

# High Value-added Fasteners for Medical Applications

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**F**asteners used inside human bodies are generally categorized under HS code 902110. The description for this HS code is orthopaedic or fracture appliances normally in the forms of screws or spiral parts that can stay in human bodies for more than 30 days. For so many years, medical fasteners have been made from titanium. With the development of technology, materials for producing medical fasteners became different. These materials are critical in terms of their physical and chemical properties. Preferably, materials for medical fasteners should be biocompatible. They should also be resistant to both corrosion and fracturing.

Nowadays, materials for medical fasteners can consist of titanium or zirconium material design. Nevertheless, materials for medical fasteners must be durable and robust. The strength of materials for medical fasteners and their design must remain compatible with physical properties. Below are the common types of materials used in producing medical fasteners today.

**Titanium** - Titanium is regarded as the most common type of medical fasteners material.

**Zirconia** - In contrast to titanium, zirconia is a recent invention. It is regarded as the most promising future of medical fastener material.

Titanium has been tested and provided a high success rate in medical procedures. Its flexibility has set it apart from the zirconia. As a metal, titanium has been the first choice in all forms of bone and plate implants. Millions of patients have reaped the benefits of titanium.

However, zirconia combines both post and abutment into one unit. This reduces the fear of bacteria hiding and affecting the body.

## How is Competition in the Medical Fasteners?

The business value of this category is 10.4 billion USD in terms of export and 11.3 billion USD in terms of import.

The main exporters are:

- Europe with 900 million USD export in a quarter (except for Switzerland)
- Switzerland with 600 million USD export in a quarter
- North America with 650 million USD export (more than 500 million USD export from the USA)
- Asia with 200 million USD export in a quarter

Although this market is under control of many manufacturers in Europe and USA, some Asian manufacturers in S. Korea, Japan, and Taiwan have also invested a lot into the research and development of these types of products.

What has changed in the fasteners' business in recent decades is the amazing proliferation of product choices in just about every category. Being different is at the heart of this competition. If companies ignore their uniqueness and try to offer everything to everybody, they quickly undermine what makes them different.

## How Can Asian Manufacturers Enter This Market?

The COVID-19 has effects on the unnecessary medical care like dental care, like teeth implanting (one of the main categories that use medical fasteners) and it can be an opportunity for Asian companies that want to enter this market. An Asian company in this category has three possible areas where it could establish a successful business. Let's look at each possibility in turn.

### Product Differentiation

Where does an Asian high value-added fastener producer rank in different products? Asian companies have no hope of establishing product differentiation by going head-to-head against European companies. Furthermore, many of the European and American companies are running corporate programs emphasizing product differentiation.

### Business Leadership

Now, let's look at the second possible approach, business leadership, which today essentially means focusing on the price. Could Asian producers be successful on the price, Maybe yes, maybe not. Except for Japan, the other Asian countries' prices are so cheap in comparison with European countries' prices. Looking at the prices below.

"Price" is a big issue for most consumers. While consumers will often go out of their way to save money, sometimes they do the opposite. So, the quantity of Chinese is enormous. But in terms of total amount, Switzerland is ranked in the 1st place and USA is ranked in the 2nd place.

But what is the difference between China's price and Taiwan's price? The statistics show that Mexico's price is two times higher than Taiwan's price, but the quantity of fasteners sold from Mexico is 3.5 times higher than the quantity of Taiwanese fasteners.



| Exporter    | Total amount (USD) | Quantity (Kg.) | Unit Price (USD) |
|-------------|--------------------|----------------|------------------|
| China       | 137,717,000        | 12,864,609     | 10.7             |
| Taiwan      | 14,800,000         | 894,551        | 16.5             |
| South Korea | 5,081,000          | 93,945         | 54.1             |
| Japan       | 2,777,000          | 3,743          | 741.9            |
| Switzerland | 620,963,000        | 259,581        | 2,392.0          |
| Netherlands | 270,872,000        | 587,614        | 461.0            |
| Germany     | 182,992,000        | 723,000        | 253.1            |
| France      | 151,109,000        | 663,571        | 277.7            |
| Belgium     | 114,653,000        | 542,250        | 211.4            |
| USA         | 584,011,000        | -----          | -----            |
| Mexico      | 110,117,000        | 3,221,385      | 34.1             |

The answer is simple, China is the centre of titanium in the world, the most important material for producing medical fasteners.

### Industry Leadership

The third approach is industry leadership. The Taiwanese or Koreans should improve their leadership position in the medical fastener industry. One thing is perfectly obvious when the manufacturers of these countries first consider a corporate program. Corporate programs are a series of advertising campaigns that Taiwanese producers can talk about the teeth implanting benefits, but during the COVID-19 pandemic it will be dangerous for patients. They should start to speak up about the COVID-19 and tell the public about the risk of taking a teeth implant surgery in this period of time. Why should they talk in this way? Because Taiwanese manufacturers need to compete in this market, however:

- \* Their price is not acceptable in the market like China is.
- \* They are not famous for high-tech or sensitive medical fastener production like Germany or Switzerland is.

As a result, the best way for these Taiwanese manufacturers to win in the high value-added fasteners competition is "to show the potential patients that their health is more important than their benefits." By this way, Taiwanese manufacturers can win customers' trust and consumers may turn to them at anytime. Economical leadership takes time, but works without any doubt.

### Summary

Product leader, Switzerland is the country of super sensitive products, they know how to sell a product at 2000 USD/Kg.

Business leader, price is one of the leverages for selling high value-added fasteners, but based on China's leverage in this sector. China is the largest producer of titanium, so the largest titanium producer in the world is a leverage on the Chinese hands to control the price of titanium in the titanium productions like high value-added fasteners.

Industry leader, Taiwanese manufacturers don't have any leverage to be the leader in terms of "product" category or "business" category. They should be spokesperson in this category, otherwise, they could only be followers and never find a success. □



## Echo Fasteners


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