

Soft Power of Taiwan Fastener Industry Through 70 Years of Thick and Thin

Following the end of COVID, Taiwan International Fastener Show 2023 was held in Southern Taiwan and successfully closed on May 5. It has been 5 years before this fastener show returned to Kaohsiung City. It not only facilitated the exchange and collaboration between domestic and overseas fastener industries, but also injected new vitality and momentum into Taiwan fastener industry. The exhibition gathered nearly 300 excellent fastener manufacturers and nearly 900 booths, with a tagline which wrote "Where Quality Sets the Pace", emphasizing that the 2023 show featured "high end", "high-tech" and "high value", and incorporated ESG green sustainability issues, attracting nearly 10,000 professionals from the fastener industry worldwide. According to the statistics by Taiwan External Trade Development Council (TAITRA), 60 countries and nearly 1,100 overseas buyers visited the show. TAITRA invited 49 international buyers and 24 business owners from 18 countries, including Mexico, Germany, UK, France, Brazil, New Zealand, Finland, the U.S., Canada, and the United Arab Emirates, to conduct 152 one-on-one procurement meetings, bringing huge potential business opportunities for Taiwan fastener industry through matchmaking activities.

The success of the show indicates that the products of Taiwan fastener industry are world-class in depth and breadth. Taiwan fastener industry can build a complete supply chain covering upstream, midstream and downstream. Fastener products made in Taiwan not only have stable quality and innovative technology, but also integrate the latest industrial technology, software and hardware system to tailor to the needs of customers around the world. Taiwan has been improving technology and quality in recent years, and the proportion of fasteners applied in high-end industries such as automotive, medical, aerospace, offshore wind power and information technology has been increasing year by year. **Taiwan fastener industry continues to move towards "high value", "low carbon" and "flexibility". In recent years it has been actively developing and introducing the latest energy-saving and carbon-reducing technologies.** In the face of rapid changes in the internal and external environment of Taiwan fastener industry, having a highly flexible production model is the best way to cope with environmental changes.

Taiwan fastener industry is one of the world's pioneers in industrialization and has built the most complete industrial supply chain with a one-stop production model. In the second half of 2022, under the influence of the gloomy global steel economy, although manufacturers' order books were affected, resulting in an export volume slightly lower than in 2021, the export value surpassed the US\$6.1 billion mark, mainly because Taiwan fastener industry has successfully transformed to produce high-value products and increase average unit price, as well as continue efforts toward low-carbon production and smart manufacturing.

History of Taiwan Fastener Industry

Since the end of World War II, there was a huge demand for fasteners both domestically and internationally. The fundamental industry in Taiwan was in its infancy at that time. Since the 1950s, Taiwan fastener industry has been developing for more than 70 years and has been pursuing transformation and upgrade in accordance with the changes in global industrial competition. With the efforts in resource integration, division of labor, and concerted upstream and downstream efforts, the industry has moved from the conventional screw and nut manufacturing into high-end applications such as automotive, medical, and aerospace. At its peak, the export of fastener products in Taiwan was always the most in the world, accounting for 30% of global shipments at one time, but since 1995, with the screw and nut factories in China and Southeast Asia entering the market at low prices, the market share of Taiwan's overall fastener exports has been decreasing year by year. Some Taiwanese companies have also set up factories in China and Southeast Asia, which has had a large impact on the export of Taiwan fastener industry. At this point, Taiwanese fastener manufacturers know they can no longer use low-priced fastener production as a means of international competition, and their only way is to improve technology and quality is to shift to the development of high-end products. Facing the rapid rise of Chinese manufacturers, Taiwanese manufacturers have continued to invest resources in upgrade and transformation to develop



high-end products for automotive, medical, and aerospace applications in order to continue to drive exports and create higher production values for the fastener industry in Taiwan. With the efforts of all fastener manufacturers in Taiwan, although the export volume of fastener products has decreased, the output value has not dropped drastically, and in the face of the fierce competition from countries such as China for the rise of low-priced fasteners, it shows that the fastener industry in Taiwan still maintains a considerable degree of competitive edge by virtue of transformation and upgrade.

There are a total of about 1,500 fastener factories in Gangshan District of Kaohsiung, Luzhu District of Kaohsiung, and Tainan, with more than 30,000 workers, accounting for the world's top shipment volume. I dug the statistics on total export value, total export weight and unit price of fastener products (7318: steel screws, bolts, nuts, automotive screws, screw eyes, rivets, cross pins, cotter pins, washers and similar products) in Taiwan over the 20-year period from 2003 to 2022, shown in Table 1. In 2003, compared with 2022, the export value increased 1.4 times, but the export value increased 3.6 times, and the unit price also increased 2.6 times as shown in Figure 2.

Of course, in addition to the efforts by Taiwan fastener industry, Taiwan government has also provided great assistance in the transformation of the fastener industry in Taiwan. In October 1963, Taiwan government, UN Special Fund and Taiwan International Labor Office jointly established Metal Industry Development Center in Kaohsiung City. The Center was renamed to "Metal Industry Research and Development Center" (MIRDC) in May 1993 to engage in the research, development and promotion of production and management

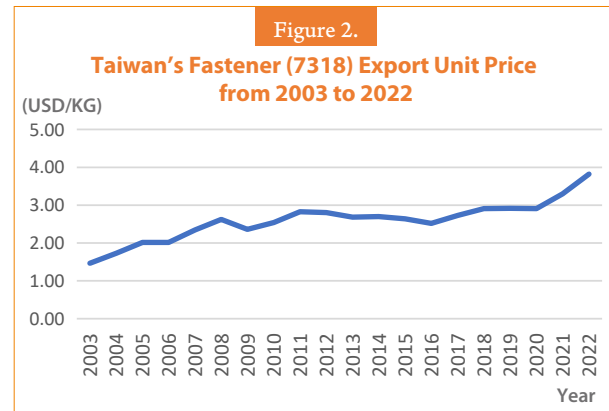
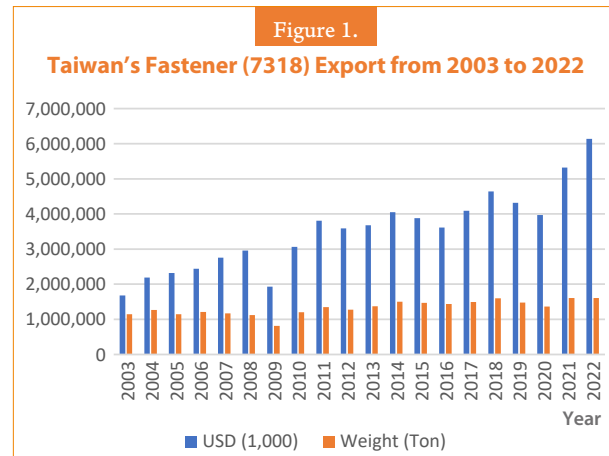


Table 1.
20-years Export Statistics of Taiwan Fastener Industry (2003 ~ 2022)

Year	USD (1,000)	Weight (Ton)	Unit Price kg/USD
2003	1,682,739	1,148,897	1.46
2004	2,191,924	1,266,224	1.73
2005	2,316,354	1,148,306	2.02
2006	2,438,416	1,208,756	2.02
2007	2,755,767	1,174,270	2.35
2008	2,954,691	1,125,514	2.63
2009	1,927,197	816,653	2.36
2010	3,066,843	1,206,370	2.54
2011	3,808,060	1,347,747	2.83
2012	3,586,644	1,278,585	2.81
2013	3,679,771	1,371,099	2.68
2014	4,048,973	1,501,697	2.70
2015	3,880,625	1,470,992	2.64
2016	3,610,630	1,435,750	2.51
2017	4,090,044	1,498,070	2.73
2018	4,638,379	1,595,705	2.91
2019	4,316,160	1,479,292	2.92
2020	3,968,861	1,363,250	2.91
2021	5,319,169	1,610,698	3.30
2022	6,140,539	1,607,469	3.82

technologies required by the metal and related industries. In 2008, MIRDC promoted the "Training Program for the Development of Full Manufacturing Technology for Dental Implants" to bring Taiwan fasteners into the high-value medical industry. In 2016, the Industrial Development Bureau of Taiwan's Ministry of Economic Affairs launched a three-year "NICE Upgrade and Transformation Program for the Screw and Nut Industry" to continuously optimize the structure of the screw and nut industry in order to expand higher value-added products and increase export unit prices. **In 2022, the Industrial Development Bureau provided subsidies to assist manufacturers in implementing carbon emission inventories in order to help the fastener industry prepare for CBAM, which will require imported products to declare their carbon content.** The fastener industry in Taiwan has experienced various challenges in the global economy and trade with the collaboration between industry, government, and research organizations. The manufacturers have always stuck to innovation and research, and pursued transformation and upgrade. Their products have changed from general hardware parts to high-end market applications such as automotive, railway, aviation, and medical, which has led to the growth and strength of Taiwan fastener industry. The overall industrial structure has become stronger, allowing Taiwan to retain its reputation as the "Kingdom of Fasteners".



The Future of Taiwan Fastener Industry in a Fast-changing World

The rapid changes in the world in the 21st century has dictated that operators of Taiwan fastener industry must observe more carefully the impact of external environment changes on business operations. In 2018, former U.S. president Trump began imposing 25% additional tariffs on Chinese goods exported to the U.S. Although the U.S. changed regime 5 years later, the trade war was continuing. The trade war between China and the U.S. was a big favor for Taiwanese fasteners, and the quantity of Taiwanese fasteners exported to the U.S. continued to rise due to orders redirected out of China. In February 2020, the COVID impacted all industries and changed the global industrial economy. The disruption of China's supply and logistics chains forced the global international trade to change overnight. China's strict Zero COVID policy and city lockdown caused a global supply chain disruption. In response to the inflation caused by the global government's cash handouts during the pandemic, steel prices rose, making some Taiwanese business owners suffer. The appreciation of New Taiwan Dollar has also made Taiwanese business owners swallow the bitter fruit of exchange rate differences. However, overall, the export value and weight of Taiwanese fasteners were not affected much during the pandemic. Plus, order redirection overshadowed other negative factors.

In February 2022, the EU announced an anti-dumping duty on screws imported from China, and Taiwan fastener industry embraced another business opportunity of orders redirected from European customers. This business opportunity also mitigates the negative impact of the February 24, 2022 invasion into Ukraine by Russian President Putin, which became the largest military confrontation in Europe since World War II. **The 21st century has seen a shift in industrial structure and economic restructuring due to the trade war between China and the U.S., the pandemic, the city lockdown in China, and the war between Russia and Ukraine. The war between Russia and Ukraine and the trade confrontation between China and the U.S. have turned into mutual resistance on industries and economies, resulting in the division of the world into two camps: the communist and non-communist. As geopolitics increasingly affects global free trade, multinational companies and sourcing companies around the world are alarmed that investment deployment— only considering production in regions with lower costs or higher profits— can no longer be the same as before. Considering "flexible supply chain", the world trade will be different in terms of industry, i.e. the quadrant that the industry belongs to being different. The procurement strategy will also be based on "flexible supply chain" (refer to the article " The Era of Flexible Supply Chain is Coming - the Impact on Taiwan Fastener Industry " in the 200th issue of Fastener World Magazine). Taiwan fastener industry must carefully consider the impact of overseas customers on future orders.**

In global perspective, in June 2023 the U.S. didn't cease raising interest rates. The U.S. sanctions against Chinese technology was only on the rise. The war between Russia and Ukraine was yet to subside. The Chinese economy was weak. The global economic growth rate was under tremendous pressure. Taiwan fastener industry with export as its lifeline, was facing unprecedented challenges, especially the influence of "geopolitics" cannot be overlooked. Since August 2022, when former U.S. House Speaker Nancy Pelosi led a delegation to Taiwan, China's Army has been conducting drills in many waters around Taiwan, and PRC air force jets have been frequently flying across the center line of the Strait into Taiwan's airspace. Cross-strait relations have become more tense than ever. Under this circumstance, the export-oriented Taiwan industry has been facing the most critical situation in its history. With TSMC's announcement to set up factories in the U.S. and AUO Corporation's announcement of indefinite postponement of its 8.5th-generation panel plant, Taiwan companies are facing five shortages and one uncertainty, including shortage of water, electricity, land, labor and talent, and uncertainty in geopolitical conflicts. **Under the deteriorating geopolitical situation across the Taiwan Strait, will European and American manufacturers consider redirecting some orders to other regions under the factor of "flexible supply chain" to ensure that the supply chain will not be broken due to the Taiwan Strait issue? This must be the primary concern for Taiwan fastener industry.**

In the past, business operation was to pursue the highest efficiency, but with the rise of geopolitical influence, it is necessary to improve "corporate flexibility" in order to face the challenges. The ability to build up flexibility must be to do environment analysis, risk assessment, and increase risk response capability on a regular basis, such as establishing overseas factory locations, training multi-skill employees, and planning different logistics routes. Companies must establish diversified countermeasures, train organizational agility, and strengthen interaction with the inner and outer environment.

In late 2022, the International Monetary Fund (IMF) warned that the growth of the world economy will continue to shrink in 2023. The three major economies, the United States, Europe, and China, are all in the stagnation of growth. Taiwan fastener industry is highly export-oriented and relies heavily on the international market. Taiwan not getting into international trade agreements such as RCEP is a negative factor for its fastener industry. The continuous chaos in the world economy and the deterioration of geopolitics are both great challenges for Taiwan fastener industry, and of course, they are also the greatest driving force for the transformation and upgrade of production patterns. Through 70 years of thick and thin, Taiwan fastener industry has been upholding the spirit of diligence, unrelenting, overcoming difficulties and striving forward, creating miracles under the efforts of Taiwanese manufacturers, government, researchers and all fastener practitioners. I expect the whole fastener industry in Taiwan to keep working hard to create the next 70 years of prosperity. ■

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