

Inertial Systems in Marine Applications - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts (2025 - 2030)

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Report description:

The Inertial Systems Market in Marine Applications Industry is expected to register a CAGR of 10.31% during the forecast period.

Key Highlights

- MEMS-based solutions have gained popularity in the navigation sector over the past few years due to improved error characteristics, environmental stability, increased bandwidth, improved g-sensitivity, and the growing accessibility of embedded computing power to run sophisticated fusion and sensor error modeling algorithms. Vendors are switching from FOG to MEMS technology, and antenna array stabilization applications appear to follow suit.
- The cost differential between MEMS-based systems and conventional FOG or RLG navigation systems, which cost over USD 30,000 instead of USD 1,000 for MEMS-based navigation systems, is one of the main factors driving growth in MEMS-based systems. However, compared to other systems on the market, FOG- and RLG-based solutions provide more precision.
- The market is also being driven by an increase in applications based on motion sensing. The ongoing downsizing of sensors and related components is concentrating progress toward sophisticated function sensors. For instance, Xsens improved versions of its motion-sensing Inertial Measurement Unit (IMU) modules from the MTi 1-series, which offer improved roll, pitch, and yaw measurement accuracy and higher tolerance of mechanical stress compared to the first generation of the product in various energy and infrastructure projects.
- The price of INS systems, including purchase, operation, and maintenance, is a drawback. Other drawbacks include heat dissipation and escalating navigational mistakes over time. The size, weight, and power criteria are still greater than those for GPS receivers, although they decrease over time as technology advances.
- Numerous commercial and non-commercial operations have been put on hold due to the COVID-19 outbreak. The shipping and maritime sector is one of the businesses severely impacted by the outbreak. Since their workforces have been curtailed for safety reasons and to stop the spread of COVID-19, the pandemic has left the shipping and maritime sectors in the worst conceivable

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position.

Marine Applications Inertial Systems Market Trends

Evolving Need for High-Accuracy Inertial Systems Driving the Growth of the Market

- Marine inertial systems provide orientation, position, and velocity data to unmanned marine and maritime systems, such as autonomous underwater vehicles (AUVs), unmanned underwater vehicles (UUVs), unmanned surface boats, and remotely operated vehicles (ROVs). Since autonomous surface and underwater navigation depend on exact heading, velocity, pitch, roll, and location data, marine INS is essential. They also help UUVs and USVs maintain their station and stability in choppy waters while providing information to ROV operators on where their craft should be.
- Silicon Sensing Systems, for instance, has a long history of using these technologies to meet the demands of quickly expanding offshore sectors. The company designs and manufactures industry-leading MEMS-based inertial sensors for a range of high-tech applications. The systems required to monitor and control precise motion and position on ships, submarines, and other maritime vehicles include MEMS inertial sensors.
- The development of MEMS technology and the increased demand for navigational accuracy can be credited with the growth of inertial systems. A sizeable market share is anticipated for navigational systems. Inertial measurement units (IMUs) utilized for naval applications have bias stability of 0.05-0.5 /h for short-term navigation and 0.0001-0.01 /h for high-grade navigation.

Asia-Pacific is Expected to be the Fastest-Growing Region in the Market

- The Asia-Pacific region includes China and India, two of the world's economies with the highest growth rates. Commercial interactions between these nations, whose maritime routes make up the majority of international commerce, drive the growth of the marine transportation business.
- Trends in container port-handling operations worldwide show Asia's dominant global trade and transportation position. Asian countries are seeing a major increase in intra-regional trade, mostly driven by manufacturing trade and reflecting dispersed production processes where components are produced in many locations throughout Asia and assembled in another.
- Most of the increased demand came from Asia, helped by ongoing changes to energy policy and expanded export capacity in Australia and the United States. New, high-performance accelerometers are developing in the region as businesses invest in creating complex and innovative accelerometers. Trade is expected to increase, boosted by marine transportation.

Marine Applications Inertial Systems Industry Overview

The market is partially fragmented due to the presence of various inertial systems solution providers. However, vendors consistently focus on product development to enhance their visibility and global presence. The companies are also undergoing strategic partnerships and acquisitions to gain market traction and increase market share. The key players are Honeywell International Inc., Bosch Sensortec GmbH, Northrop Grumman Corporation, ST Microelectronics, etc.

- September 2022 - Groupe Gorge announced that the acquisition of iXblue was a significant accomplishment. The merger between ECA Group and iXblue will help in the emergence of a European high-tech industrial leader in robotics, marine, navigation, aerospace, and photonics. Customers will receive a special offer from iXblue and ECA Group that ranges from simple

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components to intricate systems to support important operations in challenging terrain.

Additional Benefits:

- The market estimate (ME) sheet in Excel format
- 3 months of analyst support

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