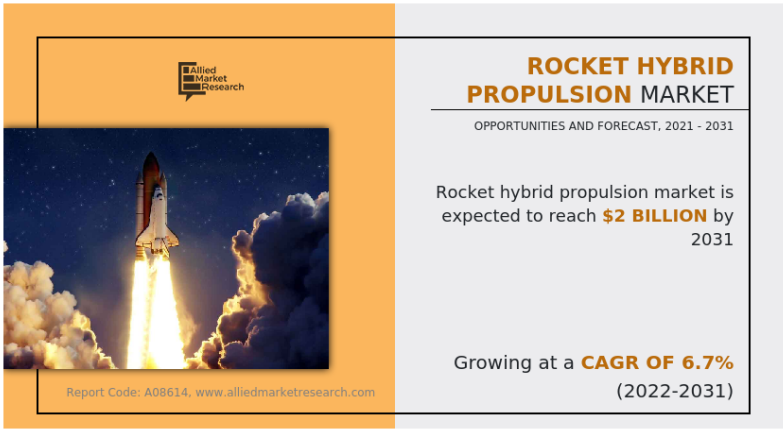
Rocket Hybrid Propulsion Market Projected Grows From $1.03 Billion in 2021 to $2.0 Billion by 2031

Space robotics market size was valued at $4.3 billion in 2021, is projected to reach $8 billion by 2031, growing at a CAGR of 6.9% from 2022 to 2031.



Rocket Hybrid Propulsion Market, 2021-2031

WILMINGTON, NEW CASTLE, DE, UNITED STATES, March 5, 2025 /EINPresswire.com/ -- According to a new report published by Allied Market Research, titled, "Rocket Hybrid Propulsion Market Size, Share, Competitive Landscape and Trend Analysis Report, by Type, by Orbit, by Component, by Vehicle Type, by End User : Global Opportunity Analysis and Industry Forecast, 2021-2031". The research provides a current evaluation of the global market landscape, highlighting recent trends, key drivers, and the overall market environment. The study examines the main factors influencing industry expansion, analyzing both its growth drivers and restraints. Additionally, it sheds light on factors expected to offer promising opportunities for development of industry in the future.

> The Rocket Motor segment is projected to dominate the global rocket hybrid propulsion market in terms of growth rate."
>
> *Roshan Deshmukh*

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Rocket hybrid propulsions used in satellite launch vehicles use a combination of two types of fuel for the combustion to take place in the satellite launch vehicle. This includes a combination of diesel, batteries, and other renewable energy. The use of hybrid propulsion systems is not new, and they have been adopted worldwide. Hybrid rockets avoid some of the restraints of solid rockets like the issue of handling the propellant used for rocket propulsion, while also avoiding some disadvantages of liquid rockets like their mechanical complexity. Moreover, it is difficult for the fuel & oxidizer to be mixed intimately, hybrid rockets

tend to fail more frequently than liquids or solids. Like liquid rocket engines, hybrid rocket motors can be shut down easily and the thrust is throttleable.

Technological advances in propulsion included the perfection of methods for casting solid-propellant charges, development of more energetic solid propellants, introduction of new structural and insulation materials in both liquid and solid systems, manufacturing methods for larger motors and engines, and improvements in peripheral hardware such as pumps, valves, engine-cooling systems, and direction controls. Hybrid rocket engines are much more efficient than the other conventional engines. Hybrid rockets are chemically and mechanically simpler and are tolerant of processing and fabrication errors. Unlike other propulsion systems, hybrids can be easily throttled/restarted as per requirement. This ensures the safety regarding the thrust termination and abort possibility. The performance of the hybrid rockets can be improved further by changing the fuel grain mixture ratio by adding additives to the fuel grain such as metals and metal hydrides, or by improving the design of the rocket nozzle. The shape of the nozzle determines the nozzle efficiency.

The global rocket hybrid propulsion market is segmented on the basis of type, orbit, component, vehicle type, end user, and region. By type, the market is divided into rocket engine, and rocket motor. By orbit, it is fragmented into low earth orbit (LEO), medium earth orbit (MEO), geostationary earth orbit (GEO), and beyond geosynchronous orbit (BGEO). By component, it is categorized into motor casing, nozzle, igniter hardware, turbopump, propellant, and others.

Based on type, the rocket engine segment held the highest share in 2021, accounting for more than half of the global hybrid propulsion market, and is expected to continue its leadership status during the forecast period. However, the rocket motor segment is expected to register the highest CAGR of 7.2% from 2022 to 2031.

Based on orbit, the Low Earth Orbit (LEO) segment accounted for the highest share in 2021, contributing to nearly half of the global hybrid propulsion market, and is expected to maintain its lead in terms of revenue during the forecast period. However, the Geostationary Earth Orbit (GEO) segment is expected to manifest the highest CAGR of 7.9% from 2022 to 2031.

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Based on vehicle type, the unmanned segment accounted for the highest share in 2021, holding nearly three-fifths of the global hybrid propulsion market, and is expected to continue its leadership status during the forecast period. However, the manned segment is estimated to grow at the highest CAGR of 7.9% during the forecast period.

Based on region, North America held the largest share in 2021, contributing to nearly half of the global hybrid propulsion market share, and is projected to maintain its dominant share in terms of revenue in 2031. In addition, the Asia-Pacific region is expected to manifest the fastest CAGR

of 7.9% during the forecast period.

Leading market players of the global hybrid propulsion market analyzed in the research include China Aerospace Science and Technology Corporation, Environmental Aeroscience Corporation, HyPrSpace, Nammo AS, Raytheon Technologies Corporation, Virgin Galactic, HyImpulse, ISRO, Northrop Grumman, PULSAR FUSION.

Analyst Review

According to the perspectives of CXOs of the leading companies, the rocket hybrid propulsion market is expected to exhibit high growth potential attributed to rapid technological advancements in rocket hybrid propulsion systems and an increase in space exploration missions. In addition, numerous countries have begun to take steps toward space missions such as the moon and mars exploration missions. Such applications may necessitate the usage of advanced rocket propulsion systems.

For instance, in September 2022, the Indian Space Research Organization (ISRO) successfully tested a hybrid motor which has led to the development of a new propulsion system for next launch vehicles. According to ISRO, the 30 kN hybrid motor tested at the ISRO Propulsion Complex (IPRC) at Mahendra Giri in Tamil Nadu is stackable and scalable. ISRO explained that using liquid fuel makes throttling easier followed by the flow rate of LOx makes it possible to restart the rocket.

Key Benefits For Stakeholders:

This report provides a quantitative analysis of the market segments, current trends, estimations, and dynamics of the rocket hybrid propulsion market analysis from 2021 to 2031 to identify the prevailing rocket hybrid propulsion market opportunities.
The market research is offered along with information related to key drivers, restraints, and opportunities.
Porter's five forces analysis highlights the potency of buyers and suppliers to enable stakeholders make profit-oriented business decisions and strengthen their supplier-buyer network.
In-depth analysis of the rocket hybrid propulsion market segmentation assists to determine the prevailing market opportunities.
Major countries in each region are mapped according to their revenue contribution to the global market.
Market player positioning facilitates benchmarking and provides a clear understanding of the present position of the market players.
The report includes the analysis of the regional as well as global rocket hybrid propulsion market trends, key players, market segments, application areas, and market growth strategies.

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Reasons to Buy This Rocket Hybrid Propulsion Market Report:

• Procure strategically important competitor information, analysis, and insights to formulate effective R&D strategies.
• Recognize emerging players with potentially strong product portfolio and create effective counter-strategies to gain competitive advantage.
• Classify potential new clients or partners in the target demographic.
• Develop tactical initiatives by understanding the focus areas of leading companies.
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