Space Propulsion - Market Share Analysis, Industry Trends & Statistics, Growth Forecasts 2017 - 2029

Market Report | 2024-02-17 | 216 pages | Mordor Intelligence

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Report description:

The Space Propulsion Market size is estimated at USD 196.14 billion in 2024, and is expected to reach USD 301.39 billion by 2029, growing at a CAGR of 8.97% during the forecast period (2024-2029).

Consistent adoption of gas-based propulsion drives to lead the segment

- To change the velocity and direction, the satellite's propulsion system plays an important role. It is also used to coordinate the position of the spacecraft in orbit. After entering into orbit, the spacecraft needs attitude control which helps to correctly align its direction with respect to the Earth and the Sun. In some cases, satellites need to be moved from one orbit, and without their ability to adjust to their orbit, the life of satellites is considered to be over. Therefore, the importance of propulsion systems is expected to drive the market growth.
- Various types of propellants are used for different purposes. Liquid propellants use rocket engines that use liquid fuel. Gas propellants can also be used but are not common due to their low density and difficulty in applying conventional pumping methods. The chemical propulsion systems that enabled movements proved to be efficient and reliable. These include hydrazine systems, single or twin propulsion systems, hybrid systems, cold/hot air systems, and solid propellants. They are used when strong thrust or rapid maneuvering is required. Therefore, chemical systems remain the space propulsion technology of choice when their total impulse capacity is sufficient to meet the mission requirements.
- Electric propulsion is commonly used to hold stations for commercial communication satellites, and it is the main propulsion of some space science missions due to their high specific impulses. Northrop Grumman Corporation, Moog Inc., Sierra Nevada Corporation, SpaceX, and Blue Origin are some of the major providers of propulsion systems. The new launch of satellites is expected to accelerate market growth during the forecast period.

The growing interest of governments and private players in space exploration have fueled the expansion of this market

- The global market for satellite propulsion systems witnessed robust growth in recent years, driven by the increasing demand for satellite deployments across various sectors. North America has emerged as a dominant player in the global space propulsion market, mainly due to the presence of established space agencies such as NASA and private companies like SpaceX, Blue Origin, and Boeing. These entities have undertaken ambitious space missions and satellite deployments, driving the demand for advanced propulsion systems. NASA is also working on the Solar Electric Propulsion project, which aims to extend the duration and capabilities of ambitious discoveries and science missions.
- Asia-Pacific has witnessed a rapid expansion of its space capabilities in recent years. Countries like China, India, and Japan have made significant strides in space technology and satellite manufacturing, positioning themselves as formidable players in the global market. In May 2022, Kongtian Dongli, a Chinese satellite electric propulsion company, secured multi-million yuan angel round financing amid a proliferation of Chinese constellation plans.
- Europe has a strong tradition of collaboration in space exploration through organizations like the ESA. ESA's partnerships with multiple member states have resulted in significant advancements in space technology, satellite manufacturing, and launch capabilities. In February 2023, IENAI SPACE, an in-space mobility provider based in Spain, received two ESA contracts within the General Support Technology Program to mature and further develop ATHENA (Adaptable THruster based on Electrospray powered by NAnotechnology) propulsion systems.

Global Space Propulsion Market Trends

Rising investment opportunities in the global space propulsion market

- The grant for research and investment has been a major driver of innovation and growth in the North American satellite launch vehicle market. It has helped to fund the development of new technologies, such as reusable launch vehicles, which have the potential to significantly reduce the cost of satellite launches. In FY2023, according to the President's budget request summary from FY2022 to FY2027, NASA is expected to receive USD 98 million for the development of Solar Electric Propulsion. In March 2021, NASA, along with Maxar Technologies and Busek Co., successfully completed a test of the 6-kilowatt (kW) solar electric propulsion subsystem.
- Additionally, in November 2022, ESA announced that it had proposed a 25% boost in space funding over the next three years to maintain Europe's lead in space projects. The ESA is asking its 22 nations to back a budget of EUR 18.5 billion for 2023-2025. In April 2023, Dawn Aerospace was awarded a contract to conduct a feasibility study with DLR (German Aerospace Center) to increase the performance of a nitrous-oxide-based green propellant for satellites and deep-space missions.
- In Asia-Pacific, the demand for space propulsion is driven by increasing space programs. In May 2022, Kongtian Dongli, a Chinese satellite electric propulsion company, announced that it had secured multi-million yuan angel round financing amid a proliferation of Chinese constellation plans. The company's main products are hall thrusters and microwave electric propulsion systems. Likewise, in February 2023, the Indian government announced that ISRO is expected to receive USD 2 billion for various space-related activities, including the development of the Liquid Propulsion Systems Centre (LPSC) and ISRO Propulsion Complex.

Space Propulsion Systems Industry Overview

The Space Propulsion Market is fairly consolidated, with the top five companies occupying 68%. The major players in this market are Ariane Group, Avio, IHI Corporation, Moog Inc. and Northrop Grumman Corporation (sorted alphabetically).

Additional Benefits:

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

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