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Global Hydrogen Solenoid Shut-off Valve Market 2026 by Manufacturers, Regions, Type and Application, Forecast to 2032

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Abstracts

According to our (Global Info Research) latest study, the global Hydrogen Solenoid Shut-off Valve market size was valued at US$ 290 million in 2025 and is forecast to a readjusted size of US$ 1079 million by 2032 with a CAGR of 21.1% during review period.

Hydrogen Solenoid Shut-off Valve refers to an electrically actuated shut-off valve used in hydrogen storage, transmission, distribution, refueling, and end-use systems to rapidly open or close the flow path of hydrogen for isolation, on-off control, and emergency shut-off functions. The product is designed to address key operational challenges in hydrogen systems, including slow manual valve operation, insufficient automation, delayed response, and the need for reliable flow isolation under demanding pressure and safety conditions. It is widely used in hydrogen refueling stations, onboard hydrogen supply systems for fuel cell vehicles, stationary fuel cell power systems, hydrogen piping assemblies, high-pressure storage modules, and other hydrogen-related industrial applications. Compared with conventional solenoid shut-off valves for general gases, this category requires much stricter performance in sealing integrity, pressure resistance, material compatibility, low leakage, and long-term cycling reliability because hydrogen has a very small molecular size, strong permeability, and the potential to induce material degradation such as hydrogen embrittlement under certain service conditions. The product category originated from traditional industrial gas solenoid valves and shut-off valve technologies, and evolved into a dedicated hydrogen-oriented control component alongside the development of the hydrogen economy, fuel cell vehicles, and hydrogen refueling infrastructure. Over time, it has moved toward higher pressure capability, faster response, greater system integration, and more stringent safety performance. Upstream supplies mainly include stainless steel, brass,

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specialty alloys, engineering plastics, elastomer and polymer sealing materials, as well as key components such as solenoid coils, armatures, valve cores, valve seats, springs, valve bodies, fittings, actuating structures, and control-related modules.In 2025, the global production capacity of Hydrogen Solenoid Shut-off Valves is estimated at approximately 850 thousand units, while sales volume is expected to reach about 730 thousand units. The average unit price is around USD 385.5 per unit, and the gross profit margin of manufacturers is estimated to range from 30% to 40%.

The market is still in a transition phase from pilot-led deployment to broader engineering-driven adoption, and demand is being created together with the build-out of hydrogen refueling stations, fuel cell balance-of-plant systems, hydrogen storage and distribution equipment, industrial hydrogen piping, and selected liquid hydrogen applications. Official materials from major valve and fluid-control suppliers increasingly treat hydrogen as a dedicated application field rather than a simple extension of conventional gas control, reflecting the need for specialized performance in high pressure resistance, low leakage, hydrogen compatibility, fast switching, and long-term cycling durability. As a result, competition is becoming more technology- and qualification-driven, with greater emphasis on sealing design, material selection, validation capability, and subsystem integration rather than on price alone.

Looking ahead, the category is likely to evolve toward higher pressure capability, stricter leakage control, better system integration, and broader operating-condition coverage. Gaseous hydrogen applications are expected to remain the mainstream focus, especially in storage, dispensing, and onboard supply systems where response speed, tight shut-off, and service life are critical. At the same time, the gradual development of liquid hydrogen handling, cryogenic transport, and long-distance distribution is creating additional demand for valve technologies that can operate across extremely low temperatures while maintaining hydrogen compatibility. The fact that some manufacturers now explicitly promote both high-pressure hydrogen valves and cryogenic hydrogen valves suggests that the market is moving from a single-route product logic toward a more complete gas-hydrogen-plus-liquid-hydrogen architecture.

The main growth drivers come from the expansion of hydrogen infrastructure, the broader adoption of fuel cell systems, and the increasing need for safe and efficient hydrogen storage and transport. At the same time, the restraints remain substantial. Hydrogen?s small molecular size and strong permeability raise the difficulty of leak prevention, while high-pressure and repeated-cycle conditions increase the demands on materials, fatigue resistance, and embrittlement control. In liquid hydrogen service, these challenges are compounded by cryogenic design requirements, insulation needs,

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and thermal stress management. Technical references from NREL and related hydrogen programs have consistently highlighted valves, seals, leakage reduction, and station safety requirements as core technical bottlenecks, indicating that the market has clear long-term potential but will continue to face high qualification thresholds, long validation cycles, and meaningful compliance costs.

This report is a detailed and comprehensive analysis for global Hydrogen Solenoid Shut-off Valve market. Both quantitative and qualitative analyses are presented by manufacturers, by region & country, by Type and by Application. As the market is constantly changing, this report explores the competition, supply and demand trends, as well as key factors that contribute to its changing demands across many markets. Company profiles and product examples of selected competitors, along with market share estimates of some of the selected leaders for the year 2025, are provided.

Key Features:

Global Hydrogen Solenoid Shut-off Valve market size and forecasts, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Hydrogen Solenoid Shut-off Valve market size and forecasts by region and country, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Hydrogen Solenoid Shut-off Valve market size and forecasts, by Type and by Application, in consumption value ($ Million), sales quantity (K Units), and average selling prices (US$/Unit), 2021-2032

Global Hydrogen Solenoid Shut-off Valve market shares of main players, shipments in revenue ($ Million), sales quantity (K Units), and ASP (US$/Unit), 2021-2026

The Primary Objectives in This Report Are:

To determine the size of the total market opportunity of global and key countries

To assess the growth potential for Hydrogen Solenoid Shut-off Valve

To forecast future growth in each product and end-use market

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To assess competitive factors affecting the marketplace

This report profiles key players in the global Hydrogen Solenoid Shut-off Valve market based on the following parameters - company overview, sales quantity, revenue, price, gross margin, product portfolio, geographical presence, and key developments. Key companies covered as a part of this study include NOVA SWISS, B?rkert, Parker, Hilite International, Albrecht-Automatik, GEFA Processtechnik GmbH, KITZ, ETO GRUPPE, Bray, WEH GmbH, etc.

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

Market Segmentation

Hydrogen Solenoid Shut-off Valve market is split by Type and by Application. For the period 2021-2032, the growth among segments provides accurate calculations and forecasts for consumption value by Type, and by Application in terms of volume and value. This analysis can help you expand your business by targeting qualified niche markets.

Market segment by Type

0-30MPa

30-60MPa

?60MPa

Market segment by Port Configuration

2-Way Hydrogen Solenoid Shut-off Valve

3-Way Hydrogen Solenoid Shut-off Valve

4-Way Hydrogen Solenoid Shut-off Valve

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Market segment by Operating Mode

- Direct-Acting Hydrogen Solenoid Shut-off Valve
- Pilot-Operated Hydrogen Solenoid Shut-off Valve
- Direct Pressure-Controlled Hydrogen Solenoid Shut-off Valve

Market segment by Application

- Fuel Cell Vehicles
- Fuel Cell Construction Machinery
- Stationary Power Generation

Major players covered

- NOVA SWISS
- B?rkert
- Parker
- Hilite International
- Albrecht-Automatik
- GEFA Processtechnik GmbH
- KITZ
- ETO GRUPPE
- Bray
- WEH GmbH

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IMI Norgren

GSR Valve

Bitron

HAMAI

CKD

Jiangsu Shentong

Market segment by region, regional analysis covers

North America (United States, Canada, and Mexico)

Europe (Germany, France, United Kingdom, Russia, Italy, and Rest of Europe)

Asia-Pacific (China, Japan, Korea, India, Southeast Asia, and Australia)

South America (Brazil, Argentina, Colombia, and Rest of South America)

Middle East & Africa (Saudi Arabia, UAE, Egypt, South Africa, and Rest of Middle East & Africa)

The content of the study subjects, includes a total of 15 chapters:

Chapter 1, to describe Hydrogen Solenoid Shut-off Valve product scope, market overview, market estimation caveats and base year.

Chapter 2, to profile the top manufacturers of Hydrogen Solenoid Shut-off Valve, with price, sales quantity, revenue, and global market share of Hydrogen Solenoid Shut-off Valve from 2021 to 2026.

Chapter 3, the Hydrogen Solenoid Shut-off Valve competitive situation, sales quantity, revenue, and global market share of top manufacturers are analyzed emphatically by

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landscape contrast.

Chapter 4, the Hydrogen Solenoid Shut-off Valve breakdown data are shown at the regional level, to show the sales quantity, consumption value, and growth by regions, from 2021 to 2032.

Chapter 5 and 6, to segment the sales by Type and by Application, with sales market share and growth rate by Type, by Application, from 2021 to 2032.

Chapter 7, 8, 9, 10 and 11, to break the sales data at the country level, with sales quantity, consumption value, and market share for key countries in the world, from 2021 to 2026.and Hydrogen Solenoid Shut-off Valve market forecast, by regions, by Type, and by Application, with sales and revenue, from 2027 to 2032.

Chapter 12, market dynamics, drivers, restraints, trends, and Porters Five Forces analysis.

Chapter 13, the key raw materials and key suppliers, and industry chain of Hydrogen Solenoid Shut-off Valve.

Chapter 14 and 15, to describe Hydrogen Solenoid Shut-off Valve sales channel, distributors, customers, research findings and conclusion.

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