ITALIAN TRADE AGENCY
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# CHINA'S MACHINE TOOL INDUSTRY, MARKET AND REGULATIONS

Newsletter August 2024

Issue no. 3

# Table of Contents

# 1. Machine tool industry in China

## 1.1 Overview of China's economy, market performance and main indicators of the machine tool industry

### 1.1.1 Main economy indicators

**In the first half of 2024, China's economy maintained an upward trend, despite a temporary fluctuation in the second season**

According to the preliminary estimates from the Chinese Bureau of Statistics, in the first half of 2024, China's GDP displayed a positive growth, reaching 61,684 billion RMB. By industry classification, the value added of the first industry marked a 3.5% year-on-year growth (3066 billion RMB), with the second and third industry marking a 5.8% (23653 billion) and 4.6% (34965 billion RMB) year-on-year growth respectively. By season, the first season displayed 5.3% year-on-year growth, higher than 4.7% of the second season during which severe extreme weather events and flooding disasters occurred and brought adverse impacts on the national economy.

**Summary of the highlights**

**Moderate pick-up of consumer prices**

In the first half of the year, national Consumer Prices Index (CPI) rose by 0.1% year-on-year (CPI being flat in the first season). Core CPI, which strips out food and energy prices, rose by 0.4%, down from 0.6% in June. By category, food, tobacco & alcohol prices fell by 1.4%, clothing prices rose by 1.6%, housing prices rose by 0.2%, living commodities & services prices rose by 0.9%, transportation & communication prices fell by 0.7%, education, culture & recreation prices rose by 2.0%, healthcare prices rose by 1.4%, and other goods & services prices rose 3.3%. It is worth mentioning that prices of pork (a widely-consumed food staple in China), which plays a significant role in China's CPI, showed a stunning 20.4% year-on-year increase.

**The employment situation was generally stable, with the surveyed urban unemployment rate falling**

According to data from the National Bureau of Statistics, in the first half of the year, the recorded national average urban unemployment rate was 5.1%, a 0.2 percentage points decrease from the same period of the previous year. In June, the recorded national urban unemployment rate was 5.0%, unchanged from the previous month and a decrease of 0.2 percentage points from the same month of the previous year. The recorded unemployment rate for the local household labor force was 5.0%; the

recorded unemployment rate for the migrant household labor force was 4.8%. And the recorded unemployment rate within the 31 large cities was 4.9%. The average weekly working hours of employed persons in enterprises nationwide was 48.6 hours. At the end of the second quarter, the total number of rural laborers working outside home was 189.97 million, an increase of 1.6% year-on-year.

**Continued monetary easing policies could be expected**

"With low inflation and weak credit activity, domestic factors continue to favor further monetary easing policy", said Lynn Song, chief economist in ING, Greater China region, "We continue to look for at least one more rate cut this year with the potential for more if global rate cuts accelerate." Lynn also points out that despite the inflation trend is expected to be a little bit higher in the coming months, it should not impede further monetary easing actions.(* https://think.ing.com/author/lynn-song/)

**Decent growth in industrial production in June 2024, with the most rapid growth happening in new-energy vehicle sector**

In June, the value-added of industries above the designated size grew by 5.3% year-on-year.

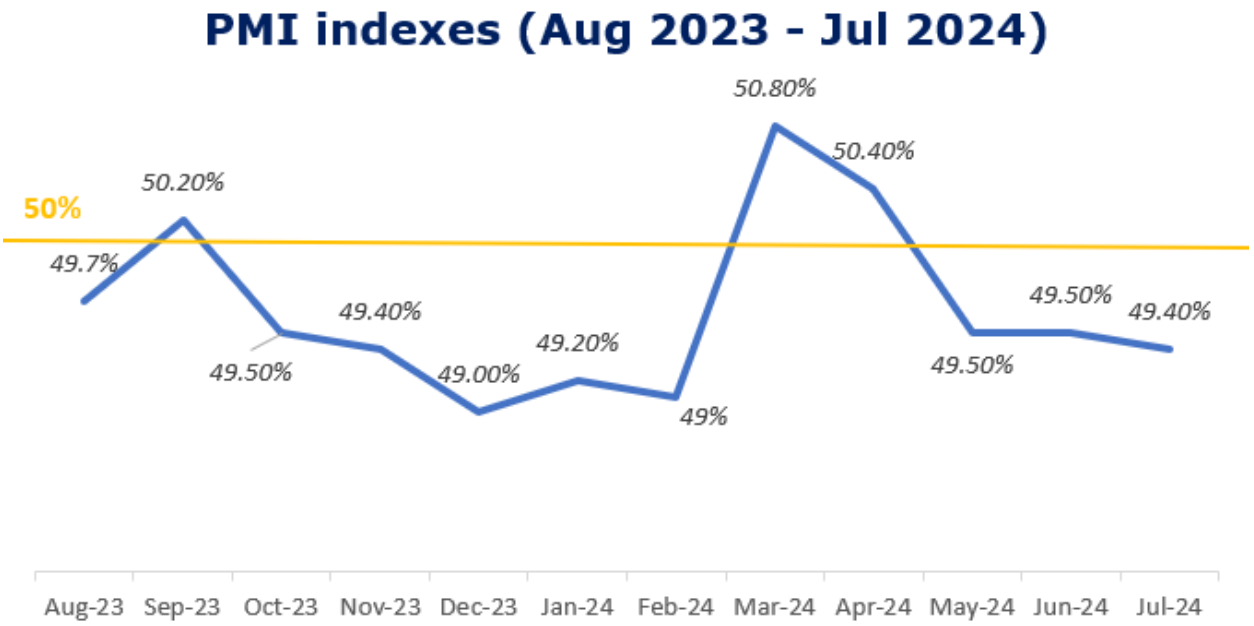
By enterprise type, the value-added of state-controlled enterprises increased by 3.0% year-on-year in this month; joint-stock enterprises increased by 5.9%; foreign, Hong Kong, Macao and Taiwan-invested enterprises increased by 2.9%; and private enterprises increased by 5.7%.

By product type, 369 out of 619 kinds of products from enterprises above the designated size demonstrated a year-on-year growth. Among them, steel production increased by 3.2% (125.55 million tons); cement production decreased by 10.7% (163.97 million tons); non-ferrous metals increased by 7.5% (6.61 million tons); car production increased by 1.8% (2.613 million units) , of which 1.025 million new energy vehicles, an exhibiting a tremendous increase of 37.0%.

**Manufacturers PMI index**

In July 2024, the Purchasing Manager Index (PMI) for the manufacturing industry is 49.4%, 0.1 percentage point lower than the previous month, indicating a stable outlook for the industry despite a slight decline. Possible reasons for the decline are 1) July is the traditional "light season" (periods of year with fewer business activities) in terms of industry production, thus driving market demand lower. 2) Regional

natural disasters, such as drought and flooding, inflict adverse impacts on enterprise operations.




**Notes: A PMI index over 50 represents growth or expansion within the manufacturing sector compared with the prior month. A reading under 50 represents contraction, and a reading at 50 indicates an equal balance between manufacturers reporting advances and declines in their business.*

**PMI and component indexes (%)of China's manufacturing industry (Aug 2023 – Jul 2024)**

| | PMI | Production | New order | Raw material inventory | Employee | Supplier delivery time |
|---|---|---|---|---|---|---|
| Jul 2023 | 49.3 | 50.2 | 49.5 | 48.2 | 48.1 | 50.5 |
| Aug 2023 | 49.7 | 51.9 | 50.2 | 48.4 | 48.0 | 51.6 |
| Sep 2023 | 50.2 | 52.7 | 50.5 | 48.5 | 48.1 | 50.8 |
| Oct 2023 | 49.5 | 50.9 | 49.5 | 48.2 | 48.0 | 50.2 |

| | | | | | | |
|---|---|---|---|---|---|---|
| Nov 2023 | 49.4 | 50.7 | 49.4 | 48.0 | 48.1 | 50.3 |
| Dec 2023 | 49.0 | 50.2 | 48.7 | 47.7 | 47.9 | 50.3 |
| Jan 2024 | 49.2 | 51.3 | 49.0 | 47.6 | 47.6 | 50.8 |
| Feb 2024 | 49.1 | 49.8 | 49.0 | 47.4 | 47.5 | 48.8 |
| Mar 2024 | 50.8 | 52.2 | 53.0 | 48.1 | 48.1 | 50.6 |
| Apr 2024 | 50.4 | 52.9 | 51.1 | 48.1 | 48.0 | 50.4 |
| May 2024 | 49.5 | 50.8 | 49.6 | 47.8 | 48.1 | 50.1 |
| Jun 2024 | 49.5 | 50.6 | 49.5 | 47.6 | 48.1 | 49.5 |
| Jul 2024 | 49.4 | 50.1 | 49.3 | 49.9 | 48.3 | 49.3 |

- The manufacturing industry maintains a stable outlook on an overall basis, despite a slight decline.
- The manufacturing industry is experiencing a mild expansion in production.
- The market demand is, to some extent, lower than the previous level.
- The inventory of raw materials is narrowing down.
- The overall employment situation is undergoing a slight rebound
- Compared to the previous month, the delivery time for raw materials of suppliers shows a moderate extension.

### 1.1.2 Main machine tool industry main indicators (January - June 2024)

- In the first half of 2024, the export value of cutting tools was 12.391 billion yuan, up by 9.75% year-on-year; the import value was 4.34 billion yuan, up by 0.11% year-on-year. Gage & Gauge export amounted to 1.037 billion yuan, up by 19.6% year-on-year, of which 756 million yuan in gage exports, up by 16.15% year-on-year; 281 million yuan in gauge export, up by 30% year-on-year. Gage and gauge import amounted to 659 million yuan, down by 19.91% year-on-year, of which 122 million yuan in gage imports, down by 41.5%; 537 million yuan in gauge imports, down by 12.59%.
- According to data from the General Administration of Customs, in the first half of 2024, the export quantity of additive manufacturing equipment amounted to

1,829,900 units, showing a year-on-year increase of 40.29%; the corresponding export value amounted to 4.267 billion yuan, showing a year-on-year increase of 77.18%. However, The quantity of import displayed a year-on-year decline of 45.77% at 725 units; the corresponding value of import was 123 million yuan, displaying a year-on-year decline of 37.06%.

- Metal-cutting machine tool production across various regions in June 2024

| Location | Jun (1,000 units) | Jan-Jun Total (1,000 units) |
|---|---|---|
| **Liaoning** | **0.24** | **1.39** |
| **Jiangsu** | **0.67** | **3.46** |
| **Zhejiang** | ***1.98*** | ***10.86*** |
| **Anhui** | **0.11** | **0.7** |
| **Fujian** | **0.12** | **0.65** |
| **Shandong** | **0.67** | **3.67** |
| **Guangdong** | **1.14** | **7.49** |
| **Yunnan** | **0.27** | **1.62** |
| **Shaanxi** | **0.11** | **0.78** |

*Source: CMTBA and National Bureau of Statistics in China*

## 1.2. Overview of China's local machine tool manufacturers (2)

1.2.1 Segmentation of local machine tool manufacturers

* The previous newsletter unveils an extensive framework encompassing five distinct machine tool cateogies and two widely-adopted classification criteria based on processing methods (metal-cutting and metal-forming MT) and control methods (traditional MT and CNC MT), respectively. In this newsletter, other widely-adopted classification criteria will be covered, together with a series of representative Chinese manufacturers that fell into each category.

***Machine Tool Classification by Size:***

- Instrument Machine Tools : Instrument machine tools refer to compact machining equipments specifically designed for processing small workpieces. Generally, these machine tools have a maximum workpiece processing diameter of less than 250 mm and are predominantly classified as instrument lathes. Instrument machine tools are particularly well-suited for the continuous processing of a single, fixed type of workpiece. They can enhance efficiency by more than ten times

compared to conventional lathes, especially advantageous for the mass production of small parts.

- Small and Medium-sized Machine Tools : Defined as machine tools weighing less than 100KN, and with a high level of precision and efficiency, small and medium-sized machine tools are primarily used for precision maching and cutting of workpieces. This type of machine tools are well-suited for small batch production & processing across various fields such as precision machinng of metal parts, bearing production and gear manufacturing.
- Large-Sized Machine Tools : Machine tools with a self-weight ranging from 10 to 30 tons are classified as large-sized machine tools. These tools are applied in processing large-sized workpieces, in the industries such as Automotive Manufacturing (producing engine components & transmission parts), General Machinery Manufacturing (producing medium-sized mechanical components), Mould Making and Die Industry (fabricating medium-sized moulds), and Aerospace industry (manufacturing smaller aviation components).
- Heavy Machine Tools & Super Heavy Machine Tools : Machine tools with a self-weight ranging from 10 and 100 tons are classified as heavy, while those exceeding 100 tons are classified as super heavy. Employed for processing large and extra-large parts in critical industries (e.g national defense, aerospace, shipbuilding and energy), these powerful tools play a crucial role in manufacturing components for large-scale industrial applications, contributing significantly to the development of key national infrastructure and advanced technologies.

*Market analysis*

In recent years, China's equipment manufacturing industry has experienced a rapid expansion, especially in the domain of heavy CNC machine tools. It is worth noting that the annual output and market consumption of machine tools （e.g CNC gantry boring & milling machines, heavy floor boring & milling machines and heavy vertical & horizontal lathes） have achieved global leadership positions. However, despite the noticeable development in the heavy machine tool industry, several challenges still persist:

- Product development capabilities and the manufacturing speed still fall short of domestic requirements.
- Manufacturing accuracy of components and the maintenance quality in completed machines require substantial improvement.
- CNC systems and core functional parts supporting heavy machine tools such as bearings, spindles, tool holders, and drive systems still lag in growth. These system and components are essential for achieving the desired precision, efficiency, and reliability in machine tools.

Due to the above-mentioned setbacks, supply of the majority of medium and high-end heavy CNC machine tools continue to rely on imports. Many of these products originate from renowned German and Italian manufacturers such as WALDRICH COBURG, PAMA, SCHIESS, INNSE-BERARDI, Pietro Carnaghi. The dependence on foreign imports could underscore the importance of continued innovation and quality enhancement in China's heavy machine tool industry, needed to meet the growing demand of the domestic market while reducing reliance on international suppliers.

In China, heavy machine tool manufacturers are mostly listed companies. Most significant include: **Beijing No. 1 Machine Tool Co., Ltd., Kunming Machine Tool Co., Ltd., Qiqihar No. 2 Machine Tool Co., Ltd., Jinan Second Machine Tool Co., Ltd., Wuhan Heavy Duty Machine Tool Group Co., Ltd., etc.**

*Case study*

A preeminent producer of heavy and super-heavy machine tools is Wuhan Heavy Machine Tool Group Co., Ltd, a key participant in one of the 156 national strategic programs outlined in China's first five-year plan. Since the establishment in 1958, Wuhan Heavy Machine Tool Group has now, after more than 60 years of operation, become a large-scale cornerstone enterprise that produces heavy and super-heavy machine tools with the largest product specifications in China. The product profolio entails heavy and super-heavy vertical lathes, horizontal lathes, non-falling wheel lathes, horizontal milling & boring machines, floor-standing milling & boring machines, gantry boring & milling machines, gear hobbing machines and various special mechanical equipment, etc. (in total over 300 types of products, all of which are numberically controlled).

***Machine Tool Classification by Structure:***

Machine tools can be classified into three main structural types:

- Vertical machine tool : features a spindle axis arranged perpendicularly to the workbench; particularly suitable for processing complex parts such as plates, disks, moulds, and small shells.
  Significant representatives include: **Shenyang Machine Tool Co., Ltd., Dalian Machine Tool Group Corporation, Neway CNC Equipment (Suzhou) Co., Ltd., Zhejiang Rifa Precision Machinery Co., Ltd., Ningbo Haitian Precision Machinery Co., Ltd., etc.**
- Horizontal machine tool : features a spindle axis parallel to the workbench. Good workpiece stability during processing; suitable for processing large box-shaped complex parts and curved surface parts, such as moulds, valve blocks, and gearboxes. This configuration ensures good workpiece stability during processing and is especially suitable for large box-shaped complex parts, significantly improving production efficiency.

Significant representatives include: **Zhejiang Tianma Bearing Group Co., Ltd., Shenyang Machine Tool Co., Ltd., Shandong Jinan First Machine Tool Co., Ltd., Zhejiang Rifa Precision Machinery Co., Ltd., Wuhan Huazhong Numerical Control Co., Ltd., etc.**

- Gantry machine tool : features a spindle axis also set perpendicularly to the workbench; enables the processing of large parts by allowing lateral workbench movement and longtitude spindle movement; has a large body structure and requires substaintial processing plant area; suitable for processing large parts in industries such as wind power, shipbuilding, and engineering machinery; weaker in processing high-precision parts.

  Significant representatives include: **Qinchuan Machine Tool & Tool Group Share Co., Ltd., Guangdong Create Century Intelligent Equipment Group Corporation Limited, Beijing No. 1 Machine Tool Co., Ltd., Hanchuan CNC Machine Tool Co., Ltd., Ningbo Haitian Precision Machinery Co., Ltd., etc.**

**Machine Tool Classification by Application:**

Machine tools can be classified into two main types based on their applications:

- General machine tools : Strong adaptability and flexibility; suitable for small batch production; cost relatively low.
- Special machine tools : high production efficiency and processing accuracy; cost relatively high.

(With ongoing technological advancements, the boundaries between general and special machine tools are becoming more and more blurred)

1.2.2 Top 11-20 domestic machine tool producers (players and main products)

The previous newsletter introduced the top 10 listed Chinese machine tool producers based on the ranking of annual revenue. Building on that foundation, industry leaders ($11^{th}$-$20^{th}$) of the next tier will be in the spotlight as below in this newsletter.

| No. | Company name (Chinese) | Company name (English) | Year of establishment & HQ (province) | Registered capital (million RMB) | Revenue 2023 （Million RMB) |
|---|---|---|---|---|---|
| 1 | 汇洲智能技术集团股份有限公司 | Zhejiang Tianma | 2002 Zhejiang | 1990.18 | 801 |

| | | | | | |
|---|---|---|---|---|---|
| | TMB. | Bearing Group Co., Ltd. | | | |
| 2 | 宁波精达成形装备股份有限公司 JDM | JDM Jingda Machine (Ningbo) Co., Ltd. | 2002 Zhejiang | 437.89 | 709 |
| 3 | 无锡华东重型机械股份有限公司 HDHM 华东重机 | Wuxi Huadong Heavy Machinery Co., Ltd. | 2004 Jiangsu | 1007.69 | 671 |
| 4 | 浙江海德曼智能装备股份有限公司 HEADMAN | Zhejiang Haideman Machine Tools Manufacturing Co., Ltd. | 1993 Zhejiang | 75.88 | 664 |
| 5 | 思进智能成形装备股份有限公司 SIJIN | Sijin Intelligent Forming Machinery Co., Ltd. | 1993 Zhejiang | 236.62 | 486 |
| 6 | 华辰精密装备（昆山）股份有限公司 华辰装备 HIECISE | Hiecise Precision Equipment Co., Ltd. | 2007 Jiangsu | 252.17 | 479 |
| 7 | 科德数控股份有限公司 KEDE CNC | Kede Numerical Control Co., Ltd | 2008 Shandong | 101.70 | 452 |
| **8** | 宇环数控机床股份有限公司 宇环数控机床股份有限公司 YUHUAN CNC MACHINE TOOL CO.,LTD | Yuhuan Numerical Control Machine Tools Co., Ltd. | 2004 Zhejiang | 155.87 | 420 |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | |
| 9 | 威海华东数控股份有限公司<br>  | Weihai Huadong Automation Co., Ltd. | 2002 Shandong | 80.00 | 279 |
| 10 | 恒进感应科技（十堰）股份有限公司<br>  | Heatking Induction Technology (Shiyan) Co., Ltd. | 2002 Hubei | 134.00 | 74 |

**Classification of Companies by Products and Top Application Industries (take 10 major manufacturers as reference) :**

| No. | Company | Main CNC products | Top application industries |
|---|---|---|---|
| 1 | **Zhejiang Tianma Bearing Group Co., Ltd.** | ▪ CNC heavy horizontal machine tools<br>▪ Heavy duty deep hole drilling and boring machine<br>▪ Roll lathe<br>▪ Vertical grinder<br>▪ Vertical gear milling machine | ▪ Automotive<br>▪ New energy<br>▪ Machinery manufacturing and other industries |
| 2 | **JDM Jingda Machine (Ningbo) Co., Ltd.** | ▪ High speed precision press<br>▪ Heat exchanger equipment<br>▪ Servo press<br>▪ Stamping equipment<br>▪ Other forming equipment | ▪ Automotive<br>▪ Home appliances<br>▪ Machinery |
| 3 | **Wuxi Huadong Heavy Machinery Co., Ltd.** | ▪ Metal forming machine tools<br>▪ Mining and construction equipment<br>▪ Environmental protection equipment<br>▪ Customized equipment | ▪ Heavy industrial fields such as steel, mining, and ports |
| 4 | **Zhejiang Haideman Machine Tools Manufacturing Co., Ltd.** | ▪ Multi-axis turning center<br>▪ Horizontal turning center<br>▪ Vertical CNC lathe<br>▪ Automated production line | ▪ Automotive<br>▪ Aerospace<br>▪ Engineering machinery |
| 5 | **Sijin Intelligent Forming Machinery Co., Ltd.** | ▪ CNC stamping production line<br>▪ CNC forming center<br>▪ Pipe forming equipment | ▪ Smart manufacturing<br>▪ New energy |

| | | | |
|---|---|---|---|
| | | ▪ Flexible welding production line | |
| 6 | **Hiecise Precision Equipment Co., Ltd.** | ▪ Precision stamping equipment<br>▪ Precision injection moulding equipment<br>▪ Automated production line<br>▪ Testing Equipment | ▪ Automotive<br>▪ Rail<br>▪ Aerospace |
| 7 | **Kede Numerical Control Co., Ltd** | ▪ CNC machine tools<br>▪ CNC system<br>▪ Machine tool accessories<br>▪ Industrial software | ▪ Heavy industry<br>▪ New energy |
| 8 | **Yuhuan Numerical Control Machine Tools Co., Ltd.** | ▪ CNC lathe<br>▪ CNC milling machine<br>▪ CNC drilling machine<br>▪ CNC grinder<br>▪ Automated production line | ▪ Aerospace<br>▪ Automotive<br>▪ Mould |
| 9 | **Weihai Huadong Automation Co., Ltd.** | ▪ CNC machine tools<br>▪ CNC system<br>▪ Machine tool accessories<br>▪ Robotics and automation systems<br>▪ Industrial Internet Platform | ▪ Machine tool<br>▪ Aerospace<br>▪ Shipbuilding |
| 10 | **Heatking Induction Technology (Shiyan) Co., Ltd.** | ▪ Mid- to high-end CNC induction hardening machine tools<br>▪ Induction heating equipment<br>▪ Induction power supply<br>▪ Solenoid valves and electric actuators<br>▪ Smart manufacturing solutions<br>▪ Industrial furnace | ▪ Steel<br>▪ Automotive<br>▪ Induction heating and heat treatment fields in machinery |

Based on the 2023 annual reports of the companies under consideration, we have established a comprehensive ranking system that reflects each company's business competence, focusing on four key attributes:

1. Registered capital: Serves as the main indicator of a company's financial capacity and potential fund-raising ability.

2. Annual Revenue: Provides insights into the company's market presence and financial performance

3. R&D Investment: Indicates the company's commitment to innovation and technological advancement

4. R&D Investment as a Percentage of Total Revenue: Reflects the importance of research and development within the company's overall strategy

For attributes 1-3, we simply score and rank the companies by applying the natural logarithm (ln) due to its mathematical simplicity and consistency in interpretation

across different scales. For attribute 4, R&D Investment as a Percentage of Total Revenue, we score the companies based on the following scoring system:

- More than 10%: 5 (perfect score)
- 6-10%: 4
- 3-5%: 3
- Less than 3%: 2

| Rank | Company name | Registered capital (million RMB) | score (Fx - LN) | Annual revenue 2023 (Million RMB) | score (Fx - LN) | Investment R&D (Million RMB) | score (Fx - LN) | stment/annu | score (0-5) | Tot Score |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Wuhan Huazhong Numerical Control Co., Ltd. | 198.69 | 5.29 | 2115 | 7.66 | 307.92 | 5.73 | 15% | 5 | 23.68 |
| 2 | Guangdong Create Century Intelligent Equipment Group Co., Ltd. | 1685.09 | 7.43 | 3529 | 8.17 | 139.02 | 4.93 | 4% | 3 | 23.53 |
| 3 | Qinchuan Machine Tool & Tool Group Share Co., Ltd. | 1009.89 | 6.92 | 3761 | 8.23 | 199.40 | 5.30 | 5% | 3 | 23.45 |
| 4 | Ningbo Haitian Precision Machinery Co., Ltd. | 522 | 6.26 | 3323 | 8.11 | 136.66 | 4.92 | 4% | 3 | 22.28 |
| 5 | Jiangsu Yawei Machine Tool Co., Ltd. | 549.76 | 6.31 | 1928 | 7.56 | 121.17 | 4.80 | 6% | 4 | 22.17 |
| 6 | Zhejiang Tianma Bearing Group Co., Ltd. | 1990.18 | 7.60 | 801 | 6.69 | 44.45 | 3.79 | 6% | 4 | 21.58 |
| 7 | Zhejiang Rifa Precision Machinery Co., Ltd. | 800.24 | 6.68 | 2083 | 7.64 | 62.38 | 4.13 | 3% | 3 | 21.46 |
| 8 | Neway CNC Equipment (Suzhou) Co., Ltd. | 326.67 | 5.79 | 2321 | 7.75 | 101.93 | 4.62 | 4% | 3 | 21.16 |
| 9 | Hunan Yujing Machinery Co., Ltd. | 203.96 | 5.32 | 1304 | 7.17 | 79.94 | 4.38 | 6% | 4 | 20.37 |
| 10 | Wuxi Huadong Heavy Machinery Co., Ltd. | 1007.69 | 6.92 | 671 | 6.51 | 34.41 | 3.54 | 5% | 3 | 19.96 |
| 11 | JDM Jingda Machine (Ningbo) Co., Ltd. | 437.89 | 6.08 | 709 | 6.56 | 33.91 | 3.52 | 5% | 3 | 19.17 |
| 12 | Generic Shenyang Machine Tool Co., Ltd. | 2064.75 | 7.63 | 1501 | 7.31 | 7.78 | 2.05 | 1% | 2 | 19.00 |
| 13 | Nantong Guosheng Electromechanical Industry Co., Ltd. | 132 | 4.88 | 1104 | 7.01 | 55.28 | 4.01 | 5% | 3 | 18.90 |
| 14 | Yuhuan Numerical Control Machine Tools Co., Ltd. | 155.87 | 5.05 | 420 | 6.04 | 40.51 | 3.70 | 10% | 4 | 18.79 |
| 15 | Hiecise Precision Equipment Co., Ltd. | 252.17 | 5.53 | 479 | 6.17 | 33.62 | 3.51 | 7% | 4 | 18.72 |
| 16 | Zhejiang Haideman Machine Tools Manufacturing Co., Ltd. | 75.88 | 4.33 | 664 | 6.50 | 42.53 | 3.75 | 6% | 4 | 18.08 |
| 17 | Sijin Intelligent Forming Machinery Co., Ltd. | 236.62 | 5.47 | 486 | 6.19 | 19.86 | 2.99 | 4% | 3 | 17.64 |
| 18 | Kede Numerical Control Co., Ltd | 101.7 | 4.62 | 452 | 6.11 | 26.78 | 3.29 | 6% | 4 | 17.52 |
| 19 | Heatking Induction Technology (Shiyan) Co., Ltd. | 134 | 4.90 | 74 | 4.30 | 11.61 | 2.45 | 16% | 5 | 16.65 |
| 20 | Weihai Huadong Automation Co., Ltd. | 80 | 4.38 | 279 | 5.63 | 12.06 | 2.49 | 4% | 3 | 15.50 |


## 1.3 Overview of the downstream industry(s) , demand trend and geographical distribution

### 1.3.1 Mould making industry

Moulds are the essential equipment used in industrial production to create shaped products, applying various methods such as injection moulding, blow moulding, extrusion, die-casting, forging, smelting and stamping. This piece of equipment is indispensable and critical in the new product development process.

Based on the forming process, moulds can be classified into five major types: Stamping moulds, Plastic moulds, Casting moulds, Forging moulds and Rubber moulds.

2022 Mould Production market share (according to data from China Machine Tool Industry Association)

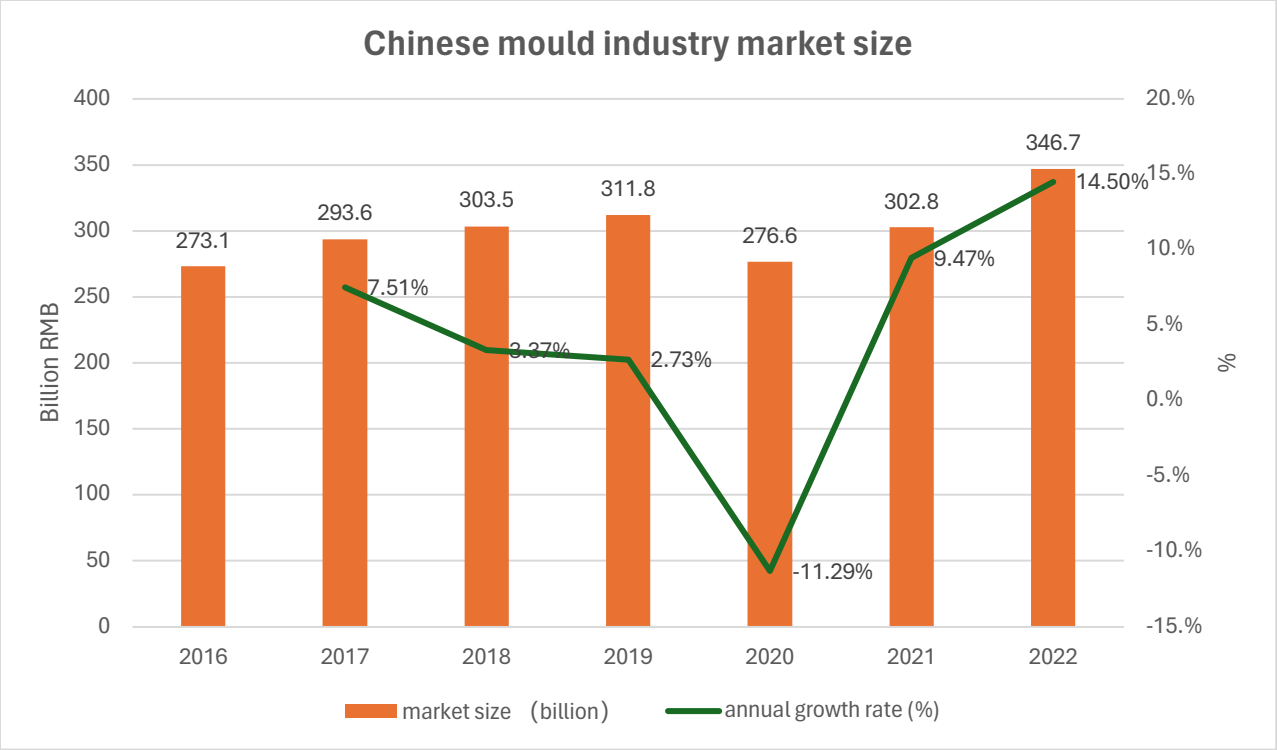
- Plastic moulds: 45%
- Stamping moulds: 37%
- Casting moulds: 9%
- Forging and rubber moulds combined: 9%

In terms of downstream application, moulds have widespread presense in both defense and civil industries, most notably in home appliances, automotive, electronics and IT sectors. The automotive sector dominates the application landscape, commanding a substaintial 34% market share, with the electronics industry following closely by accounting for approximately 28% of market share. IT and home appliance sector represents 12% and 9% of the market share, respectively. In addition, office automation (OA) and semiconductor sector collectively contribute 8% to the total mould market.

The diverse downstream application sectors give rise to unique directions for innovation and specialization within the mould manufacturing industry. For instance, in automotive industry there is an escalating demand for large-scale, complex and high-precision moulds; the electronics sector exhibits a growing need for small and highly precise moulds while the home appliance industry prioritize high-efficiency and cost-effective moulds.

As the world's largest mould producer and consumer, China's mould industry has experienced a steady growth in recent years. In 2022, the market size was close to 350 billion yuan (CAGR 5%), with the projected market size hitting 380 billion yuan by the end of 2025. On top of that, an increasing industry concentration with expanding market revenues for leading companies is observed. However, despite the overall positive trend, this industry experienced a temporary negative growth in 2020 due to the adverse impacts of COVID.

Source: China Machine Tool Industry Association 2022 Industry Development Report, China Mould Industry Association 2022 Industry Development Report




*Source: Intelligence Research Group*

Looking ahead, the mould making industry is bound for significant evolution. Key trends shaping the future include:

- Technology upgrading and intelligent manufacturing : The mould making industry is accelerating the digital transformation and applying cutting-edge technologies such as 3D printing, AI, and robots to improve production efficiency and quality.
- Industrial chain and cross-border integration : Mould making enterprises are gradually transforming into one-stop service providers, and strengthening cooperation with upstream and downstream companies at the same time.
- Environmental protection and sustainable development : Mould enterprises lay more focus on energy conservation and emission reduction, promoting product lightweighting and material replacement, so as to reduce environmental impacts.
- Region-by-region development : Traditional mould manufacturing centers such as the Yangtze River Delta and Pearl River Delta maintain their advantages. These regions, encompassing cities like Shanghai, Suzhou, Guangzhou, Shenzhen, and Dongguan, are known for its robust industrial infrastructure and a dense network of suppliers and manufacturers, which also benefit from a highly skilled workforce, advanced technology, and significant investment in research and development. While emerging regions such as the southwest and northeast are also developing rapidly, the cities like Sichuan and Chongqing are experiencing rapid industrial

growth, driven by government initiatives to boost local economies and attract investment.

- Presence on the global stage : Chinese mould making companies are actively "going out", developing potential clients and setting up factories customers overseas, to enhance international exposure.

In June 2024, the China Mould Industry Association conducted an evaluation process, picking out a series of "Leading Mould Suppliers". Companies with registered capital exceeding 100 million RMB are listed below:

| No. | Company name | Location | Registered capital (million RMB) |
|---|---|---|---|
| 1 | 天津汽车模具股份有限公司 Tianjin Motor Dies Co., Ltd. https://www.tqm.cn/ | Tianjin | 942.05 |
| 2 | 一汽模具制造有限公司 FAW Tooling Die Manufacturing CO.,LTD. https://www.fawtd.com/ | Jilin | 436.66 |
| 3 | 宁波合力科技股份有限公司 Ningbo Heli Mould Technology Co., Ltd http://www.helimould.com/ | Zhejiang | 203.84 |
| 4 | 浙江精诚模具机械有限公司 Zhejiang Jingcheng Mould Machinery Co., LTD https://www.jc-times.com/ | Zhejiang | 241.02 |
| 5 | 卡奥斯模具（青岛）有限公司 COSMOPlat Mould (Qingdao) Co., LTD https://www.cosmoplat.com/ | Shandong | 158.36 |
| 6 | 亿森（上海）模具有限公司 Yesun (Shanghai) Mould Co., Ltd http://www.yesunsh.com/ | Shanghai | 730.91 |
| 7 | 泊头市兴达汽车模具制造有限公司 Botou Xingda Automotive Dies Manufacturing Co., Ltd https://www.cnxdmj.com/ | Hebei | 200.00 |
| 8 | 珠海格力精密模具有限公司 Zhuhai Gree Precision Mould Co., Ltd. | Guangdong | 100.00 |

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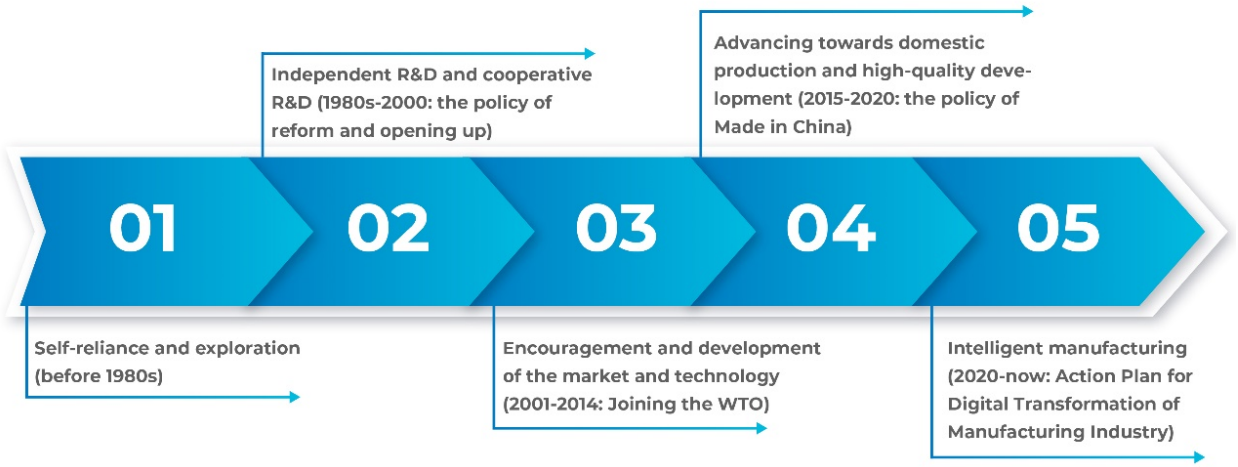
| | https://global.gree.com/ | | |
| **9** | 格致汽车科技股份有限公司 GZ Tooling Group<br><br>http://m.china-gz.net/ | Jilin | 149.85 |
| **10** | 青岛海泰科模具有限公司 Hitech Moulds Co., Ltd.<br><br>https://www.hitechmoulds.com.cn/ | Shandong | 125.00 |
| **11** | 深圳数码模汽车技术有限公司 Shenzhen ShuMaMo Automotive Technology Co., Ltd. | Guangdong | 1437.50 |
| **12** | 柳州广菱汽车技术有限公司 Liuzhou Guangling Automotive Technology Co., Ltd. | Guangxi | 180.00 |
| **13** | 吉安市瑞鹏飞精密科技有限公司 Pengfei Precision Technology Co., Ltd.<br><br>http://www.pengfei-mould.com/ | Jiangxi | 154.91 |
| **14** | 重庆元创汽车整线集成有限公司 Chongqing Yuanchuang Automotive System Integration Co., Ltd. | Chongqing | 103.80 |


## 2. Government Policies in China.

### 2.1. Historical evolution of guidelines and policy trends to the local machine tool manufacturers

The policy development of China's machine tool industry can be divided into five stages as depicted below:




Nowadays, beyond precision requirements in production, the international machine tool manufacturing sector has shifted more focus onto information technology integration and complete service standards offered throughout the entire product lifestyle. Under this competition landscape, companies are putting more emphasis more on quality and effiency instead of scale alone, becoming more innovation-driven and making better use of the resources. Unsurprisingly, China's machine tool industry is also adapting to these changes, moving towards a phase of transformation and improvement.

With ten key strategic areas identified, including high-end CNC machine tools and robots, China has been emphasizing the integration of new-generation technology and intelligent manufacturing. The advancement in these areas can meet China's demands of economic & social development as well as national defense, and one day fulfilling the ambition of becoming a global leading manufacturing nation.

Key objectives of Chinese government's machine tool industry strategy:

**Objective contents**

| Objective | Content Summary |
|---|---|
| Enhancing the industrial base | Four main areas:<br>1) basic components (e.g electronic parts)<br>2) core basic materials<br>3) advanced basic craftwork<br>4) industrial technology. |
| Accelerating the integration of | Focusing on the integration of new-generation information technology and intelligent manufacturing |

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| information technology | |
| Developing advanced talent cultivation systems | 1) Aligning with the world's high-end cultivation systems<br>2) Rapidly attracting innovative, urgently-needed and scarce professionals |
| Promoting industrial transformation and upgrading | This strategic choice is also a key measure to enhance the resilience and security of the industrial supply chains. |
| Creating a manufacturing culture with Chinese characteristics | 1) Drawing on the essence of industrial cultures from around the world<br>2) Constantly adapting to new knowledge trends and latest industry requirements<br>3) Adhering to socialism core values and inheriting China's traditional culture |
| **The ultimate objective is to transform China's manufacturing industry from large to strong** | **China aims to enhance the innovation capability/ competitiveness of the manufacturing industry, ensure national/social stability, and respond effectively to external pressures/challenges on the international stage.** |

**The table below listed the main relevant policies and the contents in the past 10 years.**

| Year | Policy title | Contents |
|---|---|---|
| 2024 | Action Plan for Promoting Large-Scale Equipment Renewal and Consumer Goods Trade-in | By 2027, in the industrial enterprises above the designated size,<br><br>1) The penetration rate of digital R&D and design tools > 90%<br>2) The numerical control rate of key processes> 75% |
| 2023 | Guiding Opinions on Accelerating the Transformation and Upgrading of the Traditional Manufacturing Industry | By 2027, in the industrial enterprises,<br><br>1) The penetration rate of digital R&D and design tools >90%<br>2) The CNC rate of key processes >70% |
| | Regarding the Increase in the Deduction Ratio of R&D Expenses for Integrated Circuit | For R&D expenses incurred by integrated circuit and industry mother machine enterprises,<br><br>1) R&D Expenses not recognized as intangible assets:<br>Deducted based on actual expenses |

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| | and Industrial Mother Machine Enterprises | 2) R&D Expenses recognized as intangible assets: Amortized before tax at 220% of the intangible asset cost |
| | Work Plan for Stable Growth in the Machinery Industry (2023-2024) | Expanding and upgrading the supply chain to enhance the quality and efficiency of basic equipment<br><br>Promote 8 key sub-sectors: Industrial mother machines, meters & instruments, agricultural machinery & equipment, engineering machinery, rail transit equipment, medical equipment, robots and basic components & manufacturing process. |
| 2022 | Notice on Issuing Several Policies to Promote Stable Growth of Industrial Economy | Increased pre-tax deduction for equipment and appliances for small, medium and micro enterprises |
| 2021 | 14th Five Year Plan for the Development of Intelligent Manufacturing | By 2025:<br><br>Most manufacturing enterprises above the designated size will achieve digital networking, and backbone enterprises will begin applying intelligence.<br><br>By 2035:<br><br>Large-scale manufacturing enterprises will fully embrace digitalization, and industry backbone enterprises will have largely completed their intelligent transformation. |
| 2021 | Outline of the 14th Five Year Plan for National Economic and Social Development of the People's Republic of China and the Long Range Objectives for 2035 | Foster advanced manufacturing clusters<br><br>Promote the innovation and development of sectors such as integrated circuits, aerospace, shipbuilding, medical equipment and high-end CNC machine tools |
| 2020 | "Industrial Internet plus + Safe Production" Action Plan (2021-2023) | Support industrial enterprises and key parks in applying digital twin technology to safety production management within the framework of the industrial Internet. ` |

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|---|---|---|
| 2019 | Guiding Catalogue for Industrial Structure Adjustment (2019 Edition) | Encourage products in the mechanical category include:<br><br>1. Five-axis and CNC machine tools<br><br>2. CNC systems<br><br>3. High-precision, high-performance cutting tools<br>4. Measuring instruments<br><br>5. Abrasives. |
| | Special Action Plan for Enhancing Manufacturing Design Capability (2019-2022) | Achieve original design breakthroughs in high-end CNC machine tools, industrial robots, automobiles, power equipment, petrochemical equipment, artificial intelligence, etc. |
| 2018 | Classification of Strategic Emerging Industries (2018) | Include 'metal cutting machine tools' in the 'intelligent manufacturing equipment industry' within the 'high-end manufacturing equipment industry.' |
| | Guidelines for the Construction of National Intelligent Manufacturing Standard System (2018 Edition) | Develop intelligent manufacturing standards for high-end CNC machine tools. |
| | Roadmap for Technological Innovation in Key Areas of Made in China 2025 (2017 Edition) | By 2020,<br><br>High-end CNC machine tools and basic manufacturing equipment > 70% of domestic demand<br><br>Standard CNC systems > 60% of domestic demand<br><br>Intelligent system > 10% of domestic demand<br><br>Medium and high-end functional components > 50% of domestic demand |

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|---|---|---|
| 2017 | Guiding Opinions on Deepening "Internet + Advanced Manufacturing Industry" and Developing Industrial Internet | Achieve integrated innovation in intelligent control, intelligent sensing, industrial-grade chips and network communication modules. |
| 2016 | Special Action Guide for Promoting Quality and Brand Improvement in Equipment Manufacturing Industry | Accelerate the revision of standards in key product areas such as automobiles, high-end CNC machine tools and construction machinery.<br><br>Improve the conversion rate of international standards, aiming to revise 600 key standards urgently needed by the industry. |
| 2015 | Made in China 2025 | List "high-end CNC machine tools and robots" as one key area to be promoted for development.<br><br>Develop a range of precision, high-speed, efficient and flexible CNC machine tools, basic manufacturing equipment, as well as integrated manufacturing systems.<br><br>Accelerate the R&D of cutting-edge technologies and equipment, including high-end CNC machine tools and additive manufacturing. |

**Policy Trends**

Over the past decade, it is observed that China's policy-making related to lathes are increasingly aligned with global industry & economic trends, and the policy adjustment cycles have become shorter and shorter. The focus has shifted from domestic substitution and high-quality development towards intelligent manufacturing. Therefore, to drive this industrial change and fulfill Chinese government's needs, in the near future, there will be a greater emphasis on:

- **Structural Adjustment** : Reducing the low-end production capacity and accelerating the domestic substitution of high-end production.
- **Filling Industry Gaps** : Bridging the gap between Chinese and foreign players (technology, knowledge, standards etc.).
- **Strengthening Trade and Investment Linkages** : Enhancing business connections in trade and investment.
- **Attracting Foreign Investment** : Drawing more foreign investment to "Made in China" and "Chinese Services" products.

## 3. Machine Tools Industry Exhibitions: Recent Highlights

China International Machine Tool Exhibition 2024 (CIMES 2024) was held in Beijng during 17th-21st May, in an exhibition hall of over 70,000 square meters. With "High-end equipment, precision manufacturing, smart production" as key themes, CIMES 2024 laid a special focus on cutting-edge technology in the fields of metal processing, automation and laser cutting, attracting approximately 1000 exhibitors from over 12 countries, including China, Japan, Germany, South Korean and the United States. Many global leading brands, such as Heidemann, GENERTEC and Baoli Machinery were present at the event, displaying their newest pride-taking products.

A novel fiber laser cutting machine tool was displayed, which adopts anti-high-heat technology to ensure the stability and cutting accuracy of the machine under ultra-high power. Equipped with an ultra-high power special cutting head and a unparalleled cutting process database, it supports long-time stable cutting, and can realize fast perforation, high-speed cutting as well as thick plate processing. In terms of cutting ability, it has been to completely replace plasma cutting, flame cutting and other traditional methods, and therefore the processing speed has made a qualitative leap forward.

A new model of laser scanning machine was also noticed in the exhibition. The laser scanning machine adopts laser scanning cutting technology, which has strong advantages in thin plate cutting and perforating. Under the same power, the cutting efficiency of thin stainless steel/copper/aluminum can be increased by up to 150%. By freely adjusting the motion amplitude of the dynamic spot and changing the width of the cutting seam, the probability of workpiece sticking is greatly reduced, helping users to produce in best quality.

## 4. Trade Exchange in the Machine Tool Industry between Italy and China (May 2024)

### Italy's machine tool imports and exports with Asian region

**(In millions of Euro)**

| | Import | | | Export | | |
|---|---|---|---|---|---|---|
| | Value | YOY change 2023-2024 | Percentage share | Value | YOY change 2023-2024 | Percentage share |
| Asia | 98.3 | -40.0% | 29.5% | 226.0 | +17.2% | 18.3% |
| Oriental Asia | 94.7 | -40.0% | 28.4% | 105.6 | +9.8 | 8.5% |
| China | 19.7 | -13.8% | 5.9% | 77.5 | +8.1% | 6.3% |
| Worldwide total | 333.7 | -37.8% | | 1236.0 | +13.6% | |

**Italy's machine tool imports and exports with China by category**

Marked blue are the respective indicators for worldwide total

| | | Value | YOY change | Percentage share of worldwide total |
|---|---|---|---|---|
| Metal-cutting machine tools | Import | 7.3 (236.1) | +0.2% (-32.6%) | 3.1% |
| | Export | 57 (534.2) | -0.3% (+8.7%) | 10.7% |
| Metal-forming Machine tools | Import | 4.1 (53.8) | -33.8% (-45.5%) | 7.7% |
| | Export | 15.9 (562.7) | +128.7% (+18.2%) | 2.8% |
| Non-conventional technology machine tools | Imports | 8.2 (43.8) | -11.5% (-49.6%) | 18.7% |
| | Exports | 4.5 (139.1) | -39.8% (+15.7%) | 3.3% |

## 2 Tenders and Bids in China (July 2024)

| **Project** |
|---|
| Tender Announcement for the Procurement Project of 5 New **CNC Lathes** by Gear Transmission Company of Luoyang China No.1 Tractor Co.,Ltd.<br><br>Required by Gear Transmission Company of Luoyang China No.1 Tractor Co.,Ltd.<br><br>Action deadline: Aug 1st, 2024 |
| Sanming Ganglian Metallurgy Construction Co.,Ltd. publicly inquires and purchases **machine tool accessories** such as spiral bevel gears and tool holders<br><br>Required by Sanming Ganglian Metallurgy Construction Co.,Ltd.<br><br>Action deadline: Aug 1st, 2024 |

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| Tender Announcement for **CNC Lathe** Procurement Project of Fujian Longxi Bearing (Group) Co.,Ltd.<br><br>Required by Fujian Longxi Bearing (Group) Co.,Ltd.<br><br>Action deadline: Aug 5th, 2024 |
| Tender Announcement for **1.6-meter CNC Single Column Vertical Lathe** of Shanghai Turbine Works Co.,Ltd.<br><br>Required by Shanghai Turbine Works Co.,Ltd.<br><br>Action deadline: Aug 6th, 2024 |
| Nanjing Automobile Small Engine Production Line Technical Transformation Project - **Crankshaft Polishing Machine Tool Transformation** - **International Bidding Announcement** in Machinery and Equipments.<br><br>Required by Nanjing Automobile Group Co., Ltd.<br><br>Action deadline: Aug 7th, 2024 |
| Procurement bidding for **processing machine tools** of Shenyang Beixiang Aviation Technology Co., Ltd<br><br>Required by Shenyang Beixiang Aviation Technology Co., Ltd<br><br>Action deadline: Aug 8th, 2024 |
| Wuxi Turbine **Six-Axis Belt Grinding Machine Tool - International Tender Announcement** in Machinery and Equipments.<br><br>Required by Wuxi Turbine Blade Co., Ltd.<br><br>Action Deadline: Aug 9th,2024 |
| Hunan Teli Hydraulic Co., Ltd. **CNC Scraping** and **Rolling Machine Tool** Procurement Project **- International Bidding Announcement** in Minerals and Mining.<br><br>Required by Hunan Teli Hydraulic Co., Ltd.<br><br>Action Deadline: Aug 13th,2024 |
| Roller CNC Internal Hole End Surface Universal **Grinding Machine Tool - International Tender Announcement** in Machinery and Equipments.<br><br>Required by Jingwei Intelligent Textile Machinery Co., Ltd.<br><br>Action Deadline: Aug 14th,2024 |
| Announcement of **35 CNC Lathe** Procurement Project of Ping Ding Shan Pmj Coal Mine Machinery Equipment |

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| Required by Ping Ding Shan Pmj Coal Mine Machinery Equipment Co.,Ltd.<br><br>Action deadline: Aug 20th, 2024 |
| Announcement on the Second Bidding for the Procurement Project of **CNC Lathe** (VII) of Penglai Jinchuang Precision Casting Co.,Ltd. (Shandong Gold Group Co.,ltd.)<br><br>Required by Penglai Jinchuang Precision Casting Co.,Ltd.<br><br>Action deadline: Aug 22th, 2024 |
| China Academy of Building Materials Science and Technology Co., Ltd. **Ultra precision Single point Diamond Lathe** Procurement Project - Tender Announcement<br><br>Required by China Building Materials Academy<br><br>Action deadline: Aug 26th, 2024 |
| Announcement on Competitive Negotiations for **CNC Lathes**<br><br>Required by SIDA Machinery Manufacturing Company<br><br>Action deadline: Aug 28th, 2024 |