Collaborative Robot Market by Payload (Up to 5 Kg, 5-10 kg, 10-20 kg, more than 20 kg), Component, Robotic Arm, End Effectors, Drives, Controllers, Sensors, Power Supply, Motors, Software), Application, Industry and Region - Global Forecast to 2029

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Report description:

The collaborative robot market is projected to grow from USD 1.2 billion in 2023 and is projected to reach USD 6.8 billion by 2029; it is expected to grow at a CAGR of 34.3% from 2023 to 2029.
The high return on investment (ROI) for collaborative robots over traditional industrial robotics systems has paved the way for their growth in recent years. In addition, the benefits derived from adopting cobots for businesses of all sizes are the key factors driving the collaborative robot market. However, a higher preference for low payload capacity traditional industrial robots over cobots in heavy-duty industries is limiting the growth of the collaborative robot market.
"Electronics industry segment of the collaborative robot market to hold second largest market share during the forecast period."
The electronics industry is increasingly adopting low-payload collaborative robots (up to 5 kg), which are cheaper and easily integrated into the production floor due to their smaller size. Speed, accuracy, and precision are the most important factors in the electronics industry compared with other factors, such as high payload capacity. Collaborative robots are built and programmed to manage display screens, connectors, subassemblies, and printed circuit boards (PCBs). Parts such as wafers are small and delicate and need to be managed carefully. The robots need to be very precise in locating, placing, and assembling components because the error tolerances are minimal compared to other macro applications. Although many tasks require tight tolerances, advances in robotic hardware and vision systems enable manufacturers to realize collaborative robots' advantages. Collaborative robots perform soldering, gluing, and dispensing operations in manufacturing. Cobots can be used in simple pick-and-place tasks such as loading wafers into a solar cell panel or to perform precise operations such as screwdriving and finishing using deburring tools. Since collaborative robots can be reprogrammed, they can keep up with the fast-changing consumer demands and short

product life cycles.

"5-10 kg payloads segment to witness significant growth for collaborative robot market during the forecast period." The 5-10 kg payload cobots are expected to witness significant growth for the collaborative robot market during the forecast period. The payload category exhibiting the highest growth during the forecast period is the 5-10 kg category. Cobots in the 5-10 kg payload capacity category can handle heavier parts and have a longer reach for machine tending and palletizing tasks. According to the ISO 10218 safety standard, grippers that are rated for handling payloads up to 10 kg or lower are collaborative, which also means that robots with a payload capacity of 5-10 kg do not require specialized grippers for collaborative operations. Collaborative robots that operate on a 5-10 kg payload capacity are used in most factory automation tasks for applications such as material handling, palletizing, and machine tending. The automotive industry particularly engages cobots belonging to 5-10 kg payload category for picking and placing small engine and transmission components during assembly alongside a human worker. These robots can perform all the collaborative operations that the low payload cobots can do, but with support for a higher payload. These robots differ from low-payload cobots in terms of payload capacity, reach, and other operational parameters. Cobots belonging to this category are also equipped with position and torque sensors that can cease robot operation if an obstacle or collision is detected. Many of these robots also support peripherals such as vision systems and end effectors from third-party manufacturers. The collaborative robots in this payload category typically have an operating speed of 1.2 m/s and a reach of 1,000mm. Thus, due to their wide adaptability, versatility in terms of applications, intrinsic safety, repeatability, and reach being almost at par with traditional industrial robotic systems, the cobots with 5-10 kg payload capacity are anticipated to have the fastest growth.

"Robotic arm is expected to hold the largest share of collaborative robot market for hardware component during the forecast period."

The component-wise growth rate for the collaborative robot market is estimated to be specifically highest for the robot arm. The robot arm is one of a collaborative robot's most expensive hardware components, which can often be time-consuming and complex. The robotic arm consists of different joints, which enable linear and circular motion in collaborative robots. The arm has to be built as per the ISO/TS 15066 standard and certified for the same. Compared to traditional industrial robots, collaborative robots often have curved arm to make them safe for human contact. This feature is crucial as collaborative robots work closely with human workers. Inside its complex design, the arm also has to house the drives, motors, and sensors while providing maximum dust and water resistance, which can often be challenging. Thus, due to its higher overall cost, compared to other hardware components, the robotic arm is expected to dominate the collaborative robot market in terms of value, during the forecast period.

"North America to witness significant growth for the collaborative robot market during the forecast period." North America is expected to exhibit significant growth in the collaborative robot market during the forecast period. Prominent players in this region operating in the collaborative robot market are emphasizing expanding their production capacities to cater to the market demand. For example, in March 2023, ABB (Switzerland) announced its plans to expand into one of its largest customer markets - the US - with construction starting to expand its existing North American robotics headquarters and manufacturing facility in Auburn Hills, Michigan. The project is expected to be completed in November 2023 and represents an investment of USD 20 million. Collaborative robots are also increasingly being used in industries, such as plastics, metals & machinery, and food & beverages in the region.

In determining and verifying the market size for several segments and subsegments gathered through secondary research, extensive primary interviews have been conducted with key industry experts in the collaborative robot market space. The break-up of direct participants for the report has been shown below: By Company Type: Tier 1 - 40%, Tier 2 - 40%, and Tier 3 - 20% By Designation: C-level Executives - 40%, Directors -40%, and Others - 20% By Region: Asia Pacific- 40%, North America -30%, Europe - 20%, and RoW - 10%

The report profiles key players in the collaborative robot market with their respective market ranking analysis. Prominent players profiled in this report include Universal Robots A/S (Denmark), FANUC Corporation (Japan), ABB (Switzerland), Techman Robot Inc (Taiwan), KUKA AG (Germany), Doosan Robotics Inc. (South Korea), Denso Corporation (Japan), Yaskawa Electric Corporation (Japan), AUBO (Beijing) Robotics Technology Co., Ltd (China), and Rethink Robotics GmbH (US). Other players include Omron Adept Technologies, Inc. (US), Franka Emika GmbH (Germany), Comau S.p.A. (Italy), F&P Robotics AG (Switzerland), Staubli International AG (Switzerland), Bosch Rexroth AG (Germany), Productive Robotics, LLC (US), Wyzo (Switzerland), Neura Robotics

GmbH (Germany), Elephant Robotics (China), Elite Robot (China), Kassow Robots (Denmark), Siasun Robot & Automation Co. Ltd. (China), MIP Robotics (France), Hanwha Corporation (South Korea), Kawasaki Robotics (US), Dobot Robotics (China), Jaka Robotics (China), Huiling-Tech Robotic Co, Ltd (HITBOT) (China) is among a few emerging companies in the collaborative robot market.
Research Coverage: This research report categorizes the collaborative robot market based on payload, component, application, industry, and region. The report describes the major drivers, restraints, challenges, and opportunities pertaining to the collaborative robot market and forecasts the same till 2029. The report also consists of leadership mapping and analysis of all the companies in the collaborative robot market ecosystem.
Key Benefits of Buying the Report The report will help the market leaders/new entrants in this market with information on the closest approximations of the revenue numbers for the overall collaborative robot market and the subsegments. This report will help stakeholders understand the competitive landscape and gain more insights to position their businesses better and plan suitable go-to-market strategies. The report also helps stakeholders understand the market pulse and provides information on key market drivers, restraints, challenges, and opportunities.
The report provides insights on the following pointers:
□□Analysis of key drivers (High return on investment compared to traditional industrial robotic systems, Increased demand in e-commerce and logistics industries, Providing benefits to businesses of all sizes, Increased ease of programming collaborative robots), restraints (Higher preference to low payload capacity traditional industrial robots over cobots in heavy-duty industries), opportunities (Collaborative robots paired with AMRs and AGVs to provide a significant market opportunity, Robots-as-a-Service model to accelerate adoption of collaborative robots, Growing demand for automation in healthcare industry) and challenges (Payload and speed limitations of collaborative robots owing to their inherent design, Adaption to the new collaborative robot standards and rise in cybersecurity challenges in connected robots) influencing the growth of the collaborative robot market.
□□Product Development/Innovation: Detailed insights on upcoming technologies, research & development activities, and new product & service launches in the collaborative robot market.
□□Market Development: Comprehensive information about lucrative markets - the report analyses the collaborative robot market across varied regions.
□□Market Diversification: Exhaustive information about new products & services, untapped geographies, recent developments, and investments in the collaborative robot market market
□□Competitive Assessment: In-depth assessment of market shares, growth strategies, and service offerings of leading players like Universal Robots A/S (Denmark), FANUC Corporation (Japan), ABB (Switzerland), Techman Robot Inc (Taiwan), KUKA AG (Germany), AUBO (Beijing) Robotics Technology Co., Ltd (China), among others in the collaborative robot market.

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