



Automotive & Special Fasteners

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The automotive industry was heavily impacted at the start of this year by the shutdown of global automotive plants. Starting in mid-April, there were words that the American and European automakers could have a chance to resume production, many of whom said frankly that quite a number of international purchasers going through this impact would assess risks and probably won't have all of their components produced in the same country. They are still waiting to see if the demand will peak after resuming production.

According to statistics, out of the world's automotive manufacturing countries, China tops the world with 28% share in global automotive production. The global automotive production slipped 1.59% in 2019, but as reported by the international press media, the market share of electric vehicles is gradually picking up. The demand for electric vehicles and peripheral products is expected to grow in the future and will become the future trend for automotive fastener companies.

As automotive and special fasteners are special products with safety concerns, they are constrained by stringent quality standards. It is not uncommon to hear purchasers asking for 0 ppm quality, and suppliers do the best they can to offer complete inspection process and maintain stable quality assurance, creating better products for the automotive and fastener industries under high technical and quality standards.

In this month's feature, we invite 3 companies with superb manufacturing technique and business scale to share their thoughts and experience in the automotive and special fastener industry, as well as to expound on the COVID impact and countermeasures.

- **The R&D-driven YOW CHERN rolls out another new product patented in Taiwan and many overseas countries.**
- **JING FONG INDUSTRY mainly provides automotive nuts and has received Taiwan Excellence Award 2020 for two products.**
- **HSIN JUI HARDWARE shares their 3 rules of thumb for success based on over 40 years of experience in R&D and manufacture.**

The automotive fastener industry has been walking on thin ice since the start of this year, but the good news of companies resuming production is expected to drive the recovery of the automotive industry and its rebound in the second half of this year.



New Patented "AT Drive" from YOW CHERN



AT-DRIVE TIGHT-FIT CUSTOMIZED HEAD TYPE



After receiving the patents in the EU, USA, and Canada for its Aster Screws®, Yow Chern has recently released another innovative "AT Drive" patented in Taiwan, China, Europe, and USA. The AT Drive series offer various recess types, which fit closely with drill bits. Fastening them into wood is easy and fast, which not only increases efficiency and saves labor, but also avoids the annoying issues caused by screw loosening.

The Independent Team with All-inclusive R&D Capabilities

The team with robust R&D capabilities is the key to Yow Chern's continuous improvement and growing

know-how. Yow Chern's R&D team is capable of design of multi-stroke dies & continuous combined dies and multi-axis CNC programming, many of which have been patented at home and abroad. Other than its all-inclusive manufacturing know-how, Yow Chern is also able to independently design dies, handle manufacturing procedures and realize the commoditization of products. Its recently released Aster Screws®, AT Drive, Wedge Anchor, and Screw Anchor have been also patented in Taiwan and many other countries due to their unique design.

Aster Screws® -Being One of the Bestsellers in Europe, America, and Canada

Yow Chern's Aster Screws® and automotive fasteners are mainly sold to European, American, and Canadian markets, and most of its automotive fasteners (which are almost customized) are supplied to T1/T2 or OEM companies. With a strong team behind, Yow Chern continues to fulfil the TS16949 quality management system in the company and tries whatever it takes to reduce the defect rate of its products to the lowest level through times of Advanced Product Quality Planning and Production Part Approval Process.

Aster Screws® are characteristic of their unique thread types, which feature various 3D/4D/5D round cutting edges according to different outer diameters. Such a design is not only applicable to all wood screws and those made from carbon steel and stainless steel, but also is applicable to chipboard screws, particle board screws, decking screws, floor screws, and concrete screws.

The ability to penetrate into any materials fast and stable torque are two most impressive features of Aster Screws®. The torque of Aster Screws® is 25% lower than those of general wood screws, lower than that of Type 17, and is also 30% lower than that of general concrete screws.

Developing High-end Automotive Products; New Factory Establishment in Gangshan to be Scheduled

Yow Chern has been dedicated to the development of automotive, industrial, and special fasteners in recent years. In order to achieve this goal, Yow Chern has set up multi-stroke facilities to enhance its manufacturing capabilities and mainly utilizes 5-die/6-die machines on the production lines. In addition, it has also set up a CNC auto lathe division with the installation of 25 sets of CNC lathes and 3-/4-axis CNC milling machines and fulfilled strict IATF 16949 and ISO9001 quality management systems in the company, making it widely appreciated by European and U.S. customers.

Although the pandemic has forced many car manufacturers in Europe and America to halt production, leading to the requests from customers for deferring deliveries for 2-4 more weeks, Yow Chern still keeps normal operation and maintains smooth communication with customers for deliveries. On the other hand, considering the reduced number of cargo liners available for int'l shipments, Yow Chern suggests customers that they should maintain normal shipments for urgent demands in case of future shortage of products after they resume operation.

Looking forward, Yow Chern is planning to set up a new factory in Gangshan, introduce new manufacturing and auto warehousing facilities, enhance the computerization of its manufacturing procedures control, improve work efficiency, shorten lead times, promote service quality, apply for the ISO 14001 certification, and purchase new equipment to further strengthen its production efficiency and competitive edge on the global stage. ■



The Award-winning Automotive Fasteners by JINGFONG

Feature



JINGFONG
Since 1980



THAILOCK
Since 1991



JingFong Industry Co., Ltd. is Taiwan's first lock nuts factory. Nowadays it has become a company with the annual production of 25,000 tons and the revenue of US\$ 45 million. Focusing on the high-end automotive fastener market, JingFong mainly supplies products to European and American car manufacturers and plays a significant T1/T2 supplier in the supply chain. It mass-produces high precision parts with cold forging manufacturing procedures (including forming, threading, pressing and surface treatments) and has critical technology and takes good control of lead time and quality, all of which help achieve efficient management and monitoring.

Impressive R&D Capability and Award-winning Products

JingFong's automotive fasteners produced for the assembly of "Daimler's passenger cars" and "ZF Sachs' shock absorber valve" have been both honored with Taiwan Excellence Award this year. "The core competence of JingFong is based on our know-how and R&D capabilities. We implement force analyses with a simulation software to ensure the highest accuracy of mechanical properties and performance during the development phase of products," says the Company's owner. JingFong has been aggressively introducing the quality alert and forging force analysis tool, providing high-quality manufacturing procedures and quickly analyzing causes of defective products to speed up the adjustments in manufacturing procedures.

JingFong is currently able to deliver products within 60-75 days, faster than its competitors' average 90 days standard. It is also taking many steps to achieve the 0 PPM quality standard, which include requiring complete test results in the phase of material selection, building up a mechanism to monitor quality, carrying out full-inspection with automatic optical inspection machines, and integrating the workforce to do double-checks.

Seizing the Chance of Upgrading Equipment and Facilities

Although the Covid-19 pandemic has given a really hard time to the automotive market, JingFong still seizes the chance of expanding its current facilities and upgrading to smart manufacturing including IoT, viewable quality, quality monitoring, forging force analysis, and IT upgrade. JingFong expects to complete the upgrade to smart manufacturing lines within 6 months, which is estimated to enhance the ratio of machine utilization by 30%, reduce the time of machine breakdown without warning by 30%, shorten the lead time to 60-70 days, and increase the manufacturing efficiency by 50%. JingFong is taking actions to strengthen its know-how and upgrade production lines for further

business transformation during the pandemic, hoping to reduce the impact to the minimum level, increase the ability to deliver products quickly when the order switching effect emerges, and maintain its technical power and quality level as the best response to the pandemic.

Accumulating Strengths to Face Future Changes in the Automotive Industry

JingFong thinks that there'll be a drastic change in automotive fasteners with the development of electric vehicles and the trend of light-weighting will force manufacturers to use a large volume of Alu-Mg alloy fasteners to reduce the weight of a car. Noticing such a change, JingFong is now active in contacting EV assemblers, developing other metal forming procedures, working with customers in end-product design, manufacturing trial batches for accumulating technical strengths, in order to respond to the upcoming trend of product demand change.

JingFong and its Thailand branch have recently launched a 3-year capacity increasing plan, which includes the expansion of factories & addition of equipment for forming, tapping, locking and assembling, and the introduction of a new surface treatment line. According to the 3-year plan, JingFong will invest NT\$ 0.5 billion in expanding factories (scheduled to be completed by 2022). The total factory area will be increased by 15,195m² and the total capacity will be increased by 1.5 times, not to mention that the newly added surface treatment line will make the entire process become more flexible and help reduce the cost and lead time. Combined with this year's IoT-enabled machines & IT upgrade plan for smart manufacturing, JingFong definitely will gain more competitive edge and promote its quality, lead time and profitability to a higher level. ■



HSIN JUI HARDWARE Succeeds with 3 Critical Pillars

Cold Forged Automotive Fastener Expert

Having cold forging as its core manufacturing technology and laying stress on “speed, precision, and affordability” as its three success pillars, Hsin Jui Hardware Enterprise Co., Ltd. has always been doing whatever it takes to “create competitive edges for customers and developing new revolutionary products.” Passing the audit of IATF 16949 certification, Hsin Jui fulfils strict production management to ensure the highest product quality control, making it continuously win the trust and receive positive feedback from overseas customers.

Pioneering in R&D

Established 40 years ago, Hsin Jui has always taken the lead in R&D. It started to design products with the aid of computer software, developed dies and set up an in-plant dies factory and maintenance & repair division 30 years ago. Being an expert dealing with various hard cases, Hsin Jui did receive several challenging orders. Facing the demands which require the use of advanced technology, Hsin Jui President Alan Hsu said, “If we want to do it, we definitely can have 95% of our customers’ R&D requests realized within a limited timeframe and failure is rarely seen,” which is the reason that Hsin Jui can keep its leading position in the race with other competitors.

With professional R&D strengths and years of experience, Hsin Jui often receives requests from customers to develop patented products for them and has continuously maintained mutual trust and smooth communication with them. In the past, an overseas customer once contacted Hsin Jui with the drawing of his newly developed product. When Hsin Jui successfully produced the sample, it suddenly lost contact with the customer. Then, after having the customer back again, the customer told Hsin Jui that his product design appeared some defects and could not be applied to the mating part. The team of Hsin Jui then examined the design of this customer’s patented product and helped him

improve the design, making the customer finally get the patent certification.

Speaking of the experience in developing for customers, President Hsu said, “With 4 decades of experience in production and R&D, coupled with the aid of computer software, we are fully capable of developing new products for customers.”

Well-equipped to Produce Every Type of Product

In order to produce high-end products, Hsin Jui has introduced Taiwanese 5-/6-die machines into its plant. Thus far, it has had 22 sets of machines for manufacturing products in the specifications of 5mm to 59mm. Its amazing manufacturing capacity and range allow Hsin Jui to become one of the leaders in the cold forging industry. Considering the increasing complexity of customers’ demands, Hsin Jui is also planning to purchase 6-die machines and establish a secondary processing line to promote fully & vertically integrated production in the plant and achieve more accurate quality and lead time control.

President Hsu hopes that Hsin Jui, currently specialized in special parts, can gradually increase its automotive fastener manufacturing volume in the future and gain a significant presence in the international market. In the U.S.-China trade war, Hsin Jui, mainly exporting special parts with low replaceability, was not influenced too much. Although the Covid-19 is influencing the automotive market demand in 2020 and it may take some time to recover from the impact, according to President Hsu, Taiwan did gain much more exposure on the global stage this time and it is expected that Taiwanese products will be also paid much more attention by buyers in the future. ■

