Dual Fuel Engine Market by Type (Four-Stroke Dual-Fuel Engines, Two-Stroke Dual-Fuel Engines), End User (Marine, Power Generation), and Region 2025-2033

Market Report | 2025-03-01 | 138 pages | IMARC Group

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Report description:

The global dual fuel engine market size reached USD 4.2 Billion in 2024. Looking forward, IMARC Group expects the market to reach USD 14.4 Billion by 2033, exhibiting a growth rate (CAGR) of 13.93% during 2025-2033. The market is growing rapidly, driven by the imposition of stringent environmental regulations by governments, heightened awareness about the product's fuel flexibility and cost-effectiveness, rising concerns regarding energy security, rapid technological advancements, and widespread product utilization in the marine and power generation sectors.

A dual-fuel engine is an internal combustion (IC) engine that operates using a mixture of two different fuels. It runs on primary (main) and secondary (pilot) fuel, where the primary source is typically a gaseous fuel, such as hydrogen or syngas, or natural gas, which is injected into the intake manifold. On the other hand, the secondary or pilot fuel is injected into the combustion chamber using the standard fuel injection equipment and is used to ignite the mixture. Dual fuel engines produce similar or higher state and transient performance in terms of torque, power output, and fuel conversion efficiency, reduce the environmental impact of oil and gas operation, and offer cost-effectiveness and reduced fuel consumption.

Dual Fuel Engine Market Trends:
The widespread product adoption in the automotive industry across the globe is creating a positive outlook for the market. The dual fuel engine is widely used in compression ignition (CI) engines to promote the use of more readily available gaseous fuels or more efficient, advanced combustion modes. Additionally, the increasing utilization of dual fuel engines for land-based oil and gas drilling applications, as they deliver the same power density, torque curve, and transient response as the base diesel engine, is favoring the market growth. In line with this, the launch of the dual fuel combustion system in a mining truck which includes an onboard hydrogen storage system and replaces significant volumes of diesel due to the rising environmental consciousness among the masses is acting as another growth-inducing factor. Apart from this, the integration of machine learning (ML) with dual fuel engines that are used to predict the performance and emission characteristics and predict the biogas fuel, torque, and intake temperature is providing an impetus to the market growth. Moreover, the widespread product adoption in the marine industry to

deliver excellent performance under the toughest conditions at sea and optimize vessel performance is positively influencing the market growth. Furthermore, the implementation of various government initiatives to utilize dual fuel engines for agricultural purposes due to the increasing emission levels of diesel engines is propelling the market growth. Other factors, including widespread product adoption in the power generation industry, extensive research and development (R&D) activities and various technological advancements, are anticipated to drive the market growth.

Key Market Segmentation:
IMARC Group provides an analysis of the key trends in each segment of the market, along with forecasts at the global, regional, and country levels for 2025-2033. Our report has categorized the market based on type and end user.

Type Insights:

- Four-Stroke Dual-Fuel Engines
- Two-Stroke Dual-Fuel Engines

The report has provided a detailed breakup and analysis of the dual fuel engine market based on the type. This includes four and two-stroke dual-fuel engines. According to the report, two-stroke dual-fuel engine represented the largest segment.

End User Insights:

- Marine
- Power Generation

The report has provided a detailed breakup and analysis of the dual fuel engine market based on the end user. This includes marine and power generation. According to the report, marine represented the largest segment.

Regional Insights:

- North America
- United States
- Canada
- Asia Pacific
- China
- Japan
- India
- South Korea
- Australia
- Indonesia
- Others
- Europe
- Germany
- France
- United Kingdom
- Italy
- Spain
- Russia
- Others

-Latin America
-Brazil
-Mexico
-Others
-Middle East and Africa

The report has also provided a comprehensive analysis of all the major regional markets that include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, Asia Pacific was the largest market for dual fuel engines. Some of the factors driving the Asia Pacific dual fuel engine market included extensive research and development (R&D) activities, various technological advancements, and widespread product adoption in drilling applications.

Competitive Landscape:
The report has also provided a comprehensive analysis of the competitive landscape in the global dual fuel engine market. Detailed profiles of all major companies have also been provided. Some of the companies covered include Anglo Belgian Corp., Caterpillar Inc., Cummins Inc., Daihatsu Diesel Manufacturing Co. Ltd., Heinzmann GmbH and Co. KG, Hyundai Motor Company, Kawasaki Heavy Industries Ltd., MAN Energy Solutions SE, Wartsila Corp., Yanmar Co. Ltd., etc.

Key Questions Answered in This Report:
-How has the global dual fuel engine market performed so far, and how will it perform in the coming years ?
-What are the drivers, restraints, and opportunities in the global dual fuel engine market ?
-What is the impact of each driver, restraint, and opportunity on the global dual fuel engine market ?
-What are the key regional markets ?
-Which countries represent the most attractive dual fuel engine market ?
-What is the breakup of the market based on the type ?
-Which is the most attractive type in the dual fuel engine market ?
-What is the breakup of the market based on the end user ?
-Which is the most attractive end user in the dual fuel engine market ?
-What is the competitive structure of the market ?
-Who are the key players/companies in the global dual fuel engine market ?

Table of Contents:

Kindly note that this only represents a partial list of companies, and the complete list has been provided in the report.

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