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CO2 Compressor Market Forecasts to 2032 – Global Analysis By Product Type (Reciprocating Compressors, Screw Compressors, Rotary Compressors, Centrifugal Compressors and Oil-cooled Compressors), Power Source (Electric Compressors and Gas-powered Compressors), Technology, Application, End User and By Geography

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Abstracts

According to Stratistics MRC, the Global CO2 Compressor Market is accounted for $2.42 billion in 2025 and is expected to reach $4.68 billion by 2032 growing at a CAGR of 9.9% during the forecast period. A mechanical tool used in a variety of industrial settings to compress carbon dioxide gas to higher pressures is called a CO? compressor. Industries including food and beverage, oil and gas, chemical processing, and refrigeration all make extensive use of these compressors. Compressors designed specifically to handle the special characteristics of carbon dioxide, such as its high density and propensity to melt under pressure, are known as CO? compressors. Various models, such as centrifugal, screw, and reciprocating models, are available based on the required flow rate and pressure. Effective CO? compression is necessary for procedures such as enhanced oil recovery, dry ice production, and supercritical CO? extraction.

According to the Gas Compressor Association (GCA) has been compiling and publishing industry-specific statistical data for over 30 years, covering manufacturing, packaging, and rental fleet segments of the natural gas compression industry. This data includes information on reciprocating and rotary screw compressors, engines, electric motors, coolers, and compressor packagers (OEMs).

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Market Dynamics:

Driver:

Growing utilization of supercritical co? for power generation and extraction

The CO? compressor market is being driven largely by the growing use of supercritical CO? (sCO?) technology in sectors like power generation, food processing, and pharmaceuticals. Supercritical CO? has special solvent qualities that make it the perfect solvent for high-efficiency and environmentally friendly extraction. It exists at a state above its critical temperature and pressure. Furthermore, CO? compressors are a vital part of the industrial and energy innovation landscapes because they are necessary to maintain the high pressures needed for these applications.

Restraint:

High operating and capital expenses

The significant upfront capital expenditure needed for the purchase and installation of these systems is one of the main factors limiting the CO? compressor market. CO? compressors are complicated and need specialized materials and engineering, which raises costs, especially for high-pressure or supercritical applications. The total cost of ownership is further increased by operational expenses such as skilled labor, energy use, and maintenance. Moreover, these costs may be too high for small and medium-sized businesses (SMEs), which would prevent widespread adoption.

Opportunity:

Technological developments in co2 compressors

The design of CO? compressors is constantly evolving, and new features like oil-free systems, magnetic bearings, variable speed drives (VSD), and modular skid-mounted units are making them more effective, smaller, and simpler to integrate into a variety of applications. These technological developments lower energy consumption and maintenance needs, increasing the appeal of compressors to sectors where environmental compliance and operational efficiency are crucial. Additionally, as producers keep refining these characteristics, they open up new markets for CO? compressors and extend their usefulness beyond conventional markets to innovative industrial applications.

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Threat:

Environmental issues with sources of industrial Co?

The majority of industrial CO? still comes from fossil fuel-based sources like refineries, cement factories, and natural gas processing, even though CO? is being utilized more and more in sustainable technologies. This paradox leads to regulatory pressure and environmental scrutiny, particularly as industries look for truly low-carbon solutions. The overall viability of CO? applications may decrease if governments enforce rigid life-cycle emissions analysis or place limitations or carbon taxes on CO? extracted from polluting sources. Furthermore, this change could discourage end users from purchasing CO?-intensive equipment, such as compressors, which could hinder market expansion unless green or biogenic CO? sourcing becomes more common.

Covid-19 Impact:

The COVID-19 pandemic had a major effect on the market for CO? compressors because it reduced industrial activity and upset global supply chains. Compressor orders and CO? consumption temporarily decreased as a result of lockdowns, which reduced demand in important industries like manufacturing, refrigeration, and food and beverage. Timelines for production and installation were also hampered by delayed equipment shipments and shortages of raw materials. But the pandemic also increased attention to carbon capture projects and sustainable technologies as part of plans for economic recovery, which rekindled interest in CO2 compressors. However, even though COVID-19 resulted in temporary setbacks, it is anticipated that greater environmental consciousness will spur long-term market growth.

The reciprocating compressors segment is expected to be the largest during the forecast period

The reciprocating compressors segment is expected to account for the largest market share during the forecast period. Their dominance can be attributed to their high efficiency, high pressure tolerance, and small to medium capacity applications, which make them perfect for CO2 compression in sectors like carbon capture, natural gas processing, and refrigeration. Moreover, they are favored in processes that need intermittent or variable load operations due to their sturdy design and ability to provide precise compression, which fuels the CO2 compressor segment's substantial market demand and expansion.

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The power generation segment is expected to have the highest CAGR during the forecast period

Over the forecast period, the power generation segment is predicted to witness the highest growth rate. Stricter laws intended to lower carbon emissions from power plants and rising global demand for cleaner energy sources are the main drivers of this expansion. CO2 compressors are essential components of carbon capture and storage (CCS) technologies, which are extensively used in the production of electricity in an effort to reduce greenhouse gas emissions. Additionally, the industry is experiencing the fastest growth in CO2 compressor adoption due to the increased emphasis on sustainable energy production and government incentives to implement CCS projects.

Region with largest share:

During the forecast period, the Asia Pacific region is expected to hold the largest market share. The main causes of this dominance are the fast urbanization and industrialization of nations like China and India, as well as the growing need for ecologically friendly and energy-efficient cooling solutions. Furthermore, the adoption of CO? compressors has been greatly accelerated in a number of industries, including food and beverage, pharmaceuticals, and industrial refrigeration, owing to the region's strong manufacturing base and government initiatives supporting sustainable practices. For CO? compressors, Asia Pacific is therefore the biggest and fastest-growing market.

Region with highest CAGR:

Over the forecast period, the Middle East & Africa region is anticipated to exhibit the highest CAGR. Growing investments in oil and gas infrastructure as well as increased power generation capabilities in nations like South Africa, the United Arab Emirates, and Saudi Arabia are driving this growth. To cut emissions and adhere to international environmental standards, the region is concentrating on carbon capture and storage technologies. Moreover, the need for CO2 compressors is also being driven by an increase in industrial activity and government programs supporting sustainable energy solutions, which is why MEA is a new, rapidly expanding market globally.

Key players in the market

Some of the key players in CO2 Compressor Market include Siemens AG, Mitsubishi Heavy Industries, Ltd., Atlas Copco AB, Sanden Corporation, Howden Group, Copeland

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LP, Ingersoll Rand Inc, Sollant Group, Hitachi, Bengbu AOT Compressor Co., Ltd., HAUG Sauer Kompressoren AG, Panasonic Corporation, Mehrer Compression GmbH, Dorin SpA and Bauer Group.

Key Developments:

In March 2025, Mitsubishi Heavy Industries, Ltd. (MHI) has concluded a Nissay Positive Impact Finance agreement with Nippon Life Insurance Company. This is the second Positive Impact Finance Agreement between MHI and Nippon Life. MHI Group, in response to the growing need to address the global challenge of climate change, in 2020, identified five material issues, as priority measures to contribute to solving societal issues and ensuring continued growth over the medium to long term.

In July 2024, Siemens AG and Boson Energy have signed a Memorandum of Understanding (MoU) to facilitate collaboration on technology that converts non-recyclable waste into clean energy. The collaboration aims to advance sustainable, local energy security, enabling hydrogen-powered electric vehicle charging infrastructure without compromising grid stability or impacting consumer prices.

In March 2024, Ingersoll Rand has signed an agreement for the acquisition of ILC Dover from investment company New Mountain Capital for $2.325bn in cash upfront, expanding its presence in life sciences. The acquisition also includes an earnout based on meeting specific operating efficiency metrics this year.

Product Types Covered:

- Reciprocating Compressors
- Screw Compressors
- Rotary Compressors
- Centrifugal Compressors
- Oil-cooled Compressors

Power Sources Covered:

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- Electric Compressors
- Gas-powered Compressors

Technologies Covered:

- Traditional Compressors
- Advanced Compressors

Applications Covered:

- Refrigeration
- Air Conditioning
- Carbonating
- Carbon Capture & Storage (CCS)

End Users Covered:

- Oil & Gas
- Power Generation
- Chemicals & Petrochemicals
- Food & Beverage
- Pharmaceuticals
- Other End Users

Regions Covered:

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North America

US

Canada

Mexico

Europe

Germany

UK

Italy

France

Spain

Rest of Europe

Asia Pacific

Japan

China

India

Australia

New Zealand

South Korea

Rest of Asia Pacific

South America

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- Argentina
- Brazil
- Chile
- Rest of South America

Middle East & Africa

- Saudi Arabia
- UAE
- Qatar
- South Africa
- Rest of Middle East & Africa

What our report offers:
- Market share assessments for the regional and country-level segments
- Strategic recommendations for the new entrants
- Covers Market data for the years 2024, 2025, 2026, 2028, and 2032
- Market Trends (Drivers, Constraints, Opportunities, Threats, Challenges, Investment Opportunities, and recommendations)
- Strategic recommendations in key business segments based on the market estimations
- Competitive landscaping mapping the key common trends
- Company profiling with detailed strategies, financials, and recent developments
- Supply chain trends mapping the latest technological advancements

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Company Profiling

Comprehensive profiling of additional market players (up to 3)

SWOT Analysis of key players (up to 3)

Regional Segmentation

Market estimations, Forecasts and CAGR of any prominent country as per the client's interest (Note: Depends on feasibility check)

Competitive Benchmarking

Benchmarking of key players based on product portfolio, geographical presence, and strategic alliances

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Contents

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12 COMPANY PROFILING

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List Of Tables

LIST OF TABLES

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Note: Tables for North America, Europe, APAC, South America, and Middle East & Africa Regions are also represented in the same manner as above.

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