

Actuators Market Report by Product (Linear Actuators, Rotary Actuators), Type (Electric, Pneumatic, Hydraulic, Mechanical, and Others), End Use Industry (Oil and Gas, Power Generation, Chemicals, Food and Beverages, Metals and Mining, Automotive, Aerospace and Defense, and Others), and Region 2024-2032

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Abstracts

The global actuators market size reached US\$ 44.4 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 78.8 Billion by 2032, exhibiting a growth rate (CAGR) of 6.4% during 2024-2032. Expanding industrial automation, the advent of Industry 4.0, rapid industrialization, ongoing infrastructural development, the implementation of stringent regulations, and the rising focus on energy efficiency and sustainability are some of the major factors propelling the market.

Actuators refer to mechanical devices that convert energy into motion. This energy, often sourced from electrical, hydraulic, or pneumatic power, enables the actuator to perform a specific action, often within an industrial or mechanical system. These actions may vary from simple linear motion to complex multi-axis movements, thereby enabling various industrial operations. Actuators are integral to diverse sectors, such as manufacturing, automotive, aerospace, and robotics, serving crucial roles in automating and streamlining processes. As versatile components of automation systems, actuators help enhance efficiency and precision, translating control signals into physical action.

The rising industrial automation across the automotive, manufacturing, and aerospace sectors is fueling the demand for actuators. Besides this, the advent of Industry 4.0 and the Internet of Things (IoT) has led to more integrated and smart factories, wherein

actuators are employed for achieving complex and precise operations. Moreover, the growing need for improved productivity and efficiency and the emerging trend towards energy efficiency and sustainable practices is creating a favorable outlook for market growth. Additionally, the expanding infrastructural development in emerging economies is driving the demand for actuators in applications such as construction machinery and water treatment plants. Furthermore, surging investments in research and development (R&D) activities and ongoing technological advancements, such as the development of smart actuators that can self-diagnose issues and report them for maintenance, significantly reducing operational downtime and enhancing system longevity, are aiding in market expansion.

Actuators Market Trends/Drivers:

Expanding industrial automation

The surge in industrial automation driven by increased productivity, improved operational efficiency, and the need for precision and accuracy has significantly boosted the demand for actuators. Actuators play a vital role in various industries, offering advantages such as faster response times, precise positioning, and the ability to handle heavy loads. Furthermore, the widespread product adoption to reduce costs by minimizing human error, optimizing energy consumption, and facilitating predictive maintenance is propelling the market forward. Moreover, ongoing innovation and advancements in automation technologies, including the incorporation of artificial intelligence (AI) and machine learning (ML), are impelling the demand for advanced actuators. Concurrent with this, the increasing adoption of collaborative robots (cobots) and the implementation of the Industrial Internet of Things (IIoT) are further enhancing the significance of actuators in enabling intelligent automation.

The advent of Industry 4.0 and IoT

The emergence of Industry 4.0 and IoT has brought about a paradigm shift in industrial operations. With IoT-enabled actuators, industries can achieve enhanced precision, control, and automation. The rising demand for smart actuators, equipped with sensors and connected to IoT networks, enabling real-time monitoring and data collection, is presenting remunerative growth opportunities for the market. By continuously monitoring parameters such as temperature, pressure, and performance metrics, smart actuators can identify potential issues or deviations from optimal conditions, allowing for proactive maintenance and minimizing costly downtime. Moreover, IoT-enabled actuators facilitate seamless integration and interoperability within a connected ecosystem, fueling their adoption across numerous industrial verticals. They can

communicate and collaborate with other devices, machines, and systems, enabling synchronized and coordinated operations.

Rising demand for energy efficiency and sustainability

The global emphasis on energy efficiency and sustainability has driven significant advancements in electric actuator technology. Electric actuators have gained traction due to their eco-friendly characteristics and superior performance attributes. Compared to hydraulic and pneumatic actuators, electric actuators are known for their higher energy efficiency and lower environmental impact. This aligns with the global push for greener industrial operations and adherence to stricter environmental regulations. The reduced energy consumption of electric actuators also translates into cost savings for industries, making them an attractive choice from both an environmental and economic standpoint. As governments and industries worldwide intensify their efforts to mitigate environmental impact and embrace sustainable practices, the demand for energy-efficient solutions, such as electric actuators, is expected to grow during the forecasted period.

Actuators Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the global actuators market report, along with forecasts at the global and regional levels from 2024-2032. Our report has categorized the market based on product, type and end use industry.

Breakup by Product:

- Linear Actuators
 - Rod Type
 - Screw Type
 - Belt Type
- Rotary Actuators
 - Motors
 - Bladder and Vane
 - Piston Type

Linear actuators are dominating the market

The report has provided a detailed breakup and analysis of the market based on the product. This includes linear (rod, screw, and belt type), and rotary actuators (motors, bladder and vane, and piston type). According to the report, linear actuators

represented the largest segment.

The demand for linear and rotary actuators is primarily propelled by the growing adoption of automation across industries such as manufacturing, automotive, aerospace, and healthcare. The linear actuators assist in converting energy into linear motion, enabling precise movement, positioning, and manipulation of objects. In addition to this, the rising need for increased productivity, efficiency, and accuracy in manufacturing processes is another factor propelling the demand for linear actuators. They are essential in assembly lines, material handling systems, robotics, and other applications requiring precise linear motion. Apart from this, rotary actuators are used in applications that require rotational or angular motion, such as valve control, robotic arms, and positioning systems. As a result, the growing need for precise and controlled rotational movement for tasks such as steering, flight control, and automated production lines is impelling the demand for rotary actuators.

Breakup by Type:

- Electric
- Pneumatic
- Hydraulic
- Mechanical
- Others

Electric holds a larger share in market

A detailed breakup and analysis of the market based on the type has also been provided in the report. This includes electric, pneumatic, hydraulic, mechanical, and others actuators. According to the report, electric accounted for the largest market share.

The surging demand for electric actuators due to the growing emphasis on energy efficiency and sustainability is contributing to the market's growth. In addition to this, they consume less energy and produce fewer emissions compared to their hydraulic and pneumatic counterparts, aligning with the global push for greener industrial operations. Besides this, electric actuators offer superior control and accuracy, making them ideal for precision-demanding applications. Apart from this, the expanding applications of pneumatic actuators owing to their high-speed operation, safety in hazardous environments, and relative simplicity across industries that require quick and responsive motion, such as manufacturing and process industries, is aiding in market

expansion. Furthermore, the surging demand for hydraulic actuators in applications that require high force, such as heavy machinery and equipment across the oil and gas, mining, and aerospace industries, is propelling the market forward.

Breakup by End Use Industry:

- Oil and Gas
- Power Generation
- Chemicals
- Food and Beverages
- Metals and Mining
- Automotive
- Aerospace and Defense
- Others

Automotive is dominating the market

The report has provided a detailed breakup and analysis of the market based on the end use industry. This includes oil and gas, power generation, chemicals, food and beverages, metals and mining, automotive, aerospace and defense, and others. According to the report, automotive represented the largest segment.

The bolstering growth of the oil and gas industry, wherein actuators are employed in various operations, such as pipeline flow control, wellhead control, and offshore drilling, is presenting remunerative growth opportunities for the market. Besides this, the widespread product adoption across the power generation sector for controlling valves, dampers, and turbines is impelling the market growth. The market is further supported by the growing emphasis on efficient power generation, where precise control of equipment and systems is crucial for optimizing energy production and minimizing downtime. Moreover, the chemicals industry relies on actuators for precise and reliable control of fluid and gas flow in various processes, such as mixing, blending, and reactor operations, which is strengthening the market growth. Additionally, the increasing use of actuators across the flourishing automotive sector for various applications, including engine control, powertrain systems, and vehicle dynamics, is favoring the market growth.

Breakup by Region:

- North America
- Europe

Asia Pacific
Middle East and Africa
Latin America

Asia Pacific exhibits a clear dominance in the market, accounting for the largest actuators market share

The report has also provided a comprehensive analysis of all the major regional markets, which include North America, Europe, Asia Pacific, Middle East and Africa, and Latin America. According to the report, Asia Pacific represented the largest market.

Ongoing technological advancements, a strong industrial base, and the emphasis on automation and efficiency in North America are fueling the market's expansion. The region is known for its advanced manufacturing sector, particularly in industries such as automotive, aerospace, and electronics. The need for precision, control, and automation in these industries further drives the demand for actuators. Additionally, increasing investments in R&D activities and the adoption of advanced technologies contribute to the market's growth in North America.

Apart from this, the stringent regulatory framework and the rising focus on energy efficiency and sustainability in Europe are creating a favorable outlook for market expansion. Moreover, rapid industrialization, expanding infrastructural development, and increasing adoption of automation technologies in the Asia Pacific region, particularly in countries like China, India, and Japan, are propelling the market forward.

Competitive Landscape:

The competitive landscape of the global actuators market is characterized by intense competition among key players striving to gain a competitive edge. The market is fragmented, with various companies operating on a global scale as well as regional players catering to specific markets. Prominent market participants engage in mergers and acquisitions, collaborations, partnerships, and product innovations to enhance their market presence. They invest heavily in research and development to improve product performance, durability, and efficiency. Moreover, customer-centric approaches, such as providing customized solutions and excellent after-sales services, are crucial for gaining a competitive advantage. Companies also emphasize sustainability by incorporating energy-efficient and environmentally friendly solutions into their product portfolios.

The report has provided a comprehensive analysis of the competitive landscape in the

market. Detailed profiles of all major companies have also been provided. Some of the key players in the market include:

Rockwell Automation
Moog Inc.
Emerson Electric
ABB
SMC Corporation
IMI PLC
Flowserve
Altra Industrial Motion
Cedrat Technologies
DVG Automation
Festo
MISUMI Group Inc.
Harmonic Drive LLC
Kinitics Automation
Venture Mfg. Co.

Recent Developments:

In July 2023, Emerson Electric partnered with Cavendish Renewable Technology (CRT), an Australia-based startup with proprietary hydrogen technologies, to accelerate the deployment of CRT's hydrogen production solutions.

In May 2023, Rockwell Automation announced its collaboration with Avid Solutions, Inc., to help both companies more efficiently and rapidly produce green hydrogen.

In Feb 2023, Flowserve Corporation announced its strategic collaboration with Clariter, a global cleantech pioneer, to advance production of Clariter's high-quality, green petrochemicals made from plastic waste.

Key Questions Answered in This Report

1. What was the size of the global actuators market in 2023?
2. What is the expected growth rate of the global actuators market during 2024-2032?
3. What has been the impact of COVID-19 on the global actuators market?
4. What are the key factors driving the global actuators market?
5. What is the breakup of the global actuators market based on the product?
6. What is the breakup of the global actuators market based on the type?
7. What is the breakup of the global actuators market based on the end use industry?
8. What are the key regions in the global actuators market?

9. Who are the key players/companies in the global actuators market?

Contents

1 PREFACE

2 SCOPE AND METHODOLOGY

- 2.1 Objectives of the Study
- 2.2 Stakeholders
- 2.3 Data Sources
 - 2.3.1 Primary Sources
 - 2.3.2 Secondary Sources
- 2.4 Market Estimation
 - 2.4.1 Bottom-Up Approach
 - 2.4.2 Top-Down Approach
- 2.5 Forecasting Methodology

3 EXECUTIVE SUMMARY

4 INTRODUCTION

- 4.1 Overview
- 4.2 Key Industry Trends

5 GLOBAL ACTUATORS MARKET

- 5.1 Market Overview
- 5.2 Market Performance
- 5.3 Impact of COVID-19
- 5.4 Market Breakup by Product
- 5.5 Market Breakup by Type
- 5.6 Market Breakup by End Use Industry
- 5.7 Market Breakup by Region
- 5.8 Market Forecast

6 MARKET BREAKUP BY PRODUCT

- 6.1 Linear Actuators
 - 6.1.1 Market Trends
 - 6.1.2 Major Types

- 6.1.2.1 Rod Type
- 6.1.2.2 Screw Type
- 6.1.2.3 Belt Type
- 6.1.3 Market Forecast
- 6.2 Rotary Actuators
 - 6.2.1 Market Trends
 - 6.2.2 Major Types
 - 6.2.2.1 Motors
 - 6.2.2.2 Bladder and Vane
 - 6.2.2.3 Piston Type
 - 6.2.3 Market Forecast

7 MARKET BREAKUP BY TYPE

- 7.1 Electric
 - 7.1.1 Market Trends
 - 7.1.2 Market Forecast
- 7.2 Pneumatic
 - 7.2.1 Market Trends
 - 7.2.2 Market Forecast
- 7.3 Hydraulic
 - 7.3.1 Market Trends
 - 7.3.2 Market Forecast
- 7.4 Mechanical
 - 7.4.1 Market Trends
 - 7.4.2 Market Forecast
- 7.5 Others
 - 7.5.1 Market Trends
 - 7.5.2 Market Forecast

8 MARKET BREAKUP BY END USE INDUSTRY

- 8.1 Oil and Gas
 - 8.1.1 Market Trends
 - 8.1.2 Market Forecast
- 8.2 Power Generation
 - 8.2.1 Market Trends
 - 8.2.2 Market Forecast
- 8.3 Chemicals

- 8.3.1 Market Trends
- 8.3.2 Market Forecast
- 8.4 Food and Beverages
 - 8.4.1 Market Trends
 - 8.4.2 Market Forecast
- 8.5 Metals and Mining
 - 8.5.1 Market Trends
 - 8.5.2 Market Forecast
- 8.6 Automotive
 - 8.6.1 Market Trends
 - 8.6.2 Market Forecast
- 8.7 Aerospace and Defense
 - 8.7.1 Market Trends
 - 8.7.2 Market Forecast
- 8.8 Others
 - 8.8.1 Market Trends
 - 8.8.2 Market Forecast

9 MARKET BREAKUP BY REGION

- 9.1 North America
 - 9.1.1 Market Trends
 - 9.1.2 Market Forecast
- 9.2 Europe
 - 9.2.1 Market Trends
 - 9.2.2 Market Forecast
- 9.3 Asia Pacific
 - 9.3.1 Market Trends
 - 9.3.2 Market Forecast
- 9.4 Middle East and Africa
 - 9.4.1 Market Trends
 - 9.4.2 Market Forecast
- 9.5 Latin America
 - 9.5.1 Market Trends
 - 9.5.2 Market Forecast

10 SWOT ANALYSIS

- 10.1 Overview

- 10.2 Strengths
- 10.3 Weaknesses
- 10.4 Opportunities
- 10.5 Threats

11 VALUE CHAIN ANALYSIS

12 PORTER'S FIVE FORCES ANALYSIS

- 12.1 Overview
- 12.2 Bargaining Power of Buyers
- 12.3 Bargaining Power of Suppliers
- 12.4 Degree of Competition
- 12.5 Threat of New Entrants
- 12.6 Threat of Substitutes

13 PRICE ANALYSIS

14 COMPETITIVE LANDSCAPE

- 14.1 Market Structure
- 14.2 Key Players
- 14.3 Profiles of Key Players
 - 14.3.1 Rockwell Automation
 - 14.3.2 Moog Inc
 - 14.3.3 Emerson Electric
 - 14.3.4 ABB
 - 14.3.5 SMC Corporation
 - 14.3.6 IMI PLC
 - 14.3.7 Flowserve
 - 14.3.8 Altra Industrial Motion
 - 14.3.9 Cedrat Technologies
 - 14.3.10 DVG Automation
 - 14.3.11 Festo
 - 14.3.12 MISUMI Group Inc
 - 14.3.13 Harmonic Drive LLC
 - 14.3.14 Kinitics Automation
 - 14.3.15 Venture Mfg. Co

List Of Tables

LIST OF TABLES

Table 1: Global: Actuators Market: Key Industry Highlights, 2023 and 2032

Table 2: Global: Actuators Market Forecast: Breakup by Product (in Billion US\$), 2024-2032

Table 3: Global: Actuators Market Forecast: Breakup by Type (in Billion US\$), 2024-2032

Table 4: Global: Actuators Market Forecast: Breakup by End Use Industry (in Billion US\$), 2024-2032

Table 5: Global: Actuators Market Forecast: Breakup by Region (in Billion US\$), 2024-2032

Table 6: Global: Actuators Market Structure

Table 7: Global: Actuators Market: Key Players

List Of Figures

LIST OF FIGURES

Figure 1: Global: Actuators Market: Major Drivers and Challenges

Figure 2: Global: Actuators Market: Sales Value (in Billion US\$), 2018-2023

Figure 3: Global: Actuators Market: Breakup by Product (in %), 2023

Figure 4: Global: Actuators Market: Breakup by Type (in %), 2023

Figure 5: Global: Actuators Market: Breakup by End Use Industry (in %), 2023

Figure 6: Global: Actuators Market: Breakup by Region (in %), 2023

Figure 7: Global: Actuators Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 8: Global: Actuators Industry: SWOT Analysis

Figure 9: Global: Actuators Industry: Value Chain Analysis

Figure 10: Global: Actuators Industry: Porter's Five Forces Analysis

Figure 11: Global: Actuators (Linear Actuators) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 12: Global: Actuators (Linear Actuators) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 13: Global: Actuators (Rotary Actuators) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 14: Global: Actuators (Rotary Actuators) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 15: Global: Actuators (Electric) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 16: Global: Actuators (Electric) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 17: Global: Actuators (Pneumatic) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 18: Global: Actuators (Pneumatic) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 19: Global: Actuators (Hydraulic) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 20: Global: Actuators (Hydraulic) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 21: Global: Actuators (Mechanical) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 22: Global: Actuators (Mechanical) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 23: Global: Actuators (Other Types) Market: Sales Value (in Billion US\$), 2018 &

2023

Figure 24: Global: Actuators (Other Types) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 25: Global: Actuators (Oil and Gas) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 26: Global: Actuators (Oil and Gas) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 27: Global: Actuators (Power Generation) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 28: Global: Actuators (Power Generation) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 29: Global: Actuators (Chemicals) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 30: Global: Actuators (Chemicals) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 31: Global: Actuators (Food and Beverages) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 32: Global: Actuators (Food and Beverages) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 33: Global: Actuators (Metals and Mining) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 34: Global: Actuators (Metals and Mining) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 35: Global: Actuators (Automotive) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 36: Global: Actuators (Automotive) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 37: Global: Actuators (Aerospace and Defense) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 38: Global: Actuators (Aerospace and Defense) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 39: Global: Actuators (Other End Use Industries) Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 40: Global: Actuators (Other End Use Industries) Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 41: North America: Actuators Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 42: North America: Actuators Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 43: Europe: Actuators Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 44: Europe: Actuators Market Forecast: Sales Value (in Billion US\$), 2024-2032

Figure 45: Asia Pacific: Actuators Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 46: Asia Pacific: Actuators Market Forecast: Sales Value (in Billion US\$),
2024-2032

Figure 47: Middle East and Africa: Actuators Market: Sales Value (in Billion US\$), 2018
& 2023

Figure 48: Middle East and Africa: Actuators Market Forecast: Sales Value (in Billion
US\$), 2024-2032

Figure 49: Latin America: Actuators Market: Sales Value (in Billion US\$), 2018 & 2023

Figure 50: Latin America: Actuators Market Forecast: Sales Value (in Billion US\$),
2024-2032

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