

Asia Pacific Robotic Welding Cell Market Size and Forecast (2021 - 2031), Regional Share, Trend, and Growth Opportunity Analysis Report Coverage: By Offering (Solution and Services), Cell Type (Pre-Engineered Cells and Custom Cells), and End-Use Industry (Automotive, Manufacturing, and Aerospace and Defense)

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Abstracts

The Asia Pacific robotic welding cell market is projected to grow significantly, reaching an estimated US\$ 2,653.37 million by 2031, up from US\$ 1,042.16 million in 2023. This growth represents a compound annual growth rate (CAGR) of 12.4% from 2023 to 2031.

Executive Summary and Market Analysis

The market for robotic welding cells in the Asia Pacific region is divided into several key countries, including China, India, Japan, Australia, South Korea, and other parts of APAC. The adoption of robotics technology is on the rise in this region, driven by the need to automate processes, enhance efficiency and productivity, and minimize human errors. Various sectors, particularly automotive, healthcare, defense, and aerospace, are increasingly integrating robotics for process automation and effective resource management.

Among these sectors, the automotive industry stands out as the largest user of industrial robots in Asia Pacific. In fact, the region is recognized as the largest automotive market globally. According to the International Organization of Motor Vehicle Manufacturers, Asia Pacific accounted for approximately 60% of the total global vehicle

production in 2023. This substantial scale of the automotive sector is a primary driver of demand for industrial robots, including robotic welding cells.

Additionally, the aging population in countries like China and Japan is fueling the demand for service robots, which further contributes to the growth of the robotic welding cell market. The increasing application of robots across various industries, such as entertainment, education, and healthcare, also supports this market expansion. Notably, the service robot manufacturing sector is a significant end user of robotic welding cells. As reported by the International Federation of Robots in October 2024, China ranks second globally in the number of service and medical robot manufacturers, boasting 107 such manufacturers, surpassing the entire European continent. This growing demand for service robots, coupled with the booming automotive industry, is propelling the need for robotic welding cells.

Strategic Insights

Market Segmentation Analysis

The Asia Pacific robotic welding cell market can be segmented based on offering, cell type, and end-use industry:

Offering: The market is divided into solutions and services, with the solutions segment holding a larger market share in 2023.

Cell Type: The market is categorized into pre-engineered cells and custom cells, where pre-engineered cells dominated the market share in 2023.

End-Use Industry: The market is segmented into automotive, manufacturing, and aerospace and defense, with the manufacturing sector holding the largest share in 2023.

Market Outlook

The integration of artificial intelligence (AI) and machine learning (ML) is transforming various industries, including welding. By incorporating AI, welding systems can become smarter and more adaptable. Key applications of AI in welding include weld defect detection, adaptive welding, and path planning. Quality control is crucial in welding processes, as defects can compromise the strength and safety of the final product. AI

and ML technologies can facilitate real-time defect detection, identifying issues such as cracks, incomplete welds, and porosity. Furthermore, these technologies can continuously learn and improve processes by analyzing real-time and historical data.

AI also enhances adaptive welding, where traditional manual adjustments of welding parameters like joint geometry, current, voltage, and travel speed can be optimized automatically in real-time. This trend is leading many technology providers and robotic welding cell manufacturers to develop innovative AI-integrated solutions. For instance, Novarc Technologies launched the NovEye Autonomy Gen 2 in July 2024, an intelligent robotic system equipped with AI computer vision technology that offers adaptive welding capabilities. The automation of robotic welding is expected to introduce new trends in the industry, significantly increasing the demand for AI-integrated robotic welding cells in the near future.

Country Insights

The Asia Pacific robotic welding cell market includes key countries such as Australia, China, India, Japan, South Korea, and the rest of Asia Pacific, with China holding the largest market share in 2023. China is a leader in the industrial robot market within Asia Pacific, accounting for about 50% of total industrial robot installations in the region, according to the International Federation of Robotics. This high demand for robotic welding cells is primarily driven by China's robust manufacturing sector, which includes eight major manufacturing hubs: Shanghai, Shenzhen, Hong Kong, Ningbo, Qingdao, Guangzhou, Hangzhou, and Tianjin. China is a global leader in manufacturing across various sectors, including consumer electronics, automotive, shipbuilding, cosmetics, and industrial machinery. In 2023, China's vehicle production reached 30 million units, a 23% increase from 25 million units in 2019, further underscoring the growth of the automotive industry and the corresponding demand for robotic welding cells.

Company Profiles

Key players in the Asia Pacific robotic welding cell market include ABB Ltd, Acieta, Carl Cloos Schweisstechnik GmbH, Lincoln Electric Holdings Inc, Kuka AG, Kawasaki Heavy Industries Ltd, Phoenix Industrial Solutions, WEC Group Ltd, Yaskawa America Inc, Zeman Bauelemente Produktionsgesellschaft mbH, Fanuc Corp, Fronius International GmbH, ESAB, OTC DAIHEN, Kemppi Oy, Panasonic Holdings Corp, and Universal Robots A/S. These companies are pursuing various strategies, including expansion, product innovation, and mergers and acquisitions, to enhance their market presence and offer innovative solutions to their customers.

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