

# Measurement technology applications for hydrogen

NEW

Ready for future technologies as a result of the energy transition



## Advantages – your benefits

- + Fully welded pressure transducer up to 1,000 bar
- + Bourdon tube pressure gauge „Made in Germany“:
  - Fully welded measuring system and housing to help avoid leak rates
  - 100 % tightness-tested with helium
- + Gas measuring system or complete gas alarm system with Ex approval for zones 1 and 2

## Application

Whether for conventional H<sub>2</sub> applications in the process industry or for innovative systems for the production of hydrogen from renewable energy sources such as solar and wind energy – AFRISO offers mechanical and electronic pressure measurement systems for the instrumentation of hydrogen applications as well as a gas measurement system for continuous monitoring of the H<sub>2</sub> concentration in the air.

### Bourdon tube pressure gauge: Fully welded measuring system

Even a low hydrogen concentration creates an explosive atmosphere. Leakage in such systems should therefore be avoided to the maximum extent possible and metal seals are preferred. This also applies to the measuring equipment: Leak rates must be avoided or reduced to a minimum. In the case of the proven mechanical Bourdon tube pressure gauges RF50Ch, RF63Ch and RF100Ch, AFRISO achieves this objective by a fully welded measuring system and housing. In addition, all devices are tightness-tested with helium in the German plant in Amorbach (Bavaria).



### DMU 30: New pressure transducer up to 1,000 bar

The new electronic DMU 30 is equipped with a fully welded measuring cell that converts the physical pressure into a proportional electrical signal. The robust design of the pressure transducer meets the high material stability demands which result when hydrogen is used as a fuel or reducing agent.

The state of matter of hydrogen is crucial for its storage. For example, in its gaseous state,  $H_2$  is stored at a pressure of up to 700 bar. Considering safety factors and temperature influences for the instrumentation in such applications, pressure sensors must have a measuring range of up to 1,000 bar. The pressure transducer DMU 30 has therefore been designed for such pressure ranges, excels with a high resistance to overload and is insensitive to pressure peaks.

### Warning if the gas concentration is excessively high

Continuous monitoring of the  $H_2$  concentration is advisable if hydrogen systems are located in closed rooms or halls. The MF420-Ex-2.1 gas measuring system from AFRISO can be used as a stand-alone measuring system thanks to a local display; it is approved for operation in hazardous areas, zones 1 and 2. The current concentration can also be output to a gas alarm unit series GW-S via the 4–20 mA interface for further processing or alarm notification, thus contributing to risk minimization as a complete gas alarm system.



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