes in cash flow. This already starts to show with brands of all sizes: Known for its titanium bikes, British boutique brand Stanton Bikes was forced out of business in late November. And just before Christmas Germany's Cycle Union and its mass-market Prophete brand went into administration.

Is this a sign of more companies getting into serious issues? The markets are nervous for sure, as an episode made clear. It started with a leaked letter from Giant's financial department, asking suppliers for an extra 45 days payment terms from December through to February. When this letter was published in local media, Giant's shares lost over 8 percent on a single day, pulling the shares of Merida Bikes, KMC and others down as well. Investors were wary of cash-flow issues, and Giant had to point at the successful first three quarters of the year to turn the trend around. But any company with a proper business plan should have been able to build up reserves in 2020 and 2021 and to ride out the current slump in demand.

One possible consequence of companies being cash-strapped are more mergers and acquisitions, both within the industry and involving large corporations and private equity investors. After all and despite the current hiccups and issues the mid- to long-term perspective of the bicycle industry is still bright, with plenty of growth potential. At an industry leaders' panel at last year's Eurobike show Specialized's senior vice president Bob Margevicius quoted an executive of the automotive industry as saying: "The automotive industry faces many challenges and is a sunset industry, whereas the bicycle business is a sunrise industry." There's a saying that one night can never defeat a sunrise. And one slump in demand won't kill the bicycle industry. ■ **LVR**

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AUTOMATION INVESTMENT IN TAIWAN

ROBOTS HELP SOLVE PRODUCTION CHALLENGES

One of the constant challenges for manufacturing industries in Taiwan is the shortage of skilled labor. The bicycle industry is no exception, and when it faced a high tide of orders during the pandemic, many companies turned to robots to increase their output.



There are more robots than humans in Marwi's new Smart Pedal Factory.

When skilled labor is scarce, electricity is cheap and interest rates are low, investing in automation seems like a no-brainer for industrial manufacturers. But not all job profiles and production methods lend themselves equally to automation. As Sram Asia's general manager Bob Chen said in 2019: "Robots are very efficient and reliable in doing the same job over and over. But as soon as flexibility comes into play – think of different products being made on the same production line – human beings are the better choice." Apart from the initial investment that needs to be made, shortages in chips and semi-conductors were another factor that may have throttled the increase in the number of robots brought into production by Taiwan's bicycle industry. Still, that number is on the rise.

One of the pioneers in the use of robots is Patrick Pai, founder of **Marwi Group [I1014]**. Starting in 2014 Pai invested in made-in-Japan robots that kept the flow of goods running in the company's injection molding department on the ground floor of Marwi's headquarters. A few years later he had a test line of smaller made-in-Taiwan robots installed on the upper floor to assist in the assembly of pedals, taking over some of the tasks of humans and increasing productivity. During the pandemic Marwi has built a new production building for pedals next to its headquarters called the "Smart Factory", investing NT\$ 500 million in the building and the machinery within. Since this Smart Factory became operational, Marwi employs 180

humans and 42 robots at its headquarters. That puts the robot-to-human ratio at a level ten times higher than for all of Taiwan.

Apart from offering a way around labor shortages, betting on robots has also enhanced the productivity and consistency of Marwi's pedal production, the largest part of the company's business by far. As part of a smart manufacturing push, all relevant data from the production process is constantly analyzed in real time. Investing in this kind of technology allows for early detection of potential issues and for optimization of production. And since the production is connected to the cloud, just like the fully automated warehouse, production planning is facilitated as well. Last but not least Marwi has put plenty of solar panels on the roof of its new production building to cover 10 percent of its power consumption. This and lower room temperatures are meant to significantly reduce the new building's carbon footprint.

Another example of advanced automation is component supplier **Tektro-TRP [J0701]**. The latest expansion of its headquarters in Changhua County has been substantial, doubling the floor space by adding two big buildings with four floors each, connected by skywalks. While the staff grew from 600 people from 2020 to 900 in 2022, production capacity grew by 40 percent according to Tektro-TRP's Managing Director Leo Chen. Production stages including the forging, extrusion cutting and heat

treatment have been brought in-house to improve quality control and reduce emissions caused by delivery trucks. Scraps from the CNC lathes are being pressed into pellets and sent back to the alloy supplier. The additional floor space of 50,000 square meters has created the room needed for the company's push into drivetrain technology that is making headlines at this year's show.

But most importantly, Tektro-TRP has heavily invested in robots – lots of robots. They fulfill tasks ranging from feeding CNC lathes to first degreasing and then spray-painting brake calipers and levers to some simple assembly steps. Self-driving carts are used within the new halls to move individual parts and goods from one production unit to another. The entire packaging and labeling of finished goods is fully automated as well. Monitor screens show the collected data of the entire production, allowing for real-time monitoring of all activities – that is smart manufacturing at work. Since bicycles as a product are becoming more similar to cars due to the move to electrification, Leo Chen sees advantages in terms of the implementation of electronics into the company's products as well.

A walk through the frame production of **Astro Engineering [N0415]** at its Taiwan headquarters shows a mix of human labor and automation. There are plenty of welding robots at work, and cutting the tubes and the necessary holes for internal cable routing is also done by robots. Due



Tektro-TRP relies on robots in the paint shop as well.



A line of CNC lathes fed by robots in Tektro-TRP's new factory hall.

to high demand, Astro Engineering has recently been reinvesting up to 30 percent of its annual turnover. "We have been investing more in recent years, both in machinery and technology. Since we're a healthy enterprise, we can borrow money from banks at reasonable conditions," said Astro Engineering founder and General Manager Samuel Hu. While there were already 32 welding robots at work by 2018, this number is scheduled to grow to one hundred. The company's Vietnam factory, which produces 90 percent of the company's frames, sees constant investment as well.

Samuel Hu's current pet project is the automated production of thermoplastic frames. While the production process has been in use with companies such as Airbus for years, it has not been adapted to frame



A robot feeds raw hub shells into a CNC lathe at Shutter Precision.

building so far. Basically, by applying heat and pressure two halves of the respective frame parts are formed from sheets of thermoplastic material, reinforced with longer carbon fibre strands. These halves are then joined seamlessly. The result is a made-in-Taiwan frame that can be recycled at the end of its life-cycle – a unique selling proposition. To create space for this automated process and the robots making it happen, a new factory unit with four floors and 1650 square meters each is being built at the headquarters. Astro Engineering is also opening a sales office in Taichung's Nantun Industry Park this year to facilitate meetings with OE customers.

Even a relatively small company like **Shutter Precision [K0707]** that employs a staff of 30 does not do

without automation and robots to help with certain steps of the production. After all, the internals of a hub dynamo include some intricate parts that need to be made with precision and consistency. At the very end of the production, two robot arms place the finished hubs in the right place for the laser to etch in the model name, serial number and production date. While this ensures an exact tracking of each individual hub, it also means that to company can use its small staff for more diverse tasks. Since some of the workforce are migrant workers from South East Asia, there were issues with them not being able to get back from family visits due to the pandemic, Shutter Precision's investment in automation paid off in this regard as well. ■ **LVR**

H+B HIGHTECH INTRODUCES 3X3

The parent company of **3X3 [F0100]**, H+B Hightech GmbH literally forged its reputation as a metalworking company more than 100 years ago. The company's tailor-made, innovative, and forward-looking manufacturing technologies are central to its market competitiveness; its expertise in metal processing and materials science have led to innovative product developments for the bicycle industry. Founded in 2020 as a subsidiary brand, 3X3 has expressed H+B Hightech's focus on future-proof engineering through its brand vision, "Free Your Bike."

For 3X3, this meant building a gear-shift that always works perfectly and requires very little maintenance. What that looks like is 3X3's maintenance-free gear hub, called **NINE** with nine gears and an input torque of up to 250 Nm. This high torque input exceeds that of other internal gear hubs and makes it suitable for powerful motors,

and its high efficiency, 554-per-cent gear ratio makes it perfect for touring and mountain biking. The other big bonuses are its calibrated gears and grease-packed assembly – the former is a "set-it-and-forget-it" maintenance solution; the latter effectively eliminates oil leaks.

NINE can be used on conventional bikes as well as e-bikes, with either a chain or belt drive. The first manufacturer to use the hub this year is Nicolai Bicycles with the launch of the **ARGON GX SLIDE** — a gravel bike with an integrated **NINE** hub and rotary shift.

H+B Hightech's legacy of extensive experience in automated manufacturing has allowed 3X3 to combine solid expertise with new technical standards and reliable delivery. These are assets that 3X3 is leveraging to open up entirely new opportunities for manufacturers and cyclists alike. ■ **WB**

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The new **INFINITY UNIVERSAL**-luggage rack system.



ROBOTICS & SMART MACHINERY

CLEVER AUTOMATION TO REDUCE PRODUCTION COST

The bike industry has undergone significant transformations over the past decades and manufacturers were forced to adapt quickly, especially over the past few years as demand grew a lot faster than the supply chain could fill. One of the most exciting developments in the industry, as a result of the ebike growth, has been the integration of robotics and smart machinery that has helped streamline and automate various aspects of the manufacturing process, from the design and development stage (with 3D printing machines) to the final assembly process. This has resulted in improved efficiency, higher quality, and reduced costs for bikes and components manufacturers.



With 3D laser cutting machines, Shuztung offers fast and precise cutting.



Shuztung auto welding cell helps make frame production (TIG/MIG) easier.

As the demand for bicycles continues to grow globally and the bicycle manufacturing industry is facing increasing pressure to deliver customized products efficiently while keeping costs low, the use of robotics in the bike industry is expected to increase further. So it's no surprise that, once again this year, Taipei Cycle Show will be featuring robotics and smart machinery manufacturers. While the initial investment in smart machinery can be significant, making it important to ensure fast return on investment (ROI), manufacturers who implement smart manufacturing often see a fast ROI due to increased efficiency and productivity of their production process.

Established in 1979, Taiwanese manufacturer **ShuzTung Machinery [4F, N0202]** has over 40 years of experience in machinery production and understands the essential components and needs of factory sites. After starting with hydroforming, tube bending and tube laser cutting machines for OEM/ODM, they've now extended their offering with 3D laser cutting and auto welding systems to meet all production lines needs from large but also smaller customers. Based on feedback from customers, their machines have helped increase production by at least 30% while managing to reduce fluctuations in manpower needs.

In addition, smart factory systems were implemented in their tube and OEM/ODM department such as integrated ERP, IoT, MES and APS systems, thus providing valuable data analysis to make important decisions and adjust processes. With more recent ESG evaluations and related data calculations, ShuzTung Machinery is able to monitor the carbon emission of each machine and have updated the hydraulic power motor on their hydroforming machines to promote environmentally-friendly and economical production processes.

Holland Mechanics and Marchetti [4F, M1302] understand the role of robotics in providing better agility and efficiency to bikes and parts manufacturers. Marchetti is an Italian company that has been operating for over 50 years offering a wide range of high-precision machinery for the bicycle industry, including frame and fork preparation and assembly solutions.

Marchetti's assembly solutions comprise of three products, from single assembly stations for small factories and small production lines to large solutions with their Floorline and Airline range offering the flexibility to have up to 21 positioning lines for large-scale manufacturers. The Airline range comes with the advantage of keeping the bikes entirely off the floor and allowing multiple to work on a single position simultaneously.



Holland Mechanics' sophisticated carbon wheel assembly equipment ensures consistent quality of the wheels



BMD produces a full line of high-quality machines to build wheels, from lacing to rim taping.

Founded in 1971, Holland Mechanics specializes in wheel building solutions, from lacing to truing, for all types of spoked wheels including aluminum and carbon wheels.

Their latest technology, called "predictive wheel truing", is a method using data analysis and predictive algorithms. Sensors collect data on the wheel's spoke tension, rim deflection and lateral runout which is then analyzed to predict any future change in the wheel's performance. This allows the machine to quickly and accurately make adjustments in spoke tension. Truing is then done up to two times faster. This not only means that no buffer is needed in a complete bike assembly line but also results in up to 60% space saving for the manufacturer.

Bohemia Machine Development (BMD), based in the Czech Republic, is another leading innovator when it comes to smart wheel building machinery (hub filling, lacing and truing). They take a different approach to flexibility. First, BMD places great importance in improving existing machines and making them evolve with backward compatibility instead of making them obsolete (even with machines that are 20 years old), giving each machine a long life span and optimized ROI for manufacturers. Besides, another example is the use of two types of rollers that can be switched back and forth allowing a single machine to be used for both alloy and carbon wheels.

In 2023 and beyond, the focus is on the increased use of smart data analysis software. "Digital Twin" technology helps simulate "what if" scenarios and drift parameters in a virtual environment, allowing manufacturers to identify potential issues



BMD's building is a 350 year old stable built in stone and brick.

before they occur, reducing downtime.

The extensive use of data analysis can also assist preventive maintenance. By monitoring machines and analyzing data, manufacturers can identify potential problems before they occur and take action to prevent them. This ensures machines are operating at peak efficiency and again increases their life span.

On a side note, BMD is welcoming founder Bob Best's sons Bob Jr and Olaf to the team this year. Bob Jr will be taking over the management of the company and projects. Younger brother Olaf is a mechanical engineer and will be taking the lead in the R&D department to drive innovation and product development.

In conclusion, smart manufacturing has emerged as a solution for manufacturers looking to increase efficiency and output without the need for additional staff. By automating tasks and using data analytics to optimize production processes, manufacturers can produce customized products efficiently and stay competitive. As the bicycle industry continues to evolve, smart manufacturing will be a critical component of any successful manufacturing strategy. ■ **MW**

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
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- 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**

CYCLING & HEALTH TECH INDUSTRY R&D CENTER

SERVING TAIWAN'S BIKE INDUSTRY FOR THREE DECADES

Taiwan's Cycling & Health Tech Industry R&D Center (CHC) has largely remained in the background over the 30 years since its foundation. But by helping manufacturers identify and rise to challenges early on, CHC has played a crucial part in keeping Taiwan's bicycle industry at the cutting edge.

In an open and globalized market, producers of consumer goods have to opt for a strategy that sets them and their product apart. One strategy is to rely on volume and economies of scale to offer the lowest price. But this has proven to be a race to the bottom that only allows for very limited margins. Under the guidance of both the Ministry of Economic Affairs and the External Trade Development Council (TAITRA), Taiwan's bicycle industry instead opted to strive for innovation and quality. So, as early as 1992, the industry and the government jointly founded the Cycling & Health Tech Industry R&D Center (CHC), with the goal of strengthening Taiwan-based manufacturers for exports to global markets. One early focus of the CHC was to help manufacturers implement the Toyota Production System and lean manufacturing in their production processes.

Thanks to years of steady improvements and research into novel materials and production methods, the 'Taiwan Excellence' brand has been established as a sign of quality, improving the reputation of made-in-Taiwan bicycles and parts. This happened in close cooperation with those manufacturers that founded the A-Team in 2003 to counter the push for outsourcing the production to China. One example for this was the assistance provided to the Giant Group to get its YouBike sharing bike system independently certified. Another example was allowing for the use of magnesium alloy for frame building that preceded the trend towards carbon and involved various universities and Merida Bikes as one of Taiwan's leading bicycle manufacturers. A more recent example has been aiding in the final steps of developing the award-winning Uni Moke lifestyle e-bike by Smiling Elements International Corporation.

At its main office in Taichung and its branch in Chiayi, the CHC employs a staff of 91 that is highly qualified: 52 percent carry a master degree and 44 percent a bachelor degree, and 52 percent of the staff has more than

One recent example for a product that profited from CHC's expertise is the lifestyle-oriented Unimoke e-bike.



10 years of experience in their fields. "Our laboratory equipment is likely the most comprehensive in Taiwan, allowing for all kind of testing of complete bikes, systems and individual parts and components. This equipment is being used to help manufacturers develop innovative products and get the necessary certifications for export markets. Since this is a costly procedure that may well overburden some companies, we are glad to lend a helping hand with our equipment and expertise. But we do not define goals for private enterprises, we can only help in reaching those", explained CHC General Manager Johnson Wu.

With the impending introduction of a carbon tax in the European Union, a key export market, a more recent focus is on assessing the carbon



Robots from three different suppliers working together to assemble pedals as a test run.

footprint of Taiwan-based manufacturers and finding ways to improve it. As part of the push for zero-carbon manufacturing, CHC became a founding member of the Bicycle Alliance for Sustainability (BAS). This increased focus on eco-friendly production also shows at this year's Design & Innovation Awards where sustainability will be a dominating theme. With the International Bicycle Design Competition (IBDC), the CHC has been organizing its own contest to push for innovation for nearly 30 years, and the late François Liang as CHC's long-time general manager was part of the jury at the Design & Innovation Awards for many years – a role that has now been taken over by Johnson Wu.

Recent mega trends such as the electrification of bicycles,

the seamless integration of various components of the assistance drive and added functions for consumers, retailers and manufacturers due to the connectivity with smart phones and the cloud have opened up new fields of research for CHC. "The integration of ICT is a strong trend that will create more value for both consumers and manufacturers. If you take the acquisition of data into the equation, it will also help traffic planners. The analysis of data is a future field of interest with plenty of potential, and Taiwan is in a perfect spot to take the lead in this, being big and innovative both in terms of ICT and bicycle manufacturing", Johnson Wu comments.

CHC's Taichung office includes sections dedicated to intelligent manufacturing and a strong push for more automation, involving welding and painting robots as well as as-





CHC's deputy general manager Mark Tsai (left) and general manager Johnson Wu pose with the track bike designed for Taiwan's Olympian track cyclist Hsiao Mei-yu.

sembly lines that rely on robots. The goal as defined by various players within Taiwan's bicycle industry is to find ways to increase output with limited manpower, relying on both automation and optimization of the production and reflecting the fact that qualified industrial workers are hard to find in Taiwan. While 80-90 percent of the work at CHC is still dedicated to the bicycle industry, the needs of Taiwan's aging population have opened up an additional fields of activity, namely fitness, medical products and the health of the elderly. With this, the expertise of CHC serves not only the heavily export-oriented bicycle industry but also the quality of life for people in Taiwan. ■ LVR



Independent and advanced lab testing is one of the most important services CHC can offer to Taiwan's bicycle industry.

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NEW PRODUCTS



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An innovative latest generation motor, Polini's E-P3+ motor for e-bikes weighs just 2950 grams in a compact volume. It offers 75Nm torque in the E-P3+ (road) and 90 Nm in the E-P3+ MX model (for MTB) for the most demanding users.

The motor uses "Polini Dynamic Control" software to ensure:

- Precision of assistance torque output always according to the effort the cyclist put into pedaling;
- Reactivity to follow the pedaling variations;
- Motor response time reduction when starting pedaling reducing to zero the time of interruption of thrust when stop pedaling.
- Increase of the active assistance till 120 rpm

M2022

JETSET RIMS ARCOS SYSTEM

With Jetset's ARCOS SYSTEM, a new design idea rolls out for lightweight aluminum rims. Now it's available on E-BIKE/MTB/ROAD/ GRAVEL/BMX RACING from size 29"-20" Find out more via our website jetsetrims.com

J1002



KMC E-CARGO CHAIN

The e-Cargo Chain has unparalleled high tensile strength, exceeding international tensile-strength standards to achieve a market-leading 1350kgf which is 30% higher than other KMC e-Bike chains and 50% higher than industry standards. Unique O-Shaped inner and outer plates are strengthened by 13% and 20%, respectively. Wider and thicker plates allow for increased strength, stability, and provide anti-chain drop assurance.

J0118



MEILAN E-BIKE DISPLAY E1

The E-bike Display E1 combines an E-bike Display, app, and Breadcrumb GPS e-bike computer in one device. As an e-bike display it indicates the usual functions such as Speed/Time/ODO/PAS/Power/Battery Status/Walks Assist/Maintenance note/Light control. It also seamlessly integrates with the Meilan app, allowing a range of functionality:

Wireless Setup and Sync: Meilan APP will set up and sync to the E1 hardware via Bluetooth.

Cycling Performance Analysis: E1 will record your e-cycling track and store all cycling data in the device; then all data will be uploaded to

the Meilan APP via Bluetooth.

Wireless Sharing to Strava, TrainingPeaks, Komoot, Google Fit, Apple Health, Facebook via Meilan APP. Currently, Bosch Coboc does not have this function considering their software structure. In addition, the E1 offers breadcrumb navigation using Mapbox worldwide maps.

meilancycling.com



BAFANG M510 MID-MOTOR SYSTEM

Bafang's M510 represents a massive upgrade for the eMTB performance motor. Compared with the last generation, the max torque of M510 remains 95Nm, but the weight is reduced by 18% while the max cadence support is extended up to 120RPM.

M0112

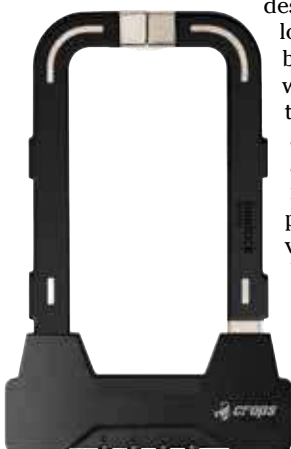


CROPS BENLOCK

Break through the common sense of bicycle locks Crops is launching its newly developed Benlock: a sturdy and portable U-lock. The key to choosing a lock is the balance of weight, ease of handling, and security performance. The stronger the lock, the better the security performance, but the lock is proportionally heavier and harder to handle. As a result of pursuing both strength and ease of handling, Crops has devised the well-balanced Benlock design. The

lock can also be equipped with a smart tag as an advanced anti-theft measure to protect your valuable bicycle.

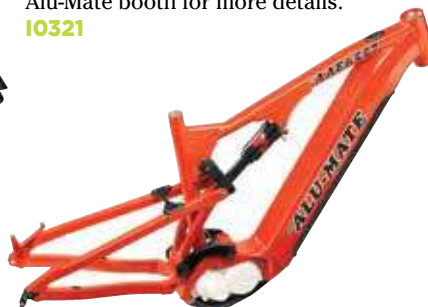
L0924



ALU-MATE METAL INDUSTRIAL CO., LTD. FULL SUSPENSION E-BIKE AAE6557

This brand-new full-suspension e-MTB frame from Alu-Mate features Shimano's EP8 drive and rear travel of 150mm. It uses GA6 series material and takes a 205mm front fork. Available in 29" and 27.5" x 400/425/450/480mm C-T. Visit the Alu-Mate booth for more details.

I0321



TAYA CHAIN GALAXY SERIES

Elevate your cycling experience with TAYA's Galaxy series - a unique and stylish chain with a distinct surface treatment on the chain plates. The mirrored and glossy finish makes maintenance a breeze. Available in blue, green, and purple-red, this high-quality and fashionable chain is perfect for enhancing your bike's appearance.

K0708



LITEMOVE E-BIKE HEADLIGHT SE-90A (DL)

The SE-90A's built-in smart ambient sensor adjusts light output depending on environmental conditions, saving power. Equipped with LiteMove's MTi technology, the sensor enables variable light output for day light (30 lux) and night light (90 lux). 7m wide and up to 180m distance of beam visibility. The SE-90A headlight is designed for 25km e-bike / EPAC. StVZO K-Mark & EN-15194-CE, ROHS, REACH compliant. Awarded "Best of 2023" by E-MOUNTAINBIKE Magazine.

info@lite-move.com
N1225



HAFNY BIKE MIRROR

The HF-M958S-FR011L handlebar bike mirror is made out of an anodized aluminium rod and HD automotive grade glass lens. The aluminium rod is sturdy and durable for all season weather conditions, and has two pivot joints to adjust any desired angle. The clamp can fit 21-26mm handlebars for MTB handlebars. This mirror is an E13 Approved speed pedelec bike mirror.

L0405

KT TAIWAN RATCHET SYSTEM HUB SINGLE SPEED

With the addition of the new steel single speed option, KT Taiwan now covers every type of ratchet system hub. For detailed specifications and more information on this new model along with the complete range of these extremely durable ratchet hubs, visit us at booth I0218.

I0218



NEW PRODUCTS

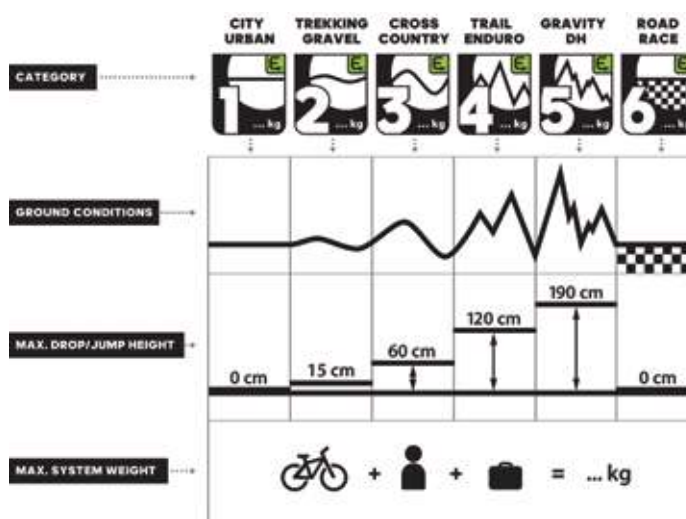
MESSINGSCHLAGER PARTFINDER

The Messingschlager PartFinder is a categorization matrix for bicycle parts. It helps consumers, dealers and manufacturers to select bicycle parts that are designed to withstand the load. Based on the system weight (rider + bike + luggage) and determination of the bike category, the required bicycle part with the appropriate labeling can be selected quickly and easily. The marking is clearly visible as a symbol on the front of the relevant packaging and as a matrix on the back.

The PartFinder categorizes bicycles according to the respective areas of use based on ASTM F2043-13 or DIN EN 17406 (still in the draft stage). The current ISO4210 / EN15194 standards have gaps, as they cover maximum system weights of up to 100 or 120 kg and cannot be used for higher loads, such as in the

trail / enduro area. The Messingschlager PartFinder includes products with quality standards and test reports for increased loads or more extreme areas of application that are not covered by the current ISO4210 / EN15194 standards, partly up to 140 or 160 kg system weight. These were developed in cooperation with independent, accredited testing institutes. This means that the Messingschlager PartFinder products also offer certified safety for higher loads. Get more information at the Messingschlager booth in Hall 1 / J0512.

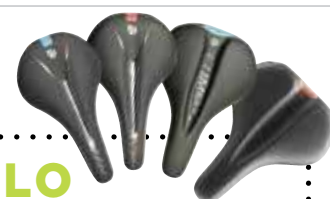
J0512



3X3 NINE GEAR HUB

The 3X3 Nine is a 9-speed hub gear system designed for a wide range of applications. Thanks to its high efficiency, it works for both e-bikes and conventional machines. With 250Nm maximum input torque, it's strong enough to endure powerful e-bike motors and, with an overall gear ratio of 554%, flexible enough to perform on mountain bikes too. Made in Germany, it's produced using industry-leading 4.0 manufacturing technologies. You can find out more at the Gates Corporation booth in Hall 1, F0100.

F0100



VELO ENTERPRISE CO., LTD. RECYCLE FOAM SADDLES VL-3630, VL-3631, VL-6336, VL-6569

Foam is one of the largest sources of manufacturing waste in saddle production. In the past, scrap foam pieces were transported to special waste facilities. Velo has developed a process to minimize foam waste by implementing a recycling method, all done in-house, to re-purpose foam pieces for saddle production. This series of new products uses recycled foam without compromising on quality. Shorter length saddles also follow current market needs and bike fashion.

J0717



C368B

Weight: 478g/pr

Body: Plastic / Sand Paper / Kraton

Bearing: DU / Sealed

Size: 110x132x29 mm



wellgo

Light weight

XL stepping surface

Modern look

www.wellgopedal.com

BOOTH #J0517

SURVIVAL OF THE FITTEST, FIRST VICTIMS OF THE CRISIS

SLUGGISH DEMAND CLAIMS FIRST VICTIMS

While some experts question the pessimistic mood, the current slump in demand has caused a number of issues. With operating costs on the rise and turnover down, some companies find themselves cash-strapped. While this forces some out of business, others opt to join forces.



The state-of-the-art paint line at Cycle Union's headquarters in Oldenburg, Germany.

For everyone responsible for the daily business and production planning and purchasing in particular, the last three years have been stressful ones in the bicycle business. After a short period of uncertainty at the very beginning of the Covid-19 pandemic, the demand for bicycles skyrocketed and the industry struggled to ramp up its production capacities. As lead times for key components and parts multiplied and grew to more than a full year, the production of many bicycles got delayed and product managers scrambled to change the specifications of various models to keep the production running. The resulting bottlenecks in the supply chain cut into the turnover of the entire business as the demand could not be entirely covered.

At the same time higher energy costs stoked inflation, which provoked central banks in key markets such as Northern America and Europe to increase interest rates. As a consequence, rents and investments became more costly, and unions were calling for higher salaries to compensate for inflation rates of 10 percent and more. Due to all these factors many companies saw their turnover and costs get out of balance. One of the earliest victims of this development was German e-mountainbike specialist Infront. Despite its lean administrative overhead and a D2C distribution model, this brand had to shut down its operations in July 2022 when Shimano postponed the delivery of various parts, throwing a spanner in the production of bikes.

Another victim of supply chain bottlenecks, delayed deliveries and higher costs was British titanium frame specialist Stanton Bikes. Not offering any e-bikes and not searching partners to share the development and tooling costs for its various models certainly did not help Stanton

Bikes as it went into administration in November 2022. Three months later the company's original founder Dan Stanton bought the company back, so the brand is likely to survive this episode. In the same month of November Irish e-bike firm Modmo was forced to liquidate due to an order of the Ireland's High Court. The reason for this were serious issues with the battery mount on its Saigon model that was distributed by a D2C model. The resulting recall was too costly for the young company to stem.

With Dutch utility e-bike specialist Vanmoof the cause of ongoing issues is similar: from the assistance drive system to the battery, the lights and even the cockpit, this company relies on a lot of proprietary parts. At the same time Vanmoof is a pure D2C seller, and the after-sales service was never properly taken into consideration. As a result Vanmoof managed to amass an eye-watering operating loss of a staggering EUR 78 million at an annual turnover of EUR 83 million in 2021. The numbers for 2022 were long overdue and an external accountant refused to sign off on the books. The management rang the alarm bells and asked its owners to inject additional money into the company so it could operate beyond the first quarter of 2023. According to Dutch business journal Financieel Dagblad, Vanmoof got the funds it called for at the end of January, with the exact amount remaining confidential.

The biggest company to get into trouble thus far has been the tandem of Prophete and Cycle Union, selling bicycles to hardware stores and supermarkets just as to independent bicycle dealers. A ransomware attack caused serious issues in November 2022, stymieing all deliveries for a couple of weeks. But a look into the books of the two companies shows that they were



Some retailers have been forced to close shop due to the tough economic conditions - like the iconic London-based Look Mum No Hands shop and café.

making hardly any profit in 2020 and 2021 and thus had not any reserve assets to weather a less favorable market situation. Just before Christmas the two partnering companies went into administration. Since the Prophete brand is well-known in Germany and Cycle Union owns a state-of-the-art factory to assemble bikes in Germany, a new owner was found within ten weeks with Singapore-based strategic investor Dutech Holdings. The relevant documents were signed on March 1st.

On a much smaller scale, US-American custom carbon frame builder Parlee Cycles filed for chapter 11 bankruptcy protection in early February while keeping production running. Parlee Cycles' turnover had dropped from US\$ 4.7 million in

2021 to US\$ 3.6 million in 2022 and a meagre US\$ 91,000 in January 2023. When asked why the company got into this kind of trouble, COO Jamie Bradley pointed at a confluence of factors, from Covid-19 to supply chain issues and inflation pressures that have tanked consumer sentiment. Still Parlee Cycles is confident to stay in business. Given the generally positive outlook for further growth of bicycle and e-bike sales, money from outside the industry is flowing into it – aided by interest rates that are still low enough so parking money at the bank won't get you a lot of payback.

Significant challenges throughout the pandemic have resulted in changes on a retail level as well. In North America and the United States in particular, large bicycle brands such



A delivery of Saigon e-bikes from the now defunct Modmo brand.



Raw carbon materials in the workshop of American boutique brand Parlee Cycles.



Vanmoof founders, Ties (left) and Taco Carlier

as Specialized, Trek and Cannondale have been buying independent bicycle dealers in a bid to tighten their control over the distribution network – and also push out the products of direct competitors. This strategy has also been applied in Europe as of late, aided by a number of trends. As Taiwan's exports statistics clearly show, the electrification of the bicycle has caused a sharp rise in average sales prices, increasing the demand for capital to pay for the seasonal pre-order. Many bicycle dealers react by uniting their resources and joining franchises and chains. The fact that many shop owners are about to reach pension age

and are actively looking for a successor plays into this trend as well.

The move to e-bikes also has increased the costs for research and development, tooling and parts and components for bicycle manufacturers. To cover these costs bicycle brands are looking to co-operate with others who do not target the exact same markets, and the platform philosophy known from the car industry is taking hold in the bicycle industry as well. Another consequence of these rising costs is the influx of investments from outside the bicycle industry – a trend covered in yesterday's Show Daily on page 12. ■ LVR

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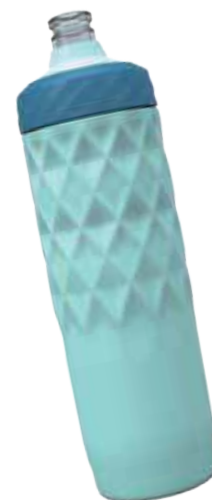
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OVERVIEW: WHEELS & HUBS

NEW TECH ROLLS FORWARD, DRIVEN BY NEEDS OF GRAVEL RIDERS

Wheel technology is rolling forward with hookless and tubeless tech gaining ground as gravel racers and riders push for faster wheels on mixed terrain. Carbon fiber leads as the high-performance wheel material of choice across disciplines; however, carbon fiber construction varies among brands, affecting its price point. Of course, not everyone has a need for speed, and for those cyclists who place a premium on reliability and durability, their wheels need to be more than just round. Spokes and rims are nothing without hubs and together, the following manufacturers share one common goal: to advance the rider's forward momentum.

Deda Elementi's top-of-the-line carbon SL6 wheels perform well above their price point

One of those big players, **Reynolds [L1028]**, which spans decades of wheel design and manufacturing, has also managed to evolve out of its road cycling roots to embrace gravel with abandon. There's nothing "all-road" or "road plus" about the G series wheels, which have a hookless, tubeless rim channel design to allow for characteristically wider gravel tires to be run at lower pressure. Hookless technology has quite literally been gaining traction in gravel wheels for its improved impact protection at lower pressures and easier setup compared to other tubeless wheels. The series has both 650 and 700 sizes and features Pro, Expert, and G models for each. Rim depth measures 26mm, rim width is 25mm, and all are available with either a 12x100 or 15x100 front axle and 12x142 rear axle. Sapim

After hinting at what's to come in wheels for 2023 with the debut of a lightweight wheelset at last year's Giro d'Italia, **Deda Elementi [M0804]** dedicated itself to reworking its range for 2023. The big news, according to Deda, is the introduction of the new SL6 DB, SL4 DB, RS3 DB wheels, and the Hero DB tubeless road wheel for time trial. The RS3 DB wheels feature some of the same hooked-rim, disk brake, tubeless-ready engineering, yet are made from attainable 6061 alloy priced at less than half the cost of the range-leading RS4 DB carbon wheels with ceramic bearings. A standout feature across the range is the new 7075 alloy RS-series hub, which boasts an 80-gram weight saving compared to previous generations, as well as compatibility with **Shimano [M0814]**, **SRAM [M0612]**, and **Campagnolo [F0404]**. In particular, Deda pointed out that the SL4 and SL6 are top-of-the-line carbon wheels with attractive suggested retail pricing (€1350 and €1450 respectively). These two wheelsets (along with the RS4 DB) represent an important step for Deda to forge its reputation among the big players in road wheels.

BLKTEC CID wheels embody the company's extreme expertise in producing wheels to meet the needs of competitive cyclists

Reynolds Blacklabel series designate the brand's highest level of wheel offerings

PERFORMANCE RIM

R001-C35CL RACE DISC

<i>Rim Material</i>	Carbon Fiber , High Toughness Resin System
<i>Rim Construction</i>	Clincher , Tubeless Ready
<i>Rim Size</i>	700c
<i>Rim Width</i>	Internal 19 mm / External 26.6 mm
<i>Rim Depth</i>	35 mm
<i>Rim Weight</i>	460g (28H)
<i>Hole Count</i>	24 / 28
<i>Tire Pressure</i>	110 psi



G701-C35CL GRAVEL DISC

<i>Rim Material</i>	Carbon Fiber , Nano Elastomer Resin Compound
<i>Rim Construction</i>	Clincher , Tubeless Ready
<i>Rim Size</i>	700c
<i>Rim Width</i>	Internal 23 mm / External 30 mm
<i>Rim Depth</i>	35 mm
<i>Rim Weight</i>	450g (28H)
<i>Hole Count</i>	24 / 28
<i>Tire Pressure</i>	75 psi



M601-C36HL AM

<i>Rim Material</i>	Carbon Fiber , High Toughness Resin System
<i>Rim Construction</i>	Hookless , Tubeless Ready
<i>Rim Size</i>	29"
<i>Rim Width</i>	Internal 30 mm / External 36 mm
<i>Rim Depth</i>	26 mm
<i>Rim Weight</i>	445g (32H)
<i>Hole Count</i>	28 / 32
<i>Tire Pressure</i>	50 psi

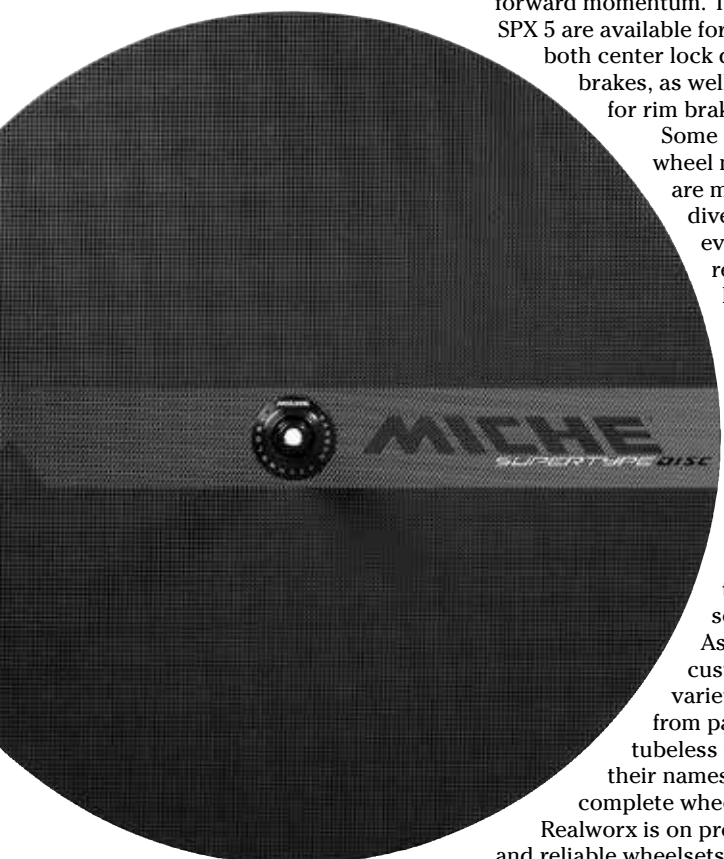
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CX-Ray bladed spokes and a shallow asymmetric rim profile on the Pro and Expert models help sustain torque generated in the crankset and improves the wheel's lateral rigidity. In other words, Reynolds claims that this design means instant acceleration and effortless climbing. All wheels are compatible with Shimano HGR 11sp, Campagnolo N3W, and SRAM XDR.

Not known for mass-produced wheels but rather for products crafted to meet the needs of competitive cyclists, **BLKTEC [M1030]** has gained loyal followers who share its ethos that, "Nothing is worth doing if you are not going to do it right. Demand the best. Expect the best. Ride the best." The company, based in Taiwan, has perfected its wheel expertise with its C1D wheels in a one-piece full carbon design featuring hookless technology and oriented around non-radial spokes. The C1D wheels express the

Miche's Supertype Disc DX lenticular disc wheels combines top performance with "Made in Italy" excellence



best benefits of BLKTEC's previous wheel models, like a no-flex design that transfers all the rider's power into forward momentum, disc brake compatibility, and adaptable to tire widths of 25-35 mm. The company claims that the wheels highlight the latest technologies in carbon fiber wheels for road and all-road applications. Given its commitment to maintaining complete control over all design and manufacturing, it's a claim that BLKTEC can likely guarantee.

Miche [M2026] traces its history back more than 100 years to Italy, where it has produced bicycle parts in-house since 1919. The company has expertly navigated the ever-evolving market with a combination of tradition, passion, the latest technologies, and a drive for innovation. Miche has manifested these values in its Italian production and testing facility where products that bear the Miche name are crafted and tested according to the most stringent standards. The

Italian brand is taking advantage of its presence at Taipei Cycle to show some of the latest products it has introduced to the market in the last several months. The Supertype Disc DX represents an innovative project resulting from "Made in Italy" excellence (a government certification that guarantees the manufacturer has met specific quality standards). This lenticular disc brake-compatible wheel claims top performance in its category thanks to its skillful combination of carbon fiber rim with different lamination and a 3k finish to ensure reduced weight and increased stiffness. Miche chose Shimano's center lock disc brake hub to assist with stopping while low-friction ceramic bearings keep things rolling smoothly. If a disc wheel is overkill, there's the Supertype SPX 5 DX wheel with precise and deliberate UD and 3k carbon fiber lamination to produce a wheel with singular stiffness and aerodynamics. Aluminum 7075 T6 hubs are assembled with ceramic bearings to optimize every watt that the rider puts into forward momentum. The SPX 5 are available for

both center lock disc brakes, as well as for rim brakes.

Some wheel needs are more diverse however, and they still require a precise level of expertise in wheel design and manufacturing for a range of wheel solutions.

Realworx [I1401] has a reputation as a strong wheel specialist that supplies select European, Asian, and other customers with a variety of solutions, from parts to support tubeless technology to their namesake hubs and complete wheels. The focus at Realworx is on providing stable and reliable wheelsets, as evidenced in their carbon and alloy wheels for gravel equipped with Realworx straight pull performance hub with either a three or 6-degree engagement. The company stays competitive with disc brake-compatible carbon wheels for road, as well as carbon mountain bike wheels, both featuring Realworx hubs and meeting current market demands for rim widths and depths. If that's not enough, they also have an accessible price on CNC'd thru-axles and their own patented thru-axle QR.

In support of wheel manufacturers, **DT Swiss [F0534]** has upgraded its popular 350 hub to make it more versatile, lighter, and faster to engage in response to rider input. Independent of any drivetrain, the 350 relies on a plug-in construction



Realworx TP wheels



DT Swiss has released an upgraded version of its 350 hub

to enable conversion to a different drivetrain standard in mere seconds. This tool-free concept was conceived for easy and simple maintenance as well as to give the user more versatility with respect to the free hub body. It also provides an easy way to change the ratchets in order to adjust the engagement angle. To make it lighter, DT Swiss has reengineered the hub shell and axle to shed 5 percent weight for the classic hub and a 10 percent weight for the straightpull hub compared to this newer version's predecessor. The new 350 hub comes with 36 teeth (compared to 18 teeth on the older model), which guarantees an even faster engagement when each side engages and distributes force evenly over more surface area. New end caps feature an upgraded design to guarantee a better grip, thus simplifying disassembly.

Instead of always faster and lighter, some hubs need to be durable to be able to handle the demands of e-cargo and e-mtb mountain bikes. **Novatec [I0922]** has met these demands with two hubs dedicated to beefier bicycles. The mid-range Team hub has a durable and classic design with 33 ratchet teeth and three pawls.



Novatec brings durability and reliability to its two hubs for e-cargo and e-mtb

An upgraded hub shell and oversized bearing design improve strength against other Novatec hubs, while an interchangeable 7075 alloy axle and 7075 alloy cassette body allow the user to switch to a standard mountain bike hub. The Team level also offers 142mm or 148mm spacing, and center lock or 6-bolt disc brake rotor compatibility. The higher end Pro hub is even stronger, more durable, and lasts longer than the Team hub. The Pro's enlarged 40 ratchet teeth and four individual pawls provide faster engagement; its durable hub shell and cassette body design make the Pro 30 percent stronger than Novatec's other mtb hubs. The Pro is also center lock and 6-bolt rotor compatible, and is available with boost 12x148mm spacing. Both the Team and the Pro are compatible with Shimano HG 11sp, Shimano MS 12sp, and SRAM XD.

Wheel and hub solutions like these span a range of rider demands, from fast or aerodynamic to rugged or light, top-performing, modest price, and so on. These new tech trends, materials, design, and engineering that answer to demands and evolve the business of wheel manufacturing might finally give new meaning to "reinventing the wheel." ■ **WB**

OVERVIEW: HELMETS

HEAD PROTECTION HAS NEVER BEEN MORE STYLISH

There are a huge number of helmet options out there for all kinds of rider, and safety features are improving hand in hand with styling and comfort.



Limar's Air Atlas features NACA vents for optimal airflow and ventilation



the UFO section on the Limar Air Atlas can be added to improve aero efficiency



Limar's PROXEAR® coverage system on the Etna helmet is designed to extend the protection offered

Limar [M0303a] has two new helmets on display. The Etna is the company's latest MTB helmet, aimed at enduro and new generation trail riders. the helmet features Limar's PROXEAR® coverage system, which is designed to extend protection to the ears and the temporomandibular joint. This is combined with the MIPS Air Node system for enhanced protection. "You will feel wrapped in exceptional comfort, safe from accidental blows or crashes, totally protected in the event

of a fall," says Limar. Close attention has been paid to the fit, with five levels of height adjustment and a self-adjusting harness to keep everything as snug as possible. A Fidlock magnetic clasp allows for one-hand opening and closing of the strap. The helmet is well-ventilated with a total of 15 vents, and is available in five colours.

The Air Atlas is Limar's newest aero road helmet, and is designed to offer aero performance along with excellent ventilation and comfort. The helmet's most interesting innovation is the UFO, a removable rear section that can be locked into place to improve aerodynamics at the expense of some of the ventilation performance where race conditions require your helmet to be as aerodynamic as possible. Clip it on for the fast sprint stages, take it off for better airflow and crosswind performance.

It's not just about aerodynamics though: the Air Atlas has been designed to be comfortable too. Four NACA inlet vents draw fast-moving air into the helmet without disturbing the boundary layer, to provide excellent airflow through the helmet without adding unnecessary drag.



The HM-EVZ999 has built in Bluetooth speakers and LED turn indicators

The fit system has five levels of height adjustment and the comfortable straps and Fidlock magnetic buckle make it an easy helmet to get on with. The Air Atlas is offered with or without a MIPS Air Node protection layer.

Cycle Chris [L1101a] have a huge range of helmets for all ages and disciplines. The HM-EVZ999 is the company's smart helmet, with Bluetooth connectivity and built-in speakers to stream music from your phone. The integrated 1000mAh battery gives up to 12 hours of play time. The helmet also incorporates a rear LED with a braking function, and amber turn indicators that are controlled by a bar-mounted remote.



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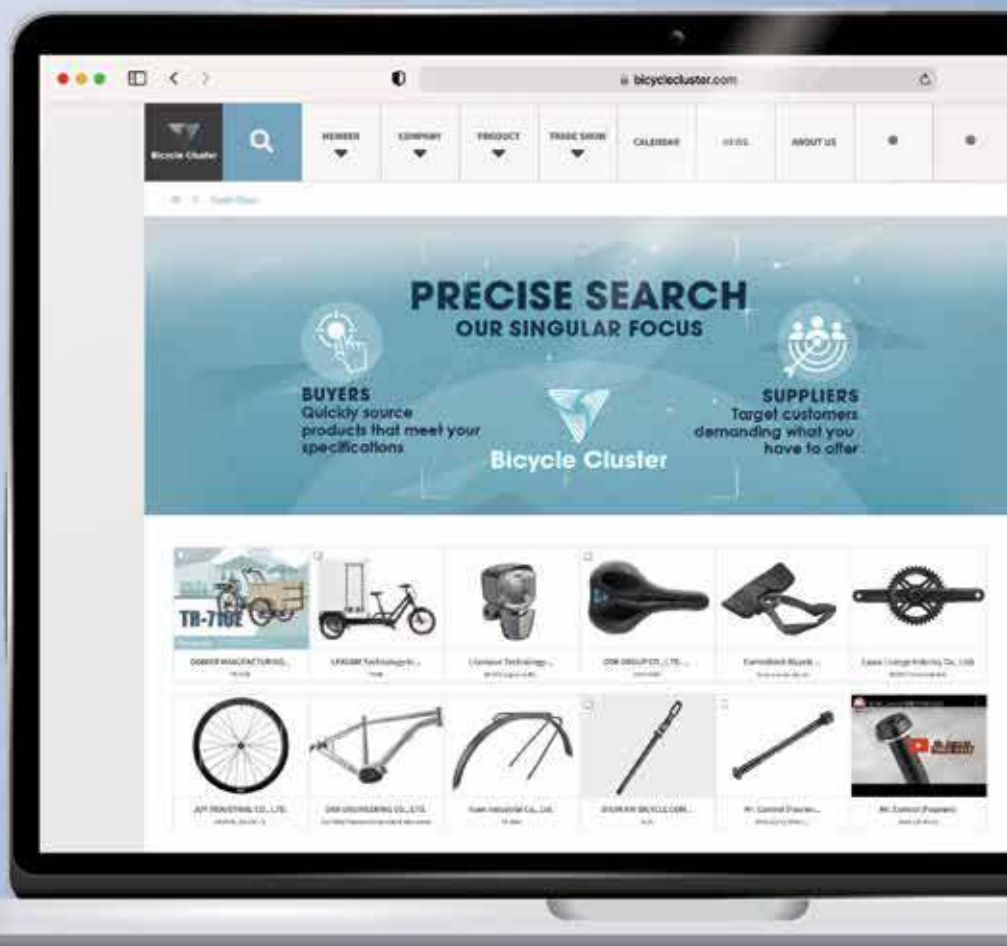


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The Shirocco S-TECH from SH+ incorporates Fidlock's magnetic clasp

The Shirocco S-TECH from **SH+ [Astrella Sporting Goods, L0305a]** is a top-end helmet that's aimed at "road and MTB cyclists who are not satisfied with mid-range products in terms of looks and performance", according to the company. It's a lightweight helmet at just 230g, and uses a Fidlock magnetic buckle that fixes effortlessly and allows for one-handed operation, with no risk of pinching. The Speed Turn retention system is adjustable for height and head diameter to fit a wide range of riders, and the laser-cut padding has a built-in bug net at the front which keeps flying insects out without compromising the helmet's ventilation. The Shirocco S-TECH is En 1078 – CPSC certified and available in six colours including fluo yellow.

The **CRNK [Analogue Plus, M1309a]** Genetic Alpha is the first of the company's helmets to incorporate LED lighting at the rear. The large rear LED gives the helmet a smart look, and offers three different LED patterns. It's a stylish urban/road helmet, but the Genetic Alpha isn't just about looks: the helmet uses a Rigid Brace System, a skeletal brace inside the helmet's EPS foam that improves durability and crash protection.

CRNK is also showing the Angler helmet, which is a low-profile vented road helmet. The Angler uses exposed EPS foam in its design for enhanced aesthetics, and features a reflective rear panel for safer riding on roads at night. It's available in four neutral colourways to match with any cycling outfit.

The X-Eros 2.0 MIPS from **Safety Labs [FLR Shoes, L0724]** was designed with one objective: "to deliver a premium racing helmet with pro performance, safety, and superior comfort". You get many of the features you'd expect to see on a pro-level helmet here, but at a lower price point: a dual-polycarbonate in-mold shell, skeleton reinforcement inside the EPS foam, ample venting, and an aerodynamic profile. Safety Labs uses a dial-fit Pro 360° Fit Adjustment System with three height adjustments. The helmet also builds in MIPS technology to protect against rotational brain injuries in a crash, and there's an integrated LED rear light at the rear for extra visibility after dark.



The X-Eros 2.0 MIPS from Safety Labs packs pro-level features into a mid-price helmet

Irona Co. Ltd [L1429] will be showcasing a range of products from South Korean brand TOMDEER. The Ghost aero helmet is one of the highlights of the range. The Ghost is very much designed with aerodynamics in mind, but safety is also a primary consideration. The helmet incorporates a tail light which incorporates an accelerometer, to shine more strongly when the rider is breaking. It's available in black, white and blue, and weighs 300g.



The TOMDEER Ghost is an aero helmet with an integrated rear LED for safety

Cratoni [M0205a] is presenting the Madflex, a new all-mountain helmet that's very light at only 350g (S/M). The Madflex incorporates 17 vents for good ventilation on the trails, and the CleanTex antibacterial pads are removable and washable. The 360° retention system features stepless height adjustment for a snug fit. The helmet also gets a breakaway visor and a goggle port. It's available with MIPS, and also a Recco passive transponder should search and rescue ever need to locate you.

Cratoni will also be showing the C-Airlite, which at 180g (S/M) is one of the lightest road helmets you'll find. It has 32 vents for maximum airflow, and a 270° Comfort-Fit-System (CFS) with multi level height adjustment. There are reflective accents on the helmet to help with visibility after dark, and it's available in four colourways. The C-Airlite is compatible with Cratoni's C-Safe sensor, which communicates with your smartphone and sends your location via SMS to your set-up emergency contacts if you're involved in a crash. A helmet bag is included with every C-Airlite helmet. ■ **DA**



C-Airlite by Cratoni weighs just 180 grams



Cratoni Madflex



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OVERVIEW: HEAVY-DUTY DRIVE SYSTEMS

BUILT TO HANDLE BIG E-CARGO LOADS

The electrification has given the cargo bike market a serious boost, as hauling goods has become a lot easier thanks to the support of an electric motor. As cargo bikes grow bigger, so do the assistance drive systems built for them.



Bafang concept XL Cargo

For the use in professional logistics, cargo bikes often roll on three or four wheels and can weigh up to 350 kilograms when fully loaded. This naturally puts additional stress on a lot of components and also demands for assistance drive systems that put an emphasis on plenty of torque, reliability and ease of operation. After all most employees of logistics companies are no cyclists and

can easily be overwhelmed by too much technology. While the Taipei Cycle Show features a dedicated Cargo Pavilion for the first time, powerful electric motors that fit the criteria for cargo bikes can be found at different exhibitors – as hub motors and as mid-motors, some of the latter even with built-in gears.

As China's leading manufacturer of electric assistance drives, **Bafang** [Hall 1, M0112] has a selection of



Bafang 3-speed automatic hub

powerful mid-motors and hub motors, with the M620 representing the latest generation of products, cranking out 750 or 1000 Watt and maximum torque of 160 Nm. Since such a high torque is likely to put too much stress on

existing drivetrains, Bafang has been tinkering about alternatives for quite a while now. One idea for heavy cargo trikes is to combine the M620 mid-motor with a differential on the rear axle that has a built-in transmission. For cargo bikes with a less powerful mid-motor, Bafang has come up with hubs that shift gears automatically at given speeds, with the RG-A310 model offering three gears and the RG-A510 model offering five gears. These hubs eliminate the need for a shift lever and a shift cable as parts that can break in heavy use.

As an automotive supplier, **Valeo** [Hall 1, L0618] is a well-known player with an annual turnover of well over US\$ 20 billion. Back in 2017 the French company decided to expand into the micro mobility market. The first products



Valeo Cyclee motor drive

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TECHNOLOGY AND INNOVATION

Portugal Bike Value is once again presented at Taipei Cycle, showing some of the best that the Portuguese two-wheel and soft mobility industry has to offer to the world. Portugal Bike Value is participating under the ABIMOTA FEST 2020 program, co-financed by COMPETE and Portugal 2020. We would like to start with a kind of a quiz. Do you know what's in common between: The world's leader seats manufacturer for children's mobility on bicycle; The world's lightest saddle in the world; The most advanced frame factory in the world; Some most advanced painting lines in the world; The largest bike factories in Europe; The first carbon frame factory outside Asia; One of the corporations that has more registered patents in a single year? They are all part of Portugal Bike Value. Since 2015 Portugal created this brand, as an umbrella for the entire sector, and since there, Portugal felt an increasing of develop-

ment. At this moment Portugal exports more than three million bikes per year, and if the quantity is a reality, quality is even more. The Portuguese industries made their products grow in value. Innovation is a reality in our days.



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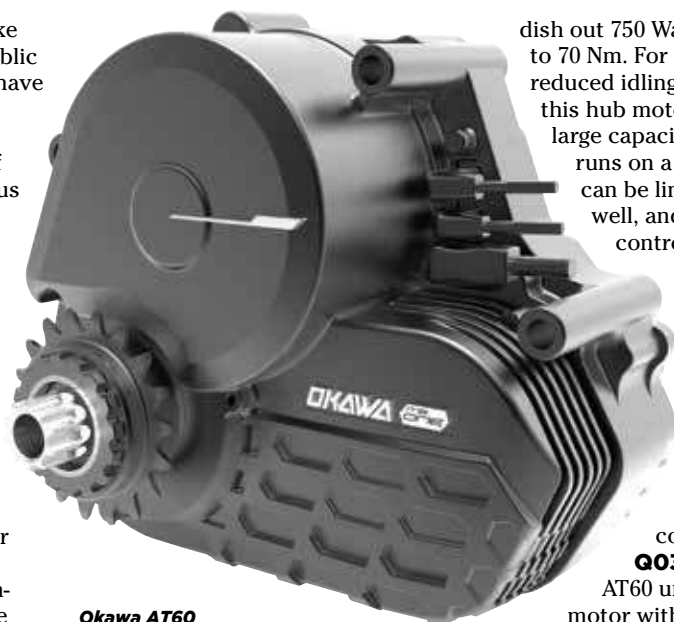
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for bicycles, aimed at the cargo bike market, were first shown to the public in 2020. Since then a lot of details have been improved and the design has been refined. For fast charging its Cyclee system runs on a voltage of 48 V and can crank out a continuous power of 750 Watt – for the EU market, this is being throttled to the legal 250 Watt. At 130 Nm the torque is where the Cyclee system really shines – and the fact that this mid-motor also houses a transmission that Valeo has licensed from their French compatriot Effigear. At Taipei Cycle Show, Valeo is looking for contacts to Asian frame manufacturers and OE partners while also getting an overview over developing trends.

A relative newcomer to the competitive market of e-bike assistance drives is **Hyena Tek [Hall 1, N0616]**. The Taichung-based company has already seen some success with its hub-based systems in the city and trekking categories, working



Okawa AT60

with some well-known OE partners. At Taipei Cycle Show Hyena Tek is launching its new E-Utility system that is based on a powerful hub motor built into a burly shell. This hub motor can

dish out 750 Watt and a torque of up to 70 Nm. For adequate range and reduced idling time while charging, this hub motor is combined with a large capacity 810 Wh battery and runs on a voltage of 48 V. Lights can be linked to the system as well, and as far as displays and controllers go the E-Utility system is compatible with the full range of Hyena Tek's HMI solutions, and for the US market this system can be combined with a throttle as well.

At last year's Eurobike, newcomer **Okawa [Hall 2, Q0327a]** premiered the AT60 unit, a powerful mid-motor with a built-in four-gear transmission and a gear range of 240 percent. Based on the feedback gathered in Frankfurt, Okawa's engineers went

back to the drawing board to change the configuration to an eight-speed transmission with a much wider gear range of just over 500 percent. This unit will not be on display at Taipei Cycle Show yet, but it is in the works.

The fact that **Shimano [Hall 1, M0814]** has launched cargo versions of its EP8 and E6100 mid-motors is another proof of this dynamic market's appeal. Shimano's Steps E-Cargo systems are not aimed at oversized cargo bikes for professional logistics, but for Long John-style cargo bikes that are the 'family vans' of the bicycle world. The hardware of the cargo versions is identical with the regular mid-motors, so the maximum torque is the same at 85 Nm as well. What has been changed is the support at low speeds and cadences, which should make it much easier to get going from a standstill. ■ **Lvr**

Shimano EP8 Cargo drive unit



Hyena E-Utility Drive System Unit



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OVERVIEW: MOUNTAIN BIKES**IT'S NOT ALL MOTORS FOR TERRAIN**

While the emphasis of the Taipei Cycle Show is on suppliers rather than complete bikes, there still are plenty of the latter on display thanks to big players such as Giant and Merida and distributors of international brands.



The natural habitat of Merida's new One-Sixty is wild terrain.



The top-of-the-line model of Merida's new One-Sixty series comes with electronic suspension.

Since the first e-mountainbikes of Hai-bike were spotted in the wild, this category has come a long way. And in some countries, the sales of e-mountainbikes have already surpassed those of their conventional siblings without assist drives. Two new electrified models on display show how diverse the spectrum of e-mountainbikes has become within ten years. Still there are some interesting new mountain bikes without a motor on display at the Taipei Cycle Show as well, as Taiwan's two leading bicycle brands roll out long-travel platforms for men

and women on their home turf that offer a lot of features typical for the latest generation of well-designed all-mountain and enduro mountain bikes.

A prime example for this new breed of highly capable off-road machines is the new One-Sixty enduro platform of **Merida Bikes [M0620]** that is available with carbon or alloy frames and saw its global launch in September 2022. The most innovative feature of this series is clearly the sizing. Rather than taking the seat tube length as a measure to find the fitting frame size as has been the convention for more than a century, Merida Bikes relies on the reach of the frame instead. Since its own Team

Girls want to have fun too - and Liv's Intrigue LT is the perfect ride.



Wilier's Urta Hybrid is a perfect example of a light support e-mountainbike.



Built for endurance racing - and very Italian: Wilier's Urta SLR.

TR dropper post comes with a travel adjustable all the way from 30 mm to a whopping 230 mm, riders get to choose the right length of frame rather than its height. The same concept is also applied for the One-Forty as the shorter-travel all mountain platform.

But that's far from all: with 170 mm of travel up front and 162 mm in the back and 29-inch wheels, the One-Sixty offers heaps of travel. If you go for a reverse-mullet build and put a 27.5-inch wheel in the back, you even get 171 mm. Thanks to a flip chip built into the linkage, this does not alter the geometry. Despite this generous travel this bike climbs well thanks to its steep seat angle and short chain stays. To compensate for the more linear character of large-volume air shocks the suspension kinematics have been tweaked for more progressiveness. As a protection from loose rocks and impacts, Merida Bikes has added thick rubber protectors to the frame in all the crucial places. And the frame also features a storage for tools and a spare inner tube.

With its Liv brand, **Giant Bicycles [M0820]** has been a pioneer in women-specific bikes and accessories. The new Intrigue LT is the longest-travel Liv model to date and is on display at this year's show. The proven Maestro dual link kinematics provide 150 mm of travel, and the fork even has 160 mm of travel. As for the wheel sizes, the XS and S frame sizes

come with a 29-inch wheel up front and a 27.5-inch wheel in the back while the M and L frame sizes are spec'd with 29-inch wheels front and back. A three-position flip chip adds adjustability to the progressive geometry with its steep seat angle, slack head angle, plenty of range and relatively short chain stays. With the dropper post and a storage compartment in the down tube, the Intrigue LT is ready for the rough stuff.

While **Wilier [M2018]** may be best known for its road bikes, the Italian manufacturer will be showing two new mountain bikes at the Taipei Cycle Show. The Urta SLR is a state-of-the-art race bike made for modern cross country and marathon courses. Its carbon frame comes with internal routing for the brake lines and shifting cables and offers space for two bottles. Built with one-by drivetrains in mind, the maximum chainring size is a 38 teeth unit, with a tiny chain guide to keep the chain on that ring. The geometry has been tweaked to offer plenty of agility without becoming twitchy at speed. With 100 mm of travel up front and in the back and 29-inch wheels, the Urta SLR is ready for choppy sections while still being a highly efficient mile-eater and climber.

For those who value a lightweight and agile ride but also are looking for some support for long and hard climbs, Wilier has a suitable new model in the Urta Hybrid. The Italians call



With the Macina Prowler Elite, KTM offers an all-inclusive package for long days in rough terrain.

this an e-downcountry bike, and with 120 mm of travel front and rear and 29-inch wheels, this looks like a highly efficient platform. Wilier has done a great job integrating Fazua's Ride60 assist drive system in the carbon frame. The battery, with a capacity of 430 Wh, fits into the downtube, and the compact drive unit is only visible from the non-drivetrain side. Still you get a 250 Watt and 60 Nm of torque from this system. The flatter head angle, a Kind Shock dropper post and slightly wider tires all promise added capability for rougher terrain while still keeping the weight below 16 kg.

For the most part, the e-mountain-bike market is not weight-sensitive at all, with larger-capacity batteries and beefed up components being

prioritized over weight savings. A prime example is the Macina Prowler Elite of Austrian bicycle manufacturer **KTM Bikes [L0828]**. This bike features a lot of the latest and most wanted technologies on the European and Northern American markets. The Straight Line Link kinematics of the carbon frame offer 170 mm of travel in the back and the fork even 180 mm. Following the reverse mullet concept, KTM Bikes put a 29-inch wheel up front and a 27.5 inch wheel with a plus-size tire in the back. As for the assistance drive system, you get the latest from market leader Bosch eBike Systems with the Performance Line CX mid-motor in the Smart System version, including a battery with a massive capacity of 750 Wh. ■ **LvR**

TINO'S REUSABLE CABLE TIES: HANDY & GREEN

Tino Industrial Co., Ltd. was established in 2011 and has focused on green research leading to a number of EU patents and the development of products related to energy conservation and environmental protection in a wide range of industrial niches.

Participating at Taipei Cycle for the first time this year, **Tino [Q0834]** is exhibiting their recently developed reusable cable tie designed to replace the traditional one-time use cable tie. Not only can each non-toxic cable tie be reused up to 500 times, they are also very easy to tighten and loosen. The user can open or lock a tie with just a slight degree of finger pressure—no tools required. Ties are available in a range of widths and lengths, with the maximum load supported being 56kg.

In the bicycle industry, cable ties are often used for packaging complete bicycles as well as medium or small parts. When a brand or consumer receives a package or complete bike, these ties are usually cut and then discarded, ending up in landfills or even loose in the environment. Now a bike shop, for example, can collect and reuse cable ties for their own packaging or around the workshop.

And these ties, of course, can be used for a wide range of

purposes, not just bikes. Cable ties are especially handy for repair and



maintenance around the house, in the garden, and for an endless number of incidental uses. By encouraging adoption of this reusable cable tie, Tino hopes to solve the current problem of cut-and-discard cable ties and contribute to a more sustainable world. Drop by booth Q0834 to learn more. ■ **GR**

KS

LEV

"Embarking on an adventure calls for gear that you can always count on."

KILIAN BRON



OVERVIEW: ROAD BIKES**ENDURANCE BIKES WITH IMPROVED COMFORT & MOTOR INTEGRATION**

One of the main themes in road bikes over the past few years has been a shift away from pro race geometry and clearances to something that suits the average rider a lot better.



The Scultura Endurance from Merida gets more comfortable geometry and bigger tyre clearance



The Merida eScultura comes in a single build with Shimano 105 mechanical gearing

A bike that embodies current endurance design thinking is the **Merida [M0620]** Scultura Endurance. "The Scultura Endurance geometry is perfectly suited to riders who want to enjoy long hours in the saddle while being comfortable and relaxed on the bike", says Merida, and that's reflected in the geometry, with a stack-to-reach ratio of 1.54 (size M). There is room for a 35mm tyre, meaning the Scultura Endurance can head onto the gravel too with the right rubber.

As befits a high-end road bike you get hidden cable routing, a tapered carbon fork, electronic shifting and hydraulic disc brakes. The brake calipers sit on top of CNC-machined Disc Cooler fins which reduce brake

Giant's Road E+ 1 Pro uses a Yamaha-based SyncDrive motor



The Giant TCR Advanced 2 sticks with rim brakes



operating temperatures by up to 35%.

The Scultura platform is also available as an e-bike in the form of the eScultura, which is available in a single 400-series build with an alloy frame and mechanical Shimano 105 groupset. Merida has chosen a Mahle ebikemotion system, in this case the X35 with a 40Nm rear motor and a 250Wh battery in the down tube.

Disc brakes are almost ubiquitous on modern carbon road bikes now, but it's still possible to find bikes with rim brakes out there. One such bike is the **Giant [M0820]** TCR Advanced 2, which is offered as an all-rounder performance road bike. It uses truncated ellipse tube shapes to improve aerodynamic efficiency, and the OverDrive oversized steerer and big MegaDrive rectangular profile downtube give the bike a super-solid base for precise handling and instant power transfer.

Giant's Road E+ range has always sported a full-fat Giant/Yamaha mid-motor system and a decent-sized battery for longer range. The latest Road E+ 1 Pro (pictured) uses the SyncDrive Pro motor with a massive 80Nm of torque on tap, and an EnergyPak Smart Compact 500Wh battery. The Road E+ bikes use Smart Assist technology, with an array of 6 sensors to determine the amount of power to deliver. The motor system is built into an ALUXX SL frameset, and 32mm tubeless tyres are fitted as standard.

The latest road bike from **Look [Q0831]** is the 765 OPTIMUM, which Look describes as "a distinctive, multi-talented road bike, designed for ultra-distance racing as well as for your everyday rides". Like the Merida Scultura Endurance, the 765 OPTIMUM is designed for riding long distances in comfort and at speed. There's clearance for 34mm tyres, and the stack to reach ratio of 1.54 (size M) means that it puts you in the perfect position for longer rides.

The frame features fully internal cable routing and Look combines carbon and glass fibres in the frame layup in order to achieve a balance of stiffness and compliance. The seatstay design features Look's 3D WAVE technology, which uses a specific carbon layup and shape to provide the bike with optimized lateral efficiency and comfort.

Look's 765 OPTIMUM is designed for riding long distances in comfort



Wilier's Granturismo SLR frame features an Actiflex 2.0 shock absorber

The **Wilier [M2018]** Filante hybrid is firmly in the lightweight e-road bike camp, and uses Mahle's new ebikemotion X20 motor system that really takes e-road bike integration to the next level. The frameset is based on the pro-level Filante SLR as used by the Astana racing team. The 236Wh battery is integrated into the down tube, and instead of a top tube button the controls are integrated into the stem, with an ANT+ capable Pulsar One computer included.

The X20 motor is significantly smaller than the X35, but manages to generate 55Nm of torque, a 15Nm increase. It's also been redesigned to make it easier to swap freehub bodies. Perhaps the biggest change, though, is the move to a 12mm through axle. The rear dropout has a built-in electrical connector that ensures the hub positions itself directly in contact with the battery, so there are no wires to disconnect and re-attach.

Wilier's new Granturismo SLR is Wilier's top endurance bike. The frame features an Actiflex 2.0 shock absorber to dampen vibration from the rear wheel; it uses an elastomer in most builds, but in the Dura Ace Di2 and Sram Red AXS setups the elastomer is replaced with a 3D printed conformal lattice structure, reducing the weight of the frame by a further 20g.

The past few years have seen many brands simplifying their ranges by moving from separate lightweight and aero platforms to a single do-it-all bike incorporating aspects of both the **Argon 18 [M0513]** Sum is just such a bike, designed to "get you ahead on the climbs, keep you there on the flats, and power you through the sprints." The Sum features an hourglass-shaped headtube, and



The Argon Sum platform brings aero benefits at a lighter weight

profiled fork legs that deflect air away from the downtube for maximum aero advantage. Argon 18 says that CFD analysis shows the Sum's aero performance is equivalent to the all-aero Nitrogen. The sleeker tube profiles over the Nitrogen mean a lower overall weight, and dropped seatstays and an indented seat tube equate to 30-35% more rear compliance than the latest-generation Gallium Pro.

Carbon and alloy frames continue to dominate the road bike market, and modern standards and features proliferate, but if you're looking for something with more classic lines then there are still plenty of builders out there to cater for your needs. **Caribou Bike [I1008]** was founded in 1999 and fabricates handmade metal frames using Reynolds, Columbus, Dedaccia, KVA, Easton, and Tange tubes. The 50-strong company produces high-quality, high-end frames such as the lugged frame (pictured), built from Columbus Spirit tubing. ■ DA

Caribou's high quality frames can be built from a variety of tubesets



NEW PRODUCTS



V-GRIP (CHEN WHUA INTERNATIONAL) V PLAID SPORT BOTTLE

This 750ml bottle with an attractive plaid design provides a grippy texture to hold. It 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.

J1318

WELLGO PEDAL'S CORP. CLIPLESS PEDAL B365

With a durable claw design, replaceable pins, and anti-loss adjustment, the B365 is a single side clipless pedal with an oversize platform. The duo side design gives you more options, whether it's a serious ride or a casual trip to the store. These 516g/pr alloy pedals are compatible with SH-51 cleats. Wellgo's new anti-loss adjustment means you don't have to worry about losing parts. **J0517**



ALEX RIMS EMP5 WHEELSET

Alexrims EMP5 Wheelset unites our e-bike-specific componentry into a complete wheelset that has been proven in a wide variety of e-bike applications. At the core is our BEB004 hub which drives our robust MD30 rim resulting in a wheelset that can stand up to the hefty torque and power of modern e-bikes. **J1018**

JIASHAN SHENGGUANG ELECTRONICS CARRIER TAIL LIGHT

The JY-9052-110AX carrier tail light uses five low-consumption LEDs, with brake function to provide additional safety. It has an extremely powerful light beam to ensure that the cyclists can see and be seen. The light offers ultra-compact dimensions with perfect visual integration. **G0924**



EESSENS INC. MODULE FOR HELMET MAKERS

The Helmet Evolution module is the first helmet module on the market that integrates sensor technology and direction indicator light. Eesens' proprietary motion detection technology uses head movements to activate turn signals. The direction indicator light is operated by quickly turning the head to check the traffic behind in the direction the cyclist intends to turn without using a manually operated controller. **DigitalGo! only**

ALEXRIMS

ALX945D
ROAD DISC WHEELSET

ALX945D

ALX945D maintains the recipe for exceptional performance at a price other wheel brands struggle to meet. A 45mm deep, tubeless-ready, full carbon rim offers superb road feel while keeping weight to a minimum. These wheels roll on sealed bearing hubs (2 front, 4 rear) on aluminum alloy axles for long lasting performance in all conditions while still being light. Available in 6-bolt and centerlock disc options and compatible with 8, 9, 10 and 11 speed cassette bodies. 1,725 grams per set.

www.alexrims.com

BOOTH J1018

OVERVIEW: FOLDING BIKES

FOLDERS WITH ADDED PORTABILITY AND EASIER STORAGE

Folding bikes are the ideal companions for cyclists with busy lives. Taking up a minimum of space at home, they can also easily be taken on the train or chucked into the trunk of a car. This lets their users link up different modes of transport, utilising the bike alongside private vehicles or public transport. Like all styles of bikes, the segment has been revolutionised by the advent of electrical assistance. However, given their small size and the need to carry them, it's taken a while for makers to create motors and batteries small enough to suit most folding bikes. Now technology has caught up, and as a result, there are plenty of fantastic options in both electric and traditional styles. Here are some of the show's best.

Dahon Curl Ei4

a space of just 68x45x61cm. Like the cargo model, it joins a folding range that includes the speedy Unio E20, sturdy gravel-focused GB-2 Electric, mid-motor powered K-ONE, and stylish step-through Ciao E7. Tung Keng Enterprise's **DK City [N0220]** brand has two new electric folding bikes. First up is the dbN, which features a radical single-sided front fork and chain stay design. Keeping its compact frame as light as possible is an Mg-Al alloy construction and tri-spoke

This year **Dahon [F0429]** launched its first electric assist cargo bike. Its Foldable Cargo E-Bike is a full-size bike with twin front wheels and a sizable carry basket that manages one very clever trick. It can be quickly folded down to reduce its size by around 35%. At a stroke, this solves one of the most common issues around cargo bike ownership—namely, how to store them. The bike benefits from five gears, four levels of electric assist, and a powerful mid-drive motor when in use. It claims a highly expansive range and can carry up to 250kg of cargo. Rolling on twin 24-inch front wheels and a single rear 20-inch wheel, it's stable and manoeuvrable. Its cargo box can also be configured to hold multiple child seats. Ideal for business or personal use, the bike features a frame that's easy to step aboard and an integrated rear rack for additional carrying capacity.

This cargo-carrying option joins the firm's recently released Curl Ei4. This is Dahon's most compact ever e-bike. Protected by 11 patents, this electric version uses a motor in the front wheel and a matching battery pack on the top of the frame. Adding electric assistance makes an already versatile bike capable of even broader use. It achieves a small folded package through its patented Flip Frame design, whereby the aluminium frame folds at two points. This is in addition to the handlebar stem, which can also be folded over. Combined with small diameter 16-inch wheels, this creates a bike that, when folded, takes

Dahon Ecargo

wheels where the spokes and hub are integrated into a single piece. It then combines a distinctive design that utilises an enclosed drivetrain with a mid-drive system and disc brakes. The firm's dbM rolls on larger 20-inch wheels and shares many design elements. It again employs a magnesium alloy construction and tri-spoke wheels. However, it uses DK

DK City dbN

City's distinct folding mechanism, which sees the bike's main parts pivot around an oversize central joint. Compared to its sibling, its drivetrain is exposed and relies on a clean running belt for propulsion.

Votani is a sub-brand of **BESV [N0110]**. Its 20-inch wheeled F3 folding bike provides user-friendly features to meet the needs of a wide variety of riders while retaining an accessible price point. To do so, it relies on a 250W front hub motor and 252Wh frame-integrated battery to provide a mix of performance and affordability. The Votani F3 is equipped with BESV's Algorithm power system that offers four assist levels and tailors the motor's response for increased performance. Its interface also allows for features, including automatically activating the bike's integrated headlamp. Uniquely,

Votani F3

the centre of its frame can also accommodate a readily accessible basket. Providing riders somewhere to store their possessions without the need for dedicated panniers or a rack, it's one way the bike suits itself to both commuters and leisure users. Equipped with mudguards, a kickstand, and a Shimano Nexus 3-speed hub gear system, it arrives ready to roll.

Pacific Cycles [N0308] owns the factory from which a host of well-known folding bikes emerge. These include Birdy, Reach, IF, and Carryme. Birdy makes versatile folding bikes based around an innovative full-suspension chassis and using high-quality parts. Available in classic and monocoque aluminium constructions, their geometry aims to echo that of a traditional road racing bicycle and makes them ideal for athletic riders looking for a travel-capable bike. The spec of the brand's high-end models reflects this with miniaturised aerodynamic wheels and Shimano 105 gearing. More rugged mountain bike tyre versions are also available. Pacific Cycles' Reach label takes this ethos further. It offers flat and drop-bar builds with a focus on minimal weight and race-bike-like performance. They're ideal bikes for racers who can't fit a full-size bike

**The famous Birdy model**

into their suitcase. However, despite their tiny size, each model still sports lightweight polyurethane suspension to ensure their 20-inch wheels roll as smoothly as possible. By comparison, IF's designs majors on urban utility. Their single swing-in-half folding motion will have you going from packed to riding in an instant, while a mono-sided fork and rear triangle are necessary yet striking design features. The fundamental design used by IF has given rise to many bikes for different applications and



sporting various-sized wheels. Finally, Carryme bikes utilise tiny wheels and a folding design around a straight central spar. The result is a bike that folds in seconds, weighs as little as 8kg and fits into just 91x30x27cm. It's as close to a bike you could fit into a handbag as you'll find. ■ **JD**

IF folder from Pacific Cycles**Pacific Cycles' Reach**

OVERVIEW: FRAME MAKERS CREATING THE BACKBONE OF THE BICYCLE.

The bicycle frame is the foundation upon which all other components are built, and it must provide strength, durability and stability while being relatively lightweight and comfortable to ride. Frame makers play a crucial role in the cycling industry as they have the knowledge and skills necessary to create frames that meet the specifications and needs of individual cyclists, mountain bikers and casual riders.



The new cargo line from A-Pro Tech provides numerous options for customization.

Taiwan is home to some of the world's leading bicycle frame makers, with a long-standing reputation for producing high quality frames, and renowned for their expertise in working with a wide range of materials including aluminum, steel, titanium and carbon fiber. They have invested heavily in cutting-edge technology and state-of-the-art manufacturing processes to ensure that their frames are produced to the highest standards of quality and precision.

A-Pro Tech [1F, I1117] has been making high-quality bicycle frames since 1982. Always ready to answer the needs of the market, he company is ready for the burgeoning cargo bike segment. Their new e-cargo bicycle line – E-Cargo EG4A-B11 – can meet these needs. The bike has multiple combinations that allow for customization, whether it's for moving packages or riding with family. For travelers, a dual battery option from Bosch is available for extra performance and range.

Kinesis [1F, J1218] is a professional manufacturer of lightweight and stylish aluminum alloy frames for over twenty-two years. It utilizes advanced materials and has developed unique



Kinesis' patented technology enables a single-piece hydroformed downtube and motor bracket.



The new IQ8000 low step e-bike frame hides the shock right behind the seat tube for a clean design.

fixtures, heat treatment ovens — to minimize the deformation created from the water quench for 6061 aluminum —, and manufacturing tools, while implementing rigorous quality control standards and subjecting every product leaving their factory to EN testing.

This year at TCS, Kinesis is introducing two new innovative e-bike framesets. The first, the IQ8000, is a low step entry level suspension city/trekking bike frame with the shock completely hidden within the seat tube. The second is a gravel bike frame that harnesses new technology called HDM (Hydroformed Downtube Motor), a downtube and a motor mount hydroformed from a single piece of aluminum, thus offering a lightweight and clean design.

With over 25 years of experience in bicycle frame manufacturing,



Bici Casa is part of JOY TAI INT'L CORP., based in Changhua, Taiwan.

BICI CASA [1F, I0701] is passionate about creating functional framesets that offer the best value for money. The company's vision is to produce top-quality, high-sustainability, and high-performance bicycle frames for cyclists worldwide. They specialize in alloy frame production and provide OEM services for all types of frames to their clients. With the ever-evolving e-bike design landscape, they have incorporated various equipment and new technologies to manufacture high-end e-bike frames. BICI CASA has prepared themselves by introducing new equipment, upgrading their production lines, and implementing advanced technologies for mass production.

HSU-I Metal Industry Co., Ltd. [K1407] is a Taiwanese company that started business in 1968, producing small-sized press parts. The company later expanded its business to produce medium-sized sheet metal stamping



Most frames from Hsu-I metal industry are welded by robotic arms to provide consistent quality.

parts for global automotive brands. HSU-I has gained recognition from its customers for its excellent quality and precise delivery. Manufacturing of frames began after collaborating with an academic institute in a special project called "High stiffness and Light Weight of Frames".

The company's production process is highly robotized, and most frames are welded by robotic arms to provide consistent quality. HSU-I believes that flexibility will be crucial for companies to maintain their competitive capabilities and survive in the industry, given the fast-changing market.

Limotec [4F L0808] believes that cargo bikes can be a solution to city traffic problems and an alternative for delivery requirements and that the bike industry needs to collaborate with cities to develop better plans for the next generation of transportation. Limotec is set to unveil a 3-wheeler cargo bike in 2023, designed to provide an open platform for business and personal use. The cargo bike can be equipped with different e-systems and even offers all-wheel drive capabilities. The Chassis Control System (CCS) patent has improved the driving safety of the trike. The additional E1

Limotec's 3-wheeler cargo bike provides an open platform for business



E-dropper, which integrates with the e-bike, provides fast and reliable riding safety. Also, Limotec's T&T patent wave frame structure offers excellent stiffness results for low-step in-tube battery bikes. The structure can be adapted to different tube designs and e-systems.

Pro-Lite [4F, L0617] combines the experience of a family-owned Taiwanese manufacturer with the know-how and passion of retired pro-cyclist Steve Fenton. Over the



Pro-Lite has expanded their knowledge to include cargo bike frames.

past two years Pro-Lite's frame factory has expanded into cargo bike chassis, sports equipment chassis and many kinds of e-bike frames. "Our experienced manufacturing team can help bring a frame project from design to a finished product, overcoming the many hurdles faced by small and medium sized brands. We have our own facilities for everything from tubing to welding to heat treatment to alignment and finishing processes like painting, decals and branding as well as QC, assembly and any special requests for packing.", said Fenton.



In their facilities, ORA produces not only titanium frames and components but also steel and alloy ones.

Last but not least, with two decades of insisting on quality and continual improvement, **ORA [1F, I0908]** stands firmly as the leading titanium bicycle frame company in Asia. Based on the expertise, experience and quality standards gained from building titanium frames, ORA has been able to raise the standards of its steel and alloy products. This unparalleled level of experience makes ORA the partner of choice for tubing suppliers seeking to explore and expand the boundaries of frame building technology as they continue to offer new specifications of E-bike frames, tubing sets, dropouts, and seat tubes. ■ **MW**



At ORA, frames and components are thoroughly tested to their limits.

OVERVIEW: TRAINERS**LOCKDOWNS HAVE EASED, BUT INDOOR TRAINING IS HERE TO STAY**

With the easing of COVID restrictions it's easier to get out and ride your bike in the fresh air, and this has had some impact on the world of indoor training. However, many of the riders who found themselves confined to the house for training have continued to ride indoors as a part of their weekly training regimen: it's a time-efficient way to train, and smart apps such as Zwift, TrainerRoad, Rouvy, MyWhoosh and Wahoo X offer an immersive way to track your fitness.

Evolvo's smart trainer is compatible with a wide range of axles and cassettes



accepts 12-speed cassettes from the most up-to-date groupsets.

Minoura [M1012] is well known for its trainer lineup, which includes rollers, wheel-on and direct drive units. The Kagura smart trainers are at the top of the range and offer smart training in both direct drive (the LSD9200) and wheel-on (LST9200) options. Interestingly though, the Kagura smart resistance unit is also available on its own, and can be retrofitted to most of the Minoura wheel-on range. The unit is capable of up to 2,000W of resistance, and connects via ANT+ or Bluetooth to training apps. It's powered from the mains, but also has a three-position magnet that offers 100W, 200W or 300W of resistance at

Evolvo [4F-L1101a] already makes a big range of wheel-on trainers with magnetic and fluid resistance units, but it will be showcasing its new direct drive smart trainer at the show. With ANT+ and Bluetooth connectivity to talk to all major indoor training apps, the RT-EVM22 also uses the FE-C.ERG protocol for smart control of resistance. It boasts wide compatibility with different bike standards: wheel sizes from 26" up to 29" are supported, and both 130/135mm quick release wheels and 142/148mm through axles can be used.

The trainer is a belt-driven direct drive type and the hardware and firmware is Evolo's own design. It's compatible with HG and XDR cassettes and has a maximum resistance of 2000W and gradient simulation of up to 15%. Power accuracy is +/- 3%.

T-Sox [Unite Creative Design,



The TX-7 trainer is now available with a 12-speed-compatible freehub

N0517] also has a direct drive trainer, the T-SoX TX-7, that will work with a range of bike sizes. The TX-7 trainer's adjustable frame works with anything from a 24" wheel upwards, and uses ANT+ FE-C and Bluetooth FTMS protocols to connect to training apps. The trainer has a 4kg flywheel to simulate a smooth road feel, and can offer resistance of up to 2,200W from its belt-driven electromagnetic resistance unit. The trainer offers over-the-air firmware updates, and has a maximum rider weight of 114kg. There's a new version of the trainer, the TX-7 12S, that

Minoura's Kagura smart resistance unit is available as an upgrade to many of its standard trainers



40km/h when the unit is not plugged in, making it a useful option if you want the benefits of smart training but also use your trainer for race warmups outdoors when power is not available.

Another good option for race warmups are the **Feedback Sports [Lee Duo Trading, M1207a]** Omnium rollers, as their super compact fold size makes them extremely portable. They're also a great option for working out in a small living space. The narrow double rollers and the adjustable fork mount give them a very small footprint, so it's easier to fit your training setup into a corner, and they're very quick to pack away. There are two versions of the Omnium currently available: the Omnium Over-Drive uses a progressive resistance unit that allows for harder efforts, and the Omnium Zero-Drive gets the minimal resistance of a traditional roller setup for spinning.

If you're looking for a more traditional set of rollers then **Ya Cheng YCT [K0331]** has two models in the range, the YCT900 and the YCT1000. Both of these sets of rollers use a similar design,

YCT's roller range uses a centrally folding frame for easy storage



The GH-575-1 rollers include a front axle mount



with a centrally-folding frame. The wheelbase is adjustable to accommodate bikes with wheel sizes from 20" to 29". The more fully-featured YCT1000 gets a more rigid frame with a central brace, and tool-free adjustments of the front wheel roller. The YCT1000 also has a raised bumper on the front roller, as well as a ramped cylinder design, both of which help to guard against the wheel coming off the roller during training.

Geng Hung GH Bike [K0923a] also offers a set of rollers in the shape of its GH-565, which is a folding design using a ramped roller design to keep the rider central on the trainer. If you're not that confident in your ability to stay upright then the GH-575-1 includes a front axle support, allowing you to secure your bike directly to the trainer. Inside the rollers there are cylindrical bearings which GH Bike says will ensure many years of trouble-free operation. The rollers are highly adjustable and will cater for wheels as small as 18", while the folding frame design makes them easier to store and transport.

Yuen I [J1217] offers three traditional wheel-on trainers in its range, which use a pivoting frame that allows the rider's body weight to load up the roller for good contact with the tyre. All three trainers have adjustable resistance; the 812 Corso Lite uses an adjustment knob on the resistance unit itself, whereas the 812A Corso Evo and the 812B Corso both get a bar-mounted remote resistance control. All three trainers are rated for a maximum rider weight of 100kg.

Any professional racer can tell you about the benefits of altitude training: spending time up high and training where the air is thinner can increase the amount of Erythropoietin (EPO) Hormone produced by your kidneys, and this in turn stimulates generation of red blood cells which leads to improved oxygen transportation through the body.

Training at altitude isn't the only way to achieve this, though. On the **Speedhigh [M1014]** stand you can see the company's KOM hypoxic generator. The 120kg generator runs inside a sealed chamber (there is a 3x3m chamber on the stand) and is capable of simulating altitude by lowering the concentration of oxygen within the hypoxic chamber. The 2,200W generator can be set to hypoxic concentration of anything from 20.9% (the oxygen concentration of air at sea level)



The 812 Corso trainers from Yuen I use a pivoting frame to transfer power to the roller

right down to 9%, which is a simulated altitude of 6,500m: that high up you'd struggle to turn the pedals! If space or budget means that you can't stretch to a hypoxic chamber then another option is a smaller unit which uses a face mask instead of a chamber to regulate the amount of oxygen in the air that you breathe in while training. ■ **DA**

A hypoxic chamber allows riders to train in a low-oxygen environment without going to altitude



A mask-base hypoxic system does away with the need for a sealed chamber



台湾の輸出統計

成長痛と需要の低迷が重なる

2022 年は台湾の自転車輸出産業にとって両極端な年となりました。当初は新たな成長記録達成の兆しが見えていました。しかし、主要市場におけるインフレと消費者心理の急激な悪化によって水を差される形となり、下半期は多くの台湾メーカーの業績が低迷しました。それでも、数字的には上々となっています。



注文のキャンセルや需要の低迷で商品が山積

新型コロナウイルスの感染拡大が、さまざまな国で社会や医療制度に大きな負担となったことは間違いありません。しかし同時に、自転車や部品、アクセサリの市場は、この感染拡大の間を通して力強い盛り上がりを見せました。EU や米国などの主要市場では、人々がジムでの運動をトレーニングライドに、公共交通機関での移動を自転車での移動に、海外での休暇を国内での滞在に切り替え、徒歩や自転車で行ける範囲で楽しむようになったのです。その結果、自転車に対する需要が高まり、商品不足が継続的に発生し、自転車産業は生産能力の限界に直面することになりました。こうした商品不足に対応するために、自転車の販売店や代理店がさらに注文を増やしたため、受注残とリードタイムが倍増しました。

台湾の工場は、状況を收拾し、高い顧客満足度を維持するために、フル稼働以上で稼働していました。2020 年、台湾の自転車産業は輸出数で 18%、輸出額で 14% の成長を見せましたが、これは乱高下する短いブームの始まりに過ぎませんでした。2021 年、従来型自転車の輸出が台数で 17%、金額で 19.7% の成長を見せた一方で、e バイクの輸出は台数で 30%、金額で

33% という驚異的な伸びを示しました。部品およびコンポーネントはさらに好調で、トン数で 44.15%、金額で 58.2% のプラスとなりました。台湾の輸出の驚異的な成長は 2022 年に入っても続き、全体の輸出は 1 月から 4 月にかけてさらに 28% 増加しました。部品およびコンポーネントも再び 42.7% という非常に高い伸びを示し、従来型自転車は前年比 20% 増、e バイクの輸出は 12.8% 増となりました。

新型コロナウイルスの感染拡大が落ち着きを見せ、人々の新しい日常が始まるかと思われた矢先、ロシアのウクライナに対する攻撃により、エネルギーや多くの原材料が高騰しました。それに起因するインフレによって、主要市場の消費者心理が悪化し、自転車の販売店や代理店では在庫が憂慮されるレベルにまで膨れ上がりました。その結果、連鎖的なキャンセルが発生し、7 桁に上る台数の自転車が注文書から消え、台湾の多くのサプライヤーや自転車メーカーのビジネスを圧迫、保管能力やキャッシュフローの問題を引き起こしました。2022 年 11 月に Taipei Show Daily が台湾メーカーを訪問したときには、明らかに重苦しいムードが漂い、外的要因によってゴールドドラッシュは終わりを告げたように

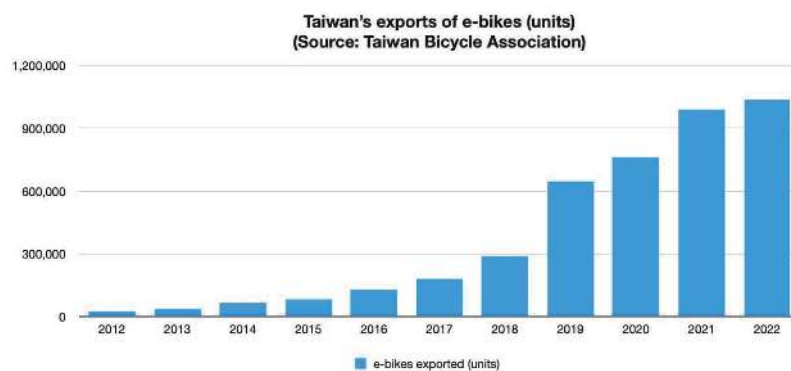
思われました。期待されたビジネスの約 4 分の 1 が、突如消えてしまったのです。

では、2022 年 末の状況はどうだったのでしょうか。台湾自転車協会 (TBA) が発表した暫定的な輸出台数は、最近よく報道で目にする絶望的な状況を踏まえると、それほど悪くはないようです。2022 年のこれらの数字は、台湾の自転車産業

が過去最高レベルを記録した 2021 年との比較であることに注意が必要です。2022 年末、台湾における e バイクの輸出台数は、従来型自転車については、これまで米国が台湾にとって最重要市場となっており、輸出の 40% 以上を占めています。オランダ、英国、オーストラリアはそれぞれ 10% 未満です。台湾製の折りたたみ自転車は非常に好調で、輸出台数が前年比 5.4% 増の 15,161 台、輸出額が 36% 増の 1,037 万 5 千ドルとなっています。折りたたみ自転車の主要市場は、韓国、中国、日本です。

台湾における自転車関連の輸出は、完成車ではなくコンポーネントや部品が大きな割合を占めており、フレームやフォークからホイールまで、さまざまな接合部やスペア部品の製品を網羅しています。このカテゴリーは 2022 年もほぼ鈍化を示しておらず、輸出トン数は 4.06% の微増にとどまったものの、輸出額は 26.43% 増の 30 億 1,300 万米ドルに

が過去最高レベルを記録した 2021 年との比較であることに注意が必要です。2022 年末、台湾における e バイクの輸出台数



は初めて 100 万台を突破しました。最終的な輸出台数は 103 万 7,286 台となり、5.1% の伸びとなりました。e バイクの平均輸出額が 12.5% 増の 1497.5 米ドルであったため、全体の輸出額は 15 億 5,300 万米ドルとなり、15.9% の成長となりました。これらの輸出における最も重要な市場は、オランダ、米国、ドイツで、台湾の e バイク輸出総額の 3 分の 2 以上を占めています。

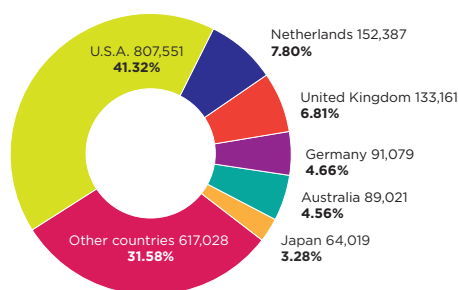
従来型自転車については、2022 年における台湾の輸出台数が 195 万 4,246 台で、前年比 2% 減となりました。それでも輸出額は 20.6% 増加して、16 億 1,700 万米ドルとなっています。この増加は、台湾がエントリーモデルやローエンドモデルよりも消費者心理の悪化の影響を受けにくい、ミドルエンド～ハイエンドのモデルに注力したためであると考えられます。台湾の従来型自転車の輸出平均価格が前年比 25% 増の 827.73 米ドルとなり、過去最高を記録したこともこの説明を裏付けていま

跳ね上がっています。これは、e バイクと従来型自転車の輸出額合計にほぼ匹敵する金額です。ホイール関連部品、ディレイラー、ブレーキが大幅に伸びた一方で、電子部品、サドル、ペダル、インナーチューブなどは、輸出額において必ずしも減少していないものの、輸出台数においては程度の差こそあれ、いずれもつまづきを見せています。

2023 年について、シマノは自転車部品ビジネスにおける 23% の落ち込みを予想しています。これは、消費者需要が引き続き低迷していることに加え、ウクライナ戦争による不安感、注文のキャンセルによるビジネスの停滞を反映しています。一方、供給面では、1 年分の需要をカバーできるだけの在庫が確保されています。2023 年、台湾の自転車産業がこの難題にどう立ち向かうかが注目されています。ポジティブな観点で見ると、現在の状況は新しい従業員（採用が可能であれば）のトレーニングや、既存の工場内の設備や手順の最適化に適しています。

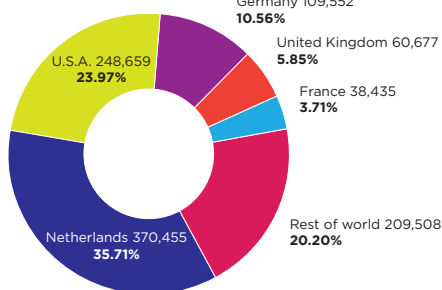
■ LVR

Conventional bike exports 2022 (units)



Source: BOFT information Center/ Taiwan Bicycle Association

E-bike exports 2022 (units)



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

概要：ライト

最新技術は明るくコンパクトで、 高エネルギー効率

ライトは常に、必要不可欠なアクセサリであり続けてきました。現在は、ライダーにより完全なパッケージを提供したいという設計者らの思いもあり、自転車の購入時に標準装備されることが増えています。e バイク市場が牽引するトレンドの 1 つであるライティングは、今や大きなセールスポイントとなっており、自転車メーカー向けの OEM ライティングソリューションが爆発的に増えています。小売市場も遅れを取ってはいません。有線式、充電式を問わず、ライダーはライトに何らかのプラスアルファを求めるようになっていきます。明るさの向上やブレーキセンサーのような補助的な機能など、最もエキサイティングな設計のいくつかを以下で紹介します。



Sigma Buster 1100
Buster RL 150 K-set



Crops Scenes SC100R



ルギー効率に優れた LED と高度なダブルレンズを組み合わせ、明るさとエネルギー消費量の間で完璧なバランスを実現しています。ハンドルバーに取り付けたスイッチで便利かつ安全にコントロールすることができ、ユーザーは 100 ルクスのロービームと 120 ルクスのハイビームを選択できます。また、スタイリッシュでコンパクトなアルミボディで、冷却効果を高めています。StVZO 規格の認定を受けているこのライトは、8～48V の幅広い電圧入力で動作し、さまざまな e バイクに適しています。

Gaciron Q1028 は、数多くの革新的な製品を提供しています。最新の V20-1500 モデルは、フロントライトとリアライトを防水アルミケースに収容し、単一のユニットに統合しています。フロントは最大 1,400

ルーメン、リアは最大 100 ルーメンを照射することができ、よく見えるだけでなく、よく視認されることを可能にしています。ライトは周囲の明るさに適応するインテリジェントモードにより、自動的に作動します。両端は昼間点灯として使用でき、またそれぞれが夜間照明と

日本のライトメーカーである**クロップス L0924** は、非常にスマートなテールライトを今年の見本市で出展します。小型の Scenes SC100R ユニットの 35 個の LED アレイが優れた視認性を提供します。8 つの機能モードを備えており、ライトの自動機能を選択すると、必要時に自動点灯します。日中にトンネルを通るときや、明るい場所と暗い場所が入れ替わるときなどに、特に便利です。このコンパクトなライトは、ライダーに取り付けたり、ストラップに取り付けたりして、自転車に直接固定できるクリップを備えています。また、このスマートなライトは充電中でも動作可能であるため、必要に応じてサドルバッグに入れたり、リモートバッテリーパックから電源を供給できたりします。

シグマ M1205 の新製品は、Buster シリーズです。4 つのフロントライトと 2 つの対応するリアユニットが用意されており、それぞれユーザーのニーズに合わせて使用できます。フロントライトは最大出力 1,100、800、400、150 ルーメンから、リアライトは 150、80 ルーメンから選択可能です。すべてのフロントライトには、5 つのモードプロファイルが予めセットされています。これには、夜間と昼間の点滅モードだけを表示して、複数の冗長なオプションをスクロールする必要性を排除した通勤者向けのオプションなどが含まれます。また、高出力のオプションでは Osram または Cree の LED とシグマによる革新的なレンズを組み合わせ

せており、全モデルがコンパクトな設計で、詳細なライブのバッテリー情報を提供します。完璧にマッチするテールライトとして、Buster RL 150 と RL 80 が用意されています。フロントライトに組み合わせて使用すると、ほぼ全方位の視認性を提供することができます。最大 2km 先まで視認可能な RL150 は、自動ブレーキライト機能も装備しています。

Lite-move N1225 は、MTi 光学技術の成功をさらに拡大しようとしています。新しい AEW-230 ヘッドライトは、230 ルクス／950 ルーメンの出力を備え、ハイビームとロービームの 2 つのオプションを提供します。特に e-MTB ライダー向けに設計されており、10m のワイドビームと 300m までの照射距離が特長です。ライディングスタイルに合わせ、ハンドルバー、ステム、フォークの複数の取り付けオプションが用意されており、コントロールスイッチもハンドルバーのどちら側にも取り付けられるようになっています。また、SE-90A もスマートなフロントライトです。Lite-move の MTi テクノロジーと内蔵の環境センサーにより、日中と夜間の使用に合わせて 30～90 ルクスの間で出力を変えることができます。また、スマートな省電力型の自動明るさ調整機能も搭載しています。

Jiashan Shengguang Electronics Q0924 が提供する新しい JY-7280E-1 は、e バイク専用のフロントライトで、ハイビームとロービーム機能を備えています。エネ



Jiashan Shengguang Electronics JY-7280E-1



Lite-move AEW230



Lite-move SE90AD alt



Gaciron W03



Meilan Cute-Eye



Buchel Optical150b



Gaciron V20-1500 Front



Buchel Edge

して幅広い十分な光量を提供します。ユニットはさまざまな位置に設置でき、ハンドルバーの上または下に固定したり、ヘルメットに取り付けたりすることができます。また、レーザー光線を採用したスマートブレーキテールライト、W03 も注目を集めています。強力なレーザー光線を道路に投射し、ライダーを際立たせます。ブレーキ機能に加え、環境光センサーとスマートなマグネット式マウントシステムを装備しています。

Meilan L1230 の Cute Eye は、インテリジェントなテールライトです。発売から5年を経て、よりスマートに、より小さくなり、より幅広い機能を搭載したアップデート版となっています。この再設計されたユニットは、新たに遠隔作動式ターンインジケータ、自動ブレーキ検出、高輝度のレーザーセーフティライトを搭載しています。サドル下にすっきりと収まる幅広の薄型設計がスマートに統合された外観を実現し、IPX6 の防水性能により、あらゆる天候での動作を

確約しています。ライトの機能は、コンパクトで触覚的な Bluetooth BLE 4.0 リモコンで操作できるため、ハンドルバーからコントロールすることができます。ライトは最大 1km 先から視認でき、後続車に自分の存在と意図を知らせることができます。

コンポーネントメーカーの **Büchel M0203a** は、今年の見本市で 5 つの新しいライトを発表します。最も期待を集めているのは Optical 150 で、このヘッドランプはほぼあらゆる場所に取り付けることができます。ハンドルバー、ステムの前方、e バイクのディスプレイ下、フォークなど、ブラケットですべてに対応でき、アルミニウムとプラスチックを組み合わせたデザインは、軽量でスタイリッシュです。ライト自体は 150 ルックスの明るさを実現しており、ハンドルバーからハイビームとロービームを操作できます。新しいリアライト、Edge ST-E と組み合わせ使用できます。この革新的な設計は、新しい StVZO および ECE 指令を満たす、

緊急ブレーキインジケータ付きの初のセンサー制御ブレーキライトであるとされています。ドレスデンのフラウンホーファー研究機構と共同開発された Stoptech 機能により、自転車のブレーキラインに物理的に接続する必要がありません。また、ライトに義務付けられている Z リフレクターは、荷台に取り付けられるミニマムな設計に統合されています。

ReadyGo Q0223a の Lumis システムは、明るいいリアライトと一連の実用的なアクセサリを組み合わせています。システムの中核をなしているのが、サドルレール下方にしっかりと固定された 140 ルーメンの明るいいリアライトです。これに専用のツール収納ボックスやリアフェンダーなどのアクセサリを取り付けることができます。組み合わせて使用したとき、システムがこれらアイテムの取り付けを効率化し、追加することによる視認性向上を確約します。軽量で空気力学的なこのシステムは、特に統合が重要な関心事となるレーシングバイクに最適です。複数のモードが用意されており、最大 8 時間の駆動が可能で、重量はわずか 28g という軽さを実現しています。

スマートコネクティビティは、**Eesens** ブランドの大きなセールスポイントです。そのシールドシステムは、自転車の後部に取り付けるライトと、ヘルメットに取り付けるセンサーで構成されています。このセンサーはジェスチャーを検知し、ライダーが現在のコースから逸れることを示すと、ターンシ

グナルを作動させることができます。また、このライトは 70 ルーメンの照明と 220 度の視界に加えて、モーションセンサーを搭載し、ブレーキライト、転倒検知、盗難警報の機能も提供しています。これらはすべて、設定のパーソナライズや、各デバイスのステータス表示などが可能な同社のコンパニオンアプリでコントロールすることができます。

最後に、**Lezyne L0517** は、その有名なラインアップにいくつかの新モデルを追加しています。Super HB E1000 ユニットは、e バイク市場へのさらなる進出を目指しています。この強力な StVZO 認定取得済みの e バイク用ヘッドライトは、600 ルーメンと 1000 ルーメンのモードを備え、ハンドルバーに取り付けられたボタンで選択することができます。システムユニットには 130cm のケーブルが付属しており、e バイクの電源システムに直接接続できます。ランプ本体は、冷却フィンを備えた加工アルミボディに收容されており、向上された熱管理がプログラミングに組み込まれています。ライダーに装着するライトとしては、Helmet Lite Drive 1000XL が最大 1,000 ルーメンの出力を提供し、類似のアルミ構造と熱管理特性を備えています。また、このライトは GoPro スタイルのマウントインターフェイスとベルクロストラップを使用しています。設置後は、同社の最大光学反射レンズにより強化された、優れた視線方向の照明を提供します。■ JD



ReadyGo Lumis Fender



ReadyGo Lumis



Lezyne HelmetLiteDrive1000XL



Lezyne SuperHB-STVZO-E1000-AL

パンデミックを経て

本来のペースを取り戻しつつある見本市

パンデミックを経て、世界が新しい日常を取り戻そうとしている中、見本市やイベントは、元の姿で復活したものもあれば、進化したものもあります。ビジネス向けのイベントでは、何が新しくなり、何が変わらなかったのでしょうか。

ほぼ3年間にわたり、世界経済、およびそれに伴う自転車産業は、渡航制限と検疫による実際の対面が不可能な状況を受け入れるしかありませんでした。それ以来、ビデオ通話やオンライン会議に多くの時間が費やされるようになりましたが、それらは直接の対面式コミュニケーションに代わることはできませんでした。2023年、中止や大幅な制限ばかりだったイベントの時代は終わろうとしています。3年ぶりに海外からの来場者が南港展示センターで開催される台北国際自転車見本市に戻ってきますが、これは予定されている数多くのイベントの1つに過ぎません。

カリフォルニア州モンレーで開催されるシーオッタークラシックは、多くのメディアに取り上げられる主要な消費者向けイベントとして、長年にわたり定着しています。北米市場にとって、4月中旬から下旬にかけて開催されるこのイベントは、自転車のスポーツ志向の側面を重視する出展企業が一堂に会する場所となっています。また、メディア関係者が多く来場し、有意義な試乗の機会が多いことから、近年はこのシーオッタークラシックでスポーツ向けの新製品を発表するブランドが増えており、今後ともその傾向が続く見込みです。

2023年には、eバイクに特化した新しい見本市、(e)revolution が初めて開催される予定です。これは、業界の重鎮である Lance Camisasca 氏が大手 e バイクブランドの支援を受けてプロデュースする見本市で、コロラドコンベンションセンターを舞台として、2022 年秋にコロラドへの移転を発表した The Big Gear Show と同じ会場で開催される予定です。両見本市はいずれも B2B2C の形式を導入し、最初の2日間は従来型の B2B 専門見本市、最後の2日間はブランドや小売業者が一般来場者と交流できる消費者向けの新しいイベントを開催します。Camisasca 氏は、6月8日から11日まで初開催されるこの新しい見本市に出展することに、アジアのメーカーが大きな関心を寄せているとしています。

世界最大の自転車見本市であるユーロバイクは2022年、開催地をコンスタンス湖畔で30回にわたって開催されてきた落ち着きのあるフリードリヒスハーフェンから、金融の中心地であるフランクフルトに移すという大胆な行動に出ました。この移転は、スポーツ志向のセグメントから、実用車やマイクロモビリティに焦点を拡大することを示していました。アクセスのよい国際空港から見本市会場までの公共交通機関、豊富な宿泊施設、あらゆる価格帯のレストランなど、フランクフルトは海外からの来場者にとってより便利な都市となっています。自転車産業の一部大手企業の中には、それでもユーロバイクに出展を行わず、自社のディーラーイベントに頼っている企業もある一方で、フランクフルトでの初開催は非常に前途有望でした。

2022年の不満点の1つは、当初の開催時期であった7月中旬が欧州各国の夏



9月のIAAでは自転車出展企業の選択肢が拡大

季休暇の時期にぶつかっていたため、主催者が見本市をさらに3週間ずらした6月末に開催することを決定したことでした。2023年に海外から出展するサプライヤーにとって特に目新しい点は、コンシューマー向け事業を展開していない出展企業が、イベントの多いコンシューマー向けの開催日をスキップして、出展期間とそれに伴うコスト発生期間を5日間から3日間に短縮することを可能とした B2B パッケージです。このパッケージを選択した出展企業は、第9ホールの別フロアに配置され、コンシューマー向けの開催日には完全に閉鎖することができます。そのため、ブースの撤去や梱包を邪魔されることなく行うことができ



ます。出展企業の関心が高いため、第9ホールでも3階が増設され、見本市の B2B 向け部分がさらに強化されます。

2021年、ドイツ最大の自動車見本市がフランクフルトからミュンヘンに移転され、IAA モビリティと名を変えて、自動車以外のモビリティにも門戸を開くことを示しました。ミュンヘン市街地での「オープンスペース」のコンセプトが、一般来場者の注目を集めたことが称賛されました。しかし、自転車やマイクロモビリティのブランドを、来場者がずっと少ない会場の一番奥に位置した2つのホールに集めたことが、多くの批判を浴びました。また、標準ブースに限定したことで、出展コストを削減できる可能性はあったものの、ブランドの展示方法や他社との差別化も限定されていまいました。

9月5日から10日にかけて開催される2023年の IAA モビリティについて、主催者側はコンセプトを変更し、自転車やマイクロモビリティのブランドに対して大幅な改善を約束しました。ブースも多くの来場者の動線から外れた2つのホールに集められるのではなく、企業が重点を置く分野に応じて配置され、ブースを構築する資材も自由に選択できるようになります。これは大きな改善のように聞こえますが、自動車メーカーと自転車メーカーのマーケティングや見本市の予算の差をより一層痛感させられることになるかもしれません。

ビジネスに最も重点を置いたイベントは、台中バイクウィークに他なりません。当然ながら、このイベントは新型コロナウイルスの感染拡大による渡航制限によって大きな打撃を受けており、2022年はまさにそのよい例となりました。2020年と2021年の開催が中止された後、主催者側はイベントの開催を希望し、受け入れ先ホテルも予約から手を引く気はありませんでした。しかし、業界側の考えは明らかに違っていました。9月は台湾の検疫規定がまだ有効であったため、海外からの来訪者はイベントを見送ることを決めました。また、台中の緊密な自転車業界では、ビジネスパートナー同士が日常的にそれぞれの本社を簡単に訪問できるため、わざわざホテルの予約が必要な一元的なイベントに対するニーズはありませんでした。

新型コロナウイルスの感染拡大中に供給ラインや製品企画に多くの問題が発生したことを踏まえると、取り上げるべき話題には事欠きません。加えて、渡航制限がほぼ解除されたため、10月3日～6日に開催が予定されている台中バイクウィークは復活を遂げ、グローバルな自転車産業の日程として再び定着することになるでしょう。

過去3年間を通じた北米やヨーロッパなどの主要な輸出市場における明らかなトレンドの1つが、ドイツ・デュッセルドルフのサイクリングワールドやスペイン・ジローナのシーオッターヨーロッパ、イタリアのバイクフェスティバル、ヴェルビエのeバイクフェスティバルなど、多くの人々の注目を集めるコンシューマー向けイベントの開花でした。参加者が多いことは活発な需要を示す喜ばしい指標ではあるものの、出展企業の多くはメーカーではなく、国内の販売業者となっています。 ■ LVR



ユーロバイクは昨年フランクフルトで盛況のうちにスタート



新イベント:(e)revolutionをコロラドコンベンションセンターで開催



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

概要：「ライトサポート」eドライブ

スポーティな e バイクでは、 無駄を省く方が効果的

多数のサプライヤーがより小型でスリムなバッテリーを使用し、サポートの手間がかからない軽量なアシストドライブによって、スポーツ志向のライダーを惹きつけようとしています。この「ライトサポート」の категорияが人気を博してきており、その一部が台北国際自転車見本市で展示されます。



より自然でダイナミックな乗り心地を提供し、より高い接続性を実現する高度なセンサーやアルゴリズム以外に、電気アシストドライブにおいて大きなトレンドとなっているのは、移動距離とサポート力を向上させる大型のバッテリーです。しかし、後者の2つのトレンドは重量を増加させるため、誰もが歓迎するとは限りません。スポーツ志向のライダーによる e バイクの利用を促すため、アシストドライブのメーカーやサプライヤーの一部は、製品を軽量化する方法に重点を置いています。これは、e ロードバイクや e グラベルバイクでよく見受けられますが、ミニマリストが好む実用車や e マウンテンバイクでも見受けられることがあります。最も軽量化を実感しやすい場所は、モーターとバッテリーです。

軽量アシストドライブに注目した最初の企業の一つに、**マーレ**（ホール 1、**N1423**）（別名：E-Bike Motion）があります。このスペイン企業は、ドイツの大手自動車サプライヤーであるマーレ社に買収される前に、X35 システムを発表しました。システム全体の重量はわずか 3.5kg であり、容量 250Wh の薄型バッテリーをややオーバーサイズのダウンチューブに収めた X35 は、従来の光学系にこだわらず、ロードバイクに電動サポートを搭載する理

想的な選択肢となりました。カセットとローターの間にある最大トルク 40Nm の小型ハブモーターは外側からは見えないため、X35 システムを備える自転車は、一目では e バイクと認識できないほどです。このため、X35 システムは OE 市場で大きな成功を収めています。

しかし、マーレ社はさらなる改良のアイデアを持ち込みました。第 2 世代の X20 システムは、小型・軽量のアシストドライブで新たな基準を打ち立てており、システム重量は 3.2kg へと軽量化されると同時に、最大トルクは 55Nm へと強化されています。バッテリーについては、自転車メーカーは 250Wh または 350Nm のいずれかのバージョンを選択でき、直径は変わらず、長さだけが異なるものとなっています。傾斜の多いロングライド向けに、マーレ社は 172Wh の容量を持ち、標準のボトルケージに収まるレンジエクステンダーをオプションで提供しています。また、ボトムブラケット部分へセンサーを追加し、アルゴリズムを改良することで、すべてのケイデンスにおいてよりダイナミックで自然な乗り心地を実現できるよう、力を注いでいます。

台湾メーカーの **Hyena Inc**（ホール 1、**N0616**）は、同社の重量を最適化したアシストドライブを搭載した E-Road Air Drive システムを台北国際自転車見本市で発表します。システム重量 3.2kg、容量 250Wh の薄型バッテリーにより、このアシストドライブは e ロードバイク、e フィットネスバイク、e グラベルバイクの市場をターゲットとしています。小型のハブモーターは 150W、お



Bafang M820
システム

よび最大トルク 30Nm の出力性能を備えています。トップチューブにすっきりと収まる小型のコントローラーと、両側にトルクセンサーとケイデンスセンサーを備えた ISIS タイプのボトムブラケットを搭載した Hyena 社の E-Road Air Drive システムは、仕様に関する統合の容易性と汎用性を特徴としています。ハブモーターには 9 ~ 11 速のカセットに対応する HG スタイルのボディが標準装備されますが、その他のボディを搭載することが可能です。

Alber（ホール 1、**F0535**）はこれまで、Neodrive ブランドで販売され好評を博したハブモーターで、実用車、トレッキングバイク、カーゴバイク分野に注力してきました。このドイツのサプライヤーは、ライトサポートのトレンドに乗った、まったく新しい製品のサンプルを台北国際自転車見本市で初展示します。Nano と名づけられたこのシステムは、標準的な 142 x 12mm のスルーアクスル、120mm のシェル径、約 1.8kg の重量を持つハブモーターを特徴とします。Nano モーターは最大 32Nm のトルクと 250W の出力を誇り、ややオーバーサイズのダウンチューブに収まる 360Wh のバッテリーと統合されています。このバッテリーはわずか 2kg 超であり、屋内で簡単に取り外して充電できます。ロングライド向けに、Alber 社では、重量 1.9kg で標準のボトルケージに収まるよう設計されたレンジエクステンダーも提供しています。

システム重量を削減するもう一つの方法が、**Bafang**（ホール 1、**M0112**）により展示されます。同社の M820 ミッドモーターは、軽量化を実現するためマグネシウム製ハウジングを採用しています。このため、2.3kg という非常に妥当な重量に収まります。他の軽量アシストドライブのハブモーターに比べてわずかに重量があるものの、Bosch eBike システムやシマノといった標

準的なモーターに比べると、大幅に軽量化されています。最大トルクも 75Nm とやや低いものの、重量わずか 2.2kg、容量 360Wh の BT F050 インテグレートユニットといった、小型のバッテリーが使用可能となっています。こうした組み合わせでも、システム全体の重量は 5kg 未満に収まるほか、他社が提供するハブベースの最軽量モデルよりもトルクが強化されています。スポーツ志向のライダーを惹きつけるため、Bafang 社は ISIS ボトムブラケットアクスルと幅狭 Q ファクターを搭載した M820 ユニートを開発しました。

残念ながら台北国際自転車見本市では展示されませんが、その他の注目すべき軽量アシストドライブシステムの例として、ドイツの TQ-Group が提供する HPR50 システムがあります。小型のミッドモーターを中心に構成される同システムの重量はわずか 3.9kg であり、Trek、Scott Sports、BMC、Simplon などのブランドで、2023 年モデルに採用されています。さらに小型化を推し進めたもう一つの例は、スイスのサプライヤーである Maxon が提供する Bikedrive Air システムであり、フルサスペンションの e マウンテンバイクで、重量を 15kg 未満に削減できます。こうした軽量化コンセプトの先駆的企業の一つであるドイツのサプライヤー、Fazua 社も、今年の台北国際自転車見本市での出展は見送る予定ですが、同社は昨年、高級スポーツカーメーカーのポルシェにより買収され、注目を集めました。**Look Cycle International**（ホール 2、**Q0831**）のブースでは、Fazua 社の小型ミッドモーターシステムを採用した E-765 e ロードバイクをご覧いただけます。■ **LvR**



Hyena E-Road
エアドライブシ
テムユニット



ファズアシステム搭
載のLook E765

熱錢持續湧入自行車產業

自行車後勢看漲持續吸金

因為通貨膨脹以及消費者信心指數低落，近來自行車產業遭遇一波修正，但將眼光放長到中、長線，自行車產業依舊後勢看翹，這也吸引了大量來自私募基金以及其他行業的投資者，前仆後繼地捧著現金大舉投資自行車產業。



BRP Pinion SmartShift變速箱。



Enviolo花鼓。



德昌電機收購了德國Pendix所推出的電機系統。



Fazua Ride 60中置電機。

根據德勤 (Deloitte)、歐洲自行車產業 (Cycling Industries Europe) 等機構的市場調查顯示，這一波自行車熱潮延續到 2022 年，廠商們個個訂單大爆發、歡欣鼓舞。然而，一場戰爭卻全面扭轉了樂觀的態勢，俄烏戰爭已僵持了一年多，連帶拉抬了燃料和能源成本，接連重挫消費者信心，在供過於求的情況下，廠商們的倉庫爆倉，並且面臨現金流不足的窘境。儘管自行車產業在短期面臨修正，但以中長線來看，自行車可以作為休閒運動，也可以作為綠色交通，因此後勢依然看翹。也因此，吸引了更多熱錢湧入業內。

作為 VW 福斯汽車的荷蘭總代理，PON 集團可說是併購自行車品牌的王者風範。它採取的第一步，是收購同樣來自荷蘭的 Gazelle，這可能是基於同鄉之情，讓這個荷蘭經典品牌延續生命。然而，野心勃勃 PON 集團，後續接連併購了 Derby Cycle (旗下品牌包括 Kalkhoff、Focus)，以及包括 Cérvelo、Santa Cruz、Urban Arrow、Veloretti 等，展現出要做行業一哥的霸氣。後續再接連整併了 Dorel Industries，從其手中接管包括 Cycling Sports Group 旗下品牌的 Cannon-dale、GT、Mongoose、Schwinn、Kid Trax，至此，PON 集團已經超越 Accell 集團成為歐洲最大的自行車製造商。您以為 PON 集團就此收手了嗎？不是的，他們還掌握了 Swap Fiets 的自行車月租方案公司，以及 Fiets Ned 的車隊管理和移動維修服務領域，最近還在德國以及立陶宛投資興建工廠，加深鞏固其產業龍頭的地位。

另一個業外的集團，虎視眈眈想進入自行車產業的是以越野重機摩托起家的 Pierer 集團。這一間奧地利公司旗下囊括了包括 KTM、Husqvarna 以及 Gasgas 等越野重機。起初，Pierer 先藉由收購由 Felix 以及 Susanne Puella 所創立的 Pexco 新創電能運輸公司。沒多久，Pexco 以及其品牌 Husqvarna、R Raymon 被完全併購，並且加速橫向拓展的節奏：包括了推出 Gasgas 電動車品牌，再進一步壯大 Pierer 自有的子公司，例如 Felt Bikes、Johansson Bikes、Liteville 和 Syntace。2021 下半年，Pierer 宣布與保加利亞位居領導的自行車製造商 Maxcom 成立合資企業。此外，為了進一步鞏固其在台灣自行車產業中心的地位，Pierer 於 2022 年在台中市開設了亞洲辦公室。

馳名全球的性能跑車品牌保時捷也對高階自行車品牌產生了濃厚興趣。2021 年底，保時捷收購了克羅埃西亞電動超級跑車製造商 Rimac，以及包含旗下的 Greyp 品牌，其車輛的亮點在於搭載智慧型運算軟體，並且配置台製的 MPF Drive 中置電機。2022 年，保時捷再

收購了德國新創公司 Fazua 20% 的股份，這是一間位於德國聚焦於電機系統的公司。同年 6 月，保時捷再下一城，完全取得並掌控 Fazua。另外，保時捷的另一策略，通過與 PON 集團子公司 Ponooc Investment 共同成立兩家合資企業，保時捷希望開發自己的電輔車和微型移動解決方案，在自行車產業佔有一席之地。

毫無疑問，德國變速箱的 Pinion 在這一波電輔車的熱銷之下，在獲利部分大有斬獲。不僅如此，Pinion 趁勝追擊，透過使其產品線多樣化，讓產品定位涵蓋了更大的價格帶。目前，它已成為 100 多個自行車品牌的供應商，並與全球 600 多家經銷商建立了售服聯繫。這樣一家正在成長的公司當然沒有被忽視，因為加拿大 BRP 公司 (Bombardier Recreational Products) 在 2021 年 8 份收購了 Pinion 的大部分股權。BRP 公司看到的是 Pinion 專屬的密封傳動技術的巨大潛力，不僅適用於自行車，還適用於其他的動力運動和海上應用，以及其他人力驅動載具的核心業務。

作為中國領先的電機製造商之，總部位於深圳的德昌電機集團是知名的汽車、工業和醫療應用電機、開關和相關機電元件供應商，德昌在 22 個國家擁有 35,000 名員工，是一間頗有規模的跨國公司，年收入高達 34.5 億美元。雖然德昌電機過去就有可能為電輔車代工生產電機系統，但該公司正打算跨入自行車產業。為了加快腳步，德昌電機收購了德國新創企業 Pendix 的 80% 股份。這家公司的產品是可以將一輛一般的自行車，改裝成一輛電輔車，近期還增加了產品品項，推出了一系列適用於 Cargo 貨運電輔車的混合動力電機系統。對於德昌電機而言，這一次的收購是一個全新的開始，目的之一就是要好好探索電輔車的市場。

達方電子 NO810 作為台灣最早進入自行車產業的科技公司，目前自有電輔車品牌包括 BESV 和 Votani。在疫情之間，達方反而加大投資自行車產業，目前達方已持有世同金屬約 60% 股權。2020 年，達方收購了位在新竹的統達能源，並進一步整合進入達宇電能科技。至此，達方現在不僅能提池標準規格的電池，還可以為客戶打造解決方案。不僅如此，達方還跟太宇科技進行策略合作並入主股權，其目的是要讓自行車導入電子和 IT 資訊科技。



達方電子董事暨總經理蔡耀坤。

還有很多包括私募基金投資者等熱錢等著湧入自行車產業。這主要是看好其後勢發展，例如包括義大利 Vittoria 輪胎、3T 自行車品牌以及 Enviolo 變速箱公司等，都接連被其他集團給併購。例如 Enviolo 就是被 Inflexion 收購，一間來自英國的投資公司。雖然官方沒有公布具體數字，但荷蘭金融專家估計這一筆 Enviolo 併購金額約為 2.5 億美元。近期還有一筆大交易，德國萊茵金屬公司 (Rheinmetall) 有意轉讓其子公司 Amprio 中置電機系統，目前確定的是公司所有權已經變更，但直到 2 月底都還沒發布官方新聞稿，外界謠傳背後的金主是 SRAM。

自行車產業正面臨高庫存水位以及現金流卡關，很有可能近期仍會發生自行車公司被併購的新聞。畢竟，雖然自行車產業正面臨逆風，但望向遠方，是一條錢途光明的康莊大道。 ■ LVR



Pierer於2022歐展的攤位。



PON集團旗下的Swapfiets自行車月租方案公司。



保時捷大舉投資e-Bike產業。

新品大觀園：座墊

遠離屁股痛 就靠人體功學設計和材料技術

一張好座墊的定義，就是坐了，像沒坐一樣。最好就是你的臀部跟座墊融為一體，讓你忘了座墊的存在。然而，一張座墊要達到這麼完美的境界，可說是難上加難。在自行車科技的進化下，現在可以透過人體工學研究以及材料科技的精進，不斷地去優化座墊設計，為騎乘打造的更佳舒適性。透過本文帶您了解最新型的座墊設計及趨勢。



Velo Angel Rev



Sunstar Brooks B17



Da Bomb Flap-X



All-wings evo4 Super Hornet



DDK 38201 alt 2



WTB Koda

Velo（維樂工業，**J0717**）新推出的 Angel Rev，這款座墊創新採用了注入氮氣的 Atmos 泡棉。這種特殊材質可以提升性能和耐用性，也更永續環保，在製造座墊時儘可能降低對環境的影響。此外，這種全新複材擁有更輕量、回彈更快的特性，讓座墊的每一個區域都像獨立筒床墊一樣，可以為騎士的臀部提供最適回彈反饋，並且兼具減震和散熱功能。Angel Rev 的座墊形狀設計，是結合自家 Senso 和 Angel 計時車座墊的元素，並且搭載 Y 型中空設計。此外，這款座墊的長度較長，可提供騎士靈活的騎姿變化。另外，「大氣成型技術」將座墊表層與底殼的接縫隱藏起來，這項創新科技能保證百分百防水，並且更方便清潔座墊。這款座墊長 248mm、寬 148mm，並搭配輕量化的鈦合金座弓。推出三種引人注目的配色，其中一款是由聖巴巴拉設計師兼藝術家 Molly Lofton 創作的限量版。

All-Wings（宇迦企業社，**I0012**）推出了鷗翼最新第四代 evo4 超級大黃蜂。這款激進的翼型設計座墊，目的是解決會陰部受壓問題，並降低長途騎乘

所造成的酸麻和疼痛。非常適合愛好長距離騎乘的車友，可以透過安裝 GT 椅套（Grand Touring）來調整模式，無論是短程高強度騎乘還是長距離旅行都適合。座墊中央完全鏤空，使用卡鞋後拉上提時的反作用力是完全落在另一側坐骨，即便是在長途騎乘後，會陰部的壓力永遠是零，大幅降低雙腿負擔，讓你騎得更快更久更遠。這款座墊獲得多個獎項，其中第三代座墊現於國立科學工藝博物館展出。

DDK Group（鋒明興業，**J0417**）新推出的 VP-38201 座墊搭載 VM Fit 技術。這是一種全新的製程工藝，透過將表層和座墊殼兩者進行真空黏合，達到最佳的舒適性和耐用性，同時打造出流線化的外型。VP-38201 是一款高性能、輕量化的座墊，並且不需要鉚釘或訂書針固定。座寬 141mm，適用於身體柔軟度較佳的運動選手。另外，座墊採用中空透孔設計，有效減輕身體敏感部位的壓力，並在騎乘時保持通風。DDK 的企業責任朝向 ESG 永續發展發展，不僅採用環保包裝，在生產時也儘可能降低對環境的影響，透過重複利用水，以

及使用太陽能發電來供應其 16% 的能源需求。

Da Bomb（家豐榮，**I0503**）的自行車和零配件，其設計風格帥氣有型，滿足年輕、追求與眾不同的族群，在今年帶來了三款新座墊。Flap-X 和 Motion 這兩款是專為下坡賽和 Enduro 而生，另一款 Badass 則是適用於 Dirt Jump 和街車。Flap-X 使用 AirForm 表層材質，據稱與一般常見的聚氨酯材質相較可以提升 30% 的減震性，讓你的騎乘更舒適。另外，Flap-X 雖然是專為高速下坡而設計，但在座墊的尾端設計了一條防滑條，可以降低你在爬坡時臀部向後滑動。相較之下，Motion 採用了中空透孔設計，達到更好的舒壓及透氣性，並且採用短鼻頭的設計，可以更好的支撐騎士的坐骨，同時減少大腿內側的摩擦。最後，Badass 與你挑戰極限，座墊背面搭載一個抗衝擊橡膠，讓你在做空中特技時，可以作為手部支撐。

Sunstar（三司達，**M0808**）是一間根基於台灣的知名自行車品牌代理商，他們代理的座墊品牌包括 Selle Royal 和 Brooks。來到北展攤位，你可以看到英

國製造的 Brooks 經典皮革座墊，其中 B17 Special 是其代表作。這款座墊將優質植鞣搭配了手工銅鉚釘，具有永恆經典的外觀和極佳的舒適性。而如果你想要的是年輕、更現代化的座墊，Selle Royal 新推出的 Vaia 座墊採用人體工學設計，透過中空開槽式設計來減輕敏感部位的壓力，這是一款頗受歡迎的入門級座墊，幾乎各種車款都適配，並且標配一組 ICS 快扣系統，可以將自家專屬配件固定在座墊上。

WTB L0818 的座墊以經典、耐用聞名，受到專業騎士的信賴。其中最受歡迎的是 Volt 適配於多種車款，還有以性能表現為導向的 Silvardao。另外，專為長距離探險而生的 Koda，它是與超耐力選手 Rebecca Rusch 共同設計研發的。這款座墊俱有中央開槽式設計，減輕敏感部位的壓力並且提升騎乘舒適性。另外，略短且角度上揚的鼻頭設計，不僅提供良好的支撐性，也容易騎士離開座墊。最後，WTB 的 Deva 座墊雖然是專為女性而生，但也受到許多男性騎士的青睞。■ JD

新品大觀園：碟煞制動系統

Cargo & e-Bike 更重也更快 需要 ABS 防鎖死煞車的強大制動力

除了入門車或是特殊車款外，碟煞系統已成為新車的制動標配。但碟煞不只是輪子裝著碟盤，其實不同車款有各自規格及發展趨勢，例如下一個世代的 e-Bike 電輔車的 ABS 防鎖死煞車系統，又或是公路跑車的精實輕量的碟煞系統。此外，在疫情期間大廠們的產能吃緊，有些廠商反而將危機化為轉機，趁勝追擊，瞄準 OE 市場的商機。



Bosch eBike Systems和Magura
共同開發的第二代ABS防鎖死煞
車，搭配MT C系列的四活塞和雙活
塞卡鉗。

e-Bike，這一種搭載電助力系統的自行車，讓自行車產業賦予全新動能及可能性。在荷蘭等部分歐洲國家，其自行車市場售出的總數，有一半是 e-Bike。並且由於 e-Bike 的車價較高，連帶拉升近幾年的自行車零售均價，讓自行車產業整體營收也不斷再創新高。原先笨重難以踩動的 Cargo 載貨車，得到了電機助力華麗轉身成為 e-Cargo，使其接受度持續提升，不僅僅是荷蘭和丹麥等地勢平坦的國家，其他歐陸國家也看到越來越多的 e-Cargo。另一方面，e-Bike 或是 e-Cargo 的買主大多都不是專業騎士，在騎乘操控上並不熟練，煞車的部分尤其令人擔心。這就是 ABS 防鎖死煞車要導入市場的原因。以汽車來說，ABS 早已成為標配，但自行車呢？或許是時候未到。這是相較於汽車而言，e-Bike 在重量及價格上小巫見大巫，而如果搭載了 ABS 系統，在重量及成本部分會大幅增加。

Magura (1 館，**N1208**) 的初代碟煞系統在 OE 市場沒能帶來迴響，透過產品戰略調整，這一次他們攜手 Bosch 一起打群架，共同開發第二代碟煞產品，可與 Bosch eBike 的 ABS 系統搭配使用。這套 ABS 系統的亮點，在於可減少前輪鎖死，並且體積精巧，更容易整合到 e-Bike 車輛。至於要相容於新款的 ABS 系統，Magura 針對 OE 市場推出 MT C 系列的碟煞。由於搭載 ABS 系統會需要更多的液壓油體，因此 MT C 的總泵也配置一個更大的儲油壺，並可選擇兩指或三指幅的煞車手柄。Magura 這款卡鉗採用一體式鍛造工藝，並提供雙活塞和四活塞版本。除了精巧的 ABS 控制器外，安裝在前輪的感測器是這款第二代 ABS 制動系統的最明顯特徵。



強強聯手，Shimano與Bluebrake聯名開發ABS系
統，應該可允許Shimano碟煞系統進行升級改裝。

Shimano (1 館，**M0814**) 在去年的歐洲展亮相了兩輛搭載自家 ABS 系統的電動自行車，造成業界熱議，其中一輛是旅行車，而另一輛是載貨自行車。Shimano 作為全球自行車零件領導品牌，這一次不是單打獨鬥，而是選擇跟義大利公司的 Blubrake 聯名開發。此系統是藉由安裝在輪組上的感測器，即時監控前輪的轉速，並在控制器也整合了偵測元件，透過精密控制車輪的轉速，避免發生打滑和前滾翻的意外，提供安全自然的煞車操控。Blubrake 的控制器可以整合到車架上管內部，或是安裝在水壺架的位置。而如果是安裝在水壺架，很有可能這一套 Shimano 和 Blubrake 開發的 ABS 系統，是可以允許後續改裝升級的，不過目前這套系統只針對 OE 市場。

Tektro-TRP (彥豪金屬，1 館，**J0701**)，不單單是作為 Blubrake 的合作供應商，TRP 近年來也端出 ABS 系統解決方案。例如，Stromer 的一款高速電輔車 (speed pedelecs) 就是標配 Tektro 的制動系統。為了持續擴大其 OE 業務，Tektro 選擇跟 Bosch eBike Systems 合作，使其 ABS 系統及電機系統可以串連搭配。Tektro 今年在台北展的重磅消息，瞄準了另一個趨勢。為了讓整車打造簡潔俐落的高級感，越多越多的自行車將其電線

及煞車線採用隱藏內走。為此，新登場的 Clean Cockpit 制動解決方案已準備好迎接這一趨勢。這款的總泵搭配三指幅的煞車手柄，適配於城市通勤車以及旅行車款。此外，透過採用更大管徑的煞車油管，可讓礦物油順暢流動並且避免過熱。至於卡鉗，Tektro 提供一系列四活塞和雙活塞設計，在雙活塞部分可選 Post Mount 或 Flat Mount 規格。

SRAM (1 館，**M0612**) 的 Stealth 正如其名「隱身」，可以巧妙整合線組及油管。Stealth 煞車手柄經過重新設計，總泵的煞車油路出口角度也進行調整，讓油管可以更靠近車把。透過這種設計，油路被引導到車把下方，從而縮短總泵



Tektro Clean Cockpit
煞把的設計俐落、適用於
重視外型的日常車款。



SRAM Stealth煞把的出線口更靠近車把，可允許從車把的下方走線。

SRAM Stealth 煞把系列
的外型乾淨俐落。



Growtac機械式卡鉗可相容於
多數品牌的公路車煞變把。



Growtac機械式卡鉗針
對追求性能、輕量化、與
眾不同的族群而生。



Growtac機械式卡鉗共提供五色可選。

到車頭碗組或頭管走線孔的油管長度。此系統提供兩種系列：分別為制動力強大的 Code 以及重視輕量化的 Level 系列，適配於登山車款。還進一步分為兩種版本，Ultimate 系列採用碳纖維煞柄以及鈦合金零件來達到輕量化，Silver 版本則是採用鋁合金煞柄以及鋼製零件。SRAM 帶來的另一項新品則是瞄準 OE 市場，DB8 是該品牌首次採用礦用油的碟煞系列，而非 DOT 煞車油品，產品定位入門至中階市場。

新冠疫情迅速爆發的期間，帶來了另一波自行車熱潮，而包括傳動系統和碟煞制動的交期也大幅拉長。**Clarks Cycle Systems** (1 館, **L0918**) 是一間專注於煞車、變速線組以及零配件的供應商，並且進軍到碟煞領域，就有吃到這一波供不應求的紅利，疫情期間在 OE 市場取得不錯的成績。當領導品牌的產能無法滿足需求時，像 Clarks 這樣小而精的公司就會受到大家的關注。這間根基於台灣的製造商，推出了 C2 和 C4 碟煞系統，這兩套頂級油壓碟煞系統是針對登山車以及 e-Bike 而生。

特別重視品質與散熱性能，並且其卡鉗採用 CNC 一體成型並搭配浮動式碟盤。

Alhonga (弘家金屬, 1 館, **J0425**) 為了滿足 e-Bike 和載貨自行車的需求，在台北展帶來首款四活塞的油壓碟煞。經過實測，這款名為 HJ - HF 572 的制動力高達 300 公斤，使用礦物油並標配兩指幅的煞車手柄。而針對高負載的載貨自行車，另一款 HJ - HT 534 則採用三指幅的煞車手柄，系統搭載駐車模式並且其斷電感測器適配於多款電機系統。經過實測，其制動力高達 350 公斤，並且根據 Alhonga 資料，上述煞車系統相較於市場同級產品，在制動力部分超越將近 30%。為方便維修，這兩款四活塞煞車可以延用現有的礦物油，並且方

便重新注油。

Growtac (1 館, **M0409**) 是一間來自日本、聚焦於非主流的利基市場，在台北展帶來了“Equal”公路車碟煞卡鉗。這款卡鉗採用機械式拉線，是針對喜歡機械手感的性能騎士而生，提供全天候的制動性能，並且也適配胖胖胎。也因為是機械卡鉗，允許搭配使用包括 Shimano、SRAM 或 Campagnolo 等品牌的煞變把。這款卡鉗的結構精巧，本體採高強度鋁合金輔以 CNC 精密加工而成，再搭配少量精簡的合金零件，達到更佳的可靠性和適配性。由於只有外側的活塞會進行作動，藉由碟盤的偏轉使其接觸到接觸到兩側的來令片。為了方便維護，卡鉗本體也允許拆裝重

組。相較於油壓碟煞來說，這一款機械式卡鉗更易用、好保養，適合包括 Gravel、自行車旅行等族群使用。

追求卓越是沒有捷徑的，Growtac 與 Vesrah 攜手聯名打造專屬於 Equal 卡鉗的來令片。並且搭配無段數調節螺絲，有助於將來令片調整到最適位置，以避免產生摩擦阻力或異音。Equal 卡鉗共提供五種顏色可選，很適合追求個性化的車主。這款高性能的機械式卡鉗非常輕量，每組僅重 136.5 克。 ■ Lvr



Clark Cycle 的 C2 碟煞系統一流
的表面處理，並且方便注油。



Clark Cycle 的 C4 碟煞系統
作工精美、提供強大的制動力，
並且方便注油。

Alhonga HF534 擁有較長的較
長煞車手柄，並搭載駐車模式。



Alhonga HF572 的煞柄採人體工學
設計，短巧易拉適配於 e-MTB。

NEW PRODUCTS

八方 M820中置電機系統

風馳電掣的輕助力系統。這款中置馬達僅重 2.3公斤，可達到250瓦的功率輸出以及75Nm的最大扭矩，並且可支援最高120RPM。這套系統是e-Road的完美解決方案。

M0112



WELLGO F367DU 折疊踏板



Wellgo F367折疊踏板採用全新設計，其表面披覆磨砂防滑層，可提供出色的抓地力和嶄新外觀。整組重343克，踏板為PC材質並搭配複合材質軸承。

J0517

HYENA E-BIKE SYSTEMS E-UTILITY高輸出電助力系統

這套E-Utility採用750W的後花鼓馬達搭配810Wh大容量可拆卸電池。這套系統是專為北美市場流行的電輔胖胎車以及eCargo而生，花鼓馬達最高可提供70Nm扭矩輸出，並且支援於踏板助力或電門驅動。

N0616



JETSET車圈 AM-30+

與眾不同的設計，削減輪框內壁不需要的鋁料，不僅可達到輕量化，同時滿足包括跑車及登山車的騎乘強度。採用獲得專利的ARCOS SYSTEM，在北展攤位的多款新輪框都搭載此技術。

J1002



KT TAIWAN 發電花鼓

這款體型精實的發電花鼓的輸出功率高達6W3V，搭配車燈可在漆黑的夜晚為你照亮道路。提供兩種規格（快拆及貫通軸），並且可對應於碟煞或框煞。歡迎來到崑崙工業I0218的攤位了解更多資訊。

I0218

KMC EGLIDE

這款全新研發的鏈條，結合了KMC自家X系列和e系列鏈條的技術。在羅拉以及軸心進行最適熱處理，讓鏈條的硬度再提升。Double X雙橋型內鏈片加大了鍊板之間的間距，提供了更高的耐用性、更平穩和明確的換檔性能。新式Shield Tech 圓盾鉚合技術提供高達 1350kgf 的最高扭轉和拉伸強度標準。eGlide適用於Shimano Linkglide系統。

J0118



HAFNY後照鏡 一覽無遺！



HF-M901L/R-FR08 專為時速 45 公里的高速電輔車而設計。鏡架採用鏤空設計，同時達到輕量化以及抗風能力。本體採用強化玻纖尼龍打造，可適配於車把圓徑14.8~23mm。鏡腳搭配三顆轉軸機構，方便調整到適合的角度。另外，採用高透亮玻以防眩光藍鏡面。這款後照鏡通過E13標準。

L0405

V-GRIP辰驊國際 一扣即合的 磁扣水壺組

這款採用磁扣免水壺架設計，您可以透過從左側或右側，或是由上而下的滑動，就可以牢固地將水壺固定在磁吸支架上。特別適配於小尺寸的車架。

I1318



VELO VLG-2064D3

這款握把耐操好用，100%抗紫外線，並具有螺絲鎖定。採用獨特的 EVA 材質非常適合於高性能的e-Bike和登山車使用。

VLG-2064D3 的 EVA材質採用特殊配比，比傳統 EVA更硬，讓專業騎士擁有更明確的操控感。另外，這款握把可耐化學腐蝕，即便經過多年也能保障使用安全，並且不會有黏膩感。

J0717



NECO 半隱藏式內走線碗組H323MP

上蓋採用35度開孔的8X (16-23)mm設計，方便穿入煞車線和變速線。上蓋材質為尼龍+纖維，可降低線阻的摩擦阻力，並防止外管刮傷。上蓋設計有兩處入線孔，並且在轉動把手時不會受到角度限制。

J0632



TAIPEI CYCLE 2023 SHOW PROFILE

Organizer	Taiwan External Trade Development Council
Co-Organizer	Taiwan Bicycle Association
Years of Operation	34
Show Dates and Hours	Physical Show: March 22-24: 09:00-18:00 March 25: 09:00-15:00 *March 22-23: Opens to trade professionals only *March 24-25: Opens to trade professionals and public by admission tickets Online Show: March 22-April 7, 2023
Show Venue	Taipei Nangang Exhibition Center, Hall 1&2
Website	Official Website: www.taipeicycle.com.tw Online Show: online.taipeicylce.com.tw
Exhibition Scale	Physical Show: 850 exhibitors, using 3,050 booths (50,000 square meters) Online Show: 205 exhibitors The exhibitors from the physical and online shows come from 31 countries (Taiwan not included)
TAIPEI CYCLE Key Exhibitors	Giant, Merida, Ideal Bikes, Darfon (BESV), Shimano, SRAM, KMC, Pacific Cycles, KTM
Theme Pavilions	TAIPEI CYCLE d&i awards Pavilion Country Pavilion: European Joint Pavilion, Japan Pavilion, Italy Pavilion Cargo Bike & Urban Mobility Pavilion
Events	<ul style="list-style-type: none"> • Pre-show press conference • TAIPEI CYCLE d&i awards • TAIPEI CYCLE FORUM • Outdoor Demo (outdoor booth) • Taipei Cycle Ride Together • Taipei Cycle Workshop

Unique Show Features

- A hybrid show, both on-site and online.
- The long-awaited gathering of the world's leading B2B cycling industry leaders.
- Direct access to cycling's leading global brands and manufacturers.
- The gateway event for brands to reach the Asia-Pacific markets.
- A hub to exhibit and see the latest designs, innovation and R&D in cycling.
- The one stop shop event to conduct business with stakeholders all across the global supply chain.
- Witness the intersection and collaboration of the electronics and cycling industries through connected technologies.

Visitors Service

- TTS Match (Online Procurement meeting)
- Live Studio & Podcast
- Business Networking Luncheon

Slogan & Key Messages & Main Themes

- **Slogan :** Envision a better cycling world : CONNECT. DISCOVER. EVOLVE
- **Key Messages & Main Themes :**
 - **Resilient Supply Chain:** bicycle parts, accessories, and complete bicycles
 - **Digital Connections:** e-Bikes and drive units: e-Bikes, electric motor, battery, electric parts and components
 - **Vibrant Innovation:** d&i awards, startups
 - **Dynamic Lifestyle:** cycling accessories, bike tour services, smart cycling services
 - **Sustainable Moves:** Forum, Green Force Talk, Green Initiatives

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MM18



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