

Cryogenic Control Valve Market - Global Industry Size, Share, Trends, Opportunity, and Forecast, Segmented, By Type (Globe Valve, Ball Valve, Butterfly Valve), By Application (LNG (Liquefied Natural Gas), Chemicals, Healthcare (Medical Gases), Aerospace, Energy & Power and Others), By Region, By Competition, 2020-2030F

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Abstracts

Market Overview

The Cryogenic Control Valve Market was valued at USD 40.52 Billion in 2024 and is projected to reach USD 57.96 Billion by 2030, growing at a CAGR of 5.99% during the forecast period. This market focuses on the production and deployment of specialized valves designed for ultra-low-temperature environments, typically below -150°C , where conventional valve technologies are inadequate. These valves are essential for the control and regulation of cryogenic fluids such as LNG, liquid nitrogen, oxygen, hydrogen, and helium, across multiple sectors including oil and gas, chemicals, energy, aerospace, and healthcare. As global investments in LNG infrastructure, energy diversification, and industrial gas applications continue to rise, the demand for cryogenic control valves is expanding steadily. Technological advancements in valve materials and sealing mechanisms are enabling greater reliability, safety, and efficiency in operations involving harsh cryogenic conditions.

Key Market Drivers

Growing Demand for LNG and Cryogenic Applications Driving Market Expansion

The surging global adoption of liquefied natural gas (LNG) as a cleaner energy source is a primary driver of growth in the cryogenic control valve market. The development of LNG liquefaction plants, regasification terminals, and transportation networks in regions such as Asia Pacific, the Middle East, and North America has created strong demand for valves that can withstand extremely low temperatures while maintaining precision and safety. The use of LNG in marine bunkering, power generation, and heavy transportation further reinforces this demand. Additionally, cryogenic control valves are increasingly required in medical, aerospace, and chemical industries for managing liquefied gases like oxygen and nitrogen. With increasing energy diversification efforts and decarbonization goals, investments in cryogenic infrastructure and associated control systems are expected to continue driving market growth.

Key Market Challenges

Stringent Regulatory Compliance and Certification Requirements

The cryogenic control valve market is challenged by rigorous certification standards and complex regulatory frameworks that manufacturers must navigate to ensure compliance. Industries such as LNG, aerospace, and medical gases require valves that meet stringent safety and quality benchmarks set by organizations like ASME, API, ISO, and ATEX. This involves extensive testing, documentation, and manufacturing validation processes that elevate production costs and prolong product development cycles. Regulatory variation across regions complicates international supply chain logistics and customization, posing a barrier especially for smaller firms. Additionally, frequent updates to standards driven by evolving safety protocols demand continuous investment in R&D, compliance infrastructure, and quality assurance, making regulatory adherence a significant hurdle for market participants.

Key Market Trends

Increasing Demand for Cryogenic Control Valves in LNG and Natural Gas Processing

The LNG sector's rapid expansion globally is a defining trend influencing the cryogenic control valve market. Governments and private enterprises are investing heavily in LNG infrastructure to meet rising energy needs and climate goals, leading to an upsurge in demand for cryogenic valves capable of ensuring safe, precise flow control under ultra-low temperatures. Manufacturers are responding with innovations in valve materials, such as stainless steel alloys and improved sealing mechanisms, to meet durability and

performance expectations. Additionally, valves optimized for efficiency and low maintenance are in demand to enhance operational cost-effectiveness in LNG and gas processing facilities. This trend is also driving advancements in valve automation and remote monitoring technologies to support modern, high-efficiency cryogenic systems.

Key Market Players

Emerson Electric Co.

Flowserve Corporation

Crane Corporation

Pentair plc

Metso Corporation

IMI plc

Velan Inc.

KITZ Corporation

Baker Hughes Company

Asahi Glass Co., Ltd.

Report Scope:

In this report, the Global Cryogenic Control Valve Market has been segmented into the following categories, in addition to the industry trends which have also been detailed below:

Cryogenic Control Valve Market, By Type:

Globe Valve

Ball Valve

Butterfly Valve

Cryogenic Control Valve Market, By Application:

LNG (Liquefied Natural Gas)

Chemicals

Healthcare (Medical Gases)

Aerospace

Energy & Power

Others

Cryogenic Control Valve Market, By Region:

North America

United States

Canada

Mexico

Europe

France

United Kingdom

Italy

Germany

Spain

Asia-Pacific

China

India

Japan

Australia

South Korea

South America

Brazil

Argentina

Colombia

Middle East & Africa

South Africa

Saudi Arabia

UAE

Kuwait

Turkey

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in the Global Cryogenic Control Valve Market.

Available Customizations:

Global Cryogenic Control Valve Market report with the given Market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

Detailed analysis and profiling of additional Market players (up to five).

Contents

1. PRODUCT OVERVIEW

- 1.1. Market Definition
- 1.2. Scope of the Market
 - 1.2.1. Markets Covered
 - 1.2.2. Years Considered for Study
- 1.3. Key Market Segmentations

2. RESEARCH METHODOLOGY

- 2.1. Objective of the Study
- 2.2. Baseline Methodology
- 2.3. Formulation of the Scope
- 2.4. Assumptions and Limitations
- 2.5. Sources of Research
 - 2.5.1. Secondary Research
 - 2.5.2. Primary Research
- 2.6. Approach for the Market Study
 - 2.6.1. The Bottom-Up Approach
 - 2.6.2. The Top-Down Approach
- 2.7. Methodology Followed for Calculation of Market Size & Market Shares
- 2.8. Forecasting Methodology
 - 2.8.1. Data Triangulation & Validation

3. EXECUTIVE SUMMARY

- 3.1. Overview of the Market
- 3.2. Overview of Key Market Segmentations
- 3.3. Overview of Key Market Players
- 3.4. Overview of Key Regions/Countries
- 3.5. Overview of Market Drivers, Challenges, and Trends

4. VOICE OF CUSTOMER

5. GLOBAL CRYOGENIC CONTROL VALVE MARKET OUTLOOK

- 5.1. Market Size & Forecast

- 5.1.1. By Value
- 5.2. Market Share & Forecast
 - 5.2.1. By Type (Globe Valve, Ball Valve, Butterfly Valve)
 - 5.2.2. By Application (LNG (Liquefied Natural Gas), Chemicals, Healthcare (Medical Gases), Aerospace, Energy & Power, Others)
 - 5.2.3. By Region
- 5.3. By Company (2024)
- 5.4. Market Map

6. NORTH AMERICA CRYOGENIC CONTROL VALVE MARKET OUTLOOK

- 6.1. Market Size & Forecast
 - 6.1.1. By Value
- 6.2. Market Share & Forecast
 - 6.2.1. By Type
 - 6.2.2. By Application
 - 6.2.3. By Country
- 6.3. North America: Country Analysis
 - 6.3.1. United States Cryogenic Control Valve Market Outlook
 - 6.3.1.1. Market Size & Forecast
 - 6.3.1.1.1. By Value
 - 6.3.1.2. Market Share & Forecast
 - 6.3.1.2.1. By Type
 - 6.3.1.2.2. By Application
 - 6.3.2. Canada Cryogenic Control Valve Market Outlook
 - 6.3.2.1. Market Size & Forecast
 - 6.3.2.1.1. By Value
 - 6.3.2.2. Market Share & Forecast
 - 6.3.2.2.1. By Type
 - 6.3.2.2.2. By Application
 - 6.3.3. Mexico Cryogenic Control Valve Market Outlook
 - 6.3.3.1. Market Size & Forecast
 - 6.3.3.1.1. By Value
 - 6.3.3.2. Market Share & Forecast
 - 6.3.3.2.1. By Type
 - 6.3.3.2.2. By Application

7. EUROPE CRYOGENIC CONTROL VALVE MARKET OUTLOOK

7.1. Market Size & Forecast

7.1.1. By Value

7.2. Market Share & Forecast

7.2.1. By Type

7.2.2. By Application

7.2.3. By Country

7.3. Europe: Country Analysis

7.3.1. Germany Cryogenic Control Valve Market Outlook

7.3.1.1. Market Size & Forecast

7.3.1.1.1. By Value

7.3.1.2. Market Share & Forecast

7.3.1.2.1. By Type

7.3.1.2.2. By Application

7.3.2. United Kingdom Cryogenic Control Valve Market Outlook

7.3.2.1. Market Size & Forecast

7.3.2.1.1. By Value

7.3.2.2. Market Share & Forecast

7.3.2.2.1. By Type

7.3.2.2.2. By Application

7.3.3. Italy Cryogenic Control Valve Market Outlook

7.3.3.1. Market Size & Forecast

7.3.3.1.1. By Value

7.3.3.2. Market Share & Forecast

7.3.3.2.1. By Type

7.3.3.2.2. By Application

7.3.4. France Cryogenic Control Valve Market Outlook

7.3.4.1. Market Size & Forecast

7.3.4.1.1. By Value

7.3.4.2. Market Share & Forecast

7.3.4.2.1. By Type

7.3.4.2.2. By Application

7.3.5. Spain Cryogenic Control Valve Market Outlook

7.3.5.1. Market Size & Forecast

7.3.5.1.1. By Value

7.3.5.2. Market Share & Forecast

7.3.5.2.1. By Type

7.3.5.2.2. By Application

8. ASIA-PACIFIC CRYOGENIC CONTROL VALVE MARKET OUTLOOK

- 8.1. Market Size & Forecast
 - 8.1.1. By Value
- 8.2. Market Share & Forecast
 - 8.2.1. By Type
 - 8.2.2. By Application
 - 8.2.3. By Country
- 8.3. Asia-Pacific: Country Analysis
 - 8.3.1. China Cryogenic Control Valve Market Outlook
 - 8.3.1.1. Market Size & Forecast
 - 8.3.1.1.1. By Value
 - 8.3.1.2. Market Share & Forecast
 - 8.3.1.2.1. By Type
 - 8.3.1.2.2. By Application
 - 8.3.2. India Cryogenic Control Valve Market Outlook
 - 8.3.2.1. Market Size & Forecast
 - 8.3.2.1.1. By Value
 - 8.3.2.2. Market Share & Forecast
 - 8.3.2.2.1. By Type
 - 8.3.2.2.2. By Application
 - 8.3.3. Japan Cryogenic Control Valve Market Outlook
 - 8.3.3.1. Market Size & Forecast
 - 8.3.3.1.1. By Value
 - 8.3.3.2. Market Share & Forecast
 - 8.3.3.2.1. By Type
 - 8.3.3.2.2. By Application
 - 8.3.4. South Korea Cryogenic Control Valve Market Outlook
 - 8.3.4.1. Market Size & Forecast
 - 8.3.4.1.1. By Value
 - 8.3.4.2. Market Share & Forecast
 - 8.3.4.2.1. By Type
 - 8.3.4.2.2. By Application
 - 8.3.5. Australia Cryogenic Control Valve Market Outlook
 - 8.3.5.1. Market Size & Forecast
 - 8.3.5.1.1. By Value
 - 8.3.5.2. Market Share & Forecast
 - 8.3.5.2.1. By Type
 - 8.3.5.2.2. By Application

9. SOUTH AMERICA CRYOGENIC CONTROL VALVE MARKET OUTLOOK

9.1. Market Size & Forecast

9.1.1. By Value

9.2. Market Share & Forecast

9.2.1. By Type

9.2.2. By Application

9.2.3. By Country

9.3. South America: Country Analysis

9.3.1. Brazil Cryogenic Control Valve Market Outlook

9.3.1.1. Market Size & Forecast

9.3.1.1.1. By Value

9.3.1.2. Market Share & Forecast

9.3.1.2.1. By Type

9.3.1.2.2. By Application

9.3.2. Argentina Cryogenic Control Valve Market Outlook

9.3.2.1. Market Size & Forecast

9.3.2.1.1. By Value

9.3.2.2. Market Share & Forecast

9.3.2.2.1. By Type

9.3.2.2.2. By Application

9.3.3. Colombia Cryogenic Control Valve Market Outlook

9.3.3.1. Market Size & Forecast

9.3.3.1.1. By Value

9.3.3.2. Market Share & Forecast

9.3.3.2.1. By Type

9.3.3.2.2. By Application

10. MIDDLE EAST AND AFRICA CRYOGENIC CONTROL VALVE MARKET OUTLOOK

10.1. Market Size & Forecast

10.1.1. By Value

10.2. Market Share & Forecast

10.2.1. By Type

10.2.2. By Application

10.2.3. By Country

10.3. Middle East and Africa: Country Analysis

10.3.1. South Africa Cryogenic Control Valve Market Outlook

- 10.3.1.1. Market Size & Forecast
 - 10.3.1.1.1. By Value
- 10.3.1.2. Market Share & Forecast
 - 10.3.1.2.1. By Type
 - 10.3.1.2.2. By Application
- 10.3.2. Saudi Arabia Cryogenic Control Valve Market Outlook
 - 10.3.2.1. Market Size & Forecast
 - 10.3.2.1.1. By Value
 - 10.3.2.2. Market Share & Forecast
 - 10.3.2.2.1. By Type
 - 10.3.2.2.2. By Application
- 10.3.3. UAE Cryogenic Control Valve Market Outlook
 - 10.3.3.1. Market Size & Forecast
 - 10.3.3.1.1. By Value
 - 10.3.3.2. Market Share & Forecast
 - 10.3.3.2.1. By Type
 - 10.3.3.2.2. By Application
- 10.3.4. Kuwait Cryogenic Control Valve Market Outlook
 - 10.3.4.1. Market Size & Forecast
 - 10.3.4.1.1. By Value
 - 10.3.4.2. Market Share & Forecast
 - 10.3.4.2.1. By Type
 - 10.3.4.2.2. By Application
- 10.3.5. Turkey Cryogenic Control Valve Market Outlook
 - 10.3.5.1. Market Size & Forecast
 - 10.3.5.1.1. By Value
 - 10.3.5.2. Market Share & Forecast
 - 10.3.5.2.1. By Type
 - 10.3.5.2.2. By Application

11. MARKET DYNAMICS

- 11.1. Drivers
- 11.2. Challenges

12. MARKET TRENDS & DEVELOPMENTS

- 12.1. Merger & Acquisition (If Any)
- 12.2. Product Launches (If Any)

12.3. Recent Developments

13. COMPANY PROFILES

13.1. Emerson Electric Co.

13.1.1. Business Overview

13.1.2. Key Revenue and Financials

13.1.3. Recent Developments

13.1.4. Key Personnel/Key Contact Person

13.1.5. Key Product/Services Offered

13.2. Flowserve Corporation

13.3. Crane Corporation

13.4. Pentair plc

13.5. Metso Corporation

13.6. IMI plc

13.7. Velan Inc.

13.8. KITZ Corporation

13.9. Baker Hughes Company

13.10. Asahi Glass Co., Ltd.

14. STRATEGIC RECOMMENDATIONS

15. ABOUT US & DISCLAIMER

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