

# **Missile Propulsion Systems Market Forecasts to 2032 – Global Analysis By Propulsion Type (Solid Propulsion, Liquid Propulsion, Hybrid Propulsion, Ramjet/Scramjet, and Cryogenic Propulsion), Missile Type, Range, Launch Platform, Component, and By Geography**

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## **Abstracts**

According to Statistics MRC, the Global Missile Propulsion Systems Market is accounted for \$5.25 billion in 2025 and is expected to reach \$9.92 billion by 2032 growing at a CAGR of 9.5% during the forecast period. Missile propulsion systems refer to advanced mechanisms that provide the thrust necessary to drive missiles through the atmosphere or into space toward designated targets. They encompass solid propellants, liquid-fueled engines, ramjets, and scramjets, selected according to desired speed and distance. These systems transform chemical or kinetic energy into motion, enabling missiles to achieve accurate trajectories, rapid acceleration, and dependable performance, making them essential components in modern aerospace and defence technologies.

According to the Stockholm International Peace Research Institute (SIPRI), military expenditure increased 9.4% globally from 2023-2024, to USD 2,718 billion.

Market Dynamics:

Driver:

Rising demand for long-range missiles

The escalating need for long-range missile capabilities is reshaping defense strategies across global powers. Nations are investing heavily in extended-range systems to enhance deterrence and strategic reach. Advancements in propulsion technologies are enabling missiles to travel farther with improved fuel efficiency and payload capacity. Emerging threats and evolving combat doctrines are accelerating procurement of intercontinental and hypersonic platforms. Integration of satellite-based targeting and real-time telemetry is further boosting operational effectiveness. As geopolitical tensions rise, long-range missile programs are becoming central to national security modernization efforts.

#### Restraint:

##### Limited availability of specialized materials

The missile propulsion sector faces constraints due to the scarcity of high-performance materials required for thermal resistance and structural integrity. Components such as advanced composites, rare earth alloys, and heat-resistant ceramics are difficult to source and manufacture at scale. Stringent defense-grade specifications and testing protocols add complexity to material qualification. Smaller suppliers struggle with production consistency and compliance, slowing innovation cycles. The integration of smart electronics and AI into propulsion systems also demands specialized shielding and insulation materials. These limitations can delay deployment timelines and increase program costs.

#### Opportunity:

##### Integration of AI and smart guidance systems

AI-driven guidance algorithms are enhancing target acquisition, trajectory correction, and fuel optimization in real time. Smart propulsion modules are being developed to dynamically adjust thrust based on mission parameters and environmental conditions. Emerging trends include autonomous swarm coordination and predictive maintenance for propulsion units. Defense agencies are prioritizing AI-enabled systems to counter agile threats and reduce human error. This convergence of software intelligence and hardware innovation is redefining missile performance benchmarks.

#### Threat:

##### Cybersecurity risks in missile systems

As missile systems become increasingly digitized, they are exposed to sophisticated cyber threats targeting command, control, and propulsion subsystems. Vulnerabilities in embedded software, communication links, and sensor networks can be exploited to disrupt mission execution. Adversaries are investing in electronic warfare and cyber intrusion tools to compromise missile reliability. The adoption of cloud-based simulation and remote diagnostics adds further risk vectors. Without robust encryption and intrusion detection protocols, propulsion systems may be susceptible to sabotage or data manipulation.

### Covid-19 Impact

The pandemic disrupted global defense supply chains, delaying missile production and testing schedules. Lockdowns affected manufacturing of propulsion components and restricted access to specialized facilities. However, the crisis accelerated digital transformation, with remote simulation and virtual testing gaining traction. Strategic stockpiling and decentralized manufacturing are emerging as post-pandemic resilience strategies. The industry is now recalibrating toward flexible production ecosystems and digital twin technologies for propulsion system development.

The solid propulsion segment is expected to be the largest during the forecast period

The solid propulsion segment is expected to account for the largest market share during the forecast period, due to its reliability, cost-efficiency, and ease of storage. These systems are widely used in tactical and strategic missiles owing to their rapid launch readiness and minimal maintenance requirements. Technological advancements in composite propellants and nozzle design are enhancing thrust performance and burn stability. Defence programs are increasingly favouring solid propulsion for short- and medium-range applications. Modular solid boosters are also being integrated into hybrid configurations for multi-stage launch systems.

The space-enabled segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the space-enabled segment is predicted to witness the highest growth rate, driven by rising satellite launch demand and space militarization. Innovations in electric and ion propulsion are enabling longer missions with reduced fuel consumption. Defence agencies are investing in orbital maneuvering systems and reusable launch vehicles powered by advanced propulsion modules. The segment

benefits from cross-sector collaboration with aerospace and commercial spaceflight entities. Emerging trends include AI-assisted trajectory planning and autonomous in-space refuelling. As space becomes a contested domain, propulsion technologies tailored for orbital applications are gaining strategic importance.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share fuelled by rising defence budgets and indigenous missile development programs. Countries like China, India, and South Korea are investing in next-gen propulsion technologies and expanding domestic manufacturing capabilities. Regional tensions and border security concerns are driving demand for tactical and strategic missile systems. Governments are promoting self-reliance through technology transfer and joint ventures with global OEMs. The region is also witnessing rapid adoption of AI-guided and hypersonic platforms. Infrastructure upgrades and policy support are accelerating propulsion system deployment across military branches.

Region with highest CAGR:

Over the forecast period, the North America region is anticipated to exhibit the highest CAGR, underpinned by technological leadership and robust R&D investment. The U.S. and Canada are pioneering breakthroughs in scramjet, hybrid, and reusable propulsion systems. Defense agencies are streamlining acquisition processes to fast-track innovation and deployment. Integration of digital engineering, simulation platforms, and AI is optimizing propulsion design and lifecycle management. The region benefits from a mature defense ecosystem and strong collaboration between government labs and private contractors.

Key players in the market

Some of the key players profiled in the Missile Propulsion Systems Market include Lockheed Martin Corporation, Anduril Industries, Raytheon Technologies Corporation, Roxel, Northrop Grumman Corporation, IHI Corporation, MBDA Missile Systems, Hanwha Aerospace, Moog Inc., Boeing Company, Aerojet Rocketdyne Holdings, Inc., General Dynamics Corporation, Safran S.A., Rafael Advanced Defense Systems Ltd., and Thales Group.

Key Developments:

In September 2025, Boeing and Palantir announced at the annual Air, Space & Cyber Conference the two companies are working together to integrate artificial intelligence (AI) systems and software across Boeing Defense, Space & Security (BDS) factories and programs. BDS will leverage Palantir's groundbreaking Foundry platform, which leverages AI to unify complex and disparate systems under a streamlined and intuitive user interface.

In September 2025, Northrop Grumman Corporation has formed a team of in-country partners to deliver advanced radar capabilities to Taiwan. Ramatek Company, Champion Auto, and Vivian and Vincent International Trading Company Ltd. have signed memoranda of understanding with the company to bring the AN/TPS/78 Advanced Capabilities Radar to Taiwan.

#### Propulsion Types Covered:

Solid Propulsion

Liquid Propulsion

Hybrid Propulsion

Ramjet/Scramjet

Cryogenic Propulsion

#### MissileTypes Covered:

Cruise Missiles

Ballistic Missiles

#### Ranges Covered:

Short Range

Medium Range

Intermediate Range

Intercontinental Range

Launch Platforms Covered:

Ground-Based

Airborne

Naval

Space-Enabled

Components Covered:

Propellant

Nozzle

Guidance and Control Electronics

Turbo Pumps

Combustion Chamber

Other Components

Regions Covered:

North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

Argentina

Brazil

Chile

Rest of South America

Middle East & Africa

Saudi Arabia

UAE

Qatar

South Africa

Rest of Middle East & Africa

What our report offers:

- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

Free Customization Offerings:

All the customers of this report will be entitled to receive one of the following free customization options:

Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

## Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

## Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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