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Global Tendon-driven Robotic Hands Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global Tendon-driven Robotic Hands market size is expected to reach $ 1882 million by 2032, rising at a market growth of 19.9% CAGR during the forecast period (2026-2032).

Tendon-driven robotic hands are robotic manipulators that mimic the human hand by using cables or tendons (usually made of high-strength fibers) to transmit force from motors located away from the fingers. When the motors pull the tendons, the fingers bend or extend, enabling grasping and dexterous manipulation. This design reduces weight at the hand, improves flexibility, and allows more human-like motion.In 2025, global tendon-driven robotic hand production reached approximately 60,100 units, with an average global market price of around US$ 8,500 per unit. Annual production capacity is 79,000 units. Gross Profit Margin: 48%.The industry chain of tendon-driven robotic hands is relatively specialized and vertically integrated. Upstream, key components include precision micro-motors, high-strength tendon cables (often UHMWPE or steel), miniature bearings, sensors (force/torque, position), and control chips. These components are supplied by advanced manufacturing and electronics companies, with cost and performance heavily influenced by actuator density and sensor integration. Midstream players focus on system integration—designing dexterous hand modules, optimizing tendon routing, control algorithms, and embedded systems. Downstream demand is driven by humanoid robots, industrial automation, prosthetics, and research platforms, where requirements differ significantly in reliability, cost, and dexterity. Currently, the value concentration is shifting from hardware manufacturing toward control software and system-level integration.Tendon-driven robotic hands represent one of the most promising yet technically challenging segments in robotics. While the current market size remains relatively small, the technology sits at the core of future humanoid and general-purpose robotic systems. In my view, the key inflection

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point will not be purely mechanical innovation, but the convergence of low-cost actuation, robust control algorithms, and scalable manufacturing. Companies that can significantly reduce cost while maintaining sufficient dexterity (rather than maximizing DOF) will capture the largest market share. Over the next 5–10 years, the market is likely to transition from a research-driven niche to a commercially viable component ecosystem, especially as humanoid robots move toward real-world deployment.

This report studies the global Tendon-driven Robotic Hands production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for Tendon-driven Robotic Hands and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of Tendon-driven Robotic Hands that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global Tendon-driven Robotic Hands total production and demand, 2021-2032, (Units)
Global Tendon-driven Robotic Hands total production value, 2021-2032, (USD Million)
Global Tendon-driven Robotic Hands production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Units), (based on production site)
Global Tendon-driven Robotic Hands consumption by region & country, CAGR, 2021-2032 & (Units)
U.S. VS China: Tendon-driven Robotic Hands domestic production, consumption, key domestic manufacturers and share
Global Tendon-driven Robotic Hands production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Units)
Global Tendon-driven Robotic Hands production by Structural Complexity, production, value, CAGR, 2021-2032, (USD Million) & (Units)
Global Tendon-driven Robotic Hands production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Units)

This report profiles key players in the global Tendon-driven Robotic Hands market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Schunk, Festo, SMC, Zimmer, Robotiq, OnRobot A/S, Piab AB, Soft Robotics, RightHand Robotics, ABB, etc.

This report also provides key insights about market drivers, restraints, opportunities,

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new product launches or approvals.

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World Tendon-driven Robotic Hands market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Units) and average price (K US$/Unit) by manufacturer, by Structural Complexity, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global Tendon-driven Robotic Hands Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global Tendon-driven Robotic Hands Market, Segmentation by Structural Complexity:

Basic Gripper Hands

Anthropomorphic Hands

Highly Dexterous Hands

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Global Tendon-driven Robotic Hands Market, Segmentation by Degrees of Freedom:

Low DOF Hands:2–6 DOF

Medium DOF Hands:7–15 DOF

High DOF Hands:16–25 DOF

Ultra-Dexterous Hands:25+ DOF

Global Tendon-driven Robotic Hands Market, Segmentation by Force / Grasping Capacity:

Light Manipulation Hands:
Standard Manipulation Hands:5–20 N fingertip force

Heavy-Duty Robotic Hands:> 20 N fingertip force

Global Tendon-driven Robotic Hands Market, Segmentation by Application:

Research / Academic

Industrial

Commercial

Others

Companies Profiled:

Schunk

Festo

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SMC

Zimmer

Robotiq

OnRobot A/S

Piab AB

Soft Robotics

RightHand Robotics

ABB

Inspire Robots

Agibot

Shadow Robot

Wonik Robotics

Tesla

Fourier Intelligence

Unitree Robotics

UBTECH Robotics Corp

Engineered Arts

Barrett Technology

Key Questions Answered:

1. How big is the global Tendon-driven Robotic Hands market?

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2. What is the demand of the global Tendon-driven Robotic Hands market?
3. What is the year over year growth of the global Tendon-driven Robotic Hands market?
4. What is the production and production value of the global Tendon-driven Robotic Hands market?
5. Who are the key producers in the global Tendon-driven Robotic Hands market?
6. What are the growth factors driving the market demand?

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