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Global CO2 Gas Revert Recovery Systems Supply, Demand and Key Producers, 2026-2032

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Abstracts

The global CO2 Gas Revert Recovery Systems market size is expected to reach $ 986 million by 2032, rising at a market growth of 14.7% CAGR during the forecast period (2026-2032).

A carbon dioxide (CO?) revert gas recovery system refers to a complete set of equipment that uses revert gas generated during the operation of CO? facilities as the feed gas. Through process units such as revert gas collection, pressure stabilization, compression, cooling, dehydration and impurity removal, and re-liquefaction/reuse, it recovers, purifies, and upgrades CO? from gas streams that would otherwise be vented or emitted, ultimately producing gaseous or liquid CO? that can be returned to storage tanks, liquefaction systems, or upstream processes for reuse. The system is mainly applied in liquid CO? production and storage/transportation, dry ice production, food and beverage carbonation supply chains, and industrial gas plants. Its core value lies in converting low-value revert gas generated from pressure-letdown flash, process switching, and equipment venting into reusable CO? products, thereby reducing emissions and losses, improving recovery yield, and enhancing energy efficiency as well as supply stability. In 2025, global output of CO? revert gas recovery systems reached 973 units, with an average selling price of USD 360,000 per unit.

A CO2 Gas Revert Recovery System refers to a complete set of equipment that uses CO?-containing gas as the feedstock and, through process blocks such as compression, cooling, absorption/adsorption, membrane separation, or cryogenic condensation, separates CO? from mixed gases, completes dehydration, impurity removal, and purity upgrading, and ultimately delivers marketable products in the form of gaseous CO?, liquid CO?, or dry ice that can be directly stored, transported, or used. The industry combines characteristics of industrial gas equipment and process

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separation equipment. Demand is jointly driven by resource utilization and emissions-reduction constraints, and the order pattern typically features the coexistence of continuous shipments of standardized small-to-mid-sized systems and staged delivery of large, project-based installations.

From an application-structure perspective, CO? recovery units mainly serve fermentation and food & beverage, high-concentration process and by-product gases, biogas and biomethane upgrading, and flue-gas recovery. Fermentation and food & beverage applications place greater emphasis on stable supply and food-grade purity management, and therefore rely more on standardized, replicable skid-based systems. High-concentration process and by-product gas applications emphasize integration with upstream processes, continuous operation, and corrosion-resistant adaptation, resulting in a higher share of engineered integration. Biogas upgrading applications focus more on handling feedstock variability, broader impurity spectra, and overall energy consumption. Flue-gas recovery is more strongly influenced by policy timing, the pace of demonstration projects, and financing conditions; project cycles are longer, deliveries are more dispersed, and on-site project execution and acceptance milestones have a greater impact on delivery cadence. On the product-structure side, the industry is evolving from single recovery modules toward integrated offerings that combine separation and purification, re-liquefaction and/or dry-ice production, and storage/handling and control in one package. Typical deliverables increasingly include compression and cooling systems, dehydration and deep-purification modules (such as desulfurization and deoxidation where applicable), condensation/re-liquefaction modules, automation and safety interlock systems, and interfaces for remote monitoring.

From a cost-structure and manufacturing perspective, the total system cost is generally composed of compressor packages, heat-exchange and cooling systems, core separation and purification units (e.g., adsorption/absorption systems, membrane modules, cryogenic cold boxes), instrumentation and electrical systems, skid structures and piping/valves, as well as engineering design and on-site installation and commissioning. In a typical skid-based system, compressor packages account for 25%–40% of cost, heat exchange and cooling for 10%–20%, core separation/purification units for 10%–25%, instrumentation and electrical for 5%–10%, structures and piping/valves for 10%–20%, and engineering and commissioning for 10%–25%. Standardized skid products typically follow a “prefabrication + assembly + factory acceptance test (FAT) + site acceptance test (SAT)” delivery route. Single-line capacity (defined as one skid assembly and testing line) is generally 10–30 sets per year for standardized small-to-mid-sized products. For large flue-gas recovery systems

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or deeply engineered projects, single-line capacity is typically 1–3 sets per year due to constraints such as civil interfaces, long-lead equipment procurement, and on-site execution. On the equipment side, gross margin is generally 20%–35% for more standardized small-to-mid-sized systems and 15%–30% for more engineered, project-based installations, with differences mainly driven by the share of non-standard design, on-site workload, long-lead component procurement and price volatility, and acceptance and performance-testing clauses.

From an industry-chain perspective, upstream supply relies on compressor and other critical rotating equipment, heat-exchange and refrigeration systems, adsorbents and catalytic purification materials, membrane modules and cryogenic components, as well as valves, piping, and instrumentation/control systems. Midstream participants are primarily turnkey equipment suppliers and engineering companies with process-package capabilities. Their key competitiveness lies in process know-how and purity control, system energy efficiency, long-term stable-operation experience, and the ability to replicate solutions quickly across different feed-gas conditions. Downstream customers include industrial gas companies, breweries and beverage producers, fermentation companies, biogas/biomethane operators, chemical and refining companies and hydrogen value-chain players, as well as owners of flue-gas abatement and carbon-management projects. The competitive landscape typically features a small number of global leaders with proven process packages and delivery track records, alongside regional engineering and equipment providers. Key entry barriers include adaptation to diverse impurity spectra, switching between food-grade and industrial-grade requirements, system-level optimization of energy consumption and recovery yield, accumulated project delivery and continuous-operation experience, and stable supply chains and quality systems for key components.

Looking ahead, the industry is expected to evolve along three main tracks. First, applications will increasingly shift from single-site recovery toward multi-site centralization and cross-site replication, raising the share of modular and standardized products and driving shorter delivery cycles and lower costs. Second, technology will move from single-unit separation toward optimized combinations of multiple process blocks, with adsorption/membrane/cryogenic hybrids expanding feed-gas adaptability and improving energy efficiency; heat integration, variable-frequency control, and advanced control strategies will become key differentiators. Third, while suppliers are extending capabilities beyond one-off delivery toward lifecycle support—strengthening customer stickiness through spare parts, performance guarantees, and remote diagnostics—the core profitability of the sector will continue to depend primarily on scaled equipment deliveries and the efficiency of standardized replication. Meanwhile,

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flue-gas recovery and CCUS-related projects will remain project-based and policy-driven, and industry cyclicality will be shaped mainly by policy intensity, the pace of transition from demonstration to commercialization, and the progress of financing and carbon-pricing mechanisms.

This report studies the global CO2 Gas Revert Recovery Systems production, demand, key manufacturers, and key regions.

This report is a detailed and comprehensive analysis of the world market for CO2 Gas Revert Recovery Systems and provides market size (US$ million) and Year-over-Year (YoY) Growth, considering 2025 as the base year. This report explores demand trends and competition, as well as details the characteristics of CO2 Gas Revert Recovery Systems that contribute to its increasing demand across many markets.

Highlights and key features of the study
Global CO2 Gas Revert Recovery Systems total production and demand, 2021-2032, (Units)
Global CO2 Gas Revert Recovery Systems total production value, 2021-2032, (USD Million)
Global CO2 Gas Revert Recovery Systems production by region & country, production, value, CAGR, 2021-2032, (USD Million) & (Units), (based on production site)
Global CO2 Gas Revert Recovery Systems consumption by region & country, CAGR, 2021-2032 & (Units)
U.S. VS China: CO2 Gas Revert Recovery Systems domestic production, consumption, key domestic manufacturers and share
Global CO2 Gas Revert Recovery Systems production by manufacturer, production, price, value and market share 2021-2026, (USD Million) & (Units)
Global CO2 Gas Revert Recovery Systems production by Type, production, value, CAGR, 2021-2032, (USD Million) & (Units)
Global CO2 Gas Revert Recovery Systems production by Application, production, value, CAGR, 2021-2032, (USD Million) & (Units)

This report profiles key players in the global CO2 Gas Revert Recovery Systems market based on the following parameters - company overview, production, value, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include Asco Carbon Dioxide, Mitsubishi Heavy Industries, Bright Biomethane, GEA, Linde Engineering, Sumitomo Seika, Shell Cansolv, Cold Jet, Kinder Morgan, Fluor Corporation, etc.

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

Stakeholders would have ease in decision-making through various strategy matrices used in analyzing the World CO2 Gas Revert Recovery Systems market

Detailed Segmentation:

Each section contains quantitative market data including market by value (US$ Millions), volume (production, consumption) & (Units) and average price (K US$/Unit) by manufacturer, by Type, and by Application. Data is given for the years 2021-2032 by year with 2025 as the base year, 2026 as the estimate year, and 2027-2032 as the forecast year.

Global CO2 Gas Revert Recovery Systems Market, By Region:

United States

China

Europe

Japan

South Korea

ASEAN

India

Rest of World

Global CO2 Gas Revert Recovery Systems Market, Segmentation by Type:

Chemical Absorption

Physical Adsorption

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Membrane Separation

Compression and Condensation

Others

Global CO2 Gas Revert Recovery Systems Market, Segmentation by Form Factor:

Stationary

Mobile

Global CO2 Gas Revert Recovery Systems Market, Segmentation by Inlet CO2 Concentration:

High Concentration

Low Concentration

Global CO2 Gas Revert Recovery Systems Market, Segmentation by Application:

Flue Gas CO? Recovery (SGR)

Process/By-product Gas CO? Recovery (BPR)

Dry Ice Production and Related CO2 Recovery

Fermentation and Food and Beverage CO2 Recovery

Others

Companies Profiled:

Asco Carbon Dioxide

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Mitsubishi Heavy Industries

Bright Biomethane

GEA

Linde Engineering

Sumitomo Seika

Shell Cansolv

Cold Jet

Kinder Morgan

Fluor Corporation

Gulf Cryo

Super Cryogenic Systems

Pentair Haffmans

Chart Industries

Air Water

Taiyo Nippon Sanso

JFE Engineering

Mitsubishi Kakoki

JCCL

Kawasaki Heavy Industries

PRODEVAL

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Steinecker

Mellcon Engineers Pvt.

Ashirwad Carbonics (India) Pvt Ltd.

COMTECSWISS AG

Separeco

Supercryo

Solveno Technologies

Steinecker GmbH

Tecno Project Industriale

Corosys

Hypro

Key Questions Answered:

1. How big is the global CO2 Gas Revert Recovery Systems market?
2. What is the demand of the global CO2 Gas Revert Recovery Systems market?
3. What is the year over year growth of the global CO2 Gas Revert Recovery Systems market?
4. What is the production and production value of the global CO2 Gas Revert Recovery Systems market?
5. Who are the key producers in the global CO2 Gas Revert Recovery Systems market?
6. What are the growth factors driving the market demand?

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info@marketpublishers.com

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info@marketpublishers.com

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info@marketpublishers.com

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info@marketpublishers.com

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info@marketpublishers.com

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+357 96 030922
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info@marketpublishers.com

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