

**INDUSTRY COMPACT: JAPAN'S MACHINERY ENGINEERS DEFY COMPETITION
LARGE COMPANIES FOCUS ON ABROAD AND THE DIGITIZATION**



Tokyo (GTAI) - Japan's machinery and facility manufacturers expect increasing orders again. An increase is expected, especially for the international business. They saw the slight financial doldrums of 2015 before. However, there were exceptions - for example at the robot technology. The big companies have a strong interest in the subject of Industry 4.0. Here are cooperation opportunities for German companies, also on third markets.



The Asian region remains high on the agenda

Japan's economy is not yet in full swing. A new in August released stimulus package of the government is to ensure the recovery. In total Yen 28.1 billion (EUR 246.49 billion, in early September 2016: 1 Euro = Yen 114) amounts to the "package" which is funded to about 25% directly from the state treasury. The investment plans of the manufacturing industry are looking promising in the fiscal year 2016 (4.1 to 3.31.). They could rise by 14.5% over the previous year, according to the result of a survey of the Development Bank of Japan (DBJ) in July 2016.

This is confirmed by a survey of the business newspaper Nikkei with 1,140 participating companies. In the fiscal year 2016 they want to investment a volume of Yen 25.28 billion. This would be an increase over the investments made in the fiscal year of 2015 of 8.3%. If the expansion plans will actually be implemented, it would be the seventh consecutive increase year. Manufacturers of electronic machines have the most ambitious investment plans: Yen 3,64 billion, they have scheduled approximately 9.4% more than in the previous year.

Meanwhile lean foreign business

According to the sector association JSIM (Japan Society of Industrial Machinery Manufacturers) in the fiscal year 2015 the incoming orders for industrial machinery remained below the expectations. Incoming orders came nearly to Yen 5.50 billion. These were almost 10% less than the year before. Industry experts had already expected in advance that particularly the foreign business would suffer after the exceptionally successful year 2014. For the fiscal year 2016 the JSIM experts expect an increase of 4.6% to Yen 5.73 billion.

Not as positive as in the preceding years the situation looks in the machine tool segment. According to the industry association JMTBA (Japan Machine Tool Builders' Association) the orders declined in 2015 over the previous year by 11.4% and reached around Yen 1.40 billion. - This is justified by an overcapacity abroad. In fact it was the overseas business which fell by 22.1% to just under Yen 820 billion, while there was still an increase of 9.9% to Yen 579 billion yen domestically. With a view on the 1st quarter of 2016 the association has to state that the foreign business has not yet recovered. With more than one-quarter the orders declined compared to the same period last year.

The domestic market thus wins in importance for Japan's machinery builders. Generally, there is a need of modernization of the partly obsolete equipment at the local businesses. In addition, the reconstruction of the earthquake regions is required too. In addition, the hosting of the 2020 Olympic Games in Tokyo is considered quasi as a guarantor of business orders from the construction sector.



Orders by machine type, fiscal years 2014 to 2016 (in billion Yen), change in %

	2014, total ¹⁾	2015, total ²⁾	2016, total ³⁾	2016, domestic	2016, abroad	Change 2016/15, total
Boilers, Turbines,	1,809	1,796	1,896	1,390	506	5.6
Mining	23	29	31	28	3	6.9
Chemistry ⁴⁾	2,097	1,405	1,455	828	628	3.6
Tanks	30	47	56	26	30	18.7
Plastic processing	194	211	216	87	129	2.5
Pumps	336	358	373	270	103	4.3
Compressors	267	267	274	136	138	2.5
Ventilators	28	28	30	25	5	8.6

Boost material	355	400	433	282	150	8.3
Drive technology	50	53	54	45	8	2.5
Metalworking	162	182	186	79	107	2.5
Others ⁵⁾	725	703	725	535	189	3.1
Total	6,075	5,477	5,729	3,732	1,997	4.6

¹⁾ actual results; ²⁾ preliminary; ³⁾ forecast; ⁴⁾ also included in category: pulp- and paper machines, chillers, equipment for air- and water cleaning; ⁵⁾ among others: equipment for waste treatment, industrial washing machines

Source: Japan Society of Industrial Machinery Manufacturers, February 2016

A high importance is given to the field of environmental and energy technology for the machinery industry in Japan. Although reactors, that meet stringent safety regulations, are expected to enter the net again in the next few years, renewable energy will be pushed up. In addition, there are intelligent power networks (smart grids) in the focus. Especially in areas with high priority, such as the energy and environmental technology, German suppliers with innovative technologies and customized solutions can win the points.

Connection links by Industry 4.00

Digitalization and with it topics related to Industry 4.0 keep the Japanese machinery and factory builders now very much interested. In June 2015, the "Industrial Value Chain Initiative (IVI)" was launched. About 40 Japanese companies belong to this interest group – like as the branches of the German Bosch and Beckhoff Automation GmbH. End April 2016 the German Federal Ministry of Economics (BMWi) signed with the Japanese Ministry of Economy (Meti) a Memorandum of Understanding (MoU) for joint cooperation in the region.

Equipment manufacturers from abroad should observe under cooperation aspects with big business interests the international activities of the Japanese mechanical and plant engineering. The Japanese abroad generated production shares are not far from the 40% mark the Japan Bank for International Cooperation (JBIC) determined the end of 2015. This creates opportunities for third-market operations, which are often controlled by the parent companies in Japan.

In foreign projects the PRC stands not as strong in the foreground as it used to be. The focus is increasingly directed on the ASEAN countries („Association of Southeast Asian Nations"), while currently the general economic activities in the emerging markets are critically observed. In the longer term India has been planned as a manufacturing location.

Single, large companies dominate

According to preliminary data from the industry association JMF (Japan Machinery Federation) Japanese engineering companies manufactured machines worth of about Yen 13.55 billion in the fiscal year 2015. This was 2% less than last year. Important were cooling machines, (Yen 1.98 billion, 4.8%) as well as equipments for manufacturing of semiconductors and flat panel monitors -Yen 1.61billion, 2,8%. The manufactur-



er of metalworking machines had a production decline over the previous year by 5.9% to Yen 1.18 billion. Growth rates of just over 10% are registered in the robotics segment since several years.

In general the concentration in the individual equipment segments is high. According to the Yano Economic Research Institute in the fiscal year 2015, slightly more than two thirds of the NC milling machine production came from three companies: Makino Milling, Okuma and OKK. In general metalworking machines Amada, Kobe Steel and Kawasaki Hydromechanics (subsidiary of Kawasaki Steel) came on a market share of about three-quarters. Other important tool machine vendors are Yamazaki Mazak and Mori Seiki. Also in construction, textile, packaging and food processing equipment the three leading manufacturers account for at least 60% of domestic production for themselves.



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**Production by selected machines, Fiscal years 2014-2016
(in billion Yen, change in %)**

	2014 ¹⁾	2015 ²⁾	2016 ³⁾	Change 2016/15
Boilers, Turbines,	1,433	1,193	1,127	1.9
Pumps, Ventilators	440	486	498	2.5
Compressors	677	666	669	0.4
Boost equipment	533	553	595	7.5
Robotics	594	681	750	10.2
Drive – technology	419	413	418	1.2
Agricultural machinery	456	444	422	-5.0
Metalworking	1,257	1,183	1,120	-5.4
Food processing machines	448	518	520	0.5
Chillers	1,894	1,984	1,958	-1.3
Machines for the production of semiconductors and flat monitors	1,564	1,608	1,772	10.2
Total machinery	13,838	13,554	13,784	1.7

¹⁾ actual results; ²⁾ preliminary; ³⁾ forecast

Source: Japan Machinery Federation (JMF), July 2016



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Japan imports partly from our own production abroad

The Japanese imports of machinery and equipment continue to increase. It should be noted, that some of the imports are based on the foreign production of local companies. The largest share of supplies from abroad accounts for the category pumps and compressors. According to the United Nations Comtrade database this category reached on the basis of USD around USD 3.57 billion in 2015. This was 6.5% less than in the last year.

Just over 30% of the supplies came from the PRC; probably to a not inconsiderable proportion from Japanese production. The latter is also the case with electrical machines. According to Comtrade these reached in 2015 an import value of slightly more than USD 55 billion (-8%). More than a third of this was accounted for the PRC; about one-fifth to Asian emerging markets. In the import statistics Germany is especially noted in machine tools and food and packaging machines.

Despite displacements to abroad Japanese exports continue to play a role. In 2016 they are likely to suffer from the resurgent Yen. Moreover, the economic slowdown in the Asian emerging markets is becoming more noticeable.

Import of machinery to Japan (in million Yen)

HS	Description of goods	2014	2015	From Germany (2015)
8429 bis 30, 8474, 8479.10	Construction- and Constructionmaterial machines, Mining machinery	41,275.5	48,946.3	4,699.8
8444 bis 49, 8451 bis 53	Textile- and Leathermachines	65,712.2	64,431.0	4,934.5
8439 bis 42, 8443.11 bis .19	Printing and Papermachines	43,089.1	43,239.5	15,835.5
8422.30 bis 40, 8437, 8438, 8479.20	Food- and Packaging machines	38,155.9	4,887.9	11,197.5
8465, 8479.30	Woodworking machinery	8,466.0	8,099.7	2,215.3
8477	Plastic- and Rubber machines	67,477.2	64,335.5	6,783.4
8413, 8414	Pumps and Compressors	403,986.5	432,352.1	26,565.7
8425 bis 28	Boost technology	61,233.1	65,326.0	13,124.7
8456 bis 63	Machine tools for metalworking	93,513.9	111,394.1	26,701.5

Source: Japanese custom statistics



Commercial practice

Relevant provisions for machine and plant engineering in Japan will be supplied by the following institutions: Japan Customs (<http://www.customs.go.jp>), the Ministry of Economy, Trade and Industry (METI, <http://www.meti.go.jp/policy/ampo>), the Center for Information on Security Trade Control (<http://www.cistec.or.jp>) Japanese Standards Association (<http://www.jsa.or.jp>), the Japanese Industrial Standards Committee (<http://www.jisc.go.jp>), the Japan Accreditation Board for Conformity Assessment (<http://www.jab.or.jp>) and the Japan External Trade Organization (JETRO, <http://www.jetro.go.jp>). JETRO published in February 2010 the still actual report "Handbook for Industrial Products Import Regulations 2009", which contains the specific import requirements for some types of machines, especially for machine tools, food processing and packaging machines.

Detailed information on commercial and tax laws are available at <http://www.gtai.de/recht> and for import arrangements, tariffs and NTB under <http://www.gtai.de/zoll>

Internet addresses

Name	Internet addresses	Comments
Germany Trade & Invest	http://www.gtai.de/japan	Foreign Trade Information for German Export Business
AHK Japan	http://japan.ahk.de	Information place for German companies
Ministry of Economy, Trade and Industry	http://www.meti.go.jp	Responsible for strategy and planning for industrial machinery engineering and related sectors
Japan Machinery Federation	http://www.jmf.or.jp	Leading Association of Machinery Engineering
Japan Society of Industrial Machinery Manufacturers	http://www.jsim.or.jp	Association of Industrial Machinery Manufacturers
Japan Machine Tool Builders' Association	http://www.jmtba.or.jp	Association of Machine Tool Builders
JIMTOF/Japan International Machine Tool Fair Tokyo Big Sight	http://www.jimtof.org	Largest and most important machine tool exhibition (every two years, next date November 17 th – 22 nd 2016)

The series "Sector compact" provides analysis on important key sectors of German export economy. Other country reports for machinery and plant engineering and other industries can be found at <http://www.gtai.de/branche-kompakt>.

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