

Cartesian Robots Market worth \$12.88 billion by 2030, growing at a CAGR of 17.77% -Exclusive Report by 360iResearch

The Global Cartesian Robots Market to grow from USD 3.47 billion in 2022 to USD 12.88 billion by 2030, at a CAGR of 17.77%.

PUNE, MAHARASHTRA, INDIA, November 15, 2023 / EINPresswire.com/ -- The "<u>Cartesian</u> <u>Robots Market</u> by Type (2X-2Y-Z Series, 2X-Y-Z Series, XY-X Series), Application (CNC Machining & 3D Printing, Loading & Unloading Workpiece, Palletizing & Handling), End-User - Global Forecast 2023-2030" report has been added to 360iResearch.com's offering.



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A cartesian robot is an industrial robot that leverages a three-axis linear motion system to manipulate objects within a defined, rectangular workspace. These robots possess three linear axes (X, Y, and Z) that enable them to move independently along these axes in a Cartesian coordinate system. The importance of Cartesian robots lies in their ability to automate repetitive tasks with efficiency and accuracy across various industries. The increasing demand for higher productivity levels in manufacturing facilities has driven the expansion of the Cartesian robot market. These robots also offer consistent quality assurance throughout production processes in Industry 4.0 and other automotive and aerospace industries. However, the cost of implementation for these systems can be relatively high, deterring small and medium-sized enterprises from adopting these robotic solutions. Ongoing technological advancements in robotics have led to enhanced precision, reduced cost, and improved speed capabilities of these

systems. The convergence of AI technologies with robotics enhances decision-making processes by enabling more intelligent control systems capable of learning from past experiences.

End-User: Emphasis on achieving consistent results in industrial manufacturing activities The automotive industry has a high demand for Cartesian robots due to their precision, speed, and ability to handle heavy loads. These robots are commonly used in assembly lines, painting, welding, and quality inspection processes. In the chemical and petrochemical industries, Cartesian robots are employed for material handling, dispensing, mixing, packaging, and palletizing tasks. They provide consistent results while working in harsh environments with hazardous materials. The electrical & electronics sector relies on the precision offered by Cartesian robots for assembling small components, soldering components onto boards, or even performing quality control tests on finished products. Food and beverage industries utilize Cartesian robots for tasks such as picking, sorting, packaging, and palletizing products. They offer hygienic solutions that can handle perishable goods with high speed and accuracy. Cartesian robots are widely used across various manufacturing applications such as metal fabrication, plastic molding, glass processing, and 3D printing due to their flexibility and adaptability to different tasks.

Application: Cartesian robots' inherent advantages in terms of speed and flexibility for loading and unloading workpieces

Cartesian robots are extensively used in computer numerical control (CNC) machines and 3D printing applications due to their high precision, speed, and repeatability. They enable manufacturers to create complex parts with consistent quality while reducing production time and material waste. Cartesian robots are highly preferred in loading and unloading workpieces due to their superior precision, repeatability, and speed. In industries such as automotive, electronics, and metal processing, these robots are used to handle heavy or delicate workpieces with minimal human intervention. Palletizing and handling is another significant application segment where cartesian robots outshine other robotic systems. Their ability to perform high-speed operations while maintaining accuracy makes them ideal for packaging lines requiring rapid material movement. Quality inspection is a critical aspect of manufacturing, and cartesian robots have established themselves as reliable solutions for this application. They offer high-precision movement along multiple axes, ensuring that inspection tasks are carried out accurately and consistently.

Type: Potential of 2X-2Y-Z series to offer increased stability for heavy payloads The 2X-2Y-Z series cartesian robots are designed for applications that require increased precision and payload capacity. The dual X and Y-axis configuration, complemented by a single Zaxis, delivers enhanced stability and accuracy in movement. This type of robot is preferable when working with heavy components or performing tasks that demand precise positioning, such as assembly, pick-and-place, and dispensing operations. The 2X-Y-Z series artesian robots feature a similar design as their 2X-2Y-Z counterparts but with only a single Y-axis. This configuration offers improved cost efficiency and reduced footprint while maintaining high levels of precision and load capacity. The XY-X Series Cartesian robots are designed for applications that require fast, precise motion in the X and Y axes without the need for vertical movement. This configuration is especially suitable for surface inspection, laser cutting, or engraving tasks where Z-axis motion is not required.

Regional Insights:

The Americas represent a substantial market for cartesian robots due to the strong presence of key industries such as automotive and aerospace manufacturing. The region is also home to some major players in the field of robotics, fueling research and development activities leading to innovative products specifically designed for efficient industrial automation. Governmental support through funding schemes for small businesses investing in robotic technologies has facilitated the wider adoption of cartesian robots in diverse sectors. Asia is a rapidly growing market for cartesian robots due to rapid industrialization and increasing demand for automation technologies. Asian countries' high production capacities driven by government initiatives are aimed at upgrading industry infrastructure through technological advancements. Countries such as Japan and South Korea are known for their expertise in robotics technology, with regional companies emerging in the global market. The Asian market is characterized by a focus on costeffective solutions that cater to large-scale manufacturing requirements, particularly in electronics assembly lines where high-precision operations are required. Europe is another significant market for cartesian robots with its long history of innovation in industrial automation. European countries are at the forefront of robotic technology in the region with high investments in research & development activities for the integration of advanced technologies into traditional industrial processes for increased efficiency and sustainability.

FPNV Positioning Matrix:

The FPNV Positioning Matrix is essential for assessing the Cartesian Robots Market. It provides a comprehensive evaluation of vendors by examining key metrics within Business Strategy and Product Satisfaction, allowing users to make informed decisions based on their specific needs. This advanced analysis then organizes these vendors into four distinct quadrants, which represent varying levels of success: Forefront (F), Pathfinder (P), Niche (N), or Vital(V).

Market Share Analysis:

The Market Share Analysis offers an insightful look at the current state of vendors in the Cartesian Robots Market. By comparing vendor contributions to overall revenue, customer base, and other key metrics, we can give companies a greater understanding of their performance and what they are up against when competing for market share. The analysis also sheds light on just how competitive any given sector is about accumulation, fragmentation dominance, and amalgamation traits over the base year period studied.

Key Company Profiles:

The report delves into recent significant developments in the Cartesian Robots Market,

highlighting leading vendors and their innovative profiles. These include ARBURG GmbH + Co KG, Bosch Rexroth AG, Brooks Automation Inc., Cerebrus Corporation, Denso Corporation, ENGEL AUSTRIA GmbH, Festo Corporation, FUYU Technology, Gudel Group AG, Hirata Corporation, Honeywell International Inc., IAI Industrieroboter Gmbh, JANOME Corporation, Koganei Corporation, KUKA AG, Midea Group Co. Ltd., Mitsubishi Electric Corporation, Musashi Engineering, Inc., Negri Bossi S.P.A., Newmark Systems Incorporated, Nordson Corporation, Omron Corporation, Parker Hannifin Corporation, Samick Thk Co. Ltd., Sepro Robotique SAS, Shibaura Machine CO., LTD, The Timken Company, TPA Robot, Yamaha Motor Co. Ltd., and Yushin Precision Equipment Co. Ltd..

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Market Segmentation & Coverage:

This research report categorizes the Cartesian Robots Market in order to forecast the revenues and analyze trends in each of following sub-markets:

Based on Type, market is studied across 2X-2Y-Z Series, 2X-Y-Z Series, and XY-X Series. The 2X-Y-Z Series is projected to witness significant market share during forecast period.

Based on Application, market is studied across CNC Machining & 3D Printing, Loading & Unloading Workpiece, Palletizing & Handling, and Quality Inspection. The Palletizing & Handling is projected to witness significant market share during forecast period.

Based on End-User, market is studied across Automotive, Chemical & Petrochemical, Electrical & Electronics, Food & Beverage, and Manufacturing. The Chemical & Petrochemical is projected to witness significant market share during forecast period.

Based on Region, market is studied across Americas, Asia-Pacific, and Europe, Middle East & Africa. The Americas is further studied across Argentina, Brazil, Canada, Mexico, and United States. The United States is further studied across California, Florida, Illinois, New York, Ohio, Pennsylvania, and Texas. The Asia-Pacific is further studied across Australia, China, India, Indonesia, Japan, Malaysia, Philippines, Singapore, South Korea, Taiwan, Thailand, and Vietnam. The Europe, Middle East & Africa is further studied across Denmark, Egypt, Finland, France, Germany, Israel, Italy, Netherlands, Nigeria, Norway, Poland, Qatar, Russia, Saudi Arabia, South Africa, Spain, Sweden, Switzerland, Turkey, United Arab Emirates, and United Kingdom. The Americas commanded largest market share of 38.27% in 2022, followed by Europe, Middle East & Africa.

Key Topics Covered:

1. Preface

- 2. Research Methodology
- 3. Executive Summary
- 4. Market Overview
- 5. Market Insights
- 6. Cartesian Robots Market, by Type
- 7. Cartesian Robots Market, by Application
- 8. Cartesian Robots Market, by End-User
- 9. Americas Cartesian Robots Market
- 10. Asia-Pacific Cartesian Robots Market
- 11. Europe, Middle East & Africa Cartesian Robots Market
- 12. Competitive Landscape
- 13. Competitive Portfolio
- 14. Appendix

The report provides insights on the following pointers:

1. Market Penetration: Provides comprehensive information on the market offered by the key players

2. Market Development: Provides in-depth information about lucrative emerging markets and analyzes penetration across mature segments of the markets

3. Market Diversification: Provides detailed information about new product launches, untapped geographies, recent developments, and investments

4. Competitive Assessment & Intelligence: Provides an exhaustive assessment of market shares, strategies, products, certification, regulatory approvals, patent landscape, and manufacturing capabilities of the leading players

5. Product Development & Innovation: Provides intelligent insights on future technologies, R&D activities, and breakthrough product developments

The report answers questions such as:

- 1. What is the market size and forecast of the Cartesian Robots Market?
- 2. Which are the products/segments/applications/areas to invest in over the forecast period in the Cartesian Robots Market?
- 3. What is the competitive strategic window for opportunities in the Cartesian Robots Market?
- 4. What are the technology trends and regulatory frameworks in the Cartesian Robots Market?
- 5. What is the market share of the leading vendors in the Cartesian Robots Market?

6. What modes and strategic moves are considered suitable for entering the Cartesian Robots Market?

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