



TESTING CATALOGUE

Product Testing and Certification

TESTING EXPERIENCE

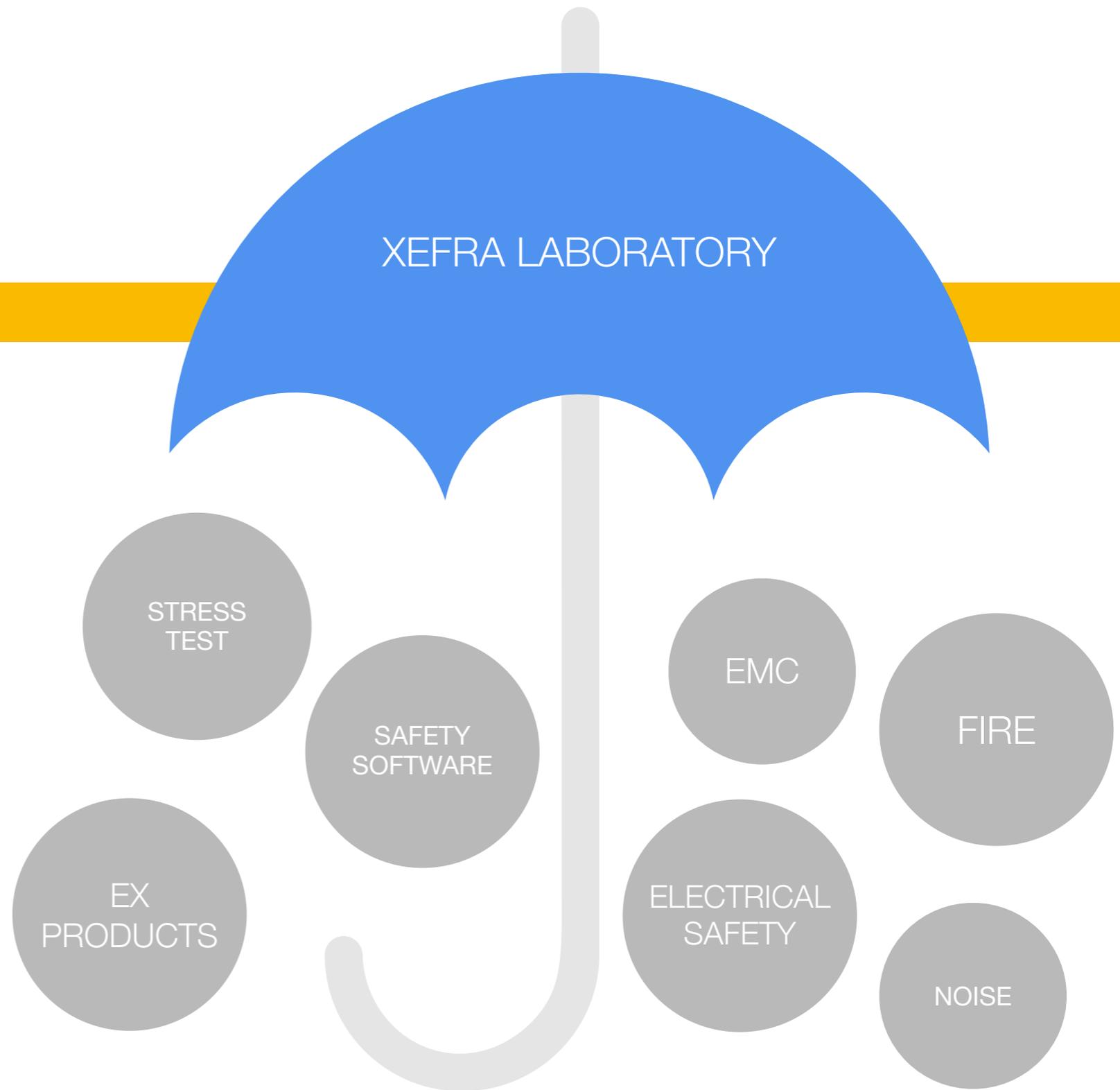
We test your products in our Laboratory to prove its conformity to relevant technical standards.

XEFRA is a **Testing laboratory** accredited **ISO IEC 17025** by Italian National Accreditation Body **ACCREDIA** (see the accredited tests on ACCREDIA website www.accredia.com).

Accredia is a signatory member of the international network of Accreditation Bodies under the



LAB N° 1595 L



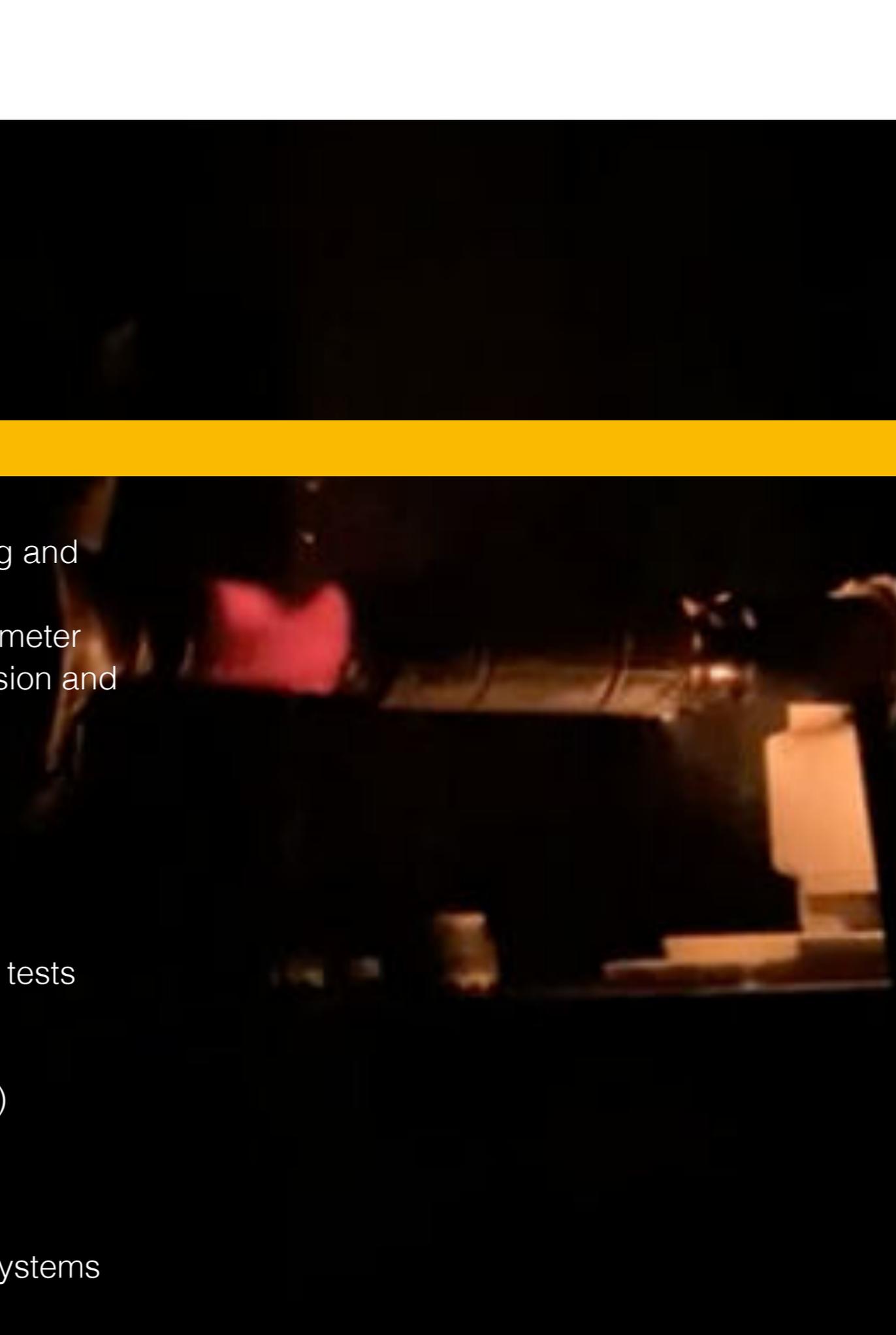
EXPLOSION TESTING

Internal Explosion Facility Test Equipment

- Controlled mass flow gas mixing for fast, accurate testing and certified by a GC analysis Explosion, etc.)
- IP test up to 2.5 cubic meter chamber testing in 2 cubic meter chamber (i.e. Ex d Reference Pressure), Flame transmission and Overpressure to 250 bar
- Electric motor test bench up to 10kW
- Intrinsic Safety Spark test bench
- Mechanical and PCB physical measurement
- Component ignition test bench
- Battery testing and Ex e battery box test benches
- Humidity, thermal conditioning & cycling, Thermal shock tests
- Impact Testing to 20J, Torque tests, Pull tests, Drop test
- Temperature measurement (contact, IR)
- Purge testing (i.e. Ex p, TVR, EN 60079-2, IEC 60079-13)
- Capacitance and inductance measurement
- Electrostatic test bench

External Explosion Facility Test for Protective Systems

- Test rig for venting devices and explosion suppression systems
- Test circuit for flame and spark arresters

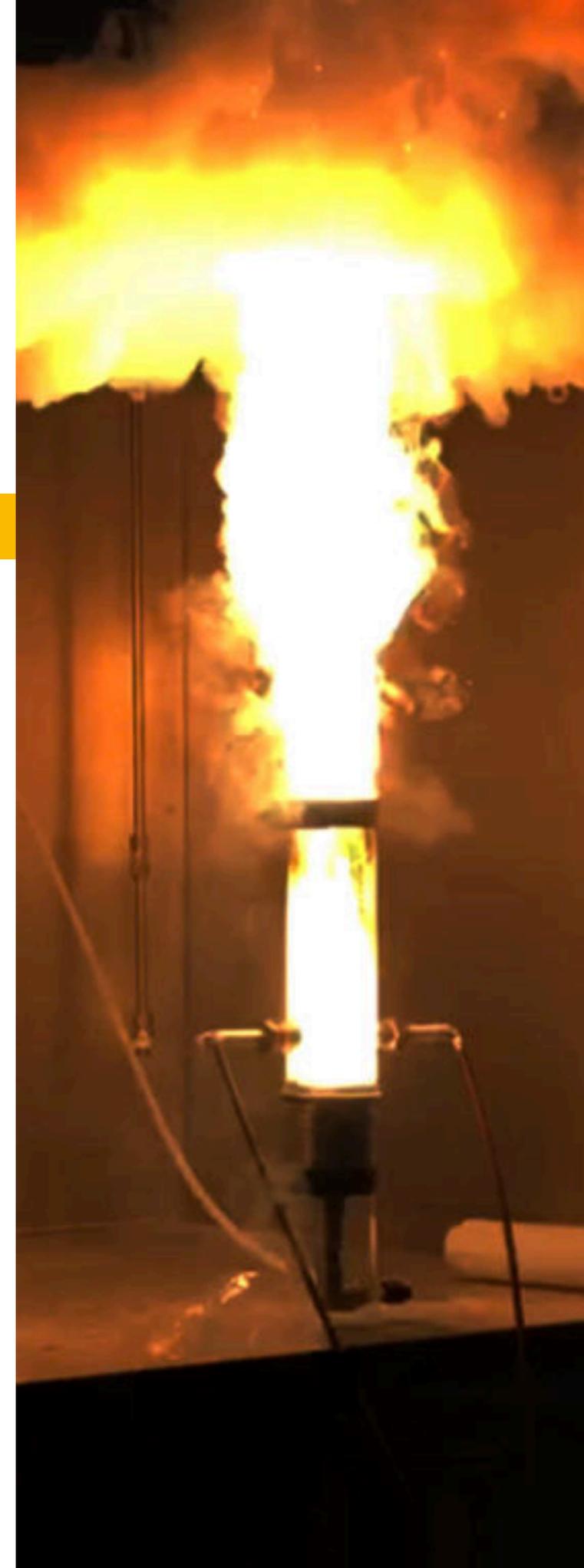


DUST/GAS EXPLOSION TESTING

Dust and gas explosion services laboratory testing capabilities.

Our ATEX Testing facilities include:

- Combustible Dust Screening Test: Go and No-Go
- Minimum Ignition Energy (MIE)
- Burning Test (DOT)
- Minimum Auto-ignition temperature of dust clouds in air on hot surfaces (MIT and LIT)
- Dust and Gas Lower Explosivity Limit (LEL)
- Maximum Explosion Over-pressure (Pmax)
- Dust Specific Characteristic (Kst)
- Gas Specific Characteristic (Kg)
- Limiting Oxygen Concentration (LOC)
- Volumetric resistance of dust
- Combustibility Index (BZ)



ATEX CERTIFICATION



PRD N°280B
Membro degli Accordi di Mutuo Riconoscimento EA, IAF e ILAC
Signatory of EA, IAF and ILAC Mutual Recognition Agreement



2014/34/EU Equipment and protective systems intended for use in potentially explosive atmospheres

XEFRACERT is your competent partner when it comes to test and certify equipment, components and protective systems which are to be used in potentially explosive atmospheres.

As European Notified Body no.2772 Xefracert evaluates the conformity of your product to the ATEX Directive 2014/34/EU.

Products in the scope of the Directive are:

- Electrical equipment and components
- Non electrical equipment and components
- Protective systems
- Assembly
- Safety controlling and monitoring devices

XEFRACERT is notified for EU type of examination, Quality assure notification and CoC.

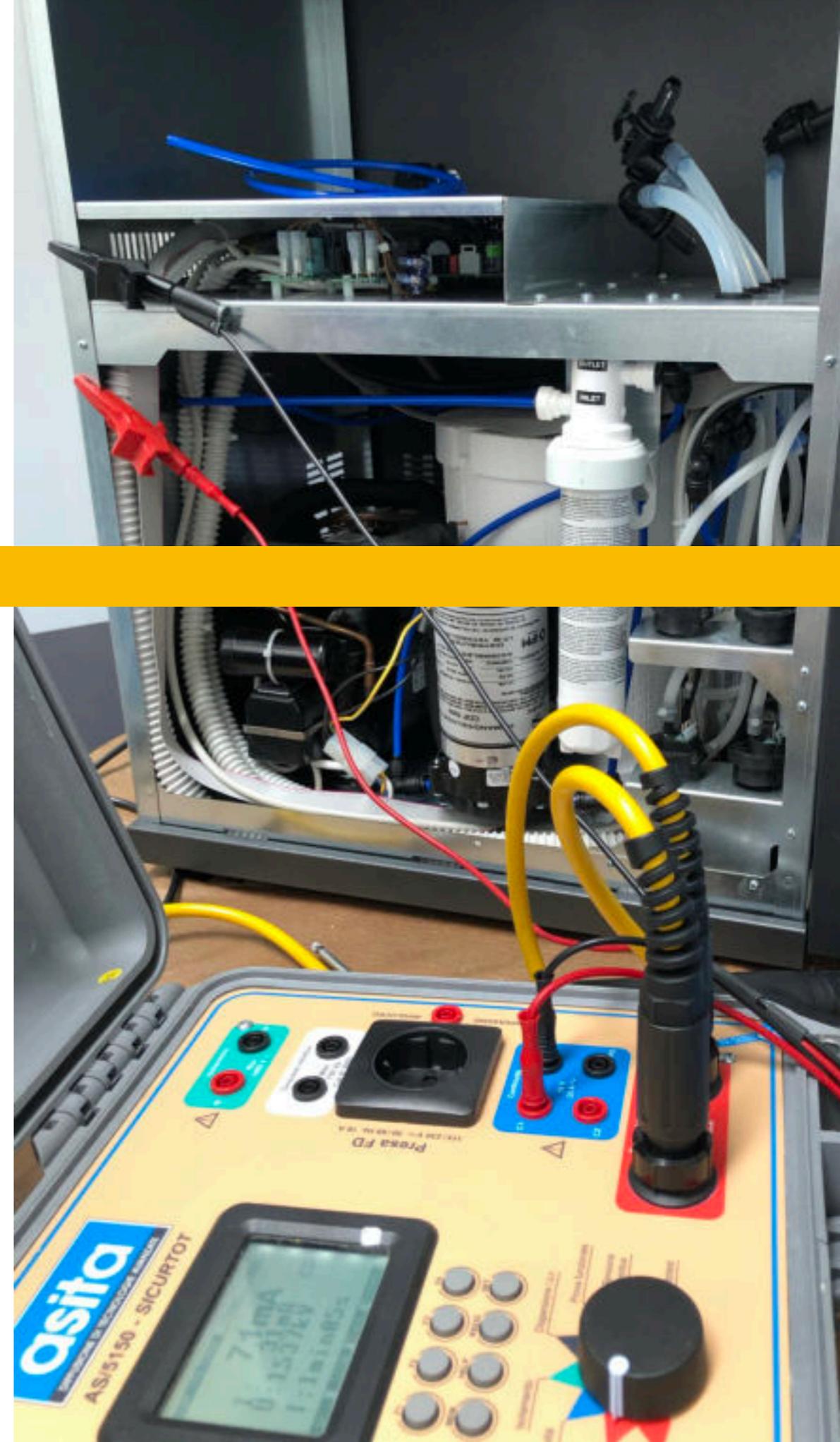


ELECTRICAL SAFETY

XEFRA performs testing on a broad variety of product categories according to the relevant standards.

In addition, XEFRA offers flexible service and a short delivery time.

- **Measurement, Laboratory and Control** - IEC 61010-1 (General requirements for safety) and IEC 61010-2-xx (Particular series of standards)
- **IT and A/V products** - IEC EN 60950-1, IEC EN 62368-1 IEC EN 62040, IEC 60065
- **Household Product** - IEC EN 60335-1 with relevant part 2 standards
- **Automatic electrical controls, regulators etc.** - IEC/EN 60730
- **Boxes and enclosures** - IEC EN 60670
- **Electrical equipment of machines** - IEC EN 60204-1, IEC EN 60204-32
- **Low-voltage switchgear** - IEC EN 61439-1
- **Medical Equipment** - IEC 60601-1-X, IEC EN 60601-2-X



ELECTROMAGNETIC COMPATIBILITY

XEFRA provide:

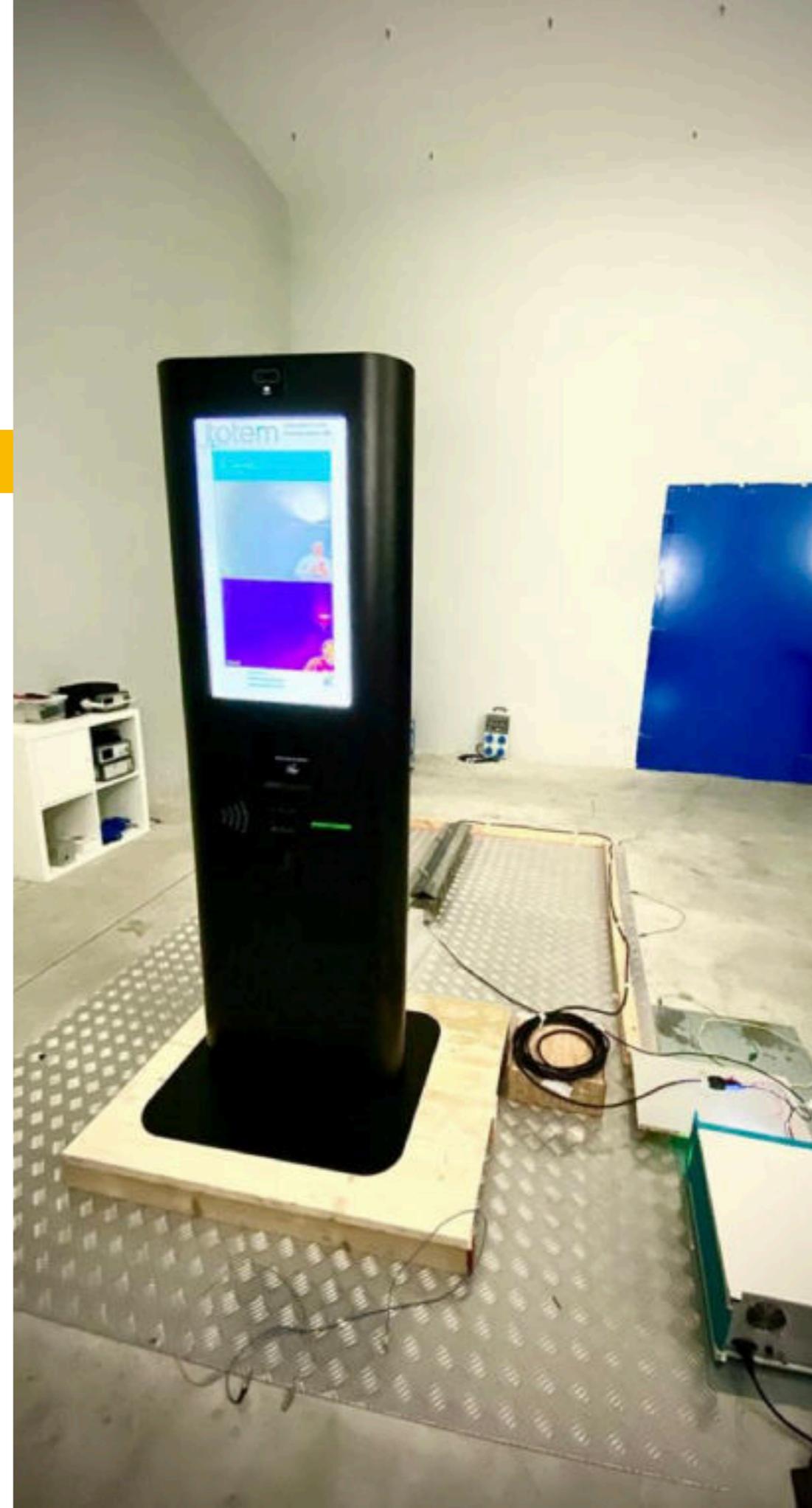
- **Pretesting and Consultancy**
- **Qualification tests**
- **On-site tests**

Testing:

- **RF emission measurement:** conducted, radiated, Flicker and voltage fluctuations, Radiated electromagnetic field.
- **RF immunity measurement:** Electrostatic discharges (ESD), Radiated RF disturbance, Electric fast transients (EFT), Conducted RF disturbance, Power frequency magnetic fields, Conducted LF disturbance

Traditional testing all EMC testing is conducted in an EMC laboratory, under controlled conditions with standardised environmental conditions. Tests are usually performed in isolated chambers.

On-site testing is normally performed on equipment and systems that are too big to fit into a laboratory, or if they have exceptional needs of power supply or other connections. We bring our test equipment out to your site, whether it is located in an assembly hall or in a final installation site.





SAFETY CRITICAL SOFTWARE

We are a **software testing laboratory** that provides cost efficient software testing for safety and security critical projects in the automation sector.

Complete integration with your engineering team (development / testing) with a dedicated extremely customer-faced Account Manager to ensure your satisfaction and handle escalations

Xefra is the first Italian Laboratory accredited ISO IEC 17025 for Software Testing According to IEC 61508-3 standard

- SW static analysis
- SW dynamic analysis
- SW/SW Integration test
- HW/SW Integration test

Testing with release of accredited test report can be provided according to three different approaches

- Testing Lab - We perform testing in our Laboratory by using proprietary and qualified tools and benches
- Testing @ Customer Premises - We perform testing at Customer Premises by integrating customer HW and Tools where necessary
- Witness Testing - We witness our Customer Testing



LAB N° 1595 L

FIRMWARE

APPLICATION
SOFTWARE

TOOLS

COMPILERS

PROTOCOLS

FUNCTIONAL SAFETY ASSESSMENT



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SIL

XEFRACERT provides functional safety assessment for following product categories according to IEC EN 61508-X series:

- **Sensors:** Flame detectors, Gas detectors, Flow transmitter, Level transmitter, Temperature switches/transmitters, Pressure switches/transmitters, Proximity
- **Logic Solver:** PLC, Fire and Gas Controllers, Input module, Output module
- **Final Elements:** Valve actuators, Valve, Motor controller, Electric actuators, Pneumatic actuators, Hydraulic actuators

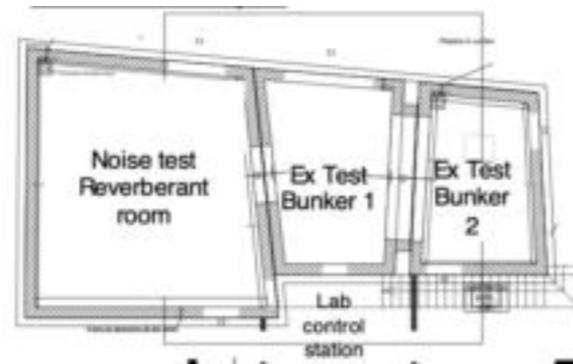
CERTIFICATION
PLAN

FUNCTIONAL
SAFETY
ASSESSMENT
REPORT
CONCEPT

FUNCTIONAL
SAFETY
ASSESSMENT
REPORT
DEVELOPMENT

FUNCTIONAL
SAFETY
ASSESSMENT
REPORT
TESTING

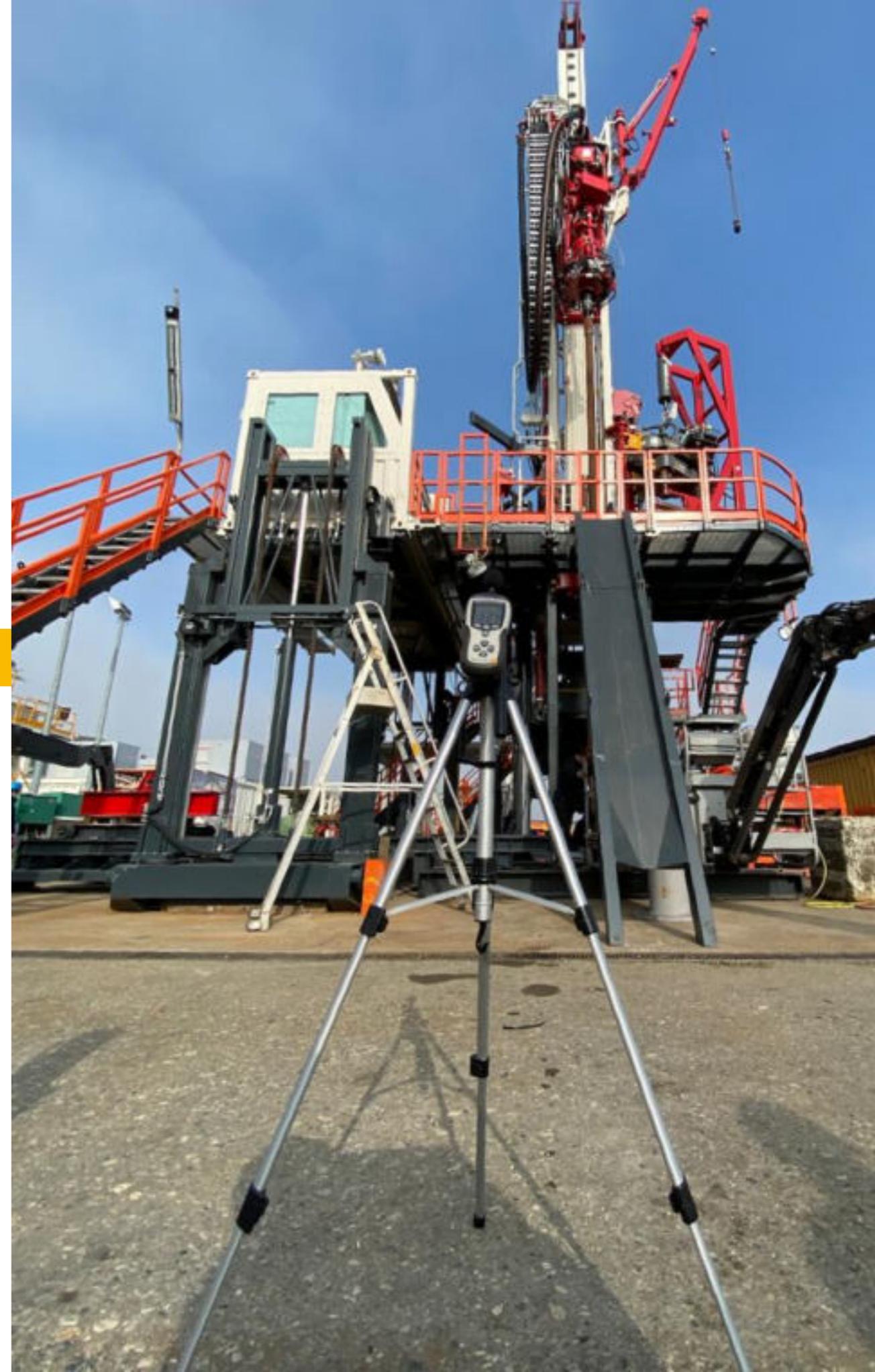
FUNCTIONAL
SAFETY
MANAGEMENT
SYSTEM
**FACTORY
INSPECTION**



NOISE TESTING

XEFRA provide testing in acoustic domain pretesting, consultancy, qualification tests and on-site tests for:

- Measurement of airborne noise emitted by information technology and telecommunications equipment
- Measurement of sound absorption in a reverberation room
- Measurement of sound insulation of building elements
- Measurement of sound power levels and sound energy levels of noise sources over a reflecting plane or in reverberation test rooms



FIRE TESTING

We conduct fire testing for the construction and electrical industry and on materials, small components, and component sections for railway vehicles, automobiles, and ships.



STRESS TEST

We perform environmental tests on materials, components, assemblies, prototypes, and series devices for all industries, supporting our clients in all sectors, such as the energy industry, railway technology, the automobile industry, the aerospace industry, the shipping industry, and the medical industry.

- **Temperature Testing:** EN 60068-2-1 Cold, EN 60068-2-2 Dry heat, EN 60068-2-14 Change of temperature, EN 50155 railway standard, EN 60068-2-30 Damp heat, cyclic, EN 60068-2-38 Composite temperature/humidity cyclic test
- **Dynamic Mechanical Test:** EN 60068-2-6 Vibration (sinusoidal), EN 60068-2-27 Shock, EN 60068-2-64 Vibration, broadband random
- **Corrosion Test:** EN 60068-2-11, EN ISO 9227 Salt mist test (sodium chloride solution, Test Ka), EN 60068-2-52 Salt mist test, cyclic (sodium chloride solution, Test Kb)
- **Protection Class Test:** EN 60529 (IP Code), EN 50102 (IK Code)



PRODUCT TESTING

CONTACTS

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