

# Growth Projections for Cryogenic Pumps Market: From US\$ 2.2 Billion to US\$ 3.9 Billion by 2034 - TMR

*Cryogenic Pumps Market to Reach US\$ 3.9 Bn by 2034, Growing at a 5.6% CAGR from US\$ 2.2 Bn in 2023*

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EINPresswire.com/ -- The global [cryogenic pumps market](#) is poised for significant growth in the coming decade, with the market expected to expand from a valuation of US\$ 2.2 billion in 2023 to approximately US\$ 3.9 billion by 2034. This growth is anticipated at a compound annual growth rate (CAGR) of 5.6% from 2024 to 2034. Cryogenic pumps, also known as cryopumps, play a crucial role in a range of industries, including the transportation and storage of liquefied gases, thermal power generation, and aerospace applications. The increasing demand for liquefied natural gas (LNG) and liquefied petroleum gas (LPG), as well as rising investments in thermal power generation, are key drivers for the market's expansion.



Cryogenic Pumps Market Outlook 2034: Valued at US\$ 2.2 Bn in 2023, the market is expected to grow at a CAGR of 5.6%, reaching US\$ 3.9 Bn by 2034."

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Market Introduction

Cryogenic pumps are vacuum pumps that operate at extremely low temperatures, typically below 120 Kelvin (-153°C), to capture gases. These pumps are integral in

applications where gases need to be liquefied or transported at cryogenic temperatures, such as LNG, LPG, and other liquefied gases. Cryogenic pumps operate through various mechanisms, including positive displacement, kinetic pumps, and entrapment pumps. Each type serves a different purpose, with applications across industries like aerospace, energy, healthcare, and chemicals.

Cryogenic pumps are further categorized into submersible and non-submersible designs, with submersible models often used for LNG and LPG transfer, and non-submersible pumps used in more specialized applications, such as cryogenic storage. These pumps are indispensable in applications requiring highly efficient energy use and minimal carbon emissions.

## Drivers of Market Growth

### 1. Rise in Adoption of Liquefied Gases

A key factor driving the growth of the cryogenic pumps market is the increasing adoption of liquefied gases such as LNG and LPG. LNG, in particular, has gained significant traction globally as a cleaner alternative to traditional fossil fuels. It burns more efficiently, emitting fewer harmful pollutants compared to other fuels like coal or oil. As a result, LNG is becoming a popular choice in industries seeking to reduce their carbon footprints. The demand for LNG is expected to surge by over 50% by 2040, according to Shell's LNG Outlook 2024, particularly driven by rising consumption in Asia Pacific.

LPG also plays a significant role in the market's expansion. Global production of LPG has been slightly exceeding demand, but the trend is expected to continue as LPG remains a critical fuel source for industrial and residential use. Submerged motor cryogenic pumps are particularly well-suited for transferring liquefied gases like LNG and LPG, as they provide high throughput and energy-efficient operation.

### 2. Surge in Investment in Thermal Power Generation

Cryogenic pumps are also seeing increased demand due to the rise in investments in thermal power generation, particularly in regions like Asia Pacific and India. These pumps are used in processes involving liquid ammonia, which is crucial in thermal power generation for reducing carbon dioxide emissions. In January 2024, India's government cleared equity investments for power plants in joint ventures, signaling significant growth in the thermal power sector.

As the world grapples with climate change, governments and industries are prioritizing solutions that can help reduce CO<sub>2</sub> emissions. Cryogenic pumps are well-suited for CO<sub>2</sub> separation processes, as they can avoid the use of chemical solvents, making them an attractive option for power plants aiming to reduce their carbon footprints.

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## Regional Outlook

### Asia Pacific: Leading the Market

The Asia Pacific region accounted for the largest share of the cryogenic pumps market in 2023, driven by the region's increasing adoption of LNG. Countries like India and China are major consumers of LNG, with India holding long-term LNG contracts of around 20 million metric tons per annum. This large-scale adoption of LNG is expected to propel the demand for cryogenic pumps in the region.

In addition to LNG, Asia Pacific is also witnessing significant growth in the power generation sector, particularly thermal power. Governments are investing in technologies that can help reduce carbon emissions from energy-intensive sectors, driving demand for cryogenic pumps designed for these applications.

### North America: Growth in Aerospace and Electric Propulsion

North America is another important market for cryogenic pumps, particularly driven by the aerospace sector. Cryopumps are essential in electric space propulsion testing, as they are used in ground-based facilities to simulate the extreme conditions faced by spacecraft. The growing use of electric propulsion systems in space missions is expected to drive demand for cryogenic pumps in the aerospace sector.

## Key Technological Developments

Advancements in cryogenic pump technology are also shaping the market. Innovations such as retractable submerged pumps and pumps designed specifically for thermal power generation are expected to offer improved performance, higher efficiency, and reduced environmental impact.

For example, in April 2024, Vanzetti Engineering launched a new series of retractable submerged pumps that are ideal for small-scale LNG terminals and can be used as emergency or cargo pumps in the marine sector. These pumps offer high reliability and ease of use, catering to the growing needs of the LNG sector.

In another significant development, Nikkiso announced its plans to launch a liquid ammonia pump by 2026. This pump will be designed specifically for thermal power generation applications, with a focus on reducing CO2 emissions.

## Competitive Landscape

The cryogenic pumps market is characterized by a number of prominent players offering a wide range of products. Major companies include Linde PLC, Chart Industries, Nikkiso, Sumitomo Heavy Industries, Cryostar, EBARA Corporation, and Flowserve Corporation, among others. These companies are focused on product innovation and strategic acquisitions to expand their market presence.

In addition to established players, smaller companies are also emerging with specialized products, such as Vanzetti Engineering, which launched the ESK-IMO series of retractable submerged pumps.

### Market Segmentation

The cryogenic pumps market is segmented based on orientation, design, type, cryogen gas, and end-user industries. Key segments include:

- Orientation: Horizontal and Vertical
- Design: Submersible and Non-submersible
- Type: Centrifugal and Positive Displacement
- Cryogen Gas: Nitrogen, Oxygen, Argon, LNG, Helium, Hydrogen, and others
- End-user Industries: Metallurgy, Energy & Power, Chemicals, Electronics, Healthcare, and others

### Future Outlook

The global cryogenic pumps market is expected to continue its growth trajectory, driven by the increasing adoption of liquefied gases, advancements in thermal power generation, and rising investments in the aerospace sector. As industries seek more sustainable solutions and governments implement stricter environmental regulations, the demand for cryogenic pumps will rise, particularly in regions like Asia Pacific and North America.

The market's future success will also depend on the continued innovation in pump technology, with new designs and materials enhancing energy efficiency, throughput, and environmental performance. As the world continues its transition toward cleaner energy sources, cryogenic pumps will play a critical role in achieving sustainability goals and meeting the growing demand for liquefied gases.

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