

Global Frameless Torque Motor for Humanoid Robot Rotating Joint Market Growth 2026-2032

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Abstracts

The global Frameless Torque Motor for Humanoid Robot Rotating Joint market size is predicted to grow from US\$ 196 million in 2025 to US\$ 976 million in 2032; it is expected to grow at a CAGR of 25.9% from 2026 to 2032.

In 2025, global Frameless Torque Motors for Robotic Arm production reached approximately 571.4 k units with an average global market price of around US\$350 per unit. Frameless torque motor is a permanent magnet servo motor specially designed for integrated drive. Its core features are ? without traditional motor shell, bearing and encoder ?. It is only composed of two parts: stator (external steel sheet and copper winding) and rotor (internal permanent magnet steel ring) ?45. By embedding directly into the robot joint structure, the motor can output high torque and precise motion control to meet the requirements of rotating joints for compact space and high dynamic response.

The future industry development trend for the frameless torque motor for humanoid robot rotating joints points to the technological route of integrated joint modules and the stage of scaled mass production. During its third-quarter 2025 earnings call, Kinco Automation disclosed that the main driver of its robotics business growth is the rapid development of humanoid robots and other related directions. Sales of frameless torque motors in the first three quarters increased significantly year-on-year, pushing the revenue share of its robotics business to exceed half of the company's total revenue for the first time. The company has explicitly focused on motion control solutions for both legged and wheeled humanoid robots, with core products including frameless torque motors, hollow shaft drives, and planetary gearboxes. Leadshine Technology explicitly stated in its 2025 board of directors' work report that its frameless torque motor business has begun explosive growth, with annual deliveries exceeding 120,000 units.

The company's core robotics components have entered the supply chains of 80 percent of mainstream domestic humanoid robot manufacturers, and it is currently constructing automated production capacity of two million units per year. Weiguang Holdings revealed during its 2025 earnings call that the robotic joint modules developed by its wholly-owned subsidiary have passed verification by individual complete machine manufacturers and have entered the small-batch delivery stage. These modules integrate frameless torque motors with components such as encoders. The policy front also provides clear support. The Science, Technology and Economy Commission of Shanghai Pudong New Area issued a special application notice, providing support not exceeding a certain percentage of the first batch sales contract value for enterprises undertaking the industrialization of frameless torque motors for humanoid robots. The Beijing Economic-Technological Development Area has also explicitly provided subsidies based on a percentage of supply value to enterprises that supply core components, including servo motors, to robot complete machine manufacturers. In summary, the major trends in the frameless torque motor industry for humanoid robot rotating joints are as follows: the technological route is upgrading from single motor sales to integrated joint modules that incorporate reducers and encoders; the profit focus is shifting from general-purpose products to high-torque-density specialized motors; and a company's revenue growth and profit margins will depend on its progress in industrializing core areas such as magnetic circuit optimization design, process consistency control, and module integration capabilities.

LP Information, Inc. (LPI) ' newest research report, the "Frameless Torque Motor for Humanoid Robot Rotating Joint Industry Forecast" looks at past sales and reviews total world Frameless Torque Motor for Humanoid Robot Rotating Joint sales in 2025, providing a comprehensive analysis by region and market sector of projected Frameless Torque Motor for Humanoid Robot Rotating Joint sales for 2026 through 2032. With Frameless Torque Motor for Humanoid Robot Rotating Joint sales broken down by region, market sector and sub-sector, this report provides a detailed analysis in US\$ millions of the world Frameless Torque Motor for Humanoid Robot Rotating Joint industry.

This Insight Report provides a comprehensive analysis of the global Frameless Torque Motor for Humanoid Robot Rotating Joint landscape and highlights key trends related to product segmentation, company formation, revenue, and market share, latest development, and M&A activity. This report also analyzes the strategies of leading global companies with a focus on Frameless Torque Motor for Humanoid Robot Rotating Joint portfolios and capabilities, market entry strategies, market positions, and geographic footprints, to better understand these firms' unique position in an

accelerating global Frameless Torque Motor for Humanoid Robot Rotating Joint market.

This Insight Report evaluates the key market trends, drivers, and affecting factors shaping the global outlook for Frameless Torque Motor for Humanoid Robot Rotating Joint and breaks down the forecast by Type, by Application, geography, and market size to highlight emerging pockets of opportunity. With a transparent methodology based on hundreds of bottom-up qualitative and quantitative market inputs, this study forecast offers a highly nuanced view of the current state and future trajectory in the global Frameless Torque Motor for Humanoid Robot Rotating Joint.

This report presents a comprehensive overview, market shares, and growth opportunities of Frameless Torque Motor for Humanoid Robot Rotating Joint market by product type, application, key manufacturers and key regions and countries.

Segmentation by Type:

High-Torque Frameless Torque Motor

Lightweight Low-Torque Frameless Torque Motor

Segmentation by Slot:

Slotted

Slotless

Segmentation by Peak Torque:

Below 100Nm

Above 100Nm

Segmentation by Application:

Upper Limb Joints

Lower Limb Joints

Hand Joints

Others

This report also splits the market by region:

Americas

United States

Canada

Mexico

Brazil

APAC

China

Japan

Korea

Southeast Asia

India

Australia

Europe

Germany

France

UK

Italy

Russia

Middle East & Africa

Egypt

South Africa

Israel

Turkey

GCC Countries

The below companies that are profiled have been selected based on inputs gathered from primary experts and analysing the company's coverage, product portfolio, its market penetration.

Kollmorgen

Aerotech

Wittenstein

Parker

Sensata

Maxon Motor

Allied Motion

TQ Robodrive

Magnetic Innovations

Tecnotion

Moog

Nidec

Akribis

Celera Motion

Shenzhen Mosrac Motor

Kinco Automation (Shanghai)

Guangzhou Haozhi Industrial

Chengdu Weijing Motor

Wolong Electric Group

China Leadshine Technology

Key Questions Addressed in this Report

What is the 10-year outlook for the global Frameless Torque Motor for Humanoid Robot Rotating Joint market?

What factors are driving Frameless Torque Motor for Humanoid Robot Rotating Joint market growth, globally and by region?

Which technologies are poised for the fastest growth by market and region?

How do Frameless Torque Motor for Humanoid Robot Rotating Joint market opportunities vary by end market size?

How does Frameless Torque Motor for Humanoid Robot Rotating Joint break out by Type, by Application?

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