

Fluid Power Equipment Market - Growth, Trends, Covid-19 Impact, and Forecasts (2023 - 2028)

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Report description:

The hydraulic equipment market is expected to grow at a CAGR of 5.9% over the forecast period. The industry is witnessing significant development in the lines of automation as companies move towards a more intelligent environment. Several key stakeholders operating in the market are banking upon creating a synergy between the hydraulic products and the electrical division. Advancements in hydraulic technology in the current market include liquid power transmission, mobile diagnostic tools, simplified hose selection, thermoplastic components, and electrohydraulic control.

Key Highlights

Vendors highly stress the regular maintenance of hydraulic equipment to avoid high repair and replacement costs. Furthermore, maintenance ensures the reduction of downtime for operations as cleaning and checking the equipment can be a matter of minutes, replacement an event of hours, whereas complete repair could suffer productivity by a more extended period. For instance, in April 2021, REHOBOT Hydraulics announced the launch of the PME70-2500MRV/VR70, an electric-powered hydraulic pump. This pump is incorporated with a low-maintenance induction motor, and it is designed to meet the needs of many clients in many application industries.

The wave of Industry 4.0 across the globe is boosting the growth of connected hydraulic equipment with a paradigm shift of focus on smart and intelligent systems. Machine manufacturers, especially in Europe, are digitalizing the machines. The networking is expected to facilitate the advancement of connected systems in the hydraulic equipment for seamless integration with other machines. This can be noted in the trend of moving from analog hydraulic equipment to digitized hydraulic technology.

The advent of automation in manufacturing processes in several end-user verticals, including Food Processing and Packaging, Automotive, Material Handling and Assembly, and Chemicals/Plastics/Oil, directly impacted the adoption of pneumatic equipment. Further, the evolution of labor-saving devices, automatic machinery, and automatic-control systems directed an increase in the use of pneumatics.

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The trend of adopting pneumatic equipment for various operations is facilitated by the need for high energy efficiency that is offered by this equipment. Furthermore, companies are focusing on providing flexibility in the design of pneumatic equipment. For instance, pneumatic actuators are sized to the application considering the necessary force, pressure, and mechanical limitations through online sizing software and cylinder configuration tools.

Another trend that has gained traction in the market studied is reduced fluid volumes relative to pump flow rates for smaller and lighter equipment. The lower fluid volume in mobile hydraulic equipment allows less time in the sump. This translates to less time for cooling and the elimination of entrained air.

The COVID-19 pandemic created significant supply chain disruptions for the manufacturing of hydraulic power equipment. Manufacturers were forced to shut down factories due to the nationwide lockdown, which created a supply and demand cycle gap. The National Fluid Power Association detailed the pandemic's impact on companies, with a few of them being incredibly hit while others being able to show resilience. In addition to economic decline and lockdown challenges, the market studied has seen the rise of customization as a key trend in hydraulic equipment dealing with heavy-load material handling during the COVID-19 pandemic.

Fluid Power Equipment Market Trends

Valves Holds a Significant Share in the Market

Pneumatic valves include mechanical valves, manual valves, solenoid-piloted, air piloted, and vacuum-piloted. Pneumatic systems that considerably depend on the force of compressed air to transmit power are substantially found in several industrial applications, from pneumatically operated power tools to diesel engines, thus, driving their usage in multiple applications. Further, in 2021, a US-based manufacturer of control valves and specialty fluid handling products, Warren Controls, launched its ILEA 2900E series of electrically actuated industrial globe-control valves. The series hosts a high-quality, modulating, linear, industrial electric valve actuator while featuring a rugged cast-iron body with various trim materials. The 2900E series is suited where value and long life are important objectives for applications, including wastewater.

Furthermore, pressure relief valves generally control pressure present at their inlet port by exhausting pressure to the atmosphere. Relief valves are typically utilized only in receivers or air storage devices, such as accumulators, to prevent excessive pressurization. Also, other pneumatic systems are valves to control flow. Pneumatic directional valves are offered in multiple styles, sizes, and configurations, which allows free flow in one direction and prevents flow in the reverse direction. In addition, according to Eurostat, the revenue from the production of other taps and valves in Italy is expected to be around USD 10.52 billion by 2025, which will further drive the market's growth.

In September 2021, Linde Hydraulics GmbH & Co. KG introduced its next generation of control valves. The new valve block VW 22/18 M5-03 for the open circuit is characterized by its modular system, whereby the Monoblock with five sections plus a pressure relief section represents the basic set-up. Optionally, three additional sections can be added on each side of the block, thus specifically addressing customer needs.

Moreover, in 2021, Bosch Rexroth launched a pre-compensated valve platform making it easier for mobile machine builders to selectively combine a range of hydraulic control valves into a single, integrated, multifunctional control solution to match specific operational and performance requirements.

Industry 4.0 is being driven by advancements in automation technologies, which are resulting in rapid growth in the usage of smart valves to gain better control over operation and safety. Furthermore, rising water demand, together with an increase in population resulted in greater water consumption per capita over time, despite decreased water supply.

North America to Witness Considerable Growth

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Due to the growing development in manufacturing and R&D activities in various industries across North America, the region holds a high market share. Furthermore, the rising number of initiatives taken to ensure the safety of the workers in industries, such as chemicals and oil and gas also support the market growth in the region.

In oil and gas, hydraulic systems use fluid pressure to power a pump. That is done by pumping fluids downhole using a triplex pump designed for extremely high pressure, usually between approximately 2,000 and 5,000 psi. In general, hydraulic lifts have higher production volumes than mechanical lift pumps. According to EIA, it is expected that the US consumption of natural gas will average 82.5 billion cubic feet per day (Bcf/d) in 2021 and 83.8 Bcf/d in 2022. With increasing consumption, the market caters to potential growth.

Furthermore, the increasing demand for hydraulic equipment in the construction industry is driving the market's growth. For instance, in April 2021, Kobelco Construction Machinery USA announced that the company had secured an engine supply agreement with Yanmar and Isuzu for the production of excavators and cranes in North America.

Moreover, in May 2021, Hitachi Construction Machinery introduced a ZX50U excavator in North America, which uses the Hitachi triple H hydraulic system, which enables combined operations by adjusting the optimal flow rate for all actuators. In addition, in August 2022, Volvo North America introduced two electric construction machines to expand its electric construction line in North America. The machine runs by engaging the electric motors with hydraulic pumps. Such innovations are further driving the adoption of hydraulic equipment in the region.

According to the US Department of Energy, compressed air systems use 10% of total power and around 16% of total motor system energy in US manufacturing businesses. It further states that compressed air systems are used in 70% of all manufacturing plants in the United States. The majority of these systems deliver compressed air to power a range of equipment in a given plant, such as machine tools, painting booths, material separation, and materials handling.

Furthermore, the new FDA guidelines in the United States were enacted as part of the Food Safety Modernization Act, which requires strict disinfection and hygiene requirements. As a result, suppliers and packagers will be compelled to meet their needs for proper equipment cleaning. Pneumatic equipment is cleaner than hydraulic and other mechanical equipment, allowing it to be used in a variety of applications in the food processing industry. Such laws enable the region's market to flourish rapidly.

Fluid Power Equipment Market Competitor Analysis

The fluid power equipment market is moderately consolidated, with a few significant companies like Bosch-Rexroth AG, Danfoss AS, Eaton Corporation, Festo AG, SMC Corporation, Emerson Electric Co., and Schlumberger Limited. The companies continuously invest in strategic partnerships and product developments to gain more market share.

In December 2021, Danfoss Power Solutions introduced a multi-axis steering for OEMs to improve the maneuverability and productivity of farm and construction equipment. The system enables tighter turns and high-visibility crabbing. The technology is rooted in a software-driven electro-hydraulic valve that allows on-the-go independent control of a vehicle's front and rear axles from the cab. The technology is used on tractors in European vineyards and on construction and material handling equipment in the European Union.

In May 2021, Bosch Rexroth launched a fast and power-dense Haggglunds Atom hydraulic motor. The Haggglunds Atom replaces the existing Haggglunds CAB, delivering not only more revolutions per minute, but also more powerful than motors of similar size. The result is a tiny, power-dense package that is ideal for mobile, marine, and recycling applications.

Additional Benefits:

The market estimate (ME) sheet in Excel format
3 months of analyst support

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