

Global Humanoid Robot Joint Actuator Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Humanoid Robot Joint Actuator market size was valued at US\$ 5999 million in 2025 and is forecast to a readjusted size of US\$ 25598 million by 2032 with a CAGR of 22.9% during review period.

A Humanoid Robot Joint Actuator is an integrated electromechanical drive unit used in humanoid robots to generate motion and torque at robot joints such as shoulders, elbows, hips, knees, and ankles. It typically combines a motor, reducer (harmonic drive or planetary gearbox), encoder, controller, sensors, and braking system into a compact module, enabling precise motion control, force output, and dynamic balance for humanoid robotic movement. In 2025, global Humanoid Robot Joint Actuator production reached approximately 8.97 M units, with an average global market price of around US\$ 650 per unit. Annual production capacity is 10 M Units. Gross Profit Margin: 45%. The Humanoid Robot Joint Actuator industry chain is highly concentrated and vertically integrated. Upstream consists of precision components such as harmonic reducers, frameless motors, encoders, bearings, and rare-earth magnetic materials. Midstream players focus on integrating these components into compact joint modules with embedded drivers and torque control systems. Downstream demand comes from humanoid robot OEMs, industrial automation companies, and emerging embodied AI platforms, where joint actuators serve as the core "muscle system" enabling motion, balance, and dexterity. Humanoid joint actuators represent one of the most critical bottlenecks in robotics commercialization. While demand is accelerating rapidly, supply remains constrained by precision manufacturing capacity and cost-performance trade-offs. The next phase of growth will likely be defined by standardization, cost reduction, and ecosystem consolidation, where a small number of manufacturers dominate global

supply.

This report is a detailed and comprehensive analysis for global Humanoid Robot Joint Actuator market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Torque Output and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Humanoid Robot Joint Actuator market size and forecasts, in consumption value (\$ Million), sales quantity (K Units), and average selling prices (US\$/Unit), 2021-2032

Global Humanoid Robot Joint Actuator market size and forecasts by region and country, in consumption value (\$ Million), sales quantity (K Units), and average selling prices (US\$/Unit), 2021-2032

Global Humanoid Robot Joint Actuator market size and forecasts, by Torque Output and by Application, in consumption value (\$ Million), sales quantity (K Units), and average selling prices (US\$/Unit), 2021-2032

Global Humanoid Robot Joint Actuator market shares of main players, shipments in revenue (\$ Million), sales quantity (K Units), and ASP (US\$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Humanoid Robot Joint Actuator

To forecast future growth in each product and end-use market

To assess competitive factors affecting the marketplace

This report profiles key players in the global Humanoid Robot Joint Actuator market based on the following parameters - company overview, sales quantity, revenue, price,

gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Harmonic Drive Systems, Leaderdrive Technology, Robotis, Zeroerr Robotics, Unitree Robotics, Laifual Drive, ZD Motor, Suzhou Honpine Precision Industry, TQ Robotics, Techsoft Robotics, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

Humanoid Robot Joint Actuator market is split by Torque Output and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Torque Output, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Torque Output

Low-Torque Joint Actuator (<50 Nm)

Medium-Torque Joint Actuator (50-200 Nm)

High-Torque Joint Actuator (200-500 Nm)

Ultra-High Torque Joint Actuator (>500 Nm)

Market segment by Joint Position

Shoulder Joint Actuator

Elbow Joint Actuator

Wrist Joint Actuator

Waist Joint Actuator

Hip Joint Actuator

Knee Joint Actuator

Ankle Joint Actuator

Neck Joint Actuator

Finger / Dexterous Hand Actuator

Market segment by Reducer Type

Harmonic Drive Joint Actuator

Planetary Gear Joint Actuator

Cycloidal Drive Joint Actuator

Direct Drive Joint Actuator

Belt-Driven Joint Actuator

Market segment by Application

Industrial

Service

Research

Medical

Military

Others

Major players covered

Harmonic Drive Systems

Leaderdrive Technology

Robotis

Zeroerr Robotics

Unitree Robotics

Laifual Drive

ZD Motor

Suzhou Honpine Precision Industry

TQ Robotics

Techsoft Robotics

MyActuator

CubeMars

HEBI Robotics

Nidec

Maxon

Kollmorgen

Wittenstein

FANUC Corporation

HIWIN

Franka Emika

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Humanoid Robot Joint Actuator product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Humanoid Robot Joint Actuator, with price, sales quantity, revenue, and global market share of Humanoid Robot Joint Actuator from 2021 to 2026.

Chapter 3, the Humanoid Robot Joint Actuator competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the Humanoid Robot Joint Actuator breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Torque Output and by Application, with sales market share and growth rate by Torque Output, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026. and Humanoid Robot Joint Actuator market forecast, by regions, by Torque

Output, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Humanoid Robot Joint Actuator.

Chapter 14 and 15, to describe Humanoid Robot Joint Actuator sales channel, distributors, customers, research findings and conclusion.

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