

Your  
**Global Partner**  
for a **Safe** and  
**Sustainable World**  
DEKRA Industrial Inspection

## Non-Destructive Testing (NDT)

We take time for your needs – with quality and efficiency.

Ever since the Archimedian Principle of displacement was discovered as a method of density measurement, the possibilities of non-destructive material testing have multiplied. Today a wealth of flexible applications is available for reliable detection of imperfections and avoiding costly process delays, either in the form of inspections during production or as an intermediate examination in the development process.

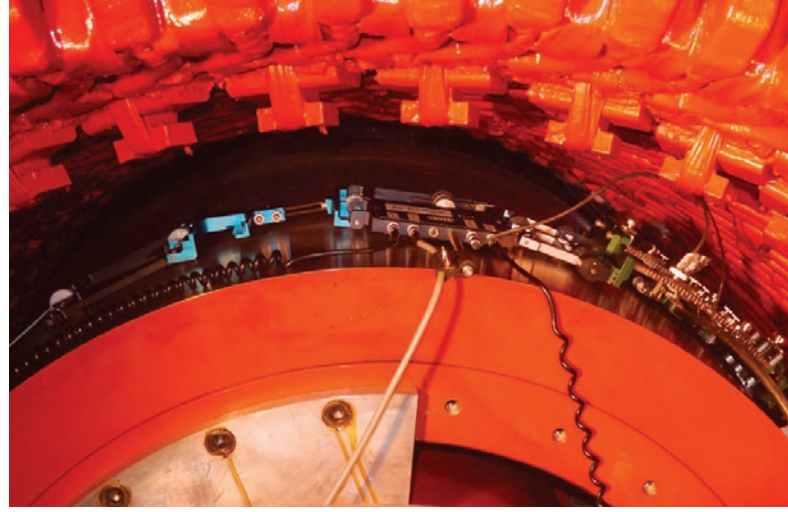
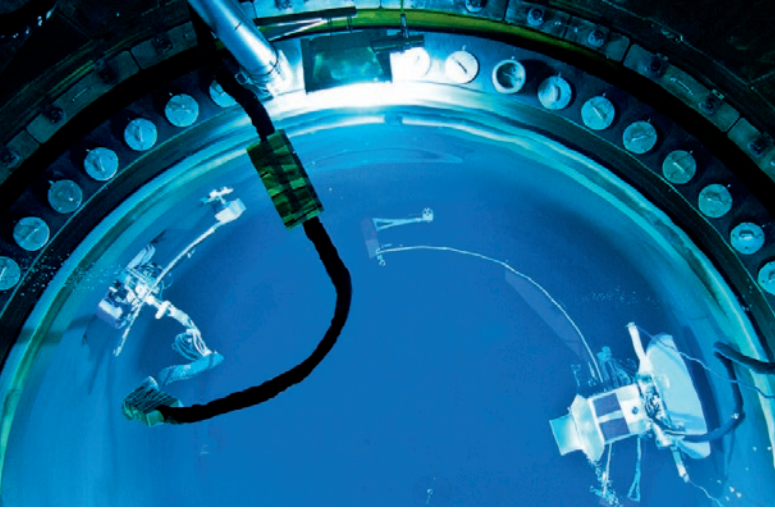
We support you in the selection of non-destructive test procedures and in the preparation of test specifications and test instructions. From the planning to documentation stage, you benefit not only from the high qualification and competence of our specialists, but from maximum flexibility and a high level of availability of our staff, even at short notice.

It goes without saying that our employees are trained and ISO 9712, EN 4179 and SNT-TC-1A certified. This enables us to provide hands-on support as a reliable and trustworthy partner in plant, power station and metal construction as well as in the rail, automotive and aviation industries. Incidentally, many of our services can be provided not only at one of our facilities, but on request also directly at your location.

### Our services include:

- ▶ Radiographic/X-ray testing (digital/conventional)
- ▶ Ultrasonic testing (mechanized/manual)
- ▶ Manual Phased Array
- ▶ Dye penetrant testing (mechanized/manual)
- ▶ Magnetic particle testing
- ▶ Visual inspection/ endoscopy
- ▶ Leak testing
- ▶ Tightness testing
- ▶ Eddy current testing
- ▶ Thermography
- ▶ Wall thickness measurement (manual/crawler)
- ▶ Layer thickness measurement
- ▶ Surface roughness testing
- ▶ Colour fastness determination of components
- ▶ Residual stress analysis by strain gauges





## Advanced and Mechanized NDT Solutions

All NDT applications have their limitations. These limitations can be based on accessibility, health and safety recommendations, material geometry changes or economic restrictions. In all cases, DEKRA is able to provide an alternative solution in order to provide the most sustainable, safe and optimized testing solutions.

DEKRA is a recognized leader in engineering and advanced NDT solutions for all testing methods. Our focus is on providing optimized NDT techniques that deliver high performance, even in confined spaces with limited accessibility or hazardous substances. We offer specific solutions to overcome these challenges.

Leveraging our extensive experience, DEKRA designs customized manipulators and ROVs (Remotely Operated Vehicles) to perform testing in various environments. We specialize in visual inspection systems, with high-level camera systems available for use in deep water, ionized radiation environments, or ATEX areas.

At DEKRA, we are committed to seeking out more effective inspection methods to better serve our customers' needs. Our specialized inspections, such as Automated Drone inspection, HIC, and HTHA, can help improve inspection quality, optimize processes, minimize shutdown times, and provide higher precision and easier interpretations.

DEKRA Industrial Inspection supports customers across different industries, including energy supply (nuclear, renewable, or conventional), chemistry and petrochemistry, offshore, and mobility. Our services help minimize shutdown times, inspection and maintenance costs, improve production quality, and ensure reliable operating processes.

### Some examples of DEKRA's Advanced and Mechanized NDT product portfolio:

We offer high-definition camera systems, including:

- ▶ Underwater and/or radiation-resistant & ATEX cameras for hazardous environments

We provide remotely operated crawlers for inspections in confined spaces or hazardous locations.

Our specialized advanced solutions include:

- ▶ SPICA strain monitoring for pipes and pipelines
- ▶ MFL-Tankfloor testing
- ▶ Guided wave inspections
- ▶ FST Gage
- ▶ EMAT technology for high-temperature thickness measurement (up to 600°C)
- ▶ Corrosion mapping solutions
- ▶ 3D laser scanning

We offer Mechanized capabilities such as:

- ▶ Drone inspections
- ▶ Robotic solutions like the Bike Platform
- ▶ Mechanized generator inspections using KIRR or ARGIS systems







## Inspection Services

### Strict testing & inspection rules prevent long-term losses.

In industrial history, there are numerous examples which demonstrate the dire consequences of apparently insignificant weak points: consequences for people, the environment and, of course, for the company. Stoppages, technical defects and unforeseen repair work have on more than one occasion threatened the entire existence of a company.

Regardless of the industry: in ever more closely linked markets with ever shorter product life cycles, even the slightest deviations from the specified quality level can often have a devastating effect. It is therefore no wonder that the significance of quality assurance in production increases from year to year. It helps to avoid unnecessary costs and preserve the company's image.

The key role of inspection as a part of the maintenance of production plants, technical systems, components and equipment is also increasing. It creates the prerequisites for preventing errors and variations which can be damaging to the business. When it comes to quality assurance and inspection, you should place your confidence in the expertise of DEKRA Industrial specialists. We provide mandatory inspection services according to national legislations as well as a wide range of voluntary inspection services.

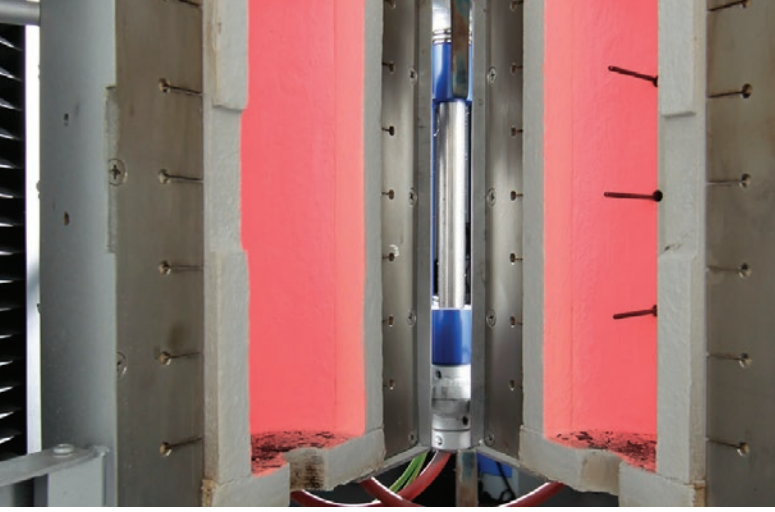
Important for you: DEKRA is Notified Body and Accredited Body based on international and national codes for pressure equipment, lifts, machinery and rail.

### Our services include:

- ▶ Mandatory periodic inspection
- ▶ Voluntary inspection
- ▶ Plant inspection
- ▶ Quality assurance for pressure equipment and modules of Directive 2014/68/EU
- ▶ Expediting services
- ▶ Vendor Inspections
- ▶ Welding monitoring
- ▶ Provision of qualified welding engineers
- ▶ Welder qualification and certification (repeat examination)
- ▶ Supervision of welding procedure tests and welding procedure qualification
- ▶ Certification on behalf of the customer
- ▶ Construction and production monitoring
- ▶ Documentation (manual or EDP)
- ▶ Provision of test supervision (Level 3)
- ▶ Preparation of test instructions
- ▶ Advice in the choice of test procedures
- ▶ Certificate management
- ▶ Spectral analysis for material identification
- ▶ Steelwork testing and inspection







## Destructive Testing and Material Analysis

To ensure that everything remains intact in your production lines, our laboratory tests can be very destructive.

The more complex the processes in modern industrial plants become, the more important it is to have full transparency on the connections between components for economic optimization. This in turn can only be achieved with uncompromising tests of all materials used and manufactured articles. These services save time and money when we get to the bottom line.

With this in mind, it is not surprising that destructive material testing in many industries has become an essential element of quality assurance. For instance, when it comes to the inspection of heat treatment processes or the determination of chemical and physical material properties.

As an international and accredited DEKRA laboratory service provider, our experts offer an interdisciplinary range of tests covering all aspects of destructive testing, materials testing and damage analysis, as well as chemical analyses of hazardous substances in accordance with regulatory requirements.

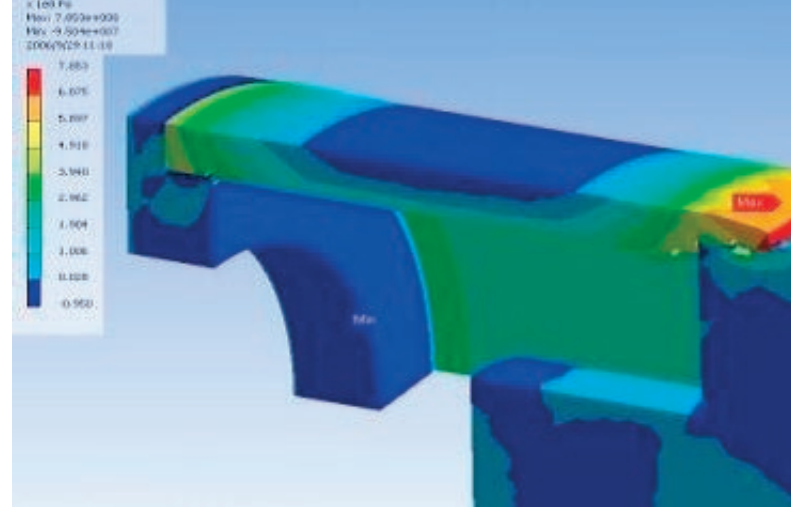
This includes supporting destructive testing as part of our NDT services, material analyses of plastics and metals, corrosion and environmental simulation as well as media resistance testing, hazardous substances analyses of consumer goods, technical products and components and chemical testing of operating fluids and pollutants in environmental media.

Our experts advise with material and process optimization and provide you with well grounded material recommendations. In addition, we offer a wide range of further testing and certification options in our global DEKRA laboratory network.

### Our services include:

- ▶ Tensile and compression tests
- ▶ Hot tensile tests
- ▶ Impact tests
- ▶ Hardness and micro-hardness tests
- ▶ Bending tests
- ▶ Vibration fatigue tests
- ▶ Corrosion tests
- ▶ Microstructure tests (replica)
- ▶ Micro and macro tests
- ▶ Ferrite content determination
- ▶ Spectral analysis
- ▶ Light and scanning electron microscopy
- ▶ EDX analysis
- ▶ Material acceptance
- ▶ Simulation of technical heat treatment
- ▶ Spectral Analysis for Material Identification





# Asset Integrity Management Solutions

Assets can experience unexpected failures that lead to extra costs due to repair or replacement, but also due to unplanned downtime of the installation or component.

30% of the failures of many components have a repetitive nature, and failures may even lead to unsafe situations for people and the environment. Failure investigation is appropriate in those situations. In some cases the cause of the failure might be clear enough to take adequate preventive measures but in many cases a close view at the reasons for the component failure is required to understand the unexpected problem and prevent reoccurrence.

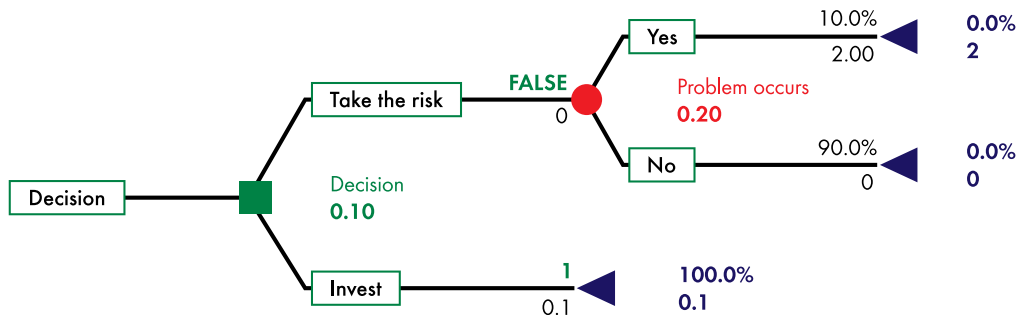
The specialists from DEKRA – Asset Integrity Management Solutions are specialized in establishing analyzes based on the results of inspections and material testings, taking into account the frame conditions of and the given processes within an industrial asset.

DEKRA combines the comprehensive knowledge of Non Destructive Testing, Inspection, Destructive Testing, material science, damage mechanisms and much more to identify the reasons for component failures. Based on that knowledge the owner of an industrial asset is able to optimize the parameters of their asset and to modify inspection plans in order to keep an eye on identified risks.

With "Asset Integrity Management Solutions" DEKRA supports its customers to eliminate recurrent failures, thereby the reliability of the plant or rolling stock will be increased. As a consequence, cost of lost production and maintenance decrease and safety increases. DEKRA is an independent party and as such can provide clarity in liability issues.

## The product portfolio of "Asset Integrity Management Solutions" at a glance our services include:

- ▶ Assessment
  - ▶ FMEA - Failure Mode & Effect Analysis
  - ▶ Failure and Root Cause Analysis
  - ▶ HAZOP - Hazard & Operability Study
  - ▶ Condition Assessment Analysis
  - ▶ Fitness for Service Analysis
  - ▶ Condition & Remaining Life Time Assessment
- ▶ Optimisation
  - ▶ Monitoring Plans
  - ▶ Inspection Plans
  - ▶ Maintenance Plans
  - ▶ Investment Plans
  - ▶ Life Cycle Costs



# Your Global Partner for a Safe and Sustainable World

How we help you stay on the safe side with material testing, inspections and asset integrity management solutions.

Never before have the requirements for the design and manufacture of components been more demanding. Increasing emphasis is being placed on safety and cost-effectiveness of products and installations – often in conjunction with liability issues. All the more reason to look into material properties and the use of components in diverse ambient conditions.

Play it safe and talk to the experienced DEKRA Industrial Inspection specialists. They can offer you extensive services in the fields of non-destructive testing, destructive testing, metallography, inspection via robotized solutions, quality assurance and asset integrity management. From the individual consultation and planning of tests to implementation, including evaluation and documentation.

Adherence to deadlines, quality, professionalism and cost optimization are the foundations of our work, whatever solution we provide for you. Whether carrying out tests in plant and pipeline engineering or high-quality damage analysis in automotive manufacturing, you will be talking with highly qualified and pragmatic specialists. We provide valuable services which help to make our technical environment just that bit safer.

DEKRA Industrial Inspection provides a comprehensive package of material testing, inspection and asset integrity management. Through the cooperation with our sister companies within DEKRA Industrial Inspection, we can offer our services in North America, Europe, Asia & Africa.

We are your global partner for a safe and sustainable world.



## DEKRA Industrial Inspection is your reliable partner in the following business areas:

- ▶ Energy supply (conventional and nuclear power stations)
- ▶ Waste disposal and incineration plants
- ▶ Chemical and petrochemical
- ▶ Pulp and paper
- ▶ Machine, steel and plant construction
- ▶ Pipeline construction
- ▶ Renewable Energy / Windenergy
- ▶ Offshore / Maritime
- ▶ Automotive
- ▶ Aerospace
- ▶ Railway
- ▶ Casting and forging industries
- ▶ Insurance
- ▶ Future Energy / Hydrogen

### Some selected examples of our key certifications and accreditations:

- ▶ Accredited Body for pressure equipment, lifts, machinery and rail
- ▶ Notified Body for pressure equipment, lifts, machinery and rail
- ▶ Accredited according to ISO/IEC 17020:2012
- ▶ Accredited according to ISO/IEC 17025:2017 (Testing Laboratory)
- ▶ Certified according to ISO 9001:2015 (latest version)
- ▶ Certified according to SCCP/ISO 45001:2018
- ▶ Certified according to ISO 14001:2015





## DEKRA Industrial Inspection



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