

# FASTENER MAGNATES

Tong Hwei, Jern Yao, and NS TOOL

by Fastener World editors

**2019** is the peak of a turning point that has evidently changed the market share landscape of the global fastener industry, which is especially true for Asia. The game-changing actions by the U.S. and Europe have an impact on the market shares of Taiwan, China and Japan, namely the 3 largest fastener economic entities in Asia.

Before we talk about the change of market share landscape, we need to have a glance at China. The world political landscape this year dealt a heavy blow to China's fastener export to the U.S. The editors of Fastener World Magazine have visited 30 international exhibitions in the world over the past few months and we noticed that Chinese exhibitors have switched their target from the U.S. to Europe, Japan or other non-U.S. countries. The number of Chinese exhibitors at shows in these regions is increasing by leaps and bounds. This, in turn, makes the U.S. a place full of opportunities for Taiwanese companies to tap into, and makes Europe an intensely competing market to both Taiwan and China. This affects Taiwan's market share in Europe and forces Taiwan to actively expand market shares in Southeast Asia and other countries in addition to the U.S. and Europe where they have gained a consolidated presence. Despite such changes, Taiwan still has many top-performing fastener machine makers and Jern Yao with its unshattered industry position and business empire is one of the examples. Jern Yao provides 250 types of fastener machines and has been a designated source of purchase for several industry leading European and American clients.

A slew of innovative ideas that could create new opportunities for Taiwanese fastener industry were also brought from other non-fastener industries. A typical example is Chailease, a Taiwanese leader in solar power plant industry that had a ground-breaking idea to incorporate very vibration-resistant and anti-loosening railway fasteners to fasten solar panels. Chailease started collaboration with a fastener company right away and opened up a new market for railway screws that no one would have thought of. Similarly, Tong Hwei (THE®), a stainless steel fastener leader headquartered in Taiwan expanded its business reach to solar energy with the establishment of a new company that has marked promising sales performance and become a world-class brand.

The world's political landscape also impacts Japan whose fastener export to China this year resulted in a double-digit drop, but the country's fastener export to the U.S. remains unchanged, and what came as a surprise was that Japan rose to the 3rd largest destination for Taiwan's fastener export since the middle of this year. The fastener peripheral industries are more or less affected by this phenomenon. Nevertheless, the listed Japanese NS TOOL, utilizing its exclusive "miniature/precision" technologies to expand overseas sales, is able to sell its world-leading solid carbide end mills across 30 countries,.

**Tong Hwei, Jern Yao, and NS TOOL** have aces up their sleeves and that is what we will find out in the following featured interviews!



## The Value Innovation of Stainless Steel Fasteners

# TONG HWEI

## Established a Green Exemplary Plant with Installation of Solar Panels

by Nai-Wen Chang, Fastener World

Having been in operation for 30+ years, Tong Hwei is able to offer various stainless steel bolts, screws, nuts & threaded rods in specifications of M2 - M24 and #2 - 1," which have been shipped to all over the world. Thus far, THE® has become the best brand recognized by the stainless steel fasteners market. In order to manage the massive production lines and the customers service system, Tong Hwei has introduced the automated warehousing systems to keep track from tooling & dies to finished products, which means all materials and finished products access are controlled by computer system and all relevant staff can get real-time information from the system.

Jimmy Ko, Vice President of Tong Hwei, said, "With the development of digital technology, we are convinced that it will help boost the manufacturing efficiency and decision-making ability. In the future we will head toward the use of Big Data and Industry 4.0 in order to further enhance our manufacturing capabilities and quality assurance."

### Tapping into the Solar Power Industry and Developing New Markets for Stainless Steel Fasteners

Many multinational companies are paying more and more attention to the carbon footprints of their product manufacturing, and whether it is the global trends or government decrees, they are heading towards green energy development. As a leading

manufacturer of stainless steel fasteners, Tong Hwei not only advances in technology and quality, but also, with the expansion of its operation scale, dedicates itself to fulfilling social responsibilities and sustainable operation. In 2006, Tong Hwei managed to reserve large areas of green space on its current manufacturing site in Gangshan, Kaohsiung and installed solar panels onto its plant roof top.

Stainless steel is a type of special steel, featuring bright and corrosion-resistant properties. It is widely applied to medical, food processing, petrochemical, marine and electromechanical industries. In recent years solar panels and its bracket system have also shown substantial demand for stainless steel fasteners. Noticing the potential opportunities, Tong Hwei then invested Ming Hwei Energy Co., Ltd. in Douliu (Yunlin, Taiwan) in 2010 and started to focus on the production of solar cells and has successfully developed Mono Crystal Cells recognized as the highest power generation efficiency in Taiwan.

### Comprehensive Stainless Steel Fasteners and Dedication to Products Value-added

Through the marketing strategy of differentiated competition, Tong Hwei & Min Hwei have integrated their products ranges to satisfy customers' needs of one-stop shopping for stainless steel fasteners, and are also able to fulfill the customized packages and labels required by customers.

Tong Hwei not only sells its current products worldwide but is also active in developing various types of blueprint items for specific applications, as well as special material types such as Duplex Stainless Steel in order to establish a long-term cooperative relationship with customers through the enhancement of product value.

In addition to reliable manufacturing technology, Tong Hwei has also built the plant in line with the modern environmental protection awareness, massively planting trees to create a park-like and employee-friendly working environment. The stainless steel fasteners produced and supplied by Tong Hwei have been widely used in different kinds of industries and the quality has also won the unanimous trust of users. It is believed that the development of high-strength stainless steel will definitely offer customers more comprehensive application and Tong Hwei welcomes the establishment of long-term collaboration with all business partners.



▲ Tong Hwei Enterprise



▲ Ming Hwei Energy

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# JERN YAO

## Taking the Lead with Capabilities for Machinery Customization

by Nai-wen Chang, Fastener World

Many fastener manufacturers while seeking for fastener machinery providers will oftentimes contact Jern Yao in Taiwan, where is not only well-known for its mature fastener manufacturing technology, but also is well-known for design & assembly of fastener machinery. So far, Jern Yao has developed more than 250 types of machine models, leaving all of its competitors around the word far behind. Every year Jern Yao can assemble more than 180 sets of machines. Japanese Sugiara (supplier of Toyota), Italian top 3 leading industry giants (Fontana Group, Bontempi, SBE), and Turkish NORM Group are all loyal customers of Jern Yao.

### Active Service + Reasonable Prices = Worldly Recognition

“Our customers always told us that we could make a quick response shortly after their request and that they did feel our effort to provide them with the best service,” said GM special assistant Alec Tsai, “Jern Yao’s advantage is to try every possible way to satisfy customers’ customizing demands and offer models at more competitive prices and with performance on par with other leading brands.”

Mr. Tsai said, “Before we ask customers about their demands, our sales will try to explore the markets of their countries first, and after that, we can give advice to them. Thus far, the global sales footprints of Jern Yao have been expanded to more than 40 countries/regions, including Southeast Asia, Japan, USA, India, Korea, Turkey, Ukraine, Russia, Italy, Spain, etc. Although customers from different regions usually show different demands (such as demands for more automated functions or basic functions), Jern Yao can always customize ones that most fit with their products and required precision.”

### Be Optimized, Innovative and Down-to-earth

Jern Yao has always adopted the full inspection in quality control, which means every product finished in every procedure must be inspected before it is allowed to go to the next step. Its R&D team



is also continuously optimizing its existing machine design and bringing in innovative ideas. Since 1993 Jern Yao has continuously held fast to meeting customers’ demands and step-by-step business running. Jern Yao President Ted Tsai once majored in mechanical engineering, so he takes every customer’s special request very seriously.

### The Automotive Industry is Changing, so Must Fastener Machinery be

President Tsai always encourages employees and the management to do their job step by step, as in whichever industry they are, quality and service are definitely the only two factors to success. In 2019 the demand from the automotive fastener industry is influenced by the decline in the global car production and the emerging market for electric vehicles, but for Jern Yao, it still successfully reached the expected growth in the challenging and tough global market. Jern Yao GM special assistant Tsai said, “We think that the market conditions in 2019 and 2020 will not probably show too many changes and the increasing popularity of electric vehicles will unquestionably reduce the demand for fasteners. Facing the challenges ahead, our goal in 2020 is definitely to achieve a better result than in 2019!”

▼ (Far left) Jern Yao special assistant to President; (Middle) Jern Yao President; (Second to right) CEO of Norm Group from Turkey



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# Challenging the “Minimum” Limits at the Forefront of “Manufacturing” Thread Cutting Mills by “NS TOOL”

by Dean Tseng, Fastener World



When it comes to thread cutting mill, we must mention the top-notch thread cutting mills from NS TOOL. This Japanese public listed company has been studying and developing solid carbide end mills since it was founded in 1954. It continuously challenges the limits of “minimum diameters”. Using its end mills, you can even produce products so small that are barely visible to the eyes. Therefore, its end mills are highly precise with smaller tolerances than are required by drawings. Now, NS TOOL has become the only major company in Japan that sells end mills of 0.01mm diameter as its standard product. It provides over 9,000 types and has a market share of over 40% in Japan. Fastener World interviewed the company on its thread milling tools infused with exclusive technology.

## NS TOOL's Thread Cutting Mills vs. Thread Taps

There are a couple of advantages in choosing thread cutting mills. An average thread tap, once ruptured, tends to clog up the hole and it has to be resolved with a special tool or via EDM. Since thread milling is usually done close to the final phase of production, any failure could lead to the output of defective products. So for starters, unlike taps, thread cutting mills can be easily re-processed even if they rupture, because their diameters are smaller than the hole's, which makes them easier to be removed. Secondly, end mills mill materials intermittently and are not quite subject to heat influence, so they are perfect for materials that are hard to be machined. Lastly, end mills receive less resistance from materials in milling, so they are suitable for high precision machining and it is easier to dispose of the scrap.

“Unlike most of our counterparts adopting a 3-layer design, our thread cutting mills adopt a single-layer multi-cuts design putting emphasis on sharpness to achieve highly efficient thread milling. The best thing about a single-layer design is that you get to freely specify a pitch depending on different cut route programming, so the same piece of thread cutting mill can mill not just standard but also fine threads,

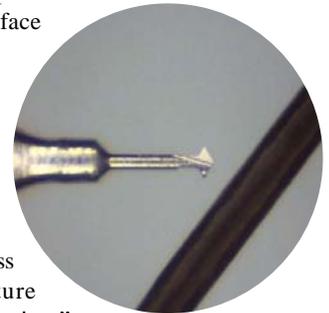
even client-specified special threads, to increase variety of clients' own products. Our thread cutting mills can be easily removed when ruptured and prevent producing defective work pieces at the end of production,” said the company.

## Top 4 NS TOOL Thread Cutting Mills and Chamfer Cutter: MMTM, MMTS, MMTU, NSCV/ NSCV-M

MMTM (MUGEN-COATING M-Thread Mill) utilizes a multi-cut design. Available in M1-M6, it takes 1 minute and 25 seconds to machine a hole on a 52HRC (hardness) STAVAX die steel, and is perfect for machining metric female threads efficiently. MMTS (MUGEN-COATING Micro Thread Cutting Tool) has the tiniest cut diameter in the world. On titanium materials it can produce threads of 0.1mm diameter and 0.025mm pitch. Available in S0.1-S1.4 sizes, even smaller than S0.3 specified by Japan Industrial Standard, it can produce mini-female threads as thin as a hair. MMTU (MUGEN-COATING PREMIUM Thread Cutting Tool) adopts a cut shape with a focus on sharpness and increases machining precision. Available in No.0-80UNF~1/4-28UNF sizes, it is perfect for machining inch female threads. NSCV/NSCV-M (chamfer cutter) comes with a tough rake angle and great sharpness to ensure the integrity of the machined surface and suppress the occurrence of burrs.

## Independent Research and Development of Coatings for End Mills

NS TOOL's “MUGEN-Coating” is an aluminum-titanium coating with a hardness of Hv3,400 and an oxidation temperature of 1,100°C. The “MUGEN-Coating Premium” has higher performance with a hardness of Hv3,600 and an oxidation temperature of 1,300°C. It is perfect for milling high hardness (48~68HRC) materials and pushes tool life to its limit. The MMTM, MMTU and MMTS end mills use those respective coatings developed by NS TOOL. In pursuit of zero-defect quality, the company self-developed “TGM” end mill manufacturing machines. This enables its product sales to spread across 30 countries (accounting for 30% of its revenues), among which the ROC (Taiwan)/Hong Kong/China region takes 40% and 30% for the U.S. and Europe each.



## NS TOOL's Strategy

Next year NS TOOL will attend international machine tool shows in Japan and Taiwan as well as mold and die shows in Shanghai and Shenzhen. It will also hold an “NS TOOL Private Show” at the end of next January. Regarding future strategies, the company said it will “stick with ‘Made-in-Japan’, utilize domestic technologies to expand overseas sales, and facilitate the miniaturization, long life and high efficiency of end mills.” It closed the interview with the following self-description: “NS TOOL is an innovator unlimitedly expanding the dreams of manufacturing and realizing its potential!”

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