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WILMINGTON, DELAWARE, DENMARK, October 25, 2024 /EINPresswire.com/ -- Growing need for low-cost articulated robots that collaborate with humans.

The increase in need for cost-effective articulated robots capable of interacting with humans is driven by a variety of causes that change the industrial environment. One significant driver is the demand for more adaptable automation systems that easily integrate into dynamic surroundings, especially in industries where traditional, task-specific robots are prohibitively expensive.

Small and medium-sized businesses (SMEs) are increasingly looking for cost-effective automation solutions to boost production without paying costly upfront spending. This need is in line with recent technological improvements, such as enhanced sensors, actuators, and manufacturing techniques such as 3D printing, which are helping to build more cost-effective articulated robots. Collaborative work settings that promote the safe collaboration of people and robots increase the demand for low-cost robots with greater safety features.

According to the report, the global articulated industrial robot industry generated \$21.151.1 million in 2022 and is anticipated to generate \$92.081.2 million by 2032, witnessing a CAGR of 15.7% from 2023 to 2032.

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The 6-Axis robot segment maintains its leadership status throughout the forecast period.

By robot type, the 6-Axis Robot segment held the highest market share in 2022, accounting for more than two-fifths of the global <u>articulated industrial robot market</u> revenue and is estimated to maintain its leadership status throughout the forecast period. It offers the versatility, durability, and range necessary to carry out a wide variety of tasks such as welding automation, material handling, material removal, and painting.

Six-axis robots have the capability to navigate through the x, y, and z axes. Furthermore, they are capable of executing roll, pitch, and yaw movements. This similarity to the human arm makes them well-suited for taking on assembly line duties. With an extended range of motion, six-axis robots can handle a wider array of robotic tasks. Each axis provides an individual movement or degree of freedom, enabling a robotic arm to reach a specified point.

The 10kg to 100kg segment maintains its leadership status throughout the forecast period.

By load capacity, the 10kg to 100kg segment held the highest market share in 2022, accounting for more than two-fifths of the global articulated industrial robot market revenue and is estimated to maintain its leadership status throughout the forecast period. The robots with articulated design, which are characterized by having multiple joints that provide a high level of freedom, are suitable for a wide range of tasks such as handling materials, welding, assembly, and painting.

Industries such as manufacturing, automotive, electronics, and logistics have experienced a consistent increase in the adoption of these robots, taking advantage of their precision and efficiency. These robots excel in tasks such as handling materials, moving and placing components, welding and fabrication processes, assembly tasks, as well as painting and coating applications. The demand for these robots is driven by the ongoing automation trends, as companies aim to improve productivity, reduce costs, and enhance overall operational efficiency. The continuous growth in demand is also supported by technological advancements, including improved sensors, control systems, and collaborative features.

The assembly segment maintains its leadership status throughout the forecast period.

By application, the assembly segment held the highest market share in 2022, accounting for onethird of the global articulated industrial robot market revenue and is estimated to maintain its leadership status throughout the forecast period. The rise in demand for articulated robots in assembly functions is driven by the necessity for both speed and accuracy in production lines. These robots have the ability to streamline the assembly process, reduce cycle times, and enhance overall product quality.

Moreover, the advancements in collaborative robotics and human-robot collaboration (HRC) have played a significant role in the increased adoption of articulated robots in assembly. This allows them to work alongside human operators in a cooperative and safe manner. As a result, the demand for articulated industrial robots for assembly functions is projected to increase. The integration of smart sensors, artificial intelligence, and machine learning further amplifies the capabilities of these robots, making them indispensable in meeting the evolving requirements of modern manufacturing.

Driving Demands:

Articulated robots play an important part in complicated automation and industrial operations. They are particularly useful in dangerous environments, where they successfully replace human work. As embedded computers, complex sensors, and microelectronics need precision assembly at the micro- and nanoscale, the articulated industrial robots have begun to replace laborintensive techniques that are improper for such sensitive machines.

Furthermore, technological improvements have a significant impact on the articulated industrial robot industry, as they assist to provide increased capabilities, efficiency, and a larger range of applications. These potential opportunities in articulated industrial robot market are enhanced by necessary developments, such as advances in sensor technology that increase the precision and accuracy of robot motions. Progress in programming languages and control systems enables more complex and simpler task programming, allowing operators to quickly adapt robots to a variety of applications. The combination of artificial intelligence (AI) with machine learning allows robots to learn, adapt, and improve performance over time, which is especially useful in dynamic situations.

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