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HELIOS 4 HOTPROBE

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DIFFUSIBLE HYDROGEN
ONLINE MEASUREMENTS

HELIOS 4 HOT PROBE is an innovative instrument useful to perform diffusible hydrogen measurements directly on semi-products or finished components. It is thought especially for Automotive Industry, to prevent delayed fracture on vehicle chassis.

HELIOS 4 HOTPROBE test method is described in the CEN Workshop Agreement 17794:2021.



MAIN COMPONENTS & FEATURES



1 SPECIAL PROBE FOR LOCAL HEATING WITH MAGNETIC FIXING TO ASSURE CONTACT OF HEATING ELEMENT WITH METAL SHEET

2 READING UNIT EQUIPPED WITH SOLID STATE GAS SENSOR

3 PC WITH DEDICATED HELIOS APP

4 TRANSPORTABLE INSTRUMENT

TYPICAL APPLICATION

AUTOMOTIVE INDUSTRY

STEEL INDUSTRY

SHEET METAL FORMING
SECTOR

PREVENTION OF HYDROGEN INDUCED DELAYED FRACTURE

In recent years, ultra-high strength steels have been more and more used in automobile industry for car body manufacturing in order to meet new severe environmental requirements. These materials, characterized by a martensitic microstructure and superior resistance, are susceptible to hydrogen embrittlement phenomenon. For this reason, it is fundamental to control diffusible hydrogen content in components to reduce Hydrogen Induced Delayed Fracture risk. Hydrogen can be picked up in several phases, from steelmaking, through ELECTROLITIC PROCESSES like pickling or coating application, thermal treatment as the HOT STAMPING, up to VEHICLE LIFE where part can be EXPOSED to corrosive environment.



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ADVANTAGES

- Test on coated components: no surface preparation
- Measurements on finished parts: no sample cutting
- Non-destructive test
- Quick measures
- No carrier gas
- Transportable equipment
- Industrial and robust equipment



FUNCTIONING

HELIOS 4 HP can be considered as the evolution of TDA, since it is based on HOT GAS EXTRACTION method, but applied to finished components. The operator has to determine material, thickness and coating type in the HELIOS App, consequently the test temperature is automatically set. Once the test temperature is reached by the probe, it can be fixed to the test area to locally heat the material and enhance hydrogen effusion.

The hydrogen flux, that depends on the diffusible hydrogen content in the material is registered and elaborated by the App. The output consists in the hydrogen concentration in the metal, that can be used as quality control parameter.

ACCESS



WATCH
THE VIDEO



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