

# Torque Sensor Industry Poised for 5.8% CAGR Growth, Reaching US\$ 15,156.3 Million by 2034

*The rising adoption of torque sensors in the renewable energy sector for enhanced monitoring and optimization of rotating equipment is driving growth in market.*

ROCKVILLE, MD, UNITED STATES, March 5, 2025 /EINPresswire.com/ -- The global [torque sensor market](#) is projected to be worth US\$ 8,601.2 million in 2024. The industry is likely to surpass US\$ 15,156.3 million by 2034.

The adoption of torque sensors is likely to rise at a CAGR of 5.8% through 2034. The torque sensor industry is propelled by the surging importance of precision in various sectors. As industries increasingly prioritize efficiency, torque sensors play a pivotal role in ensuring optimal performance by providing real-time measurements of rotational forces.

The growing integration of these sensors in robotics, automotive systems, and industrial machinery underscores their importance in enhancing operational accuracy. Additionally, the expanding applications in emerging sectors like medical devices and aerospace contribute to the industry's robust growth. The pursuit of miniaturization, improved data analytics, and integration with other sensors intensifies the technological race among industry players.

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The torque sensor market faces challenges associated with cost implications and technological complexity. High initial investment and operational costs pose hurdles for small and medium-sized enterprises (SMEs), limiting their ability to adopt advanced torque sensing technologies. The intricate nature of these technologies introduces barriers related to specialized skills and training requirements. This creates a potential bottleneck in industries or businesses lacking the necessary expertise, hindering the widespread adoption of torque sensors and limiting market



expansion.

The torque sensor market finds opportunities in the rising demand for non-contact torque sensors and their applications in renewable energy. Non-contact torque sensors eliminate physical contact with rotating shafts, gain traction due to reduced wear, have higher accuracy, and require minimal maintenance. Technological advancements focus on miniaturization, integration with other sensors, and advanced data analytics capabilities, enhancing precision and efficiency.

Application diversification beyond traditional industrial uses, extending into medical, robotics, and automotive sectors, broadens the market scope. Players seek strategic partnerships and acquisitions to expand reach, acquire new technologies, and cater to evolving markets. Cost optimization remains a critical trend, balancing high-precision sensor pricing with the demand for cost-effective solutions, ensuring a broader customer base.

"The rising renewable energy sector, particularly wind and solar power, emerges as a significant growth avenue for players in the torque sensor market. Global initiatives towards sustainable energy solutions also present lucrative opportunities for start-ups to enhance their market position," says a Fact.MR analyst.

#### Key Takeaways from the Market Study

The torque sensor market continues to witness significant growth, with North America securing a substantial market share of 28.6% in 2024, reaching an estimated valuation of US\$ 2,459.9 million. Meanwhile, East Asia dominates the industry, holding a 36.5% share and a market value of US\$ 3,139.4 million in 2024. Mexico's torque sensor market is forecasted to expand at a CAGR of 7.6% through 2034, driven by its rapidly growing industrial sector, which increasingly relies on advanced sensor technologies for automation and efficiency.

Among the key application areas, the medical and healthcare segment plays a vital role in the adoption of torque sensors, holding a 31.5% market share in 2024. This highlights the growing demand for precision healthcare applications, where torque sensors are essential for robotic-assisted surgeries, prosthetics, and medical device testing. Additionally, in terms of mechanical configuration, flange-style torque sensors remain the most preferred, accounting for an impressive 77.3% share in 2024. Their adaptability and cost-effectiveness make them a popular choice across various industries, including automotive, aerospace, and industrial automation. These trends indicate strong market momentum, with continued technological advancements fueling future growth.

#### Competitive Landscape of the Torque Sensor Market

Established industry players clash with startups in a constant battle of innovation and adaptation in the competitive torque sensor market, where precision is paramount. Players like Honeywell,

TE Connectivity, and NXP Semiconductors wield their size, scale, and global influence to cater to diverse applications. Their emphasis on reliability, precision, and strategic partnerships solidifies their positions at the pinnacle of the market. NXP Semiconductors, in particular, stands out with its integration of artificial intelligence into torque sensors, showcasing a commitment to technological innovation.

On the other hand, startups like Sensor Technology Ltd., Mesa Laboratories, and Sensirion focus on agility and niche expertise. These companies specialize in high-precision torque sensors for specific applications, such as robotics, aerospace, and industrial automation. Their focus on customization, reliability, and energy efficiency allows them to carve out spaces in niche markets and foster strong customer relationships.

Established giants leverage economies of scale and invest in research and development, while nimble upstarts focus on niche markets, customization, and competitive pricing. The torque sensor market also presents enticing opportunities for new entrants, encouraging specialization in applications, adoption of innovative technologies, and the development of cost-effective solutions tailored to specific market segments.

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**Direct Energy Weapon Market:** The global direct energy weapon market size is projected to reach a size of US\$ 8.43 billion in 2024, as per the latest industry analysis published by Fact.MR. Worldwide sales of direct energy weapons (DEWs) are forecasted to rise at a noteworthy CAGR of 18.6% and reach US\$ 46.4 billion by the end of 2034.

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