





WT Gmbł About us.

Our goal is first and foremost to provide: Quality, reliability and flexibility!

This is why we always focus on the training of our professional engineers and technical inspectors, and only work with our own expert staff. Our colleagues have access to state-of-the-art testing equipment, which allows us to provide a whole variety of services, and most importantly to always respond to your needs quickly and flexibly. Services from experts - for experts.

and reliable.







We are a top-performing company specialised in the fields of industrial inspection and destructive and nondestructive testing. With our highly-trained, experienced colleagues, we can provide you with a comprehensive range of services relating to pressure equipment, steel structure, material testing and welding technology.

We strive for a close partnership with our customers and work in a professional and constructive way right from the start. Always with the highest quality standards. Always professional



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Nondestructive Examination





ondestructive Examinatio Reliable test results every time

For the whole spectrum of Nondestructive Examination methods such as RT, UT, MT, PT, VT, LT as well as mobile hardness testing, wall and coating thickness measurement, Positive Material Identification (PMI), Delta Ferrite Measurement etc., our qualified and experienced inspectors can carry out all your testing requirements competently and efficiently.

Thanks to our modern, fully-equipped laboratory vehicles, your testing tasks will be carried out on site at your facility. Our inspectors are qualified and certified in accordance with ISO 9712 in RT, UT, VT, LT, MT, PT and in the ASME field in accordance with SNT-TC-1A in RT, UT, VT, MT, PT. If you have any specific requirements regarding testing, the execution of test planning etc., just contact us!

We will be happy to support and advise you!

ISO 9712 SNT-TC-1A





Industry sectors 1.0

Renewable energy

Service for all areas of alternative energy

From sludge pyrolysis to wind power plants, our experienced specialists always provide top-class service. Our services in the field of renewable energy include:

- Project management
- Production monitoring
- Construction monitoring / Welding and Testing Supervision
- Start-up support
- Coating inspections
- Selection and auditing of suppliers
- Expediting

We have therefore been able to provide support in the form of project management for several research projects of a major energy supplier, and were able to supply a whole range of services for these projects. Our specialists were also involved in the construction of the offshore wind park Borkum West II and the construction of various solar power plants in Spain (Extresol, Andasol, Smacasol).









Mobile x-ray testing on site

With our modern, fully-equipped laboratory vehicles with mobile x-ray equipment and gamma sources, we can carry out all your testing requirements flexibly and at practically any location. The development and evaluation of the radiographs and the full documentation are completed on site, so you receive the test results and written report immediately after the tests.

We can also carry out radiographic testing of tube to tubesheet welds.

Experienced RT level III testers are also available for advice on testing technology or as an independent body for the revaluation of x-ray films.



Ultrasonic testing Weld inspection and tes

For the manual ultrasonic testing of welds, castings, forgings, pipes, plates etc., we use state-of-the-art digital ultrasonic devices. Here, it is possible to test a wide variety of materials, for example metals, but also plastics and composite materials.

The condition assessment of tanks and pipelines regarding erosion and corrosion can also be carried out using ultrasonic testing.

RT

Level III Certified **UT** AVG



Weld inspection and testing of semi-finished products



Power plants

Services for power plants



We provide comprehensive, professional services for power plants worldwide. Our experts can draw on their wealth of experience from numerous projects, especially in the production of components for new construction projects and revisions. We also have special qualifications in the field of nuclear power plants and experience in the production of components in accordance with KTA3211, Konvoi (KSD 2001, KSD 3001), KKL 1802, IS1801, Olikluoto 3 project specifications etc.

We can also support you with the implementation of quality management systems in accordance with KTA 1401 and AVS D100/50 as well as with the creation of preliminary test documentation and the monitoring of the entire manufacturing process from a quality assurance perspective.

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all and coating thickness measuremen Wall thickness measurement

With our state-of-the-art testing equipment, we can carry out reliable measurement of wall and coating thickness.

Wall thickness measurement

Here, we use various digital ultrasonic instruments that allow us to measure the wall thickness of coated components and to determine the residual wall thickness of pipelines, pressure vessels, boiler pipes in power plants, storage tanks and many other components that are exposed to corrosion or erosion. Both metals and various non-metals can be tested, for example glass, ceramics, plastics etc.

Expertise in small power plants!

Especially in the field of biomass cogeneration plants, we have a high degree of experience and detailed knowledge of boiler systems, and also can deliver measurement solutions for hard-to-reach areas, providing you with advice and assistance for the complete revision of your plant.

Metal

Nonmetal

using the magnetic induction and/or eddy current method. With our mobile measuring equipment we can carry out testing almost anywhere.

Here, the areas of application are: Coating thickness measurement of non-magnetic coatings such as Zn, Cr, Cu, tin on steel paints, varnish, plastic on steel or on Al, Cu, brass enamel coatings in steel tanks, thick insulation coatings on iron, thick conductive coatings on iron, and nickel coatings on non-ferrous materials.

power plants.



Delta ferrite content measuremen Basler-Norm - ISO 17655

Chemical, energy and processing plants are often exposed to heat, aggressive media and high pressure. These situations require the use of steels that are highly corrosion- and acid-resistant and can resist mechanical stress even at high temperatures. If the material contains too little ferrite, the weld is susceptible to hot cracking, and if too much is present, the robustness and ductility as well as the corrosion resistance of the steel will be reduced. With duplex steels, a lack of ferrite in the weld area results in a reduction in stress corrosion cracking resistance and strength.

We measure the ferrite content in austenitic and duplex steels using the magnetic induction technique. Areas of application are on-site measurements, for example austenitic claddings and welds in stainless steel tubes, tanks, boilers and other products made of austenitic or duplex steel.

δ-Ferrite

Duplex steel

Nondestructive coating thickness measurement

We can also measure welded cladding for you, for example on boiler pipes in

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Industry sectors 3.0

Oil & gas

A whole range of services for the oil & gas industry

the Thunderhorse platform to production monitoring and acceptance tests of valves, pumps, tanks, heat exchangers, marine loading arms for gas, and much more: The specialists from IWT are always there to support you with your project. We have inspectors certified and approved by SAUDI ARAMCO in a wide range of product areas.

Our service for you at a glance:

- Inspection of pressure equipment / Steel structure / Materials
- Production monitoring
- Construction monitoring / Welding and Testing Supervision
- Coating inspections
- Auditing of suppliers
- Expediting
- Quality monitoring







Magnetic particle testing Reliable testing of surface defects

Magnetic particle testing allows the reliable detection of material separations, such as cracks, in and near the surface of ferromagnetic materials. Our mobile testing equipment allows us to conduct the testing directly on your premises.

We can, however, also test large numbers of standard components such as screws and bolts on special test benches in our laboratory.



Dye penetrant testing Accurate detection of surface defects

Dye penetrant testing allows the accurate detection of cracks and pores that are open on the surface of the material. This reliable method is suitable for both metallic and non-metallic materials.

Dye penetrant testing [PT] is one of the most commonly used test procedures. This seemingly simple test method is often underestimated, and therefore requires highly trained testing personnel. With our qualified testers, we can carry out dye penetrant testing competently and reliably to perfectly suit your requirements.

MT ASME Sec. V







Pipeline

Our expertise in piping is your advantage

Our piping inspectors are experienced in the production and testing of seamless and longitudinally welded pipes in all diameters, wall thicknesses and materials. The inspection of induction bending, cladding pipes and the coating of pipelines are all part of our everyday business. Our inspectors are experienced in API regulations and tests such as HIC and SSCC are part of their daily work.

Our specialists can monitor the production of the pipes for you, provide support with destructive testing and keep an eye on manual or mechanized ultrasonic and x-ray testing. We have inspectors certified and approved by SAUDI ARAMCO in a wide range of product areas.







Visual testing of surfaces and welds

Visual testing involves the assessment of surfaces and welds with the naked eye or appropriate tools. A visual inspection of tanks, heat exchangers, pipelines and interior vessels is carried out during the installation, during periodic inspections and during maintenance and repair work.

With our wide variety of endoscope and camera systems and our qualified testers, we can carry out this type of testing for you to perfectly meet your requirements.





Leak detection and measurement of leakage rates

There are two test methods for detecting leaks:

- The local leak detection method, used to discover leaks (quantitative)
- the test item (qualitative).

Leak testing with test gases (usually helium He4) is the most sensitive measuring method and also offers a wide dynamic range. It is therefore able to detect both very small and very large leaks. For leak testing with vacuum technology, only helium is used to detect leaks.

For these test techniques we use advanced leak detectors (mass spectrometers).

endoscope

helium



• The integral leak test method, used to determine the total leakage rate of





Industry sectors 5.0

Chemistry

Professional service for chemical companies

Especially with the external production of components, it is often important that the product quality is monitored right from the start and that preliminary and final acceptance is carried out at certain production stages. The IWT inspectors are specialized steel, Cr Ni Steel or Ni alloy, titanium, and Super Duplex with cladding among others.

Many years of experience with a whole variety of materials in pressure equipment and plant construction, and with special aspects of production technology and operations, for example special requiremnts of sour gas service, mean that our inspectors are the ideal partner for your projects.

We are also certified for various NDT methods - Level 3, which means that a qualified expert for example the acceptance of helium leak testing etc. is always available. Our inspectors also have access to a wide range of testing equipment such as PMI, so one inspector can often deal with two topics at once during an inspection.

Our equipment is your advantage!





With mobile material analysis, a distinction is made between the following test **methods** and test procedures:

- Mobile x-ray fluorescence analysis
- Mobile spectral analysis
- PMI (Positive Material Identification)

X-ray fluorescence analysis

Mobile spectral analysis Precise analysis and identification of a wide variety of materials

IWT GmbH has state-of-the-art equipment for both test methods.

Mobile x-ray fluorescence analysis is mainly used both for high-alloyed metallic materials and non-metallic materials and is completely non-destructive. X-ray fluorescence analysis can even be used for very small or porous components or materials such as welding filler materials, chips, powder, soils and rocks.

Unfortunately, the analysis of carbon, which plays an important role especially in non-alloyed and low-alloyed materials, is not possible. Mobile spectral analysis is used mainly for non-alloyed and low-alloyed materials because it also



material analysis

allows carbon to be measured. High-alloyed materials can also be reliably determined with mobile spectral analysis. The test does, however, leave a focal spot on the component's surface the size of a 1 cent coin and is slightly more complex than x-ray fluorescence analysis. Non-metals cannot be measured.

Typical areas of application:

In metal recycling, PMI simplifies the metal sorting. Also in the recycling of catalytic converters from cars, PMI provides results quickly and cheaply. In the metalworking industry, fast on-site analyses help to avoid complaints and recourse claims. Here, we can test the material quality at the receipt of goods, production, or final approval stage.

Typical materials:

- Chromium steels, stainless steels, NCT
- Chromium-nickel-molybdenum steels
- Low-alloyed steels
- Tool steels
- Nickel and cobalt-based alloys
- Copper, brass and bronze alloys
- Titanium and aluminium alloys (incl. Mg, Al, Si, P, S)
- Precious metals gold, silver (jewellery alloys)
- Platinum-group elements in catalytic converters of cars

PMI (Positive Material Identification)

Material identification testing can be carried out both with x-ray fluorescence analysis and mobile spectral analysis. The analysis usually focusses on the main alloying elements of the sought material and is therefore less accurate than a full analysis, but also considerably faster and therefore cheaper.

The goal of PMI is not to produce the most accurate analysis possible, but to avoid any mix up of materials in a safe and economical way. The traceability of materials used is of key importance, so "PMI" is increasingly embedded in project specifications and customer requirements.

Manufacturers are responsible for their products and also for any (externally-purchased) semi-finished products. Past experience has shown that in times of global materials, control is better than trust.

We will be glad to support you with our know-how and our testing capability, and help you gain a little bit more security for your product, for your customers, and of course for your company.

PMI

reliable & quick



Marine

Your professional partner in the shipbuilding industry

Inside a ship, and also on deck there are many components such as tanks, piping, valves, compressors etc., which influence the functioning and safety of a ship. IWT specialists ensure that your order specifications are successfully implemented in the required components and that your quality standards are met. Repairs at sea are often difficult and sometimes impossible, so it is important to ensure in advance that everything that is installed meets all the requirements.

Our service for you at a glance:

- Inspection of pressure equipment / Steel structure / Materials
- Production monitoring
- Construction monitoring /
- Welding and Testing Supervision
- Coating inspections
- Auditing of suppliers
- Expediting
- Quality monitoring





Fast results on the spot

Our mobile hardness testing equipment allows quick, practical on-site hardness testing using the UCI technique (Ultrasonic Contact Impedance, standardized in accordance with ASTM A 956 and DIN 50156). The test indentation of the diamond on the surface of the material is measured electronically and displayed immediately.

Mobile hardness testing can be used almost anywhere: on scaffolding to test large tanks and pipes or for testing components at any location. The UCI technique is particularly well suited for testing fine-grained materials of different shapes and sizes and heat-treated surfaces. Using the small, narrow probes, measurements can be carried out even in hard-to-reach places, for example on tooth flanks or at the tooth base.

In this way, the testing of welds, for example, can be carried out quickly and reliably. The measured values can be shown in HV, HRB, or HRC.

Overview NDT

Nondestructive Examination

Our full range at a glance

RT | RADIOGRAPHIC TESTING

WALL AND **COATING THICKNESS** MEASUREMENT

DELTA FERRITE CONTENT

MT | MAGNETIC PARTICLE TESTING

PT | DYE TESTING



LT | LEAK TESTING



MATERIAL ANALYSIS

PMI | MOBILE



Vickers HV Brinell HB













liable test results every tim thanks to our highly-qualified experts

Mining / Mechanical engineering

Machinery and steel construction: what can we do for you?

> Whether drilling rods, bucket-wheel excavators, compressors, conveyor belts, cranes or conveyor systems: all the products in the field of mining and mechanical engineering have one thing in common. They often have to withstand high levels of stress and continue to function under the most adverse conditions. These factors mean that the production must be of the highest quality standard. The heavy strain on the products results in the use of unusual combinations of materials in welding technology in order to take account of the special strength requirements.

> Our inspectors and welding engineers are experienced in working with the various high-strength materials in the functional testing of compressors, couplings and motors, hydraulic equipment and welded constructions.

Our service for you at a glance:

- Inspection of pressure equipment / Steel structure / Materials
- Production monitoring
- Construction monitoring / ____ Welding and Testing Supervision
- Coating inspections
- Auditing of suppliers
- Expediting
- Quality monitoring

Destructive material testing



structive material testin

IWT GmbH offers a comprehensive range of destructive and non-destructive material tests. From the evaluation of welder qualification tests to welding procedure tests, testing of semi-finished products and precise damage assessment on a component; with us you have a competent and efficient partner. We always work with state-of-the-art measurement technology and specialists that are highly-qualified in accordance with national and international regulations.

Our services for you at a glance:

Mechanical technological tests:

- Hardness tests using the Brinell (HB), Vickers (HV) or Rockwell (HRC) method
- Bending tests for metals and plastics
- Impact bending tests in accordance with EN and ASME

Material analyses:

Metallography:

and much more.

Corrosion testing:

• Test for intergranular corrosion (IK Test)

In accordance with the following procedures and standards:

- ISO-3651-I method: A, B and C (former name: SEP1877)
- ISO-3651-II method: A, B and C (former name: SEP1877)
- ASTM G48 method: A, B and C
- Huey test (Determination of the rate of depletion)

Destructive material Metallography to Impact bendir

From analyses to tensile tests, with us you are at the right address

• Tensile test: Round or flat tensile specimens, hot tensile tests

• Chemical analysis using spark spectroscopy or x-ray fluorescence analysis

• True-to-scale generation of macro- and micro-images, macro- and micro-measurements (digital with PC-support), structural evaluation (grain size and purity), damage reports, determination of design throat thickness

• Cabot test (Determination of the critical pitting temperature)





Materials / Welding technology

Specialists for materials and welding technology

Whether in the production of forged rings, forgings, dished heads, castings or the subsequent destructive or nondestructive testing: Our specialists provide excellent service for your product. We ensure that the mechanical or nondestructive tests are carried out according to the agreement, and you receive the product that you have ordered. In welding technology as well, our specialists can assist in the development of new welding processes or simply ensure that the required quality of all products, including the original part, is always ensured.

Forgings, castings, etc. and welds have one thing in common: once they have been made, you can only determine their mechanical properties with destructive testing, which always results in the product being destroyed. Our specialists can help you to follow the processes in such a way that following production, you are aware of the product's quality without having to destroy it.



ndustria Inspection Services and Expediting



our benefits Take advantage of our expertise!

Quality through intensive training Thanks to the excellent training of our staff and their comprehensive skills, we can guarantee the constant high quality of our services.

Flexibility

tion-oriented. Always driven by the demands of the customer.

Own staff / own testing equipment

We always work with our own personnel, and strive to enhance the expertise of our colleagues every day through constant training and the sharing of experience.

In-depth experience

We have many years of experience in a wide variety of industries and a whole range of state-of-the-art testing methods. This is why we are the professional partner of choice for our many customers.

Central location

Thanks to our company's central location near Frankfurt and the good transport links, we can reach anywhere in Germany in next to no time. And for destinations outside of Germany, Frankfurt airport offers excellent travel options so we can guarantee not only professional but also quick assistance, wherever you need us.

ASME PED









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Our high level of flexibility means that we can quickly respond to every customer request. And even for the most specific requirements we will always deliver the perfect product. Always solu-















Minimizing risks and costs

Whether it's the inspection of production parts prior to delivery, or on-site during production at your facility, we provide a whole range of expert services relating to pressure equipment, steel structure, and mechanical and plant engineering. No matter whether individual inspections or long-term projects our specialists ensure that you are provided with the quality you require.

With their wealth of experience and expertise, our professional engineers can guarantee top-quality service. Our inspectors also have access to our inhouse testing equipment (PMI, coating thickness measurement, wall thickness measurement etc.). This often provides synergies during inspections which both create added value for our customers and save costs. We are familiar with numerous regulations from around the world and are always ready to break new ground.

The IWT industrial inspectors stand for reliability and quality and minimise risk, so our customers are provided with precisely the components they expect.

Our experience - your advantage!









Expediting

Reliable control of delivery quality and punctuality

A supply shortage of a small, minor component can hinder or delay the commissioning or completion of an entire plant. Especially with large projects, sudden delays in deliveries of individual components can have considerable negative effects on the whole schedule - which usually involves high additional costs.

This can, however, be avoided! Our expediting specialists consistently and regularly analyse the delivery dates confirmed by your suppliers in order to detect any possible delays at an early stage. They can then develop countermeasures with the suppliers to ensure that everything arrives on time where it is needed. We will also be glad to coordinate your expediting activities worldwide, so you can devote all your attention to your project.

Our motto here is: ensuring deadlines are kept, without compromising quality. Because no project can succeed without excellent product quality!

Expediting by the experts at IWT – so your project successfully reaches the finishing post!

WORLDWIDE ANALYSIS EXPEDITING

COORDINATE

DATE OF DELIVERY QUALITY



Saudi

Aramco Certified

We keep an eye on your projects!

Whether it's the final acceptance testing of a

boiler or the complete monitoring of a tripod for

a wind park: From the design stage to material

preparation, assembly, welding, heat treatment

and testing right up to the coating and delivery;

IWT specialists will look after your interests at

the construction site, the manufacturer, or wher-

ever you need us. We have in-depth experience in

a whole variety of industries, so we know exactly

Expert IWT inspections with focus on the customer

what is important for each customer.

- Your targets are our motivation!

Acceptance testing / Production &

construction monitoring







oating inspections NS 476 Frosio Certified

The demands of the market relating to corrosion protection in steel and equipment construction are constantly increasing. Especially with offshore components, there is a particularly strong focus on corrosion protection. This is on the one hand because the usually expensive components are often in a highly corrosive environment and on the other hand because repairs due to corrosion, and improvements are usually very time-consuming and expensive. Many specifications and regulations therefore require that the coating is monitored and accepted by a qualified inspector.

Our specialists are certified in accordance with Frosio NS476 Level 3 and can guarantee expert professional service. The Frosio certification is usually also accepted in place of a NACE certification.

Coating inspections by IWT minimize both your risk and your costs!









NDT Level 3 Service



DT Level 3 Servic Wherever you need us!

Production audits / Quality monitoring

Especially for major projects with numerous components and manufacturers, it is becoming increasingly important to keep a close eye on the various production activities and scheduled testing by using intelligent, selective monitoring. This provides valuable information on the overall quality standard of the manufacturers and tests, without having to permanently be on site. Proactive monitoring is the key to detecting possible quality deficits at an early stage, allowing remedial action to be taken. It allows you to intervene wherever necessary. In later stages of the projects, this can only be achieved with resident inspectors, which is very costly and often only grudgingly agreed to by the manufacturers. Our specialists are qualified welding engineers and NDT inspectors Level 3, and have years of production experience. They are ready to travel with their own NDT equipment and quickly adapt

Quality monitoring by IWT saves resources and guarantees the quality you expect!

to meet the most diverse requirements.

Support for project business and development

When it comes to creating and checking design review documents in accordance with nuclear technology regulations, creating and checking welding instructions, welding procedure tests, NDT testing instructions, pressure testing instructions, heat treatment instructions, coating instructions, technical specifications and much more, as well as advice on materials, welding and testing; you are at the right address with the IWT specialists.

IWT GmbH provides comprehensive support for the application of international regulations!



ASME Authorized Inspectors





Documentations / Audits

We will be happy to provide you with comprehensive support in all fields including new manufacturing challenges, approvals and the application of international technical regulations.







Our qualifications at a glance:

With our highly-trained, experienced colleagues, we can provide you with a comprehensive range of services relating to pressure equipment, steel construction, material testing and welding technology.

Our goal is first and foremost to provide: **Quality, reliability and flexibility!** This is why we always focus on the training of our professional engineers and technical inspectors, and only work with our own expert staff. Our colleagues have access to state-of-the-art testing equipment, which allows us to provide a whole variety of services, and most importantly to always respond to your needs quickly and flexibly.

Services from experts – for experts. We strive for a close partnership with our customers and work in a professional and constructive way right from the start. Always with the highest quality standards. Always professional and reliable.

Our experience - your advantage!

- International welding engineers,
- National Board qualified Authorized Inspectors
- NDT Level 3 to EN 473/ISO9712 in RT, PT, MT, UT, VT, LT.
- NDT Level 3 to SNT-TC-1A in RT, PT, MT, UT, VT, LT.
- Frosio- NS476 Painting Inspectors
- Saudi Aramco personal certificates for various industry sectors.

www.iwtec.de

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