



Taiwan's Hand Tool Industry

Innovation & Development Create a "Blue Ocean"

In the past, Taiwan hand tool manufacturers focused on OEM or ODM service, but recently, most have been successfully transitioning to OBM and trying to build their own brand to operate within the market directly. As described in the book "Blue Ocean Strategy," they are creating their own "blue ocean" by offering value innovation that no one else is delivering. There are more than 600 hand tool manufacturers with over 10,000 employees in Taiwan. With the hand tool market growing at a compound annual rate of 4.6% during the past ten years, the hand tool industry shows much potential, and Taiwan's superior hand tools will without a doubt stand out in the market.

ECFA Helps Taiwan Hand Tool Market Grow and Expand in China

Under the Economic Cooperation Framework Agreement (ECFA), which was signed by Taiwan and China on June 29, 2010, some Taiwan hand tools will have priority to receive tariff cuts. Items on the "early-harvest" list include pliers, wrenches, hammers, screwdrivers, and other hand tools. Starting from 2011,

tariffs on Taiwan's exports of the above tools to China will be reduced from 10-15% to 5%; in 2012, they will not be subject to any tariff. MIT (Made in Taiwan) products provide customers with excellent quality at a reasonable price; as a result, Taiwan's hand tool exports have a bright future, and Taiwan's hand tool sales in China will expand at a more competitive price.

Transferring Hand Tool Technology to Medical Equipment

The hand tool industry in Taiwan has developed an industrial cluster and a well-connected supply chain, and possesses advanced processing skills and techniques. In response to the rise of China and trade liberalization, the Industrial Development Bureau, Ministry of Economic Affairs, has commissioned the Metal Industries Research Development Centre (MIRDC) to carry out the "Metal Product Value Enhancement Plan" to help domestic hand tool manufacturers upgrade. The MIRDC has helped these manufacturers to gradually enter the medical equipment market, where the products are high in value and



Combination Pliers / Kuang Yuang

have a high unit price. This shows that there is great similarity and commonality between surgical instruments and traditional hand tool products.

So far, domestic hand tool manufacturers and the MIRDC have



collaborated to invent new surgical instruments like high-strength oscillating bone saws and tumor dissection instruments that meet international standards. Some large hospitals in Taiwan have begun trials of these new products; the results have been quite positive and suggest that these new hand tools might be competitive in the market.

In an aging society with a low birth rate, more people are keeping pets. As a result, there is more and more demand for animal medical care and veterinary

surgical instruments. The MIRDC has also coordinated an alliance for R&D of veterinary surgical instruments consisting of Taiwanese hand tool manufacturers, the Veterinary Medical Teaching Hospital of National Chung Hsing University, and the National Veterinary Hospital. It is hoped that in the future the Taiwan hand tool industry can enter into the human-medical and veterinary equipment markets through the joint efforts of business, government and academia.

A Promising Future Led by the T-Team

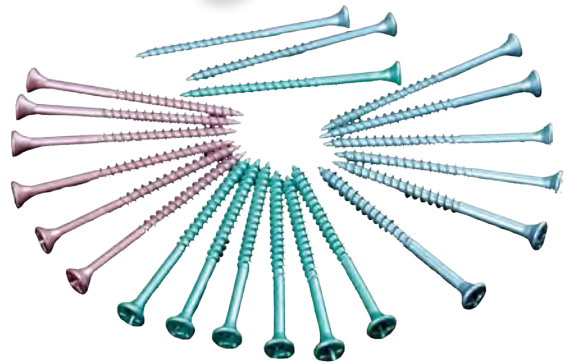
Owing to the challenge from the Chinese hand tool industry and the recent changes in the economic situation, Taiwanese manufacturers have turned to each other rather than working on their own. They have decided that the only way to cope with the impact of globalization is to build synergy. After the success of Taiwan's A-Team (bicycles) and M-Team (machine tools), hand tool makers formed the "T-Team" in 2009. Aided by the Industrial Development Bureau, Ministry of Economic Affairs, and the Corporate Synergy Development Center (CSDC), the T-Team is headed by King Tony Tools Co., Ltd., A-Kraft Tools Manufacturing Co., Ltd. and Machan International Co., Ltd., along with other subcontractors. They aim to make Taiwan into the most professional industrial

hand tool manufacturing center in the world, and to combine the know-how of the Taiwan hand tool industry to create a well-known Taiwan brand image based on more than 20 years of R&D and manufacturing experience. The T-Team was formally launched in July 2010, and the current production value of the T-team is about US\$61.53 billion. Additional suppliers are expected to join the T-team to promote the "Taiwan Tool Team" niche in the global market. The ultimate goal of the T-Team is to create a "TTEL" (Taiwan Tools Elite League) to focus on taking OEM/ODM order placements from international hand tool brands. And it plans to establish One-Stop Services (a new clustering model) and lead the way to high-quality, branded products, and hopes to thereby save on production costs by integrating upstream and downstream industry resources and create greater economic benefits.



Low-added-value Mass Production Transforms to High-added-value Lean Production:

The Re-emergence of the Fastener Kingdom



Fasteners have broad applications in various industries, such as ICT, construction, automobiles and aerospace. The Bureau of Foreign Trade, Ministry of Economic Affairs, indicates that 90% of fasteners produced in Taiwan are exported overseas, that Taiwan is among the top five fastener suppliers in the world, and that its products are popular in the market. According to Industry & Technology Intelligence Service (ITIS), a division of the Ministry of Economic Affairs, with the recovery of the global economy, Taiwan's fastener output in the first three quarters of 2010 was NT\$83.1 billion and exports were NT\$75 billion. From January to August in 2010, the five major export markets for Taiwan fasteners were the United States (36%), Germany (8%), Japan (5%), the Netherlands (5%) and China (4%). The fasteners made

in Taiwan not only are used in national construction projects but have customized features with high quality and an affordable price.

Taiwan's fastener industry enjoys a complete and stable raw material supply from China Steel Corporation (CSC), Taiwan's biggest steelmaker. Meanwhile, the role of the Metal Industries Research & Development Centre (MIRDC) has gradually adjusted from a technology provider to a partner in joint research and development. The MIRDC is continuously and actively assisting the fastener industry in upgrading and developing high-value-added products used in automobiles, aerospace, dental implants, and other specialty industries.

"Manufacturing Vantage" Turns into "Innovation Advantage"

In response to the competitive prices from emerging markets and the trend of customized production and green products, Taiwan fastener manufacturers have dedicated themselves to upgrading and to developing high-value-added products to strengthen their competitiveness. With the cooperation of CSC, the MIRDC has launched R&D alliances with aerospace and automotive fastener enterprises since 2006. Moreover, the MIRDC has developed technology for dental implants, assisting Taiwan fastener manufacturers to enter the medical equipment industry and create high-value-added products.

In 2009, along with screw and bolt enterprises, CSC and the

MIRDC established the “High-Value Fastener Research Alliance” to innovate the technology of fasteners and enhance the added value of the products. They have cooperated in doing promotion as well. Through collaboration/investment with marketing channels, the downstream products can be sold to the end users. This way, the sales value of the products will increase, and likewise the profit. To be in sync with international trends in industrial development, the research alliance integrates downstream fastener enterprises, molding factories, and surface treatment factories to develop the crucial technology for high-value fasteners, focusing on environmental protection, technology management, diversity, green energy applications, etc.

In August 2010, an Industrial Technology Development Program project—building core technologies of high-value-added fasteners—was approved by Taiwan’s Ministry of Economic Affairs in response to a joint application by CSC and six other partners. The R&D areas include:

- 1) Design technology of forming molds and new production method for high-tensile structural fasteners;
- 2) Applicable technology of the chromium-free surface preparation of eco-friendly high-value-added fasteners;
- 3) Technology of quick mold change of large-sized fasteners;
- 4) Technology of making new steel materials for large-sized bolts for wind power generators.

Once the plan is completed, the annual value of production is expected to be more than US\$60 million for the Taiwan fastener industry.

Looking Ahead

Due to the environmental protection awareness and production-cost control among European and American enterprises, they outsource OEM orders for screws, bolts and hand tools. Since Taiwanese manufacturers manage production

efficiently, deliver on time, take the initiative to upgrade and transform, and participate in the international certification system, large international enterprises have turned to Taiwan for their OEM needs.

According to a report released by ITIS, most mid-size and large fastener manufacturing companies in Taiwan have shifted their production focus to the making of automotive fasteners, which account for about one-fourth of Taiwan’s total fastener production and constitute the main fastener export. With the recovery of the automobile market, global automotive fastener output is expected to reach tens of billion of dollars annually.

Regarding aerospace fasteners, the obvious safety concerns mean that the fasteners used in the aerospace industry must be produced with higher standards than other types of fasteners in many respects, such as materials, processing and quality assurance. The special specification and quality verification as well as the established channels of internationally renowned companies create a high entrance barrier for newcomers and high added value. Many Taiwanese fastener companies actively





seek international certification, and the rating of their products improves every year. Large companies like Chun Yu Group and Anchor Fasteners Industrial Co., Ltd. have received AS9100 certification and become eligible to produce fasteners for aerospace applications.

Taiwan is the world's leading manufacturing center for 3C products and has high potential for developing micro-fasteners. Currently the demand for micro-fasteners is not that high, but Taiwanese fastener manufacturers have been able to support and innovate new 3C products, creating more than US\$30 million in annual sales.

In recent years, the MIRDC has taken over medical equipment industry projects from the Industrial Development Bureau, Ministry of Economic Affairs, and the National Science Council to integrate the industrial, academic, governmental and research resources in the south of Taiwan and develop medical equipment. MIRDC Vice President Chih-Lung Lin said that the fastener industry has the foundation of mechanical processing on which to build. Through the training provided by an artificial dental implant course offered by the MIRDC, the fastener manufacturers can also become dental implant manufacturers.

In addition, the center also established a Taiwan implantation company to master the surface processing technology of titanium dental implants, and the production technology is now mature enough to transfer to manufacturers in the industry to assist them to create high-value-added products. Some fastener companies in Taiwan have already switched to dental implant production. The implantation products are expected to obtain certification before October 2011 and take over 30% of the Taiwan dental implant market in three years before launching on the international market.

