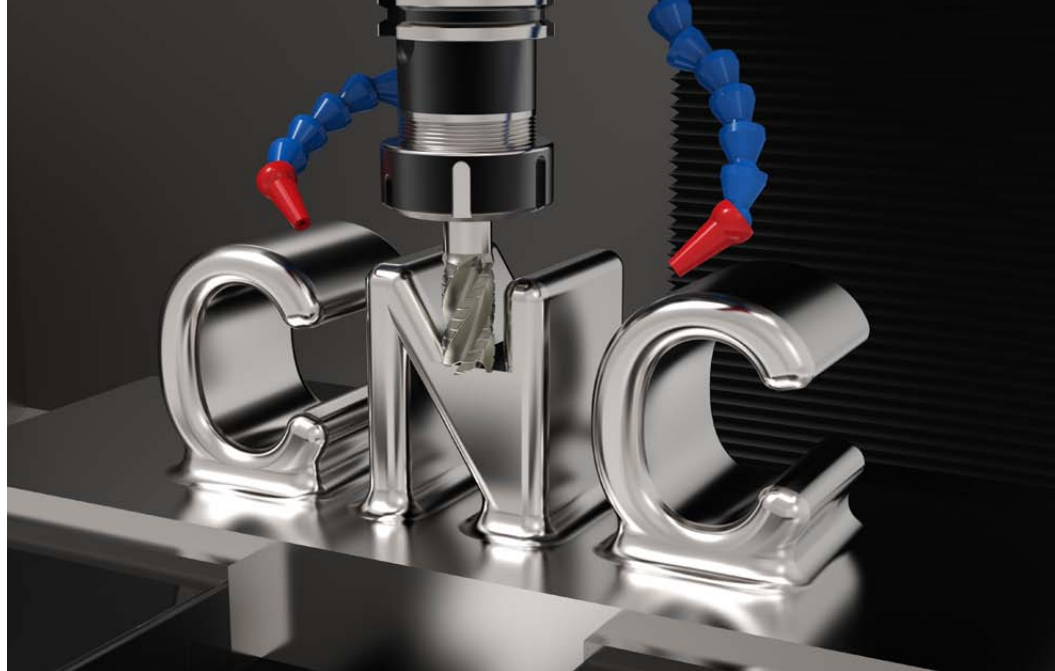


TAIWAN  
JAPAN  
KOREA



## Analysis of the

# CNC and Precision Components Industry and Market

by Sharareh Shahidi Hamedani



## The Situation of Japanese Machine Tool Market

Japan is the third country in the world to establish a machine tool industry and realize industrialization after the United States and Germany. Japan is a well-known machine tool power in the world. Japanese machine tool technology is hardly rivalled in the world. Japan has multiple manufacturers and these manufacturers have different characteristics in different fields and strong heterogeneity, which makes it possible for Japan to achieve a "monopoly" in the field of manufacturing. One factory is characterized by high speed and high precision; another one is characterized by a reasonable mechanical structure, capable of efficient and pollution-free operation, and advanced technology with simulation automation can provide users with the most simplified processing guarantee; The characteristics of another machine tool factory is that it has good rigidity, high cutting efficiency, high precision, long life, convenient operation, and has achieved electromechanical integration, etc., which can meet different types of processing.

## Japanese Machine Tool Market in 2018-2020

Japanese machine tool industry received 11.4 billion USD worth of orders in 2019, a decrease of 3.2 billion USD in comparison with 2018 (14.6 billion USD), because of the US-China trade war. The pandemic starting from the beginning of 2020 has attacked the market and Japanese machine tool industry has been hit as well. According to the Japan Machinery Industry Association in 2020, the domestic and foreign orders received totalled 6.1 billion USD, a decrease of more than 46% in comparison with 2019 (detailed as below):

- Orders from China as the main buyer of Japanese machine tools decreased 26% in comparison with 2019. (China bought 105 million USD less machine tools in 2020 than it bought in 2019).
- Orders from the European market decreased 66.7%, a monthly decrease of 49.2 million USD.
- Orders from the North American market decreased 41.5%, a monthly decrease of about 110 million USD.
- Orders from Japanese domestic market decreased 51.4%, a monthly decrease of 190 million USD.

All industries appeared a decline. For example, the orders of machine tools from the automotive industry fell by 61.5%, which means a 44 million USD monthly decline from 2019. The monthly orders of machine tools from the automotive industry reached about 46 million USD, the lowest level in the past 10 years.

However, the tension of the US-China trade war has eased in 2021, but the machine industry in Japan has not been able to reach its former prosperity yet due to the continuing pandemic in 2021.



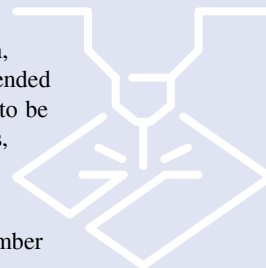


## Taiwan Overview

Taiwan has an integrated machine tools system. With the knowledge they have gained over the years, they have been able to establish a logical connection between manufacturers of high, medium and low technology level of machine tool. Although Taiwanese market has historically depended on Germany and Japan for machine tool supply, Taiwanese manufacturers consider U.S. producers to be highly competitive in the emerging fields of systems integration, software, integrated machine tools, industrial robots, and new manufacturing technologies.

Taichung metropolitan area is the centre of Taiwan's advanced industries. Smart Machinery Technology, Precision Components Industry and Innovation Park. This city has gathered the most number of manufacturers of precision machine tools in the world.

In 2017, Taiwan authorities enacted the “5+2 Industrial Development Plan,” which included a USD \$117 million Smart Machinery Initiative (SMI), and which prioritized key innovative industries. Based on Germany’s Industry 4.0, the purpose of the SMI is to transform the traditional machinery industry into an advanced machinery industry, by helping 50,000 local manufacturers upgrade their production methods, boosting total industrial revenue, and reducing Taiwan’s economic reliance on the semiconductor industry, which is by far Taiwan’s largest industry.



## Taiwanese Machine Tool Market in 2018-2020

According to the latest global machine tool industry survey, Taiwan is the ninth largest consumer of machine tools in the world, with a total consumption of about 1.3 billion USD, down 31% from 2019. Taiwanese domestic markets for machine tools are the auto parts industry, electronics and electrical industry, aviation and defence industry and other industries (including oil and medicine). The consumption value was 1.9 billion USD in 2019 and 2.1 billion USD in 2018.

Half of these machines are domestically made and the other half are imported. Japan is the largest exporter of machine tools to Taiwan, representing 48% of Taiwan’s total import in this cluster. The United States ranks second, representing 20% of Taiwan’s total machine tools import. The three main categories of machines imported into Taiwan are: special processing machines that use lasers to process various materials (or laser cutting machines), lathes and machining centres. Laser cutting machines with the 44% share in the total import are the main imported goods. Taiwan is the fourth largest importer of laser cutting machines in the world, and its imported goods are mainly vertical CNC lathes. Taiwanese machinery is mostly in the field of electronic components and fibre optics for computers, which account for approximately 35% of all Taiwanese products in this category. 28% of the machines belong to the metal and mechanical industries and the remaining 37% is used in other industries.



## South Korea Overview

South Korea is the world's sixth largest machine tool producer and the world's fifth largest machine tool consumer, with an average consumption of approximately 1.76 billion USD. Among them, nearly 70% of the consumer market's demand is for products provided by local machine tool factories, and only close to 30% of the products must be imported from abroad. The consumption value is 11.4% lower than in 2019.

South Korea is the only country that suffers the least damage from the pandemic on its machine tool sector, because in South Korea most machine tools are widely used in the production of auto parts, and this sector is able to control the damage caused by the pandemic.

The main importing countries of machine tools from South Korea are Japan, Germany, and China, while Taiwan is the No. 5 major importing country. In the past six years, the models with higher import values are laser processing machines, cutting processing centres, metal pressure processing machines, and grinding finishing machines.



### References:

- <https://www.market-prospects.com/articles/japan-machine-tool-market-during-the-epidemic>
- <https://www.trade.gov/country-commercial-guides/taiwan-machinery-and-machine-tools>
- [https://www.tmts.tw/en/news\\_content/12](https://www.tmts.tw/en/news_content/12)
- <https://www.market-prospects.com/articles/south-korea-effect-on-machine-tool-market>
- <https://pulsenews.co.kr/view.php?sc=30800028&year=2020&no=1314398>

