IFR statistical department

World Robotics

Industrial Robots

2025

Statistics, Market Analysis, Forecasts and Case Studies

World Robotics
Industrial Robots
2025

one market

World Robotics 2025 – Industrial Robots

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The robot statistics are based on consolidated world data reported by robot suppliers as well as on the statistics and support of the national robotics associations of North America (A3), Spain (AER), United Kingdom (BARA), People's Republic of China (CRIA), Denmark (DIRA), Japan (JARA), Republic of Korea (KAR), Italy (SIRI), Sweden (SWIRA) and Chinese Tapei (TAIROA).

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We express our most sincere gratitude to all partners!

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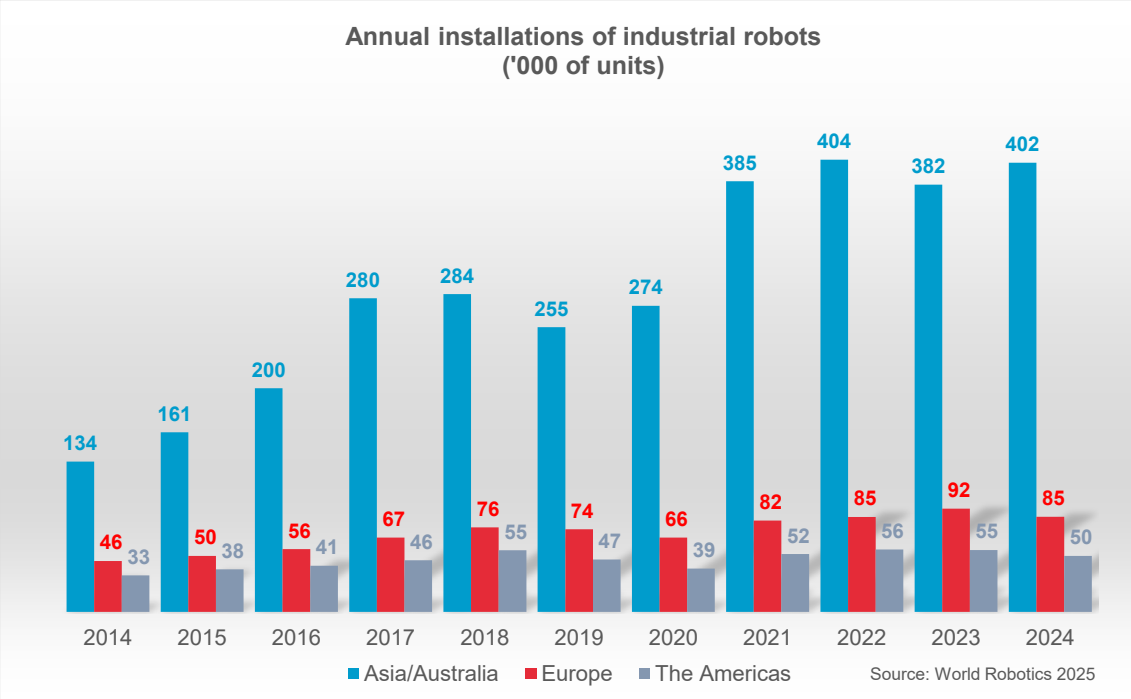
Executive summary World Robotics 2025 Industrial Robots

Robot installations 2024: Second highest installation count in history

542,076 robots installed in 2024. Annual robot installations established above the 500,000-unit mark. In 2021, more than half a million new installations of industrial robots were recorded for the first time. In 2022, the record level of 552,946 units was achieved. Despite challenging macroeconomic conditions, installation counts were just 2% down in 2023 (541,302 units) and remained at this level in 2024. Slightly growing demand from the electronics industry and the general industry offset a contraction of demand from the automotive industry. In 2024, the electronics accounted for 24% of the installations (+1 pp), whereas the automotive industry had a 23% share (-2 pp). The metal and machinery industry retained its third place and increased its share to 16% (+2 pp), followed by the plastic and chemical products industry (5%) and the food and beverage industry (4%). Note that for 14% of the robot installations (-3 pp), there is no information available on the customer industry.



In 2024, the operational stock of industrial robots was computed at 4,663,698 units (+9%). Since 2019, the operational stock of industrial robots had been increasing by 11% on average each year.

China's operational stock of industrial robots, which had been growing impressively by 21% on average each year since 2019, exceeded the one-million-unit mark in 2021 and the 1.5-million-unit mark in 2022. In 2024, the two-million-unit mark was surpassed: 2,027,190 units represented 43% of the global stock. The Japanese operational stock

was 450,530 units in 2024, representing 10% of the global stock. The European operational stock of robots was computed at 821,384 units and the Americas held a stock of 542,464 units.

Growth in Asia, contraction in the Americas and in Europe

Asia [1] is the world's largest industrial robot market. In 2024, 401,665 units were installed, up 5% year over year. 74% of all newly deployed robots were installed in Asia (2023: 70%). From 2019 to 2024, annual robot installations grew by 10% on average each year. Three of the top five markets for industrial robots are in Asia: **China** is by far the largest market. More than every other robot (54%) installed worldwide in 2024 ended up in China: Installations were up 7% to 295,045 units. Installations in **Japan** were down 4% to 44,453 units. The **Korean** market continued its sideways trend of around 31,000 units that it had been experiencing since 2019 (30,596 units in 2024; -3%).

Robot installations in the second largest market, **Europe**, were down 8% to 85,006 units in 2024, which was the second largest number recorded in history. The previous year displayed a record of 92,393 units, as delayed projects were completed and the backlog that had grown due to earlier supply chain disruptions was cleared. Robot demand in this region also benefited from the nearshoring trend. The annual average growth rate from 2019 to 2024 was +3%. In 2024, installation counts in **Germany**, the largest European market and the only European one in the global top five, were down 5% to 26,982 units, following a record level of 28,355 units in 2023. Installations in the second largest European market, **Italy**, declined by 16% to 8,783 units. **Spain** surpassed France to become the third largest market in Europe. Robot installations were marginally up to 5,086 units (+1%). 80% of all European robot installations in 2024 took place in the **European Union** [2] (67,819 units; -8%), and 65% took place in the **Euro Area** [3] (54,945 units; -11%).

In the **Americas**, installations were down 10% to 50,077 units. The peak level of 55,880 units was achieved in 2022. The **United States** is the largest American market and accounted for 68% of the installations in the Americas (34,164 units; -9%) in 2024. The two other major robot markets in the Americas are also in North America: **Mexico** had 5,594 units (-4%) installed and **Canada** 3,787 units (-12%).

[1] Including Australia and New Zealand.

[2] EU_2020 as defined by Eurostat.

[3] Countries using the euro as their official currency, as of 2024.

80% of global robot installations in five countries

The five major markets for industrial robots are **China, Japan, the United States, the Republic of Korea, and Germany**. These countries accounted for 80% of the global robot installations (431,240 units) in 2024.

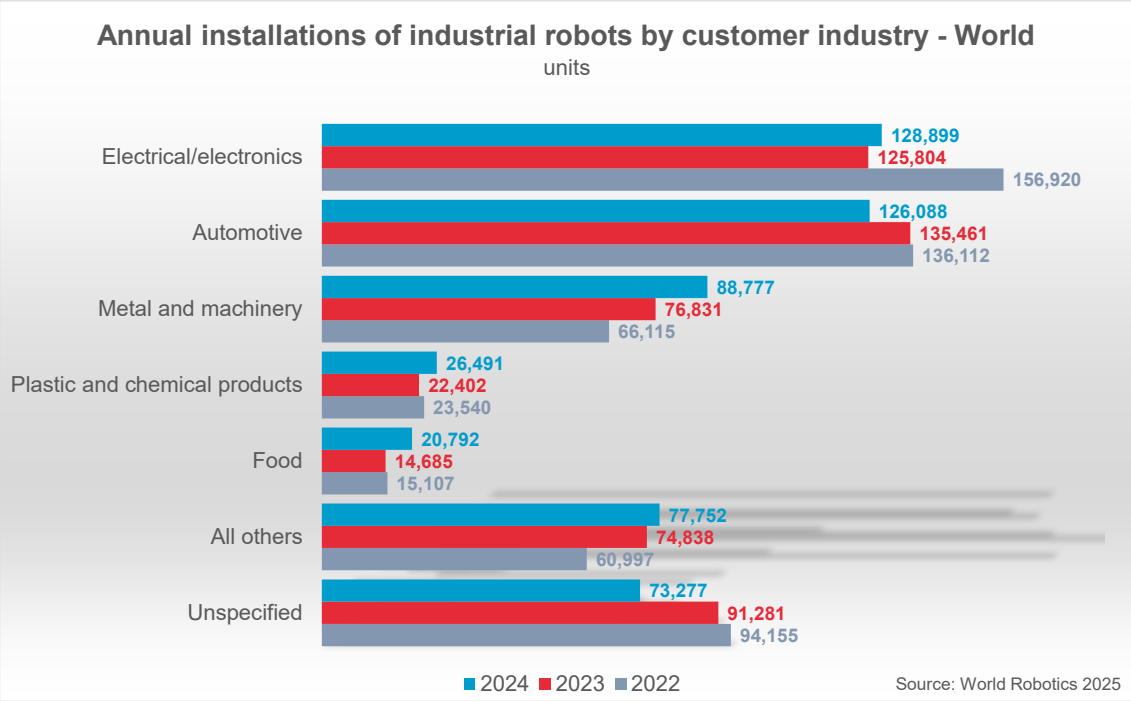
China has been the world's largest industrial robot market since 2013 and accounted for 54% of the total installations in 2024. For more details, see chapter 3.3.1.

Robot installations in **Japan** continued to decline, but the country still accounted for 8% of the global installations in 2024. For more details, see chapter 3.3.4.

The **United States** accounted for 6% of the robot installations in 2024 and remained in third place. For more details, see chapter 3.2.2.

In the **Republic of Korea**, annual robot installations continued their sideways trend. In 2024, installations in the Republic of Korea accounted for 6% of the global total. For more details, see chapter 3.3.5.

Germany is the fifth largest robot market in the world, accounting for 5% of the global robot installations in 2024. For more details, see chapter 3.4.12.



For many years, the automotive industry's pattern of purchasing robots largely determined the overall investment pattern in robot installations. This has changed on a global scale and at least in some Asian countries (China, Japan, and the Republic of Korea), where the electrical/electronics industry has become the largest customer industry. Globally, automotive and electronics have switched positions several times in recent years.

The latest switch took place in 2024, when the **electrical/electronics industry** reclaimed the lead. Installations were up 2% to 128,899 units. The share of the total installations was up 1 percentage point to 24%. Demand for electronics for all kinds of engineering, including automotive and industrial machinery and for consumer electronics, has been growing strongly for many years. Global production capacity has been ramped up and so has the industry's robot demand. From 2019 to 2024, the compound annual growth rate (CAGR) was +8%.

The **automotive industry** was the second largest customer of industrial robots in 2024, just some 2,800 units shy of the electronics industry. Demand was down 7% to 126,088 units. The automotive industry invested in the transition from combustion engines to alternative drives, but decreasing demand for battery electric vehicles currently limits the need for capacity expansion. From 2019 to 2024, annual installations in the automotive industry increased by 5% on average each year (CAGR). After several years of continuous decline, down to 21% in 2020, the share of the automotive industry in the total installations was 25% in 2022 and 2023 and 24% in 2024.

The **metal and machinery industry** established itself as the third largest customer industry and accounted for 16% of all installations in 2024. Both producers of metal products and producers of industrial machinery have installed substantial amounts of robots in recent years. From 2019 to 2024, installations in the metal and machinery industry increased by 12% on average each year. In 2024, installations were up 16% to a new peak level of 88,777 units.

In 2024, the average **robot density** in the manufacturing industry was 177 robots per 10,000 employees. Driven by the high volume of robot installations in recent years, Asia's average robot density grew by 12% CAGR from 2019 to 2024 and was 204 units per 10,000 employees in 2024. During the same period, the European robot density grew by 7% CAGR to 148 units. In the Americas, there were 131 robots per 10,000 employees (+6% CAGR since 2019).

Many governments support industry modernization by direct and indirect subsidies. Indirect subsidies like preferred tax deduction schemes have also proven to be successful, e.g. in Italy and the United Kingdom. But these programs address only those companies that are already aware of robotic automation as a solution to their problems. The share of companies that use robots is still rather small. Additional effort is needed to spread knowledge, especially among SMEs to avoid inefficient technology being used in large parts of the industry and tight labor markets hampering production. But there is more to it than just that. Without sufficient knowledge, expertise, and resources, it is

hardly possible to reap the benefits of robotic automation fully. The wide range of engineering capabilities needed also in peripherals, such as vision or process design, often prevent the adoption of robots, especially in SMEs. A developed ecosystem of system integrators that provide these capabilities is key – and quite often the bottleneck. Government programs should focus on supporting this type of robotics infrastructure.

Outlook 2025 – 2028

The **macroeconomic conditions remain fragile**. Geopolitical tensions, violent conflicts in Eastern Europe and the Middle East, and trade disruptions are exerting their negative impact on the global economy. While inflationary pressure from energy prices has eased, wages, and thus labor costs, remain elevated in many countries, driven by tight labor markets and real wage adjustment to inflation. The **robotics industry** is not immune to global macroeconomic conditions but might be affected differently than other industries. Trade barriers like tariffs will accelerate the regionalization and diversification of supply chains, as economic agents seek ways to reduce the risk resulting from geopolitical tensions.

The ongoing year 2025 began on an optimistic note, with order intake growth in both Asia and North America in the first quarter. However, the events in the second quarter make reliable forecasting more than challenging. Nevertheless, we aim to provide a rational and unemotional outlook for the current year and the subsequent years up to 2028.

While regional trends vary substantially, the aggregate global trajectory remains positive. Globally, robot installations are expected to grow by 6% to 575,000 units. By 2028, the 700,000-unit mark will be surpassed. **There is no indication that the overall long-term growth trend will come to an end any time soon.**

Robot installations in **North America** are expected to remain broadly stable at around 43,500 units. However, due to tariff policy, a shift in installations toward the United States is anticipated. This will primarily come at the expense of Canada and, to a lesser extent, Mexico.

Asia will continue to drive global growth, with installations expected to reach approximately 435,000 units in 2025. China remains the largest robot market. The share of domestically produced robots will continue to increase. Historical data shows that even under adverse conditions, China’s demand for industrial robots has rarely declined and often continued to grow. Annual growth of around +10% remains achievable. India is increasingly seen as an alternative or complement to China. No relevant growth impetus is expected from Japan or the Republic of Korea.

Europe is set to remain absent as a growth driver for the robotics industry in 2025. The weakness of the European automotive sector is becoming increasingly visible in robot demand. Overregulation and high costs are making the European Union less attractive despite its high level of automation. Order intake was already negative in the first quarter

of 2025, before the escalation of U.S. tariff policy. Installations are expected to decline to below 79,000 units this year. On a positive note, **low-cost robotics will continue to attract new customer segments that have just started or not yet used robots**.