

Global Electrochemical Hydrogen Compressor Market By Type (<100 Bar, 100 to 500 Bar, 500 to 1000 Bar, >1000 Bar), By Application (Chemical, Oil & Gas, HVAC, Others), By Technology (Single-stage and Multi-stage), By Specification (Oil-based, Oil-free), By Region Competition Forecast & Opportunities, 2027

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Report description:

Global Electrochemical Hydrogen Compressor Market was valued at USD51.99 million in 2021 and is anticipated to project a robust growth in the forecast period with a CAGR of 13.96% owing to rise in use of Electrochemical Hydrogen Compressors (EHCs) by end user industries including chemical, oil and gas industry and automobiles and the need for decreased carbon dioxide emissions.

A hydrogen compressor known as an electrochemical hydrogen compressor (EHC) uses the electrolysis process to compress hydrogen gas before the compressed hydrogen can be collected from the cathode. In order to compress low-pressure hydrogen into high-pressure hydrogen, electrochemical hydrogen compressors use the electrochemical principle. Voltage application can cause a localized pressure difference due to hydrogen oxidation at anodes and hydrogen reduction at cathodes.

Rise in Use By End User Industries Including Chemical, Oil And Gas Industry and Automobiles Driving the Market Growth

The growth of electrochemical hydrogen compressors (EHCs) applications from various end user industries, including the chemical, oil and gas, and automotive sectors, is projected to drive the market for EHCs as a whole. When compared to other non-mechanical hydrogen compressors, the EHCs' low electric power consumption, reduced thermal loss, and enhanced efficiency are the main reasons for their increased use. EHCs have straightforward device designs, which frequently aid in reducing safety concerns. Additionally, EHCs can compress and purify gaseous hydrogen at the same time, making them one of the most promising possibilities for electrochemical hydrogen compression in the future.

Growing Consumer Preference Towards Cleaner Energy Fuels

The global movement to reduce greenhouse gases, including CO₂, nitrogen oxides, and sulphur oxides, is being driven by climate initiatives. As a result, it is believed that one of the key trends driving the growth of the worldwide electrochemical hydrogen

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compressor market is consumers' shifting demand for greener energy fuels. Due to the expansion of the hydrogen pipeline infrastructure and the spike in demand for hydrogen across a variety of end user industries, the global electrochemical hydrogen compressor market is anticipated to expand at a substantial rate during the forecast period. The expansion of the global market for hydrogen compressors is being driven by the emergence of hydrogen refineries in various countries. The market for hydrogen compressors is expanding as a result of rising demand from the car and consumer electronics industries.

Diversified Usage of Electrochemical Hydrogen Compressors

Although there are many industrial uses for hydrogen gas, such as in the production of silicon wafers, float-glass fabrication, and metal annealing, more than 80% of the hydrogen gas used in these processes is frequently wasted. A new electrochemical system was developed, allowing facilities that use hydrogen gas to recover the gas by isolating and purifying it from a waste gas stream and compressing the gas for reuse. In hydrogen refueling stations, electrochemical hydrogen compressors are also utilized to pressurize hydrogen gas for storage. Without using hydrochlorofluorocarbons (HCFCs) or chlorofluorocarbons (CFCs), these electrochemical compressors are quiet, scalable, modular, and extremely efficient (HCFCs).

Increasing Focus on Research & Development Aids in Market Growth

Hydrogen is expanding astronomically despite challenges from the economy and technology. The applicability and versatility of hydrogen, not to mention its potential as a clean, inexhaustible, and climate-neutral energy source, drive its expansion. Intense R&D is being carried out in many countries in both the corporate and public sectors. Green hydrogen will become a crucial selling point for expanding hydrogen technology. Therefore, finding other and less expensive ways to produce it has become a main priority. Over 30 countries will have produced hydrogen roadmaps by early 2021 due to governments gradually enacting rules.

Market Segmentation

The Global Electrochemical Hydrogen Compressor Market is segmented based on Type, Application, Technology, Specification, region, and by company. Based on Type, the market is further fragmented into the <100 Bar, 100 to 500 Bar, 500 to 1000 Bar, >1000 Bar. Based on Application, the market is segmented into Chemical, Oil & Gas, HVAC, Others. Also, segmentation of the market on grounds of Technology is done into Single-stage and Multi-stage. Based on Specification, the market is segmented into Oil-based, Oil-free.

Company Profiles

High yield Energy Technologies (HyET) Hydrogen B. V., FFI Fortescue Future Industries, Nuvera Fuel Cells, LLC, Fuelcell Energy, Inc., Skyre Inc., Giner Inc., Proton Technologies Canada Inc., Henan Yuanju Machinery Equipment Co. Ltd., Keepwin Technology Hebei Co. Ltd., Taizhou Toplong Electrical & Mechanical Co., Ltd. are among the major market players in the Global Electrochemical Hydrogen Compressor Market.

Report Scope:

In this report, Global Electrochemical Hydrogen Compressor Market has been segmented into following categories, in addition to the industry trends which have also been detailed below:

-□ Electrochemical Hydrogen Compressor Market, By Type:

o□ 500 to 1000 Bar

o□ 100 to 500 Bar

o□ <100 Bar

o□ >1000

-□ Electrochemical Hydrogen Compressor Market, By Application:

o□ Oil & Gas

o□ Chemical

o□ HVAC

o□ Others

-□ Electrochemical Hydrogen Compressor Market, By Technology:

o□ Single stage

o□ Multi-stage

-□ Electrochemical Hydrogen Compressor Market, By Specification:

o□ Oil-Free

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o Oil-Based

- Electrochemical Hydrogen Compressor Market, By Region:

o North America

- United States

- Canada

- Mexico

o Europe

- Netherlands

- Germany

- France

- United Kingdom

- Spain

- Rest of Europe

o Asia-Pacific

- China

- Australia

- Japan

- South Korea

- India

- Rest of Asia-Pacific

Competitive Landscape

Company Profiles: Detailed analysis of the major companies present in Global Electrochemical Hydrogen Compressor Market.

Available Customizations:

With the given market data, TechSci Research offers customizations according to a company's specific needs. The following customization options are available for the report:

Company Information

- Detailed analysis and profiling of additional market players (up to five).

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