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Global Precision Cutting Tools for Humanoid Robot 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 Precision Cutting Tools for Humanoid Robot market size was valued at US$ 25.30 million in 2025 and is forecast to a readjusted size of US$ 266 million by 2032 with a CAGR of 39.8% during review period.

Precision cutting tools for humanoid robot manufacturing refer to cutting tools used for high-precision material removal in humanoid robot assemblies and core components. Major applications include precision reducers, planetary roller screws and ball screws, dexterous-hand micro-transmission systems, joint motors, shafts, bearing interfaces, joint housings and lightweight structural components. Representative products include precision internal-gear and spline broaches, small- and ultra-small-module hobs, power skiving cutters, gear shaper cutters, gear milling cutters, thread whirling cutters and inserts, thread mills, thread turning tools, solid carbide end mills, turning and grooving inserts, micro drills, reamers and precision boring tools.

In 2025, global shipments of Precision Cutting Tools for Humanoid Robots are estimated at 1.65 million units, with a weighted average ex-factory price of approximately US$14.9 per unit and a gross profit margin of approximately 35% to 48% on the manufacturing side.

Joint Proliferation Amplifies Tool Demand And Shifts Competition Toward Integrated Machining Solutions

Growth in the humanoid robot precision cutting-tool market is not a simple function of robot shipments. It is amplified by the number of joints, transmission components and

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machining processes within each robot. As the market shifts toward biped and wheel-legged systems, the number of rotary joints, linear actuators and micro-transmission components per robot is increasing, expanding demand for reducers, screws, gears, splines, shafts and precision bore machining. Each additional humanoid robot therefore creates machining demand for multiple transmission assemblies and dozens of precision mechanical parts, turning cutting tools from initial production-line equipment into recurring manufacturing consumables.

Precision reducers and screw drives are expected to generate the earliest and highest-value opportunities. Internal ring gears, circular splines, flexsplines, sun gears and planet gears require broaching, hobbing, power skiving, shaping and profile milling. Planetary roller screw shafts, nuts and rollers require thread whirling, thread turning, thread milling and subsequent grinding. Dexterous hands, encoders and miniature actuators further increase demand for micro gears, slots and holes. Gleason has introduced hobbing, power skiving and profile-milling solutions for small internal and external gears used in strain-wave, planetary and cycloidal reducers, while Sandvik?s CoroDrill 862 covers micro-hole diameters from 0.30 to 3.00 millimeters.

Supplier activity has moved from market observation toward product development and production preparation. Huarui Precision has developed solutions addressing the accuracy, deformation-control and material-machinability challenges of motor housings, screw pairs and reducers. EST Tools has established a portfolio covering broaches, hobs, gear shaper cutters, power skiving cutters, ultra-small-module gear tools, drilling and milling tools, and precision threading tools, supported by regrinding, coating and process-engineering services. Gleason is integrating machines, workholding and high-precision carbide tools into complete robotic-gear manufacturing systems. Competitive advantage will therefore depend less on the nominal price of an individual tool and more on cost per component, cycle time, tool life, profile consistency after regrinding and batch yield.

Major risks include the lack of standardized joint architectures, reducer designs, screw specifications and gear parameters across robot manufacturers. Customized broaches, hobs and thread whirling tools may have limited reuse across robot models and require lengthy qualification. Final screw and gear accuracy may also continue to depend on grinding processes, affecting the division of value between cutting tools and abrasive tools. In addition, higher tungsten, cobalt and high-speed-steel prices may pressure manufacturing costs. Suppliers with integrated capabilities in tool materials, coatings, geometry design, regrinding and on-site process engineering will be better positioned to pass through costs and secure long-term customer relationships.

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This report is a detailed and comprehensive analysis for global Precision Cutting Tools for Humanoid Robot market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type 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 Precision Cutting Tools for Humanoid Robot market size and forecasts, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Precision Cutting Tools for Humanoid Robot 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 Precision Cutting Tools for Humanoid Robot market size and forecasts, by Type and by Application, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Precision Cutting Tools for Humanoid Robot 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 Precision Cutting Tools for Humanoid Robot

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 Precision Cutting Tools for Humanoid

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Robot 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 Sandvik AB, Kennametal Inc., OSG Corporation, NACHI-FUJIKOSHI CORP., Tungaloy Corporation, EMUGE-Werk Richard Glimpel GmbH & Co. KG, Gleason Corporation, EST Tools Co., Ltd., Zhuzhou Huarui Precision Cutting Tools Co., Ltd., Zhuzhou OKE Precision Cutting Tools Co., Ltd., etc.

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

Market Segmentation

Precision Cutting Tools for Humanoid Robot market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, 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 Type

Precision Broaching Tools

Gear Cutting Tools

Thread and Screw Machining Tools

Milling Tools

Turning and Grooving Tools

Drilling Reaming and Boring Tools

Market segment by Material

Cemented Carbide

High-Speed Steel and Powder Metallurgy High-Speed Steel

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Others

Market segment by Robot Component

Precision Reducer Components

Screw and Linear Actuator Components

Dexterous Hand Components

Joint Motor Shaft Bearing and Housing Components

Market segment by Application

Biped Humanoid Robots

Wheeled Humanoid Robots

Wheel-Legged Humanoid Robots

Major players covered

Sandvik AB

Kennametal Inc.

OSG Corporation

NACHI-FUJIKOSHI CORP.

Tungaloy Corporation

EMUGE-Werk Richard Glimpel GmbH & Co. KG

Gleason Corporation

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EST Tools Co., Ltd.

Zhuzhou Huarui Precision Cutting Tools Co., Ltd.

Zhuzhou OKE Precision Cutting Tools Co., Ltd.

Zhuzhou Cemented Carbide Cutting Tools Co., Ltd.

Beijing Worldia Diamond Tools Co., Ltd.

Guangdong Dtech Technology Co., Ltd.

Xiamen Golden Egret Special Alloy Co., Ltd.

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 Precision Cutting Tools for Humanoid Robot product scope, market overview, market estimation caveats and base year.

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

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

Chapter 4, the Precision Cutting Tools for Humanoid Robot 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 Type and by Application, with sales market share and growth rate by Type, 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 Precision Cutting Tools for Humanoid Robot market forecast, by regions, by Type, 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 Precision Cutting Tools for Humanoid Robot.

Chapter 14 and 15, to describe Precision Cutting Tools for Humanoid Robot sales channel, distributors, customers, research findings and conclusion.

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