

# **Marine Engines Market Assessment, By Product Type [Two-stroke engines, Four-stroke engines, Others], By Fuel Type [Heavy Fuel Oil, Intermediate Fuel Oil, Others], By Power Range [Light Duty (Up to 250 HP), Medium Duty (250 to 750 HP), Heavy Duty (750 HP to 3,000 HP), High-Power Marine Engines (Above 3,000 HP)], By Application [Bulk, Container, Cruise, Ferry, Others], By Region, Opportunities and Forecast, 2016-2030F**

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## **Abstracts**

Global Marine Engines Market size was valued at USD 12.46 billion in 2022 which is expected to reach USD 18.75 billion in 2030 with a CAGR of 5.24% for the forecasted period between 2023 and 2030.

Marine engines offer crucial advantages, enhancing maritime transportation efficiency and reliability. These engines are crucial for powering various vessels and ensuring seamless navigation and transportation of goods. The marine engines market is propelled by the escalation of global trade, expanding commercial shipping activities, rising demand for sustainable marine fuels, and the rising demand for energy-efficient and environmentally friendly propulsion systems. Additionally, technological advancements, stringent emission regulations, and the need for enhanced fuel efficiency contribute to the market's growth, fostering innovation in marine engine design and manufacturing.

The surge in demand for sustainable marine fuels is fueled by growing environmental consciousness and stringent emissions regulations in the maritime sector. Moreover,

industry is adopting cleaner alternatives such as biofuels and hydrogen-based fuels to curb greenhouse gas (GHG) emissions, aligning with international efforts to achieve eco-friendly and sustainable maritime operations.

For instance, in September 2022, Rolls-Royce achieved a significant step towards eco-friendly shipping by approving its Series 2000 and Series 4000 mtu marine diesel engines for sustainable fuels in 2023. After successful tests, the power systems unit planned to approve these engines for EN15940 synthetic diesel fuels, including BtL, HVO, and PtL-like e-diesel. These alternatives can seamlessly replace conventional fossil petroleum-based diesel in these engines without any sort of modifications.

### The Prevalence of Two and Four-Stroke Engines are Propelling Market Growth Extensively

Marine diesel engines, whether two-stroke or four-stroke, are vital in maritime operations. 2-stroke engines excel in power-to-weight ratios, making them suitable for large vessels like container ships. Meanwhile, 4-stroke engines are prioritized for fuel efficiency and lower emissions, making them ideal for diverse applications. Both engine types contribute significantly to maritime transport, offering a balance between power and environmental considerations, crucial for the global shipping industry's efficiency, reliability, and sustainability. As per Nautilus Shipping, approximately 75% of marine engines belong to the four-stroke category, yet two-stroke engines generate 75% of the total power share in the marine engine sector.

### The Rise in Preference for Heavy Fuel Oil is Fostering Market Growth

The demand for crude oil, particularly heavy fuel oil, influences the market for marine engines. As a primary fuel source for maritime vessels, heavy fuel oil powers marine engines, propelling ships across the globe. Despite environmental concerns associated with its combustion, its widespread availability and cost-effectiveness contribute to its continued use. The market's impeccable reliance on heavy fuel oil reflects the balance between energy efficiency, economic considerations, and the ongoing quest for more sustainable alternatives in the maritime industry.

For instance, in March 2023, The Indian Oil Corporation (IOCL), a government-owned entity, entered into a term agreement with the Russian oil giant Rosneft to boost crude oil trading between the two nations. Additionally, discussions occurred regarding the possibility of conducting transactions for India's crude oil purchases from Russia using their respective national currencies.

## Maritime Transportation: A Cornerstone of Global Trade with Growing Prospects for Marine Engines

Global trade heavily relies on maritime transportation, where various watercraft, including engine-driven boats, fall under the category of marine vehicles utilizing marine engines. These vehicles serve diverse purposes, encompassing commercial, security, and private uses. Ocean shipping is the predominant mode of transportation for international trade, with approximately 80% of globally traded commodities' volume being transported by water, a percentage even higher for many developing nations, as reported by UNCTAD. Compared to air, rail, and road transport, maritime transportation is a more cost-effective and practical choice for international trade. Projections indicate a modest annual growth in the world's marine engines from 2022 to 2026.

## The Advent of Highly Advanced Maritime Sensors is Expected to Cater to Extensive Opportunities

The emergence of cutting-edge maritime sensors will create significant opportunities within the marine engines market. These advanced sensors are poised to revolutionize the industry by offering enhanced capabilities and functionalities. Their integration into marine engines is expected to unlock extensive prospects for improved maritime operations performance, efficiency, and safety. This transformative development signifies a pivotal shift towards leveraging advanced technologies to meet the evolving demands and challenges in the marine engines market, thereby shaping a future of increased innovation and efficiency.

For instance, in June 2023, Northrop Grumman Corporation secured a production contract from the United States Navy for the advanced AN/WSN-12 Inertial Sensor Module (ISM). This next-generation sensor, designed for both surface ships and submarines, enhances maritime navigation in areas where Global Positioning System (GPS) signals are unavailable. The AN/WSN-12 ISM promises increased precision and performance for military personnel by providing advanced capabilities in GPS-denied environments.

## Asia Pacific's Pivotal Role: Driving Global Marine Engines Market with Economic Growth and Technological Advancements

Asia Pacific's dominance in the global marine engines market is attributed to its robust economic growth, flourishing maritime trade, and expanding industrialization. The

region's thriving shipbuilding sector, supported by major players, technological advancements, and proactive governmental initiatives promoting maritime infrastructure, has fueled its leadership. In terms of demand, production capabilities, and innovation, Asia Pacific stands out from the rest, thereby shaping the overall trajectory of the marine engines market. This comprehensive leadership emphasizes the region's pivotal role in steering the industry forward, thereby positioning it as a key driver of global maritime technologies and solutions.

For example, in January 2023, China developed the largest marine engine globally, weighing 2,140 tons and delivering 64,000 kilowatts of power. Utilizing natural gas as its primary fuel source, the engine exhibits significantly reduced exhaust emissions, demonstrating increased environmental friendliness.

### Government Initiatives

Government initiatives are vital for the marine engine market's progress. They ensure adherence to regulations and encourage innovation in the maritime sector. These actions support the industry by promoting sustainable practices, meeting stringent emission standards, and advancing research and development. Moreover, government backing is key in enhancing the market's competitiveness and resilience. It creates an environment favorable to technological advancements by investing a hefty sum of money, amplifying market growth.

In July 2023, the Indian government announced an investment worth USD 121.95 billion in the country's maritime sector. The government also declared India's proactive efforts in developing 5,000 kilometers of multi-country waterways, a substantial initiative to enhance maritime trade and transportation connectivity throughout the nation.

### Impact of COVID-19

Before the COVID-19 pandemic, the global marine engines market was on a growth trajectory, due to increasing maritime trade and technological advancements. However, the outbreak led to a severe contraction, disrupting supply chains, delaying projects, and reducing the demand for marine transportation. In the post-COVID-19 scenario, the market gradually recovers as vaccination efforts progress and global trade rebounds. Moreover, the industry is adapting and integrating digital technologies for remote monitoring and maintenance, enhancing operational efficiency. Furthermore, there is an increased focus on sustainability, with stringent emission regulations, which is driving the demand for eco-friendly marine engines. The present situation reflects a robust

industry steering through the adversities via innovation, sustainability measures, and an evolving economic landscape.

### Impact of Russia-Ukraine War

The Russia-Ukraine war had a significant impact on the marine engine market. The conflict has raised geopolitical uncertainties, affecting international trade routes and maritime activities. Disruptions in the supply chain, particularly with key manufacturers and suppliers in the region, have led to challenges in production and delivery schedules for marine engines. Fluctuating fuel prices, driven by geopolitical tensions, further add to the market's volatility. Additionally, the conflict has prompted a reassessment of strategic priorities, potentially influencing investments in naval capabilities and defense-related maritime technologies. As the situation evolves, the market is navigating uncertainties, with potential shifts in demand, supply dynamics, and geopolitical considerations.

### Key Players Landscape and Outlook

The marine engines industry is rapidly advancing as leading companies amplify their investments in maritime sensors, heavy fuel oil, and related technologies. Furthermore, these enterprises commit substantial resources to elevate their market footprint and bolster profitability. Actively engaging in collaborations, acquisitions, and partnerships, these companies are reshaping the industry's landscape and accelerating the market's overall expansion.

In July 2023, MAN Energy Solutions S.E., MAN Energy Solutions, a multinational engine company based in Germany, reported the successful trial of a novel marine combustion engine powered entirely by ammonia. This engine, designed for deployment on sizable commercial and merchant marine vessels, offers a sustainable alternative to conventional carbon-emitting gas and diesel engines, aligning with the shipping industry's efforts to support a global net-zero agenda. MAN Energy Solutions, known for producing traditional engines, contributes to environmentally conscious advancements in maritime propulsion technology.

In July 2023, in Istanbul, Turkey, GE Marine forged an agreement with TAIS OG-STM ?? Ortakl??? to provide the LM2500 marine gas turbine engine enclosed in an innovative lightweight composite structure for the ?stif-Class frigates, specifically designated as vessels 6, 7, and 8 within the Turkish MILGEM Project. The adoption of this composite enclosure, previously featured on the United States Navy's USS Santa

Barbara, signifies a significant upgrade chosen by the Turkish Navy for the redesigned frigates over the conventional steel engine enclosure, presenting a range of distinct advantages.

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\*Companies mentioned above DO NOT hold any order as per market share and can be

changed as per information available during research work.

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