



# LETOMEC

# HELIOS 3 FASTENERS

## HELIOS 3 FASTENERS

THE INNOVATIVE  
INSTRUMENT FOR DELAYED  
FRACTURE PREVENTION

HELIOS 3 FASTENERS is a innovative instrument able to measure dissolved hydrogen in metallic components like screws, springs, bolts etc. by Hot Gas Extraction Method. The equipment is designed to assure an industrial quality control performing measurements directly on coated components, without the need of any carrier gas. In addition HELIOS 3 FASTENERS can be used to carry out the Temperature Programmed Desorption test by setting a heating rate. Finally, HELIOS 3 FASTENERS was one of the finalists at the Stuttgart Fastener Technology Innovator in 2019.



## MAIN COMPONENTS & FEATURES

- 1 CUSTOM DESIGNED FURNACE
- 2 READING UNIT EQUIPPED WITH SOLID STATE GAS SENSOR
- 3 PC WITH DEDICATED HELIOS APP
- 4 TRANSPORTABLE INSTRUMENT

## TYPICAL APPLICATION

**FASTENERS  
MANUFACTURER**

**STEEL INDUSTRY**

**GALVANIC INDUSTRY**

## HYDROGEN: SO SMALL, SO DANGEROUS!

Hydrogen can enter the metal in different ways: during steel making in particular manufacturing processes like pickling, electroplating and heat treatments or component life through corrosion mechanisms.

Since 1870, it is well known that hydrogen can reduce mechanical properties of metallic materials and in some cases lead to the cracking of these components under certain static load. For this reason, the monitoring of hydrogen adsorption by measuring its concentration in the material can give important improvements in terms of part quality assessment.

HELIOS 3 FASTENERS allows to measure hydrogen in components to prevent hydrogen induced delayed fracture and keep under control industrial processes.



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## ADVANTAGES

- Tests on coated components
- Safe Analysis: Mercury and glycerine are not required
- User-friendly interface
- No carrier gas is required
- No sample cutting is required, thanks to the customized furnace size
- Industrial and robust equipment



## FUNCTIONING

Thanks to the dedicated and easy-to-use App, the operator can decide the test to be carried out, selecting the type of analysis from the drop down menu and filling in the spaces related to the name of test, sample weight, temperature and analysis time. The dedicated furnace heats up the sample to enhance hydrogen effusion out of the material. Then, the hydrogen-air flux is detected by a solid state gas sensor.

The output of the analysis is the hydrogen concentration expressed in ppmw.

A pdf with analysis summary is generated with the most important information of the measurement.

During the test, the operator can monitor analysis progress on the screen waiting for the automatic end of test or decide to stop the measurement in every moment.

## ACCESS



WATCH  
THE VIDEO



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