

# **Hydraulic Cylinder Market Report by Function (Single-Acting Hydraulic Cylinders, Double-Acting Hydraulic Cylinders), Type (Tie-Rod Cylinders, Welded Cylinders, Telescopic Cylinders, Mill-Type Cylinders), Bore Size (150 MM), Application (Mobile, Industrial), End-Use Industry (Construction, Aerospace & Defense, Material Handling, Agriculture, Automotive, Mining, Oil & Gas, Marine, and Others), and Region 2024-2032**

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## **Abstracts**

The global hydraulic cylinder market size reached US\$ 14.0 Billion in 2023. Looking forward, IMARC Group expects the market to reach US\$ 19.2 Billion by 2032, exhibiting a growth rate (CAGR) of 3.5% during 2024-2032. The expansion of industrial activities, adoption of automation, infrastructure development projects, renewable energy emphasis, technological innovations, oil and gas industry expansion, and strategic initiatives by market players are fostering the market growth.

A hydraulic cylinder is a mechanical device used to convert hydraulic energy into linear motion and force. It includes a cylindrical barrel, a piston, and hydraulic fluid. When pressurized fluid is introduced into the cylinder, it pushes the piston, generating force along the cylinder's axis. The cylinder is typically made from durable materials, such as steel or aluminum, to withstand high pressures and loads. The construction involves precise machining and sealing techniques to ensure efficient fluid containment and minimal leakage. Hydraulic cylinders offer umpteen advantages, including high force output, smooth motion control, and the ability to operate in various environmental conditions. They find applications in numerous industries, such as construction,

manufacturing, and transportation. There are various types of hydraulic cylinders, each designed for specific tasks.

The global hydraulic cylinder market is influenced by the steady expansion of industrial and construction activities, which spur demand for heavy machinery and equipment utilizing hydraulic cylinders for efficient operation. Additionally, the rising adoption of automation and advanced manufacturing processes in various industries leads to increased deployment of hydraulic systems, further augmenting the market growth. Infrastructure development projects, particularly in emerging economies, contribute to the demand for hydraulic cylinders in construction machinery. Moreover, the growing emphasis on renewable energy drives the need for hydraulic systems in equipment used for solar and wind power generation, which is supporting the market growth. Apart from this, the continuous development of technology, leading to the introduction of innovative hydraulic systems with enhanced efficiency and durability, is another significant driver.

#### Hydraulic Cylinder Market Trends/Drivers:

##### Expansion of industrial and construction activities

The global hydraulic cylinder market experiences a substantial push from the continuous expansion of industrial and construction activities. As industries and infrastructural projects expand, the demand for heavy machinery and equipment equipped with hydraulic cylinders rises significantly. These cylinders play a pivotal role in ensuring the smooth and efficient operation of various machines, enhancing productivity and reducing operational complexities. Industries such as manufacturing, mining, and agriculture heavily rely on hydraulic cylinders to power equipment like excavators, loaders, and tractors. In the construction sector, hydraulic cylinders are integral components of construction machinery, including cranes, bulldozers, and forklifts, enabling precise movements and reliable performance. This escalating demand is attributed to the need for equipment that can handle heavy loads, perform intricate tasks, and adapt to diverse operational requirements, thereby driving the growth of the hydraulic cylinder market.

##### Adoption of automation and advanced manufacturing

The growing adoption of automation and advanced manufacturing practices across industries significantly propels the demand for hydraulic cylinders. Automation aims to streamline processes, enhance precision, and increase overall efficiency, requiring the integration of hydraulic systems in robotic and automated machinery. Hydraulic

cylinders enable precise control and seamless motion in robotic arms and assembly lines, facilitating intricate tasks in industries like automotive, electronics, and pharmaceuticals. Moreover, advanced manufacturing technologies like additive manufacturing and CNC machining are employed to produce complex hydraulic components with high accuracy, durability, and performance. The integration of hydraulic cylinders in automated manufacturing processes enhances the speed, reliability, and quality of production, thus fostering their demand in modern industries.

### Infrastructure development projects

The hydraulic cylinder market is also influenced by the momentum of global infrastructure development projects, particularly in emerging economies. As countries invest in modernizing and expanding their infrastructures, the demand for construction machinery equipped with hydraulic cylinders experiences a surge. These cylinders enable precise lifting, lowering, and movement of heavy materials and equipment, vital for large-scale construction projects such as bridges, roads, and buildings. Hydraulic cylinders ensure the stability and safety of construction machinery, facilitating the execution of intricate tasks in challenging environments. Moreover, the expansion of transportation networks, including railways and ports, fuels the demand for hydraulic systems in equipment used for material handling and transportation infrastructure. This symbiotic relationship between infrastructure development and hydraulic cylinders underscores their pivotal role in shaping global construction endeavors.

### Hydraulic Cylinder Industry Segmentation:

IMARC Group provides an analysis of the key trends in each segment of the global hydraulic cylinder market report, along with forecasts at the global, regional and country levels from 2024-2032. Our report has categorized the market based on function, type, bore size, application and end-use industry.

### Breakup by Function:

Single-Acting Hydraulic Cylinders  
Double-Acting Hydraulic Cylinders

Double-acting hydraulic cylinders dominate the market

The report has provided a detailed breakup and analysis of the market based on the function. This includes single-acting and double-acting hydraulic cylinders. According to the report, double-acting hydraulic cylinders represented the largest segment.

The dominance of the double-acting hydraulic cylinders segment in the market can be attributed its ability to exert force during both extension and retraction strokes, enabling smoother and more controlled movements in machinery. This versatility makes double-acting cylinders highly desirable in industries such as construction, manufacturing, and agriculture, where precise and consistent force application is crucial. Furthermore, their capacity to handle heavier loads and withstand higher pressure levels positions them as preferred options for heavy-duty applications. The reliability and improved control offered by double-acting hydraulic cylinders contribute to enhanced productivity and reduced downtime in industrial operations. As industries continue to seek optimal performance and operational efficiency, the inherent advantages of double-acting hydraulic cylinders propel their dominance and sustained growth in the market.

#### Breakup by Type:

Tie-Rod Cylinders

Welded Cylinders

Telescopic Cylinders

Mill-Type Cylinders

Welded cylinders dominate the market

A detailed breakup and analysis of the market based on the type has also been provided in the report. This includes tie-rod, welded, telescopic, and mill-type cylinders. According to the report, welded cylinders represented the largest segment.

The welded cylinders segment holds a dominant position in the hydraulic cylinder market due to several advantages, including robust construction, cost-effectiveness, and high customization potential. Engineered with welded end caps, these cylinders offer a durable structure that can withstand high pressures and heavy loads. Their simpler design and manufacturing process result in cost savings, making them a preferred choice for businesses looking for budget-friendly yet reliable hydraulic solutions. The customization capabilities of welded cylinders allow them to be tailored to specific operational needs, including varying stroke lengths, mounting styles, and bore sizes, which makes them versatile across multiple industries like construction, agriculture, material handling, and manufacturing. Their efficiency in handling both linear and rotary movements, compact design, and ease of maintenance further contribute to their widespread appeal and growing demand.

## Breakup by Bore Size:

150 MM

50–150 MM dominates the market

The report has provided a detailed breakup and analysis of the market based on the bore size. This includes 150 MM. According to the report, 50–150 MM represented the largest segment.

The dominance of the 50–150mm segment in the hydraulic cylinder market can be attributed to a balance offered by 50–150mm in terms of versatility and efficiency, catering to a wide range of applications across industries. The hydraulic cylinders within this size range offer optimal power-to-size ratios, making them suitable for both light and medium-duty tasks, such as material handling, construction equipment, and agricultural machinery. In line with this, industries are increasingly gravitating towards compact and space-efficient machinery. The 50–150mm hydraulic cylinders align well with this trend, allowing manufacturers to design and integrate more streamlined equipment without compromising performance. This adaptability drives their preference in various automation, manufacturing, and construction applications. Furthermore, advancements in engineering and manufacturing techniques have led to improved precision and reliability of hydraulic cylinders in this segment. This fosters greater confidence among industries, enhancing their adoption. Additionally, the economic viability of these cylinders, combined with their durability, supports cost-effective operations and reduces maintenance needs, further bolstering their popularity.

## Breakup by Application:

Mobile

Industrial

Mobile holds the largest share in the market

A detailed breakup and analysis of the market based on the application has also been provided in the report. This includes mobile and industrial. According to the report, mobile represented the largest segment.

The mobile segment leads in the hydraulic cylinder market, largely due to the surge in mobile applications across various industries including construction, agriculture, and

transportation. Hydraulic cylinders are essential for enabling efficient movement in mobile machinery, thereby boosting productivity and versatility. The increasing trend towards automation and remote-controlled machinery also calls for the integration of hydraulic systems for enhanced control and maneuverability, aligning perfectly with the capabilities of hydraulic cylinders. Additionally, infrastructure development, especially in emerging economies, significantly boosts the demand for mobile machinery equipped with hydraulic cylinders for precise operations like lifting and lowering materials. The focus on renewable energy sectors like solar and wind further propels the need for mobile equipment, where hydraulic cylinders offer optimal performance and adjustability.

#### Breakup by End-Use Industry:

- Construction
- Aerospace & Defense
- Material Handling
- Agriculture
- Automotive
- Mining
- Oil & Gas
- Marine
- Others

Construction holds the largest share in the market

A detailed breakup and analysis of the market based on the end-use industry has also been provided in the report. This includes construction, aerospace & defense, material handling, agriculture, automotive, mining, oil & gas, marine, and others. According to the report, construction represented the largest segment.

The construction sector stands as the largest end-use industry for hydraulic cylinders due to its inherent demand for heavy-duty machinery capable of performing tasks like lifting, lowering, and moving materials efficiently. Hydraulic cylinders provide the mechanical force needed for these essential functions, thus playing a critical role in construction applications ranging from earthmoving and excavation to crane operation and material handling. The industry's ongoing expansion, particularly in emerging economies, fuels a constant need for more advanced and reliable machinery, which, in turn, drives the demand for hydraulic cylinders. Furthermore, the cylinders' versatility and adaptability make them suitable for various types of construction equipment, such

as bulldozers, excavators, and backhoes. With rising infrastructure development projects, the sector continually seeks robust and efficient solutions for handling heavy loads and performing intricate tasks. Hydraulic cylinders meet these needs effectively, further solidifying their integral position in the construction industry.

#### 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 hydraulic cylinder market share

The market research report has also provided a comprehensive analysis of all the major regional markets, which include North America (the United States and Canada); Europe (Germany, France, the United Kingdom, Italy, Spain, Russia, and others); Asia Pacific (China, Japan, India, South Korea, Australia, Indonesia, 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.

Asia-Pacific leads the global hydraulic cylinder market primarily due to its robust industrial growth and significant investments in infrastructure development projects. The region has seen rapid urbanization and a surge in construction activities, especially in emerging economies like China and India, which naturally elevates the demand for heavy machinery equipped with hydraulic cylinders. Additionally, the agriculture sector in these countries is increasingly adopting mechanized equipment, further boosting the market for hydraulic cylinders. The region's manufacturing sector also contributes to this growth, with an uptick in automation and the use of machinery in factories requiring precise control mechanisms, for which hydraulic cylinders are essential. Moreover, governmental initiatives aimed at modernizing industrial sectors and improving infrastructure further propel the demand. The availability of cost-effective labor and raw materials also makes the region a favorable market for producing hydraulic cylinders, thus not just satisfying local demand but also serving as an export hub.

#### Competitive Landscape:

The competitive landscape of the hydraulic cylinder market is characterized by a dynamic interplay of factors that influence the positioning and strategies of key market players. The industry's growth trajectory is shaped by factors such as technological advancements, product innovation, and strategic collaborations. Market participants continually invest in research and development to introduce cutting-edge hydraulic systems that offer enhanced efficiency, durability, and adaptability to diverse applications. Additionally, a focus on expanding global presence through strategic partnerships, acquisitions, and geographical expansions is observed.

The demand for customized solutions is prompting manufacturers to tailor hydraulic cylinder designs to meet specific customer requirements, thereby fostering customer loyalty and retention. The competitive landscape is further influenced by the increasing emphasis on sustainability, with companies incorporating environmentally friendly materials and manufacturing processes into their offerings. Amidst these dynamics, maintaining a reputation for quality, reliability, and timely customer support remains crucial for market players seeking a competitive edge. As the market evolves, the ability to balance innovation, operational excellence, and customer-centric strategies will be pivotal in defining success within this dynamic and evolving competitive landscape.

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:

Bosch Rexroth AG  
Caterpillar Inc.  
Eaton Corporation  
Enerpac Tool Group (Formerly Actuant Corporation)  
Hannon Hydraulics  
HYDAC INTERNATIONAL GmbH  
JARP Industries  
Kappa Engineering  
KYB Corporation  
Parker-Hannifin Corporation  
SMC Corporation  
Texas Hydraulics Inc.  
United Hydraulics  
Wipro Enterprises

#### Recent Developments:

In August 2023, Federated Hermes Inc. acquired a new stake in Enerpac Tool Group Corp., with an estimated value of approximately US\$ 1,782,000.

In August 2023, Eaton announced a contract valued at approximately US\$ 6 Million to provide the city of Texas, with turnkey electrical engineering services, power distribution, and control and protection equipment to help establish its new South Lake Water Treatment Plant.

In June 2023, Bosch Rexroth opened a 13.2 Million EUR factory in Slovenia's Brnik.

#### Key Questions Answered in This Report

1. How big is the global hydraulic cylinder market?
2. What is the expected growth rate of the global hydraulic cylinder market during 2024-2032?
3. What are the key factors driving the global hydraulic cylinder market?
4. What has been the impact of COVID-19 on the global hydraulic cylinder market?
5. What is the breakup of the global hydraulic cylinder market based on the function?
6. What is the breakup of the global hydraulic cylinder market based on the type?
7. What is the breakup of the global hydraulic cylinder market based on the bore size?
8. What is the breakup of the global hydraulic cylinder market based on the application?
9. What is the breakup of the global hydraulic cylinder market based on the end-use industry?

10. What are the key regions in the global hydraulic cylinder market?
11. Who are the key players/companies in the global hydraulic cylinder market?

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