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Aerospace Torque Sensor Market By Type (Rotary Torques Sensor, Non Contacting Torque Sensor), By Technology (Strain Guage, Surface Acoustic Wave (SAW), Optical, Magnetoelastic), By Application (Airliner, General Aviation, Business Aircraft, Others): Global Opportunity Analysis and Industry Forecast, 2025-2034

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Abstracts

Aerospace torque sensors are precision devices designed to measure the rotational force or torque applied to shafts and components in aircraft s. They are essential for monitoring engines, gearboxes, rotor assemblies, actuation mechanisms, and other critical drivetrain components across commercial, business, general aviation, and military aircraft. These sensors can be contact-based, such as strain gauge and rotary torque sensors, or non-contact, including surface acoustic wave (SAW), optical, and magnetoelastic technologies, depending on application requirements.

For instance, in January 2023, Honeywell announced a new line of high-precision torque sensors designed for commercial aircraft engines, enhancing real-time monitoring, drivetrain validation, and predictive maintenance in aerospace applications. Moreover, in March 2023, Applied Measurements released a miniaturized torque sensor specifically for UAV applications, offering precise torque measurement in compact, lightweight designs essential for aerospace propulsion s and rotor monitoring.

In addition, Aerospace torque sensors provide real-time, high-accuracy data for both static and dynamic torque loads, supporting design, testing, certification, and in-service monitoring. Their integration with digital twins, IoT platforms, and predictive maintenance s enables enhanced performance optimization, early fault detection, and

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reduced downtime. With the growing adoption of UAVs, eVTOL aircraft, and more-electric aircraft, aerospace torque sensors are becoming increasingly critical for ensuring safety, reliability, and efficiency, making them indispensable in modern aviation operations.

Advancements in sensor technology, including miniaturization, non-contact measurement, and improved accuracy, are driving demand for aerospace torque sensors, enabling precise monitoring of engines, gearboxes, and rotor s while supporting predictive maintenance and enhanced operational efficiency across aerospace platforms. Furthermore, rise in demand for predictive maintenance, and integration with digital twins and iot platforms have driven the demand for the aerospace torque sensor market.

However, the complex calibration and stringent certification requirements in the aerospace industry are hampering the demand for torque sensors. Extensive testing, precise calibration, and regulatory compliance increase time and costs, limiting adoption, particularly in cost-sensitive segments, despite the sensors? benefits in real-time monitoring, predictive maintenance, and operational efficiency. Furthermore, High Cost of Advanced Sensors is hampering the growth of the aerospace torque sensor market. On the contrary, the integration of aerospace torque sensors with smart aircraft s presents a lucrative opportunity, enabling real-time monitoring, predictive maintenance, and enhanced performance optimization. These sensors support digital twins, IoT platforms, and more-electric aircraft, ensuring reliability, efficiency, and safety, thereby driving adoption across commercial, UAV, and eVTOL aerospace applications.

The Aerospace Torque Sensor market is segmented on the basis of type, technology, application, and region. On the basis of type, the market is divided into rotary torque sensors, and non-contacting torque sensor. By technology, it is segmented into strain acoustic wave (SAW), optical, magnetoelastic. On the basis of application, it is categorized into airliner, general aviation, business aircraft, and others. Region wise, it is studied across North America, Europe, Asia-Pacific, and LAMEA.

The report analyses the profiles of key players operating in the aerospace torque sensor market such as Honeywell International Inc., TE Connectivity Ltd., Kistler Instrumente AG (Kistler Group), FUTEK Advanced Sensor Technology Inc., HBM Test and Measurement, Applied Measurements Ltd., Sensor Technology Ltd., Crane Electronics Ltd., ABB Ltd., PCB Piezotronics, Inc. These players have adopted various strategies to increase their market penetration and strengthen their position in the aerospace torque

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sensor market.

Key Benefits for Stakeholders

The study provides an in-depth analysis of the global aerospace torque sensor along with the current & future trends to illustrate the imminent investment pockets.

Information about key drivers, restraints, & opportunities and their impact analysis on the global aerospace torque sensor size are provided in the report.

Porter?s five forces analysis illustrates the potency of buyers and suppliers operating in the industry.

The quantitative analysis of the global aerospace torque sensor from 2024 to 2034 is provided to determine the market potential.

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Technology Trend Analysis

Regulatory Guidelines

Additional company profiles with specific to client's interest

Market share analysis of players at global/region/country level

Key Market Segments By Type

Non Contacting Torque Sensor

Rotary Torques Sensor

By Technology

Strain Guage

Magnetoelastic

Optical

Surface Acoustic Wave (SAW)

By Application

Airliner

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- General Aviation
- Business Aircraft
- Others

By Region

- North America
  - U.S.
  - Canada
  - Mexico
- Europe
  - UK
  - France
  - Germany
  - Italy
  - Spain
  - Rest of Europe
- Asia-Pacific
  - China
  - Japan
  - India

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South Korea

Rest of Asia-Pacific

LAMEA

Latin America

Middle East

Africa

Key Market Players

Crane Electronics Ltd.

TE Connectivity

Applied Measurements Ltd.

Kistler Group

PCB Piezotronics, Inc.

Sensor Technology Ltd.

Honeywell International Inc.

ABB

FUTEK Advanced Sensor Technology, Inc.

Hottinger Bruel & Kjaer

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