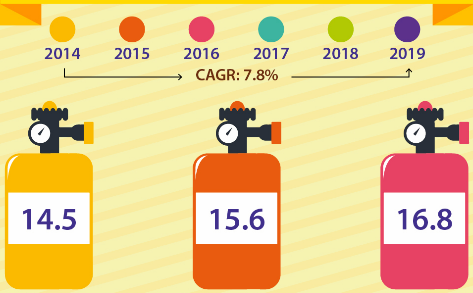
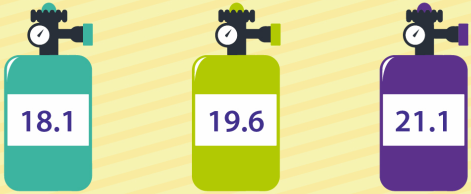
Global Cryogenic Equipment Industry

The cryogenic equipment market is expected to grow at a CAGR of 8%. Much of the growth is anticipated because of increased adoption and preference over mechanical freezing.

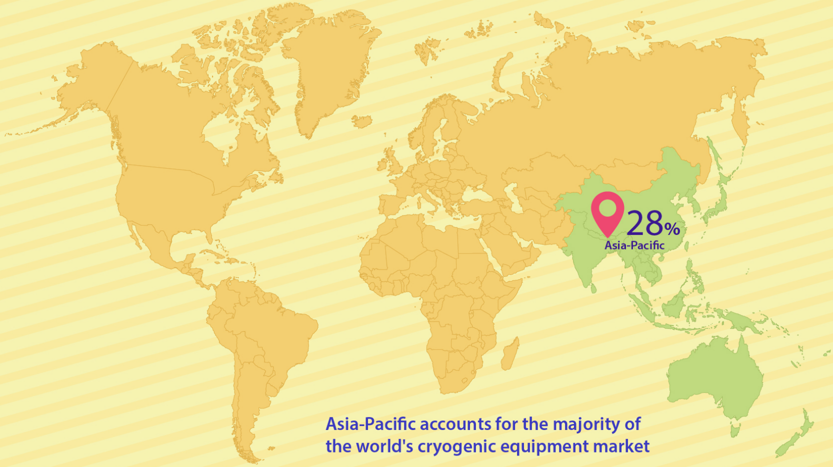
Global Cryogenic Equipment Market Size





2015–2022 | Figures in US$ (Bn.)

Cryogenic Equipment Market (by Region)



Asia-Pacific accounts for the majority of the world's cryogenic equipment market

Cryogenic Equipment End-Use Applications, by Industry

Oil & Gas

Metallurgy

Electronics

Power & Energy

Food & Beverage

Healthcare

Marine

Key Players in the Global Cryogenic Equipment Industry

Chart Industries

Cryofab, Inc.

VRV S.p.A.

INOX India Ltd.

Linde Group AG

Taylor Wharton Group

Mechanical vs. Cryogenic Freezing

Cryogenic freezing has several advantages over mechanical freezing

🟣 Parameters 🟢 Mechanical Freezing 🔵 Cryogenic Freezing

Parameters	Mechanical Freezing	Cryogenic Freezing
Investment Cost	High	Low
Operating Cost	Low	High
Maintenance Cost	High	Low
Freezing Temperature	-30°F	-80°F to -160°F
Environmental Considerations	Highly Toxic	Environmentally Friendly
Plant Space Usage	High	Low

Not Suitable for Product Changes

Highly Adaptable as Temperature Range Can Be Varied

Operational Flexibility

Cryogenic Freezing – Drivers & Challenges

Growth Drivers

LNG Handling
Global increase in clean and efficient LNG production, which requires cryogenic handling for transportation.

Advanced Healthcare
Many developed countries in North America and Europe are demanding advanced healthcare services, which requires cryogenic freezing for storing DNA, human tissues, blood products, and stem cells, among others.

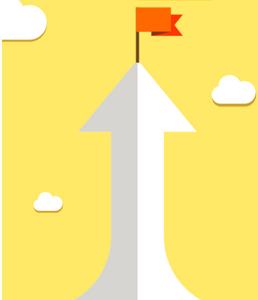
Metallurgical Applications
Various metallurgical operations, such as sub-zero treatment of steels, which reduces the diameter of a steel shaft so that it can be readily assembled with other components, are becoming widespread in the US, Europe, Latin America, and Asian countries.

Key Challenges

Thermal Fluctuations
Cryogenic freezing sometimes shows temperature fluctuations in the range 0.25–0.5°F, which alters the substance's properties.

Maintenance
Cryogenic freezing requires considerable maintenance time.

Cryogenic Equipment – Market Trends



Cryogenic equipment is generally used to handle, store, transfer, and supply liquefied gases, such as oxygen, hydrogen, nitrogen, and argon. In order to handle LNG which is considered to be a much cleaner and environmentally friendly fuel, cryogenic equipment is largely being used.

The Asia-Pacific region was the largest market for cryogenic equipment in 2014, driven largely by the developments in fast growing economies such as China, India and other countries in Southeast Asia.

Various products that use cryogenic equipment include storage tanks, valve pumps and vaporizers, and vacuum-jacketed piping. Among these, storage tanks accounted for over 55% of the overall revenue in 2014.

ARANCA VIEW

Stringent government initiatives and investments in emerging markets such as Brazil and India are expected to impel the product demand for cryogenics. Shale gas exploration has resulted in high natural gas production, thereby escalating demand in the oil & gas sector for cryogenics.

Rapid industrialization has led to widespread adoption of cryogenic equipment in the metallurgy industry. Development in metal design has resulted in the development of enhanced techniques for handling liquids and is expected to fuel market demand even further.

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