

# **Pressure Gauge Market Report by Output Type (Analog, Digital), Technology (Piezoresistive Pressure Gauge, Capacitive Pressure Gauge, Electromagnetic Pressure Gauge, Resonant Solid State Pressure Gauge, Optical Pressure Gauge), Application (Aviation and Defense, Automotive, Healthcare, Energy, and Others), and Region 2024-2032**

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## **Abstracts**

The global pressure gauge market size reached US\$ 905.4 Million in 2023. Looking forward, IMARC Group expects the market to reach US\$ 1,156.3 Million by 2032, exhibiting a growth rate (CAGR) of 2.7% during 2024-2032. The increasing adoption of precision pressure monitoring tools in various end-use industries, continual technological advancements leading to the introduction of product variants with enhanced accuracy and durability, and rising stringency for regulatory compliance represent some of the factors that are propelling the market.

A pressure gauge is an essential instrument used to measure the pressure within a container or system. This instrument operates based on the equilibrium of forces acting on specific elements within it, and ensures the correct functioning of various systems by monitoring pressure levels and assists in the prevention of potential failures or accidents. Typically, the device consists of an elastic element that deforms under the influence of pressure, and this deformation is converted into a readable value through mechanical or electronic means. By employing a Bourdon tube, diaphragm, or capsule, the product can translate pressure changes into mechanical movement.

The global market is primarily driven by the increasing adoption of precision pressure monitoring tools in various industries such as oil & gas, manufacturing, and automotive.

In line with this, continual technological advancements leading to the introduction of product variants with enhanced accuracy and durability are also providing an impetus to the market. Moreover, the growing emphasis on safety standards and regulations in industrial operations is acting as a significant growth-inducing factor for the market. In addition to this, the rise in automation across different sectors, demanding advanced pressure monitoring tools, is resulting in higher investment in these essential devices. Some of the other factors contributing to the market include the expanding number of working populations, easy product availability across various sectors, and the cultural shift towards more precise and reliable pressure measurement tools.

#### Pressure Gauge Market Trends/Drivers:

##### Rising stringency for regulatory compliance

The enforcement of stringent regulations across various industrial sectors has emerged as a primary driver for the global market. Governments, regulatory bodies, and international organizations are increasingly emphasizing the need for consistent monitoring and control of pressure within systems to ensure the safety, efficiency, and environmental responsibility of industrial operations. These strict compliance requirements are necessitating the adoption of advanced product variants that are capable of providing accurate and reliable measurements. Industries such as oil & gas, chemicals, and manufacturing are particularly impacted, as they deal with potentially hazardous substances where precise pressure control is crucial. The need to comply with these regulations not only promotes innovation in product technology but also ensures that organizations invest in quality instruments that meet the required standards. In essence, the drive towards regulatory compliance is shaping the market, compelling industries to prioritize precision and safety, and fostering a culture of continual improvement and accountability within the sector.

##### Rapid expansion of the pharmaceutical industry

The rapid growth of the pharmaceutical industry is another significant factor driving the demand for specialized product variants. As the industry expands, there is a heightened requirement for pressure control in various processes, including drug manufacturing, quality assurance, and laboratory research. The need for precise pressure measurements in these applications is paramount, as even minor deviations can lead to significant quality issues or non-compliance with regulatory standards. The gauges tailored to meet the stringent standards of the pharmaceutical industry must be highly accurate, resistant to contamination, and capable of operating in specialized

environments. The continuous evolution of pharmaceutical processes and the global push towards more effective and personalized medical treatments further intensify the need for advanced pressure monitoring solutions. The intersection of technology, regulation, and medical innovation in this sector is, therefore, fostering a growing product demand that can support the complex and critical nature of pharmaceutical operations.

### Rising global energy demand

The relentless growth in global energy consumption is a vital factor propelling the demand for advanced solutions. With the world's population increasing and economies developing, energy-related infrastructure such as oil refineries, natural gas processing plants, power generation facilities, and renewable energy installations must expand to meet rising demands. These complex systems require meticulous monitoring and control of pressure to function safely and efficiently. Pressure gauges play an essential role in this context, enabling operators to maintain optimal conditions and promptly respond to any irregularities. Innovations in energy technology, such as the exploration of alternative fuel sources and the modernization of existing facilities, further underscore the importance of reliable pressure measurement instruments. The global thrust towards energy security, sustainability, and technological advancement is thus driving the development and deployment of these gauges that align with the evolving needs and standards of the energy sector.

### Pressure Gauge Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the global pressure gauge market report, along with forecasts at the global, regional and country levels from 2024-2032. Our report has categorized the market based on output type, technology and application.

### Breakup by Output Type:

Analog

Digital

The report has provided a detailed breakup and analysis of the market based on the output type. This includes analog and digital.

The simplicity and ease of use of analog gauges make them appealing to a broad audience, as their direct reading interface allows for understanding without complex

interpretation. They are generally less expensive than digital alternatives, contributing to their popularity across various applications, including those where budget constraints are significant. This segment continues to expand due to its cost-effectiveness and user-friendly nature, with its reliability and accessibility making analog product variants a steadfast choice in many industries, such as manufacturing, plumbing, and hydraulic systems.

On the other hand, the digital segment offers enhanced accuracy with exact readings, as the digital display eliminates parallax error and ensures precise, easily readable measurements. This adds significant value in industries where precision is paramount and aligns seamlessly with computers and contemporary control systems, making them suitable for modern applications, including data collection systems and process control. The digital segment is expanding rapidly due to its precision, integration capabilities, and alignment with technological advancements. This growth reflects a broader shift towards automation and data-driven decision-making, marking digital these gauges as an essential tool in the modern industry.

#### Breakup by Technology:

- Piezoresistive Pressure Gauge
- Capacitive Pressure Gauge
- Electromagnetic Pressure Gauge
- Resonant Solid State Pressure Gauge
- Optical Pressure Gauge

The report has provided a detailed breakup and analysis of the market based on the technology. This includes piezoresistive pressure gauge, capacitive pressure gauge, electromagnetic pressure gauge, resonant solid state pressure gauge, and optical pressure gauge.

For piezoresistive pressure gauge, the cost-effectiveness and affordability are driving product adoption, particularly in developing markets. The flexibility of these gauges, owing to their simple construction, makes them suitable for various applications. This segment continues to grow due to its wide-ranging applications and cost benefits.

On the other hand, capacitive pressure gauges are favored for applications requiring precise measurements due to their high sensitivity and accuracy. These gauges are highly reliable and resistant to environmental influences, such as temperature and humidity. Their unique features make them desirable in a variety of specialized

applications.

Additionally, the electromagnetic pressure gauge is suitable for a wide range of applications including the fluid industry, owing to its electromagnetic properties. Known for their durability and robustness, they offer a long lifespan. This segment is seeing steady growth due to its diverse applications and reliability.

Furthermore, resonant solid state pressure gauges provide high precision and extremely accurate readings, making them appealing for specific applications. They offer stability, maintaining readings over a wide range of temperatures and pressures. These characteristics are driving growth in this segment, especially in industries that require high-precision measurements.

Moreover, optical pressure gauges are suitable for environments where electromagnetic interference is a concern, as they offer no electrical interference. With their high sensitivity, they are ideal for detecting minor pressure fluctuations. The unique attributes of optical pressure gauges are driving their adoption in specialized sectors.

Breakup by Application:

Aviation and Defense

Automotive

Healthcare

Energy

Others

Healthcare accounts for the majority of the market share

The report has provided a detailed breakup and analysis of the market based on the application. This includes aviation and defense, automotive, healthcare, energy, and others. According to the report, healthcare represented the largest segment.

In healthcare, pressure gauges are essential for monitoring and controlling various equipment; complying with health and safety standards necessitates their use. Advancements in medical technology require precise pressure monitoring, leading to a growth in the market within the healthcare sector. The global increase in healthcare needs has led to the expansion of medical facilities and equipment, thereby driving the product demand. Ensuring patient safety through accurate pressure monitoring in various medical applications also fuels the market for these instruments within

healthcare.

On the other hand, continual technological advancements are propelling growth across aviation and defense, automotive, healthcare, energy, and other sectors by introducing sophisticated sensor technologies. Regulatory compliance and globalization demand precise measurement and consistent standards, fostering growth in these combined markets. Economic expansion is leading to an increased need for products and services in these sectors, fueling demand for related technologies.

#### Breakup by Region:

North America

United States

Canada

Asia-Pacific

China

Japan

India

South Korea

Australia

Indonesia

Others

Europe

Germany

France

United Kingdom

Italy

Spain

Russia

Others

Latin America

Brazil

Mexico

Others

Middle East and Africa

Asia Pacific exhibits a clear dominance, accounting for the largest pressure gauge market share

The report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, and others); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Latin America (Brazil, Mexico, and others); and the Middle East and Africa. According to the report, Asia Pacific accounted for the largest market share.

The Asia Pacific region has witnessed significant economic growth, leading to industrial expansion. Stricter government regulations pertaining to safety and environmental concerns are necessitating the use of precise pressure gauges. The region's role as a global manufacturing hub provides an impetus to the product demand in various industries.

Continual technological innovations and investments in research and development are providing momentum to the market. Rapid urbanization and infrastructure development projects are contributing to an increased need for accurate pressure measurement tools. The expansion of trade agreements with other regions promotes the export of locally manufactured products. The increasing capability of local manufacturers to produce sophisticated product variants is reducing dependency on imports.

Furthermore, the growing energy sector, especially in renewable energies, requires widespread product application, thereby contributing to market growth in the Asia Pacific region. The integration of these devices in healthcare systems in the region is part of a broader trend towards modernization and efficiency.

#### Competitive Landscape:

The key players in the global pressure gauge market are engaging in a series of strategic actions to ensure market growth. This includes the development of advanced and innovative products that cater to different industrial needs, including the integration of digital technology for more accurate and user-friendly readings. Collaborations and partnerships with other technology firms and industrial sectors are also being forged to expand reach and influence. Investments in research and development activities are being increased, focusing on energy-efficient and sustainable solutions that align with global regulatory standards. Furthermore, these players are expanding their geographic presence through mergers and acquisitions, aiming to penetrate emerging markets and strengthen their global footprint.

The report has provided a comprehensive analysis of the competitive landscape in the market. Detailed profiles of all major companies have also been provided. Some of the



key players in the market include:

AMETEK Inc.  
Badotherm  
CIRCOR International Inc.  
Crane Co.  
Dwyer Instruments Inc.  
Emerson Electric Co.  
Fluke Corporation (Fortive Corporation)  
Honeywell International Inc.  
Newbow Aerospace Ltd.  
OMEGA Engineering Inc. (Spectris plc)  
QED Aerospace  
WIKA Alexander Wiegand SE & Co. KG  
Winters Instruments Limited

#### Recent Developments:

In May 2023, AMETEK, Inc. announced the completion of the acquisition of Bison Gear & Engineering Corp. (Bison), a leading manufacturer of highly engineered motion control solutions serving diverse markets and applications.

In June 2023, CIRCOR International Inc. announced that it has entered into a definitive agreement to be acquired by investment funds managed by KKR, a leading global investment firm, in an all cash transaction valued at approximately \$1.6 billion, including the assumption of debt.

In April 2023, Crane Company, a manufacturer of highly engineered industrial products, today announced the completion of its separation from Crane Holdings, Co., and its launch as an independent, publicly traded company. Crane will begin trading on the New York Stock Exchange on April 4, 2023 under the ticker "CR".

#### Key Questions Answered in This Report

1. How big is the global pressure gauge market?
2. What is the expected growth rate of the global pressure gauge market during 2024-2032?
3. What are the key factors driving the global pressure gauge market?
4. What has been the impact of COVID-19 on the global pressure gauge market?
5. What is the breakup of the global pressure gauge market based on the application?
6. What are the key regions in the global pressure gauge market?
7. Who are the key players/companies in the global pressure gauge market?



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