

# **Semiconductor Hexapods Market Forecasts to 2034 – Global Analysis By Type (Electric Hexapods, Hydraulic Hexapods, Hybrid Hexapods and Other Types), Application (Manufacturing & Assembly, Aerospace & Defense, Automotive, Electronics, Medical & Healthcare, Research & Development and Other Applications) and by Geography**

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## **Abstracts**

According to Statistics MRC, the Global Semiconductor Hexapods Market is accounted for \$0.7 billion in 2026 and is expected to reach \$1.9 billion by 2034 growing at a CAGR of 12.8% during the forecast period. Semiconductor hexapods are sophisticated robotic systems made especially for the small, precise movements required in semiconductor manufacturing procedures. The six extendable legs on these hexapods—also referred to as Stewart platforms—allow for remarkable motion control and positional accuracy. Moreover, hexapods are essential in the semiconductor industry for tasks like wafer handling, alignment, and inspection because of the importance of precision and miniaturization. They are essential for applications where conventional robotic systems might not be sufficient because of their minuscule precision in manipulating objects.

According to the Semiconductor Industry Association, the continuous advancements in semiconductor technology are pivotal in driving innovation across various industries, shaping the future of electronics and enabling transformative solutions.

Market Dynamics:

Driver:

### Encouraging miniaturization and precision

A growing need for precision and miniaturization in semiconductor manufacturing is driving the market for semiconductor hexapods. Additionally, the increasing size and complexity of electronic devices necessitate the use of robotic systems that can achieve micron-level precision. In order to meet this need, semiconductor hexapods offer a high level of accuracy for critical operations like wafer handling, alignment, and inspection.

#### Restraint:

##### Insufficient knowledge and comprehension

The lack of knowledge and comprehension of the technology among potential end users is a barrier to the semiconductor hexapod market. Adoption rates may be slower if manufacturers are not fully aware of the advantages and capabilities that hexapods offer. Furthermore, to get around this barrier and spread awareness of the wider range of ways that hexapods can improve semiconductor manufacturing processes, education and outreach initiatives are crucial.

#### Opportunity:

##### Technological developments in semiconductors

Manufacturers of hexapods have a lot of opportunities because semiconductor technologies are always evolving. Hexapods can benefit from the escalating need for sophisticated motion control solutions as semiconductor processes grow increasingly complex and demanding. Moreover, there are opportunities to stay at the forefront of innovation for manufacturers by creating hexapods that are in line with emerging semiconductor technologies.

#### Threat:

##### Rapid obsolescence of technology

Manufacturers of hexapods face a threat from the rapid advancements in technology in the semiconductor industry. Additionally, potential buyers who are concerned that their investment may quickly become outdated may be discouraged by the risk of rapid technological obsolescence. It takes constant research and development to keep up with technological advancements and make sure hexapods are competitive and

relevant in the market.

#### Covid-19 Impact:

The semiconductor hexapod market was significantly impacted by the COVID-19 pandemic, which resulted in disruptions to the supply chain, manufacturing procedures, and overall demand. Difficulties with the workforce, lockdowns, and delayed production in the semiconductor industry also affected the deployment of hexapods in manufacturing facilities. Companies adopted a more cautious stance as a result of the growing economic unpredictability, which hampered the adoption of hexapod technology and capital expenditures. Furthermore, hexapod demand may rise in the long run as the industry looks for robust and effective ways to deal with post-pandemic challenges, but the pandemic also highlighted the value of automation and precision in manufacturing.

The Electric Hexapods segment is expected to be the largest during the forecast period

With the largest share throughout the projected period, electric hexapods presently dominate the market. Utilizing electrical actuators to accomplish precise motion control, electric hexapods are widely used in semiconductor manufacturing, optics, and other research fields. Moreover, high accuracy, cleanliness, and simplicity of integration into automated systems are some of their benefits. In industries where advanced motion control technology is essential for achieving optimal results, electric hexapods are widely adopted because they are well-suited for applications that require fast and accurate positioning.

The Research & Development segment is expected to have the highest CAGR during the forecast period

The Research & Development (R&D) segment is growing at the highest CAGR. The swift expansion of this market is attributed to the growing utilization of hexapod technology in labs and research facilities throughout diverse scientific fields. Because they can precisely control motion, hexapods are a great tool for testing procedures, experimental setups, and applications in physics, biology, and materials science. Additionally, the use of hexapods has been driven by the need for sophisticated motion control solutions in research and development settings where accuracy and adaptability are critical.

Region with largest share:

In terms of market share for semiconductor hexapods, the Asia-Pacific region is projected to hold the largest share. The strong presence of important semiconductor manufacturing hubs, especially in nations like China, Taiwan, Japan, and South Korea, is what propels Asia-Pacific's dominance. These countries have seen significant growth in semiconductor production and are at the forefront of technological advancement. Furthermore, the region's growing electronics industry, in addition to the growing need for accuracy and automation in semiconductor manufacturing processes, has accelerated the adoption of hexapod technology.

Region with highest CAGR:

In the semiconductor hexapod market, Europe emerges as the region with the highest CAGR. The European market is expanding significantly as a result of the region's focus on automation, technological innovation, and precision manufacturing. The need for hexapod technology in semiconductor applications is being driven by nations with strong manufacturing and technology sectors, such as the United Kingdom, Germany, and France. Hexapods are becoming more and more popular for complex tasks in the European aerospace and automotive industries, which are renowned for their sophisticated manufacturing techniques. Moreover, the increasing uptake of hexapod technology in Europe can be attributed to the focus on research and development in a variety of industries.

Key players in the market

Some of the key players in Semiconductor Hexapods market include Trio Motion Technology Ltd., ALIO Industries, KUKA Robotics Corporation, Aerotech Inc, PI (Physik Instrumente), Zaber Technologies Inc. and Ibex Engineering.

Key Developments:

In February 2023, Aerotech Inc., a Pittsburgh-based automation machinery manufacturer, announced plans to expand its cleanroom space by over double its current size as part of an effort to keep up with demand and expected growth in the future. The plans call for 6,500 square feet of Class 6 space to be used for the manufacturing of ultra-clean automation systems.

In November 2022, Kuka Robotics Corporation's mobile robotic wafer-handling system for human/machine collaboration offers a solution for material transport of 200 mm or

300 mm wafer boxes and SMIF boxes, open cassette machine loading and unloading. The system combines a Kuka LBR iiwa 14 R820 CR robot mounted on one of the company's KMP 200 CR automated mobile platforms.

In February 2022, Trio Motion Technology has launched a controller for stepper or pulse and direction servo drives with high performance motion control across four axes. The MC404-Z is primarily aimed at OEMs that need fast and accurate motion performance as well as a cost-optimal machine builds. The all-in-one controller enables I/O extension through CANbus and can also integrate directly with common PLC and HMI protocols via a built-in Ethernet port.

#### Types Covered:

Electric Hexapods

Hydraulic Hexapods

Hybrid Hexapods

Other Types

#### Applications Covered:

Manufacturing & Assembly

Aerospace & Defense

Automotive

Electronics

Medical & Healthcare

Research & Development

Other Applications

## Regions Covered:

### North America

US

Canada

Mexico

### Europe

Germany

UK

Italy

France

Spain

Rest of Europe

### Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

## South America

Argentina

Brazil

Chile

Rest of South America

## Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

### What our report offers:

Market share assessments for the regional and country-level segments

Strategic recommendations for the new entrants

Covers Market data for the years 2023, 2024, 2025, 2026, 2027, 2028, 2030, 2032 and 2034

Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)

Strategic recommendations in key business segments based on the market estimations

Competitive landscaping mapping the key common trends

Company profiling with detailed strategies, financials, and recent developments

Supply chain trends mapping the latest technological advancements

#### Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

##### Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

##### Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

##### Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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