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Global CO? Backup System Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global CO? Backup System market size was valued at US$ 24.61 million in 2025 and is forecast to a readjusted size of US$ 30.98 million by 2032 with a CAGR of 3.4% during review period.

A CO? backup system provides emergency cooling for critical equipment, especially ultra-low temperature (ULT) freezers, by injecting liquid carbon dioxide (CO?) during power outages or system failures to prevent vital samples (like biological specimens) from thawing, ensuring continuity until primary power is restored. It's an independent system with its own battery, featuring a controller and a CO? tank, designed to automatically maintain safe temperatures within a set range (often -50°C to -70°C).

The global production of CO? backup systems is projected to reach 9,000 units by 2025, with an average price of US$2,660 per unit. Gross profit margins typically range from 25% to 45%.

CO2 backup systems are designed to ensure a continuous and stable supply of carbon dioxide when primary gas sources or control systems fail, with typical applications in cell culture incubators, life science laboratories, pharmaceutical production lines, and selected food and industrial processes. The upstream supply chain mainly includes industrial or medical-grade CO2 gas, high-pressure cylinders or liquid CO2 tanks, pressure regulators, flow control valves, piping and sealing components, as well as sensing and alarm devices. The upstream value lies in gas purity, supply stability, and safety compliance. Downstream applications represent the core demand. Life science laboratories and cell culture users rely heavily on stable CO2 concentrations to maintain culture conditions and therefore require fast response, automatic switchover, and

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uninterrupted gas delivery. Biopharmaceutical and vaccine manufacturers place greater emphasis on validation readiness, data logging, and compatibility with existing culture and production systems. Hospitals and research institutes prioritize safety, ease of maintenance, and reduced human intervention, while food and industrial users focus more on cost efficiency and long-term operational stability. Overall, downstream demand is driven by the need to avoid experiment failure and production downtime, resulting in relatively low price sensitivity.

In terms of development trends, CO2 backup systems are moving toward higher levels of automation, intelligence, and integration, with increasing adoption of real-time monitoring, remote alarms, and data traceability to improve reliability and reduce manual operations. Key growth drivers include the rapid expansion of cell and gene therapy, continuous investment in biopharmaceutical R&D, rising intolerance for experimental and production interruptions, and stricter laboratory safety and compliance requirements. Constraints include relatively high initial investment, regulatory and safety requirements associated with gas storage and use, limited awareness of backup system necessity among smaller laboratories, and regional fluctuations in CO2 supply.

This report is a detailed and comprehensive analysis for global CO? Backup System market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global CO? Backup System market size and forecasts, in consumption value ($ Million), sales quantity (Units), and average selling prices (US$/Unit), 2021-2032

Global CO? Backup System market size and forecasts by region and country, in consumption value ($ Million), sales quantity (Units), and average selling prices (US$/Unit), 2021-2032

Global CO? Backup System market size and forecasts, by Type and by Application, in consumption value ($ Million), sales quantity (Units), and average selling prices (US$/Unit), 2021-2032

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Global CO? Backup System market shares of main players, shipments in revenue ($ Million), sales quantity (Units), and ASP (US$/Unit), 2021-2026

The Primary Objectives in This Report Are:
To determine the size of the total market opportunity of global and key countries
To assess the growth potential for CO? Backup System
To forecast future growth in each product and end-use market
To assess competitive factors affecting the marketplace

This report profiles key players in the global CO? Backup System market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Thermo Fisher Scientific, Eppendorf, PHC Corporation, Haier Biomedical, BINDER, Helmer Scientific, Esco Lifesciences, Stirling Ultracold, ARCTIKO, Meling Biomedical, etc.

This report also provides key insights about market drivers, restraints, opportunities, new product launches or approvals.

Market Segmentation

CO? Backup System market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

High-Pressure CO? Backup System

Low-Pressure CO? Backup System

Supercritical CO? Backup System

Gaseous CO? Backup System

Mixed-Phase CO? Backup System

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Market segment by Structure

- Vertical Fixed Storage Tank
- Horizontal Fixed Storage Tank
- Mobile Storage Tank

Market segment by Switching Method

- Manual Switching
- Semi-Automatic Switching
- Fully Automatic Switching

Market segment by Boosting Method

- Self-Pressurizing Type
- External Boosting Type
- Gravity Conveying Type
- Vaporization Conveying Type

Market segment by Application

- Laboratory
- Medical
- Semiconductor
- Fire Protection

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Cold Chain

Industrial

Major players covered

Thermo Fisher Scientific

Eppendorf

PHC Corporation

Haier Biomedical

BINDER

Helmer Scientific

Esco Lifesciences

Stirling Ultracold

ARCTIKO

Meling Biomedical

BIOBASE

So-Low Environmental Equipment

Across International

Hampshire Controls

Antech Scientific

Market segment by region, regional analysis covers

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North America (United States, Canada, and Mexico)
Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)
Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)
South America (Brazil, Argentina, Colombia, and Rest of South America)
Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe CO? Backup System product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of CO? Backup System, with price, sales quantity, revenue, and global market share of CO? Backup System from 2021 to 2026.

Chapter 3, the CO? Backup System competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by landscape contrast.

Chapter 4, the CO? Backup System breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and CO? Backup System market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of CO? Backup System.

Chapter 14 and 15, to describe CO? Backup System sales channel, distributors, customers, research findings and conclusion.

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