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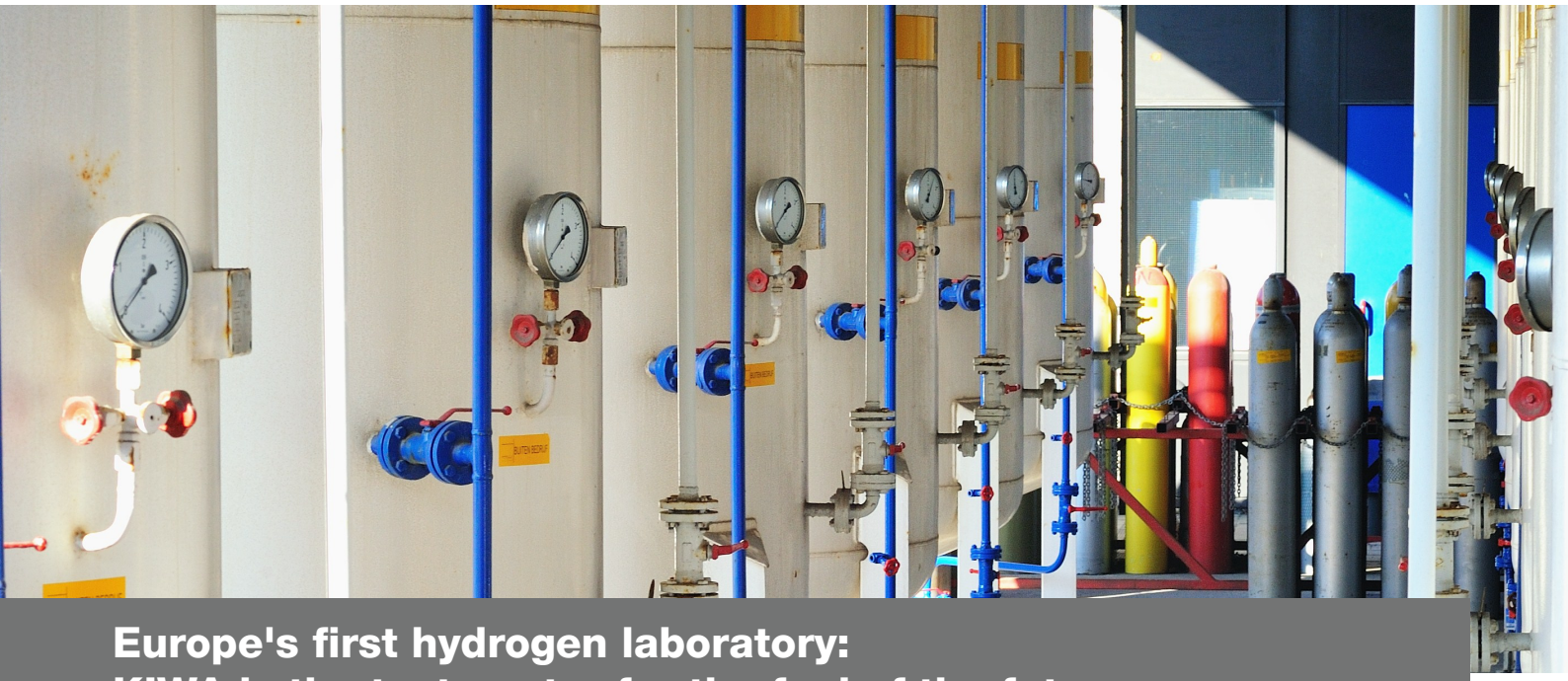

Europe's first hydrogen laboratory: KIWA is the test center for the fuel of the future

People's increasing environmental consciousness has led to a decrease in local air pollution in most industrialized countries over the last few decades. Nevertheless, human injury and environmental damage across the EU resulting directly from air pollution still amount to 23 billion euros annually. And indirect costs are estimated at between 330 and 940 billion euros each year.

Hydrogen, the fuel of the future

Humanity's greatest challenge in the coming decades will be the search for alternatives, i.e. the search for renewable energy sources and alternative fuels. Manufacturers in the automobile industry have long been looking into ecologically sound vehicles. The Dutch company KIWA Automotive specializes in, amongst many other things, testing, certification and research in the field of alternative fuels for the automobile industry, and specifically in hydrogen-powered cars.

Europe's first hydrogen laboratory

Hydrogen is one of the most promising storage and transport media for the energy supply of the future. Hydrogen is also the climate-friendly fuel par excellence. It is derived – completely emission-free – from fossil fuels such as natural gas, LPG, methanol, diesel and oil. The combustion process results in a single waste product: water vapor. Meine de Vries, a project manager at KIWA, is convinced that "hydrogen is the future." In response to strict environmental and manufacturing

Requirements

- Environmental simulation chambers for experiments with hydrogen-carrying components and fuels
- Tests under extreme pressure conditions (up to 1100 bar)
- Environmental simulations at temperatures ranging from –40 °C to +120 °C
- Special safety chamber to protect against overheating
- Reproducible measurements
- Constant environmental conditions in the test room

BINDER Solution

- BINDER Series MK environmental simulation chamber for cyclical temperature testing
- Temperature range of –40 °C to +180 °C
- Protection against overheating with special safety chamber with visual and acoustic temperature alarm
- Electronically controlled preheating chamber technology ensures temperature accuracy and reproducible results

▲ Leaktightness testing of connecting lines under extreme pressure conditions

requirements, KIWA has established its own hydrogen laboratory, which is to date the only one of its kind in Europe.

Testing under extreme conditions

Experiments are conducted under extreme conditions in the laboratory. Tests are run at pressures of up to 1100 bar, and environmental simulation tests demand temperatures ranging from –40 °C to +120 °C. KIWA has selected Series MK climate chambers from BINDER to carry out its experiments.

"Our tests take place under extreme conditions because the devices must function absolutely reliably even under such conditions. For this reason we chose BINDER."

Meine De Vries, Projektmanager KIWA

These chambers are specially designed for cyclical temperature tests. Preheating chamber technology uniquely simulates a natural environment. By providing uniform test conditions throughout the chamber interior and identical climatic conditions across the entire test material, this technology guarantees a high degree of temperature accuracy and reproducible results. To prevent overheating, the special safety chamber is equipped with controlled heating elements as well as both visual and acoustic temperature alarms.

▲ Control room with safety clearance to testing room

KIWA Automotive, which is headquartered in Apeldoorn (NL), is Europe's leading certification body. KIWA tests and certifies vehicle components for the automobile industry for LPG, CNG, LNG as well as in the field of hydrogen technology. KIWA also performs tests for electromagnetic compatibility and various climatic tests.
Among other things, KIWA is authorized to grant both the E4 certification of the Dutch Department of Road Transport (RDW), one of the best known certification authorities in the world, and the E1 certification of the German Federal Motor Transport Authority (KBA).

KIWA also publishes feasibility studies as well as product-safety evaluations, and performs failure assessments.

Advatages

- State-of-the-art reliability
- User-friendly chamber interior
- Comprehensive standard equipment

Areas of application

- Automotive
- Electronics- / Semiconductor Industry
- Plastics Industry

▲ Environmental simulation chamber MK

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