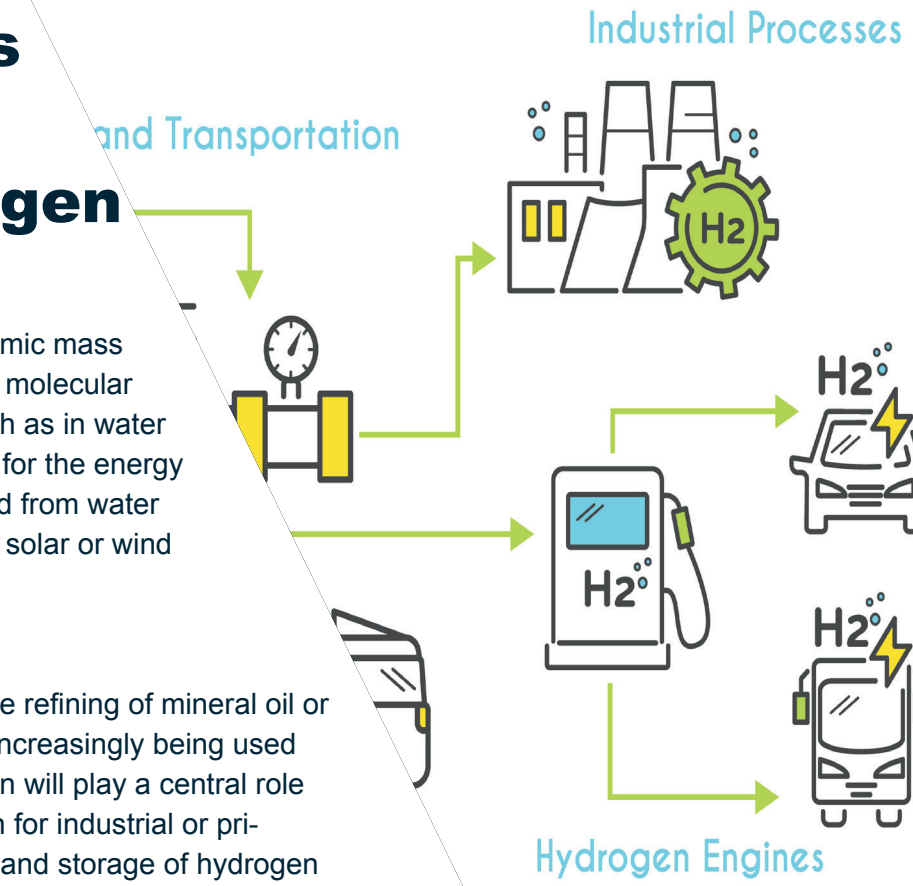
Pressure sensors and pressure gauges for hydrogen



The chemical element with the smallest atomic mass is hydrogen (H). In our country, it occurs as molecular hydrogen (H2), usually in a bound form such as in water (H2O). Hydrogen is seen as a miracle cure for the energy transition. Green hydrogen can be produced from water by electrolysis, for example with the help of solar or wind energy.

Applications of hydrogen

In addition to the production of fertilisers, the refining of mineral oil or as a coolant for power plants, hydrogen is increasingly being used as an energy source. In the future, hydrogen will play a central role in fuel cells for e-mobility or heat generation for industrial or private purposes. The production, processing and storage of hydrogen requires extreme conditions: Temperatures as low as -250 °C and pressures of up to 600 bar put materials under severe stress. Hydrogen can cause cracks and leaks due to material embrittlement. Due to the risk of explosion, safe handling is essential.

Advantages with pressure measuring devices from TRI-MATIC

Whether for low-pressure applications such as in fuel cells and distribution lines for hydrogen or for applications up to 1000 bar, also with a digital interface for Modbus RTU: pressure transmitters and pressure sensors from BD Sensors are ideally suited and offer various high-performance solutions.

Stainless steel sensor DCT 541

Sensor DMP 333P

Welded stainless steel sensor DMP 336

Chemical stainless steel pressure gauges

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Generate **more power** with pressure gauges from TRI-MATIC.
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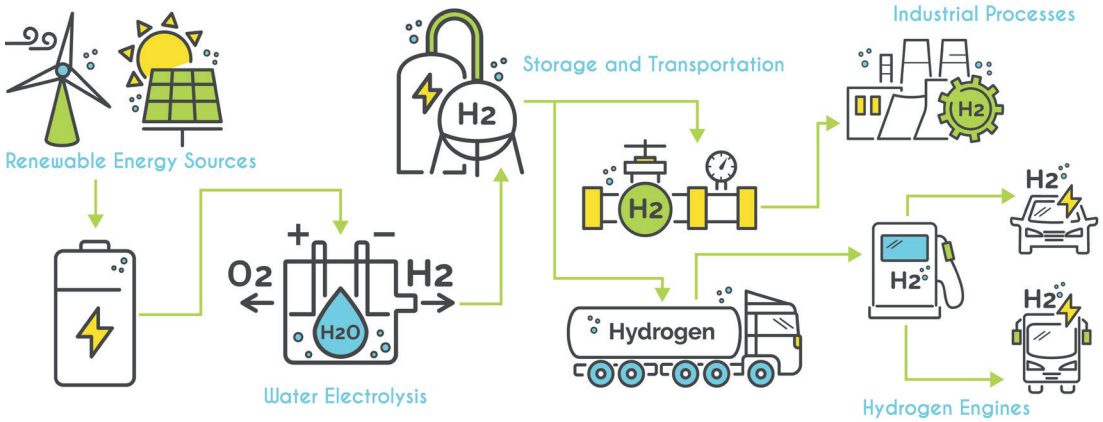
we understand.

Measuring and monitoring pressure in hydrogen applications

Precise pressure measurement makes a significant contribution to safety in hydrogen systems. Robust sensors or manometers made of austenitic steels (316L) or sensors with gold-plated diaphragms minimise hydrogen embrittlement. This allows various hydrogen applications to be monitored and controlled reliably and safely.

Pressure gauges are installed in many hydrogen systems to monitor the pressure at various measuring points. Wherever there is no electrical power or the pressure has to be measured mechanically for redundancy, the **dry chemical stainless steel pressure gauges** are used in nominal sizes of 63 mm, 100 mm or 160 mm up to **400 bar** pressure, with or without damping system and with bottom or rear connection.



Where is the pressure measured in hydrogen systems?

In hydrogen systems, the pressure is measured with pressure sensors or manometers at several critical points to ensure safety and efficiency. Typical measuring points are:

- Water source
- Electrolysis of hydrogen
- H2 dryer and compressor system
- Distribution systems
- Hydrogen storage
- Filling and refuelling systems
- Fuel cells for industrial or private purposes

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