

## **JAPAN: BOOSTING THE MACHINE TOOL SECTOR**

*Several studies and media reports point out that the Japanese government is promoting the concept of 'Connected Industry' to encourage the usage of Industry 4.0 and IOT among its domestic players*

When it comes to machine tools, Japan continues to have a formidable presence. The Asian country's machine tool industry is poised for growth in the background of the government's noble initiatives and ever active industry. The automobile, aeronautical and medical sectors are expected to generate a significant demand in the near future. Change is constant and one has to adapt and adhere to them if they intend to succeed. The same applies to the machine tool industry. Industry 4.0 and IoT (Internet of Things) play a vital role in today's manufacturing scenario. In the further developed world which comprises of the Americas and European region the growth of these two segments has been significant. However, when we turn towards the Asian region the vast majority of the machine tool industry is still struggling with implementing Industry 4.0 in its production line.

### **Connected Industry**

Japan is one country in the region that is known for producing quality products for the machine tool sector. To keep this momentum going further and to stay ahead of its global competitors, the Japanese government is promoting the concept of 'Connected Industry' for the future of the country's industries. Through the Connected Industry initiative, the government has also collaborated with the private industry to encourage the usage of Industry 4.0 and IoT among its domestic players. The government also intends to figure out different measures for the development of IoT in its shop floors.

Some of the major Japanese players offering Industry 4.0 solutions include Yamazaki Mazak Corporation, DMG Mori Seiki Co., Fanuc, and many others. The importance of Industry 4.0 and IoT in the Japanese market can be understood by a report by the Ministry of Economy, Trade and Industry (METI). It states that Japan aims to identify and overcome any and all systemic challenges to the society by taking advantage of technological innovations, including IoT, big data, artificial intelligence (AI), and robots; direct such achievements toward Japan's economic growth, and achieve a more affluent society that each and every person can enjoy.

### **Global Machine Tool Market**

The year 2018 is expected to be positive for the machine tool sector. Some of the leading countries in this sector such as Germany, China, Japan and Italy have made significant developments in the field. In terms of production output, China holds the first rank followed by Germany and Japan. In the export scenario, Germany holds the first rank ahead of Japan and Italy. Japan's machine tool sector is optimistic about the increasing demand from the automobile, aeronautical and medical sectors in the near future. In addition to this, Asia is undertaking many other initiatives to uplift the countries' machine tool sector including hosting JIMTOF – the international machine tool fair in Tokyo.

The exhibition will take place from November 1–6, 2018 across an area of 98,540 sq. metres and is expected to showcase a range of the latest technologies and solutions in the machine tool

sector. The Japan machine tool sector is upbeat and with so many activities taking place in the country the industry is surely expected to surge ahead! Under the theme 'Connect', JIMTOF 2018 is expected to attract the who's who of the global machine tool segment and also witness a significant number of footfalls. The JMTBA is in charge of handling the country's machine tool sector and is also responsible for the industry's growth and contribution to the overall economy of Japan. One of the most significant aspects of the trade association is the promotion of the Japanese machine tool industry around the world in order to achieve potential business deals.

This is precisely the reason behind JMTBA organising the global machine tool exhibition, JIMTOF. Some of the prominent leaders of the Japan machine tool industry include DMG Mori Seiki, Yamazaki Mazak, Okuma Corporation, Makino Milling Machine, etc. All these major players along with other global companies will be showcasing their latest range of technologies and solutions at JIMTOF 2018. The current market scenario of the Japanese machine tool industry is steady.

### **Industry Overview**

There are around 200 manufacturers of machine tools in Japan. Some of the most famous brands include DMG Mori Seiki, Yamazaki Mazak, Okuma and Fanuc. In 2014, six out of 11 largest machine tools manufacturers in terms of revenue came from Japan: Amada Co. Ltd., Komatsu Ltd., DMG Mori Co. Ltd., Makino Milling Machine Co. Ltd., JTEKT Corporation and Okuma Corporation. Their machines are very popular, especially in Europe. The US is becoming a large buyer of machine tools, too: Imports have been increasing from USD 8 billion in 2013 to USD 10 billion in 2015, while production of machine tools has been decreasing.

The global rise of machine tool consumption presents a clear opportunity for Japan's manufacturers. In order to grow in the European market, Mori Seiki has merged with German manufacturer Gildemeister to create DMG Mori. In 2015, 20% of sales revenues came from Europe and this amount is expected to grow in 2016. Yamazaki Mazak Corporation is also actively working the European market. The Japanese company has opened four research centres in the past six years: Katowice in Poland, Prague in the Czech Republic, and Dusseldorf and Leipzig in Germany. In May 2016, Mazak has announced the opening of its technology centre in Hungary, the 14<sup>th</sup> in Europe. Overall, the European market represents 30% of Mazak's turnover.

Fanuc Corporation controls 65% of the global market share in CNC controls worldwide. The company has been included in the Top 100 Global Innovator list by Thomson Reuters in 2011 and 2012. It is represented in more than 14 countries in Europe and is currently developing the Chinese and South Korean market. The company's largest market is America with 2015 sales of USD 1.034 billion, closely followed by Japan with USD 1.030 billion. A considerable strength of many companies in the Japanese machinery industry is that they have deep market knowledge due to their long history. Japan Steel Works Ltd. for example was founded in 1907, Yamazaki Mazak in 1919, Mori Seiki tracks back its history to 1948, and Fanuc does to 1958.

### **A Highly Competitive Market**

Yet, Japanese machinery companies need to be aware of the fast development of China and India. The production of machine tools in India, for example, is forecast to grow at a compound annual growth rate of 13% during the 2016-2020 period. According to Yoshino Hiroyuki, former

president of Honda Motor, Japan has to work and focus on the price of their machines, which may be too expensive when compared to Indian and Chinese equipment. “In our newly operational factory in Thailand,” he said, “we have introduced to our engine processing line machine tools made in India and China that cost around 40% less than machines made in Japan. The results have been impressive. Japan needs to reconsider the question of cost.” Paradoxically, while being an important machinery manufacturing country itself, China is also still a significant importer. In 2015, the country imported machines worth USD 157 billion, making it the third largest importation category after electronic and oil. Of those, USD 26.3 billion were imported from Japan.

Japanese machinery industry companies still hold a few aces, though. Even if their machines are expensive, they are famous for their quality and reliability. They have succeeded in building extremely strong brand awareness and have customers that are very loyal. An interesting feature of the industrial machinery sector is that equipment can be very expensive, but can also last a long time if it is properly maintained. Due to this there is a substantial market for used machinery. With the onset of the internet and the appearance of online market places to buy and sell used machinery like Exapro, this second-hand market is growing quickly. As they provide easy and transparent access to buyers all around the world, these market places also contribute to the ongoing internationalization of the industrial machinery industry.

Overall, the market for industrial machinery market is getting increasingly competitive. The decrease of the machine tools production in favor of imports in the US, rising production in Asian countries like Japan, China or Vietnam and the consolidation of the German market make this market more and more international. The Japanese machinery industry still has a dominating market position and its development of overseas markets has been a success, especially in Europe. But the threat of China with its quickly growing machinery production will be a serious challenge in the future. It will be interesting to see how Japan’s companies will react to this threat. One strategy will likely be to continue being innovative and keeping on developing the European market.

### **Japan’s Machine Tool Orders**

According to recent reports by the Japan Machine Tool Builders’ Association (JMTBA), the total value of Japanese machine tool orders in May was USD 1.32 billion. This was a decrease of 8.5% compared to April 2018 and marked the second consecutive month of month-on-month decline. However, this figure represented an increase of 14.9 % compared to the same month of the previous year and marked the eighteenth consecutive months of year-on-year growth. In terms of orders, the country’s domestic orders fell by 8.2% from April amounting to USD 5.64 million. This marked the second consecutive month of month-on-month decline. This figure was a growth of 23.2% over the same month of the previous year and marked the sixteenth consecutive month of year-on-year increase.

The scenario of Japan’s foreign orders was similar in nature as orders fell by 8.7% from April to USD 774.8 million and marked the second month of month-on-month decline. However, foreign orders showed an increase of 9.5% over the same month of the previous year, and this marked the eighteenth consecutive months of year-on-year growth. The report also added that orders in the Asia region fell by 13.2% from April to USD 359.1 million. This was an increase of 1.4%

over the same month of the previous year. Interestingly, orders from Europe rose by 1.6% over April to USD 174.8 million; this was an increase of 14.5% over the same month of the previous year. Orders from North America fell by 7.4% from April, amounting to USD 230.4 million. This figure was an increase of 23.8% over the same month of the previous year.

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