



# Strengths of Taiwan's Medical Device Industry

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**Abstract:** This paper presents an overview of the medical device manufacturing industry in Taiwan. Taiwan's medical device manufacturers have achieved mature production technology in homecare products. With assistance provided to international giants through Original Equipment Manufacturer and through sales of self-owned brands, they are securing a predominant position on the global market. Contact lenses and glucose meters made in Taiwan have also shown significant growth in production and exports for the past few years and have become potential export-oriented medical devices for Taiwan. Taiwan's manufacturers can quite professionally deal with issues such as flexible manufacturing and process cost management, and they are rather competitive in emerging markets that demand high quality and fair prices. These qualities help maintain the continuous increase in export momentum. In addition, international manufacturers, one after the other, are establishing their research and development centers in China and purchasing related parts and components locally to form their supply chains in Asia. This helps Taiwan's manufacturers in other industrial sectors who are proactively making investments in the medical device industry and driving high value for the industry get the upper hand when they seek to connect with the global medical device industry, as well as be able to cut into the international medical device supply chain in the future.

**Keywords:** medical device; high quality and fair price; supply chain; high value

Regarding the production value and structure of the medical device industry, there are around 550 medical device-related manufacturers in Taiwan. Most of the manufacturers are small to medium-sized enterprises with less than 300 employees which focus primarily on OEM/ODM. Most of their products are low-technology to mid-level medical devices. Over 90% of the manufacturers have production as their main operation. Revenue of Taiwan's medical device industry in 2010 amounted to around NT \$66.2 billion, an increase of 17% from 2009. The growth in production value has been catalyzed by medical reforms in China and the US, as well as by the recovery of demand from European and

American markets. The successful deployment of Taiwan's medical device manufacturers to the Chinese market has also contributed to the improved overall production value.

A main source of momentum for this growth comes from the increase in the revenue from glucose meters and test pieces, blood pressure meters, and contact lens manufacturers. Revenues of public companies producing these products on the market have shown significant growth. The revenue of contact lens manufacturers is particularly strong. The growth value of two larger contact lens manufacturers alone exceeded NT \$800 million in 2011. Looking into 2012, the overall



production value will be able to reach a record high as more and more new manufacturers of glucose meters and contact lenses, as well as multiple production lines of medical consumables and materials in Taiwan's medical device industry, take the lead.

The current structure of Taiwan's medical device industry is drastically different from its global counterparts. Different from the focus of the global medical device industry on hospital supplies, Taiwan's emphasizes home consumer products, such as glucose meters, thermometers, and mobility scooters, among others. Domestic manufacturers have reached mature production technology. By assisting international giants through OEM and sales of self-owned brands, they have already secured a very important leading position on the global market.

In the case of electric scooters and powered wheelchairs, Taiwan is an import supplier of such assisted living vehicles around the world. In 2009, the production volume in Taiwan accounted for around 23.2% of the world market, with Taiwan being the second largest supplier in the world. In addition, Taiwan has seen drastic growth in the production and exports of contact lenses and glucose meters for the past few years, which have become potential export-oriented products for Taiwan. The few product development examples mentioned above show that despite the small production value of Taiwan's medical device industry, certain niche products continue to have robust performance and have secured a share of the global market. As long as manufacturers keep track of these niches in research, development, and technology, there is still plenty of room for profit.

Generally speaking, Taiwanese products that had export advantages between 1997 and 2008 have experienced great change in terms of demand and industrial characteristics. The switch from producing medical plastics and gloves in the early days to mid-level home medical devices (including blood pressure meters, thermometers, wheelchairs, and scooters) and then to

glucose meters and contact lenses that have already shown growth in response to significant demand for the past few years, is a criterion for corporations when they seek OEM partners to satisfy large demand. Production of glucose meters and dipsticks had already passed that of electric scooters in 2010, and they have become the main export-oriented medical devices for Taiwan.

## Taiwan's Medical Devices Are Competitive in Emerging Markets

The potential of the medical device industry in China, India, Indonesia, and Vietnam is enormous because of each government's promotion of medical care, insurance, and other related policies. As such, these countries have become the targets of international manufacturers. To access these emerging markets in the future, emphasis can be placed on high-quality and fair-priced products to gain the competitive edge. Taiwan's manufacturers specialize especially in dealing with issues like flexible manufacturing and process cost management, which are necessary to be competitive in emerging markets.

Analysis of the exports of Taiwanese medical device products to China, India, Vietnam, and Indonesia shows an increase from NT \$1.266 billion to NT \$2.501 billion for the Chinese market alone, with the composite growth rate from 2006 to 2010 reaching 110.82%. The composite growth rate during the same period reached 30.83% for the Indian market, 22.94% for the Vietnamese market, and 2.87% for the Indonesian market. It is clear, then, that export momentum is steadily increasing in emerging markets. Emerging markets have become one of the most important export destinations for Taiwan. As manufacturers continue to develop the markets in the future, the export potential will keep expanding, and thus drive industrial development.

## International Manufacturers Come to Taiwan to Seek Supply-Chain Partnerships on Medical Devices

Regarding the development trends in the global medical device industry, the imbalanced emphasis on medical care among European, American, and emerging countries has driven increase in the demand for medical care and brought about issues in need of creative solutions. These issues, in fact, have resulted in drastic changes in the global medical electronics industry. In particular, as the demand for fair-priced medical care

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products arises in response to medical reforms in China, the development of medical devices in the future will focus on low cost, low energy consumption, easy operation, high precision, and high reliability. In light of the rising price-sensitive demand for medical devices in China, international manufacturers are establishing their research and development centers there, as well as purchasing related parts and components locally to form their supply chains in Asia. It is expected that Asia will become the manufacturing base for the medical electronics industry.

An observation of Taiwan's medical device industry value chain indicates that the upstream of the value chain is largely connected with existing industries. As such, there are certain foundations for parts and components, sensors, biological materials, electronic parts, dies, and machinery which give Taiwan certain momentum. Taiwan's foundations in these industries also attract partnerships with international manufacturers, which in turn offer the Taiwanese manufacturers the best cutting edge technology when they seek to connect with the global medical device industry and cut into the international medical device supply chain in the future.

### **Investments from Taiwan's Manufacturers in Other Industries Drive Value for the Medical Device Industry**

Manufacturers in other industries have followed one another by investing in the medical device industry for the past few years. Manufacturers such as Delta Electronics, Hon Hai Precision, Quanta Computer, Advantech, BenQ, AU Optronics, Tatung, and Chimei Innolux, are all investing in the medical device industry. Besides electronics, information and communication manufacturers, many traditional enterprises are proactively transforming and stepping into the medical device field as well. The interest from manufacturers in other industries helps build up technological power for the medical device industry. It also contributes to reduced production cost and increased competitiveness of the overall industry.

The medical device industry is a high value-added one and is less likely to suffer drastic fluctuations as a result of the economy. With the aging population driving demand for medical care, the trend of the medical device industry combining with the electronics, information and communication industries is becoming more and more prevalent. Many manufacturers from different industries are optimistic about the development of the medical electronics industry and accordingly devote themselves to it. Such manufacturers can generally be divided into

three groups: (1) niche products-based total solution providers, (2) suppliers of key parts who apply existing industrial core technology to cut into the medical device value chain, and (3) merger-oriented manufacturers that familiarize themselves with product verification and quality management flows to shorten the learning curve. Medical devices are products of cross-disciplinary technical integration. Taiwan enjoys certain advantages and achievements in the research and development of electronics, information and communication, as well as fundamental industrial technologies. With continuous support from different industries for the medical device industry, it will bring capital and technology into the medical device industry and help with overall development.

### **Expected Prosperity in Taiwan's Medical Device and Medical Channel Industries**

The medical device industry in the Asia Pacific region has already experienced a certain degree of change. Many opportunities and change to the industrial map are surfacing, as well. In response to the demand from emerging markets for innovation, research, and development of related new products, the research and development and manufacturing of related parts will improve, too. International medical device manufacturers are already purchasing related parts in Taiwan. This offers Taiwan's electronic manufacturers opportunities to become partners of these international giants in research and development. Preliminary partnerships are focused on providing minor modifications of existing accessories. Once client trust is established, further effort can be made by Taiwanese manufacturers in the areas of joint research and development and the cooperative innovation of new products, so as to become the international corporations' innovative partner that provides low-cost, low energy-consuming, easy-to-operate, highly precise, and highly reliable parts.

In addition, the large potential of the medical device market in China makes it a target for manufacturers from every country. However, intangible obstacles exist for European and American manufacturers trying to access the Chinese market due to cultural differences. Except for some manufacturers that are capable of establishing their own marketing teams in China, most manufacturers have encountered barriers such as language and culture differences and have not been able to really access the Chinese market. Taiwan, with more exposure to Western cultures, can serve as the bridge between the West and the East. After



the conclusion of the Economic Cooperation Framework Agreement, tariffs are now waived for products sold from Taiwan to China. This helps attract foreign enterprises to establish cross-strait headquarters in Taiwan to take advantage of Taiwan's fortunate arrangement. Another fortunate situation comes from the fact that, compared to China, Taiwan has government regulations and clinical trials closer to that of Western countries. Therefore, if Chinese manufacturers set up their production sites in Taiwan, it will not only expedite review of their products overseas but also help re-sell products back to China. Moreover, exported products to European and American markets will come with the better image of Taiwan as a place of origin, rather than that of China.

Taiwan not only is capable of collaborating in the research and development of medical devices, but is also experienced in global marketing deployment. In the future, if foreign manufacturers invest in Taiwan they will be able to shorten the lead time of research and development and marketing for high-quality and fair-priced products, as well as be able to take advantage of Taiwan's experience with doing business with the West and its familiarity with China when those foreign manufacturers wish to sell developed products to China and other developing countries. For Taiwan, manufacturers will be able to keep track of new business opportunities in the global medical device industry, and thereby realize a win-win situation.