WE STAY FOCUSED

Inspectahire is one of the UK's leading suppliers of specialist inspection technology and NDT solutions to companies worldwide.

We offer equipment rental, contracting, sales and project engineering services that provide flexible solutions. Safety and cost are two of the biggest concerns in industry today. We realise this and aim to reduce the effect of them both by using our broad range of equipment and our extensive knowledge.



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Inspectahire is an international company, our roots were laid in Scotland however over time we have developed and grown.
We now have a number of facilities located worldwide, included in these are:

- Aberdeen Main operational office
- Helensburgh
- Australia
- **Q** UAE
- Malaysia
- Iraq



Client testimonials

Occidental Petroleum

Occidental Petroleum in Qatar have utilised the services of Inspectahire UK Ltd or several occasions during my time in charge of Asset Integrity and also before my time in the role.

I have known John Rennie the Operations
Manager for all of this time and he has always
impressed me with his drive to achieve the
correct results and to think of opportunities
outside of the square for the harder projects.
Inspectahire get involved with many similar
industry bodies along with research and
development organisations to offer the most up
to date application critical tools in the market
place, not to mention going that extra mile to
supply documentation from other companies if
they believe it is in the clients best interest.

Inspectahire staff have always been well qualified, experienced and suitable of working and supervising independently in this region. The quality of work and reporting has never been an issue.

Inspectahire have been involved in the following projects for OPQL:

- + Iris and Eddy Current Tube Inspections on Aftercoolers
- + 20" riser caisson internal camera inspection PS1K
- + Sea Water Fire pump caisson camera subsea inspections PS1D
- + Vessel Internal Inspection both visual and utilising cameras
- + Scorpion Crawler Tank wall inspections utilising
 Abseiler inspectors

- + API 653 inspections on Halul Tanks
- + ROV subsea riser and jack up leg inspections on Al Morjan platform
- + Camera inspections on Al Morjan Platform
- + Thermographic surveys on PS1 flare

I have also utilised the experience and industry knowledge of John Rennie on many occasions to look at solutions to various problems as they arise, and never been let down. I have no hesitation in recommending Inspectahire and their staff to other companies, and will continue to use them into the future.

Craig Graham
Asset Integrity Team Lead
Occidental Petroleum of Qatar Ltd

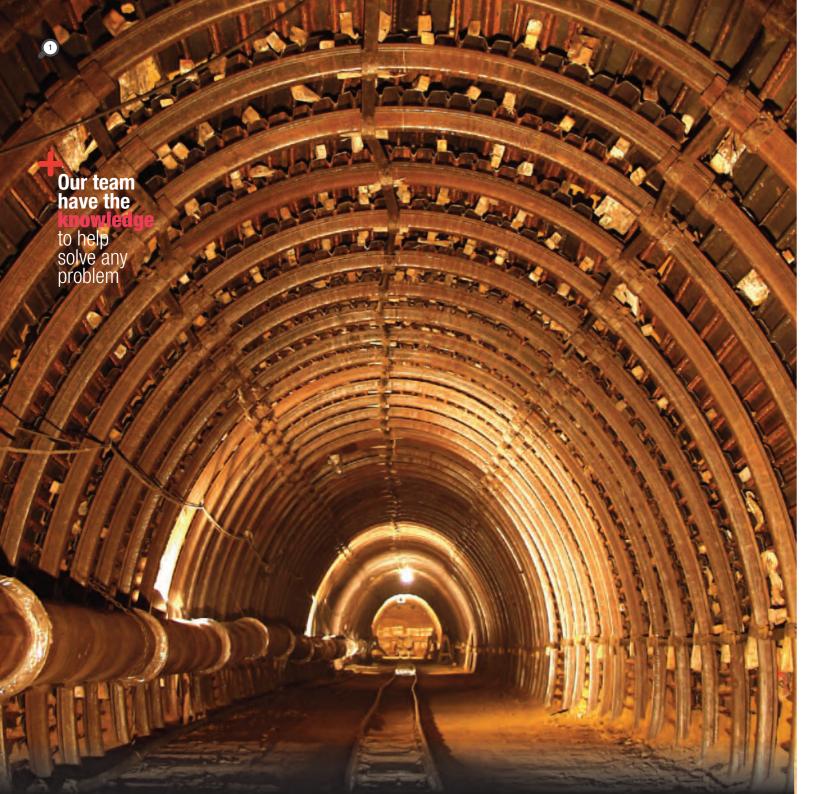
Shell U.K. Limited

I am delighted to act as a referee as I have used Inspectahire Services, on my platforms, over the past 5 years to carry out Camera/Video Inspections of numerous Process Vessels during that time.

I have always been impressed with their Service and the Quality of the Reports and Images. Also, Inspectahire when ever asked to change plans to accommodate operational issues have always been obliging in smoothing out any issues.

Mark Crossley
Area Inspection Engineer (CNNS Brent C & D)
Shell U.K. Limited





Remote visual inspection specialist

For three decades Inspectahire has carried out inspections of physical assets across the world. From the waters of the Persian Gulf to the top of the Forth Rail Bridge, we have been called upon to under take all types of inspections.

We have a strong reputation in a wide range of industry sectors including:

- + Power
- + Oil & Gas
- + Petroleum Retail
- + Pharmaceuticals
- + Renewables
- + Physical Assets
- + Process Industries

We often draw on the experiences from one industry and apply them in an innovative way in another. Along the way setting industry firsts.

It is our innovation, knowledge and determination to remain at the forefront of inspection technology that ensures we maintain our position as a leading supplier of inspection solutions.

























Our three core services

With our extensive range of equipment we offer the following three core services:

Contracting

We are a strong believer that regular inspection can save companies a substantial sum of money. The result of regular inspection is less down time. If assets are inspected on a regular basis there is less chance of a problem occurring.

With our equipment, highly skilled and knowledgeable in-house technical team, we can provide an effective and productive integrated inspection service.

Longer term contracts can be undertaken to carry out ongoing inspections and monitoring.

Project Engineering

Innovation is at the heart of our business, we were born out of it. As technology has changed we have adapted how we use it.

Every project requires some engineering, but some projects require more. Using our in-house design capability and extensive experience, we can custom design a system to overcome the problem and create a solution.

Equipment Rental

If you have the skilled staff we can provide the equipment to carry out inspections. Equipment rental could be the most cost effective solution.

All our rental packages are tailored to your requirements and each piece of equipment is provided transit cased with operating instructions and appropriate test certification. Our pool of rental equipment consists of the latest technology from trusted suppliers.





Project engineering

We were established in 1981 out of innovation, and innovation remains at the heart of our business today. Technologies change as they do, so does the way in which we inspect things. Each inspection requires a degree of engineering and has to be undertaken in the safest and quickest possible way in order to minimise disruption and reduce costs.

Sometimes an inspection can be very challenging, Using our In-house engineers and design capability we can design a solution that can overcome any challenge.

- We created the means to internally inspect the world's largest Butadiene tanks without taking them out of service.
- + We engineered the removal and replacement of the base heating system of the world's largest singe skinned LPG tank - while it remained in use.
- + We created a telescopic mast which we could erect from the track bed of a rail tunnel through a 400m hole in the crown and elevate a camera 40m vertically to inspect the 4m diameter shaft all in a weekend.

Our extensive experience of inspecting things large and small in any environment ensures that we can offer innovative solutions to inspection problems.

Using our in-house design capability

overcome any challenge

we can

The Inspection Specialists Making a visible difference

We are committed to being progressive in the application of new technology

Service summary

Inspectahire work across all industries, this ensures our inspection skills are advanced and very diverse. We are tasked with inspecting a wide range of subjects, each requires a different technology and technique. A summary of subjects we inspect can be found below:

CIVIL ENGINEERING – INSPECTION OF

- + Tank Foundations
- + Office Building Fabric
- + Bunds
- + Chambers
- + Chimneys
- + Tunnels
- + Post Tension Conduits
- + Rock Anchors
- + Jetty Integrity Surveys
- + Pipe Supports
- + Drainage

OIL REFINERIES & POWER STATIONS

- + Boilers Inlets/Outlets
- + Pipelines
- + Process Plant
- + Crackers
- + Receivers

PRESSURE VESSELS AND TANKS

- + Glass Flake Lining
- + De-Mister Pads
- + Water & Hydrocarbon Leak Detection
- + Robotic Internal Surveys in Hazardous Conditions
- + Sample Retrievals
- + Thermographic Surveys for Sand Build Up

OFFSHORE

- + Manifolds
- + Risers
- + Corrosion Under Insulation
- + Process Plant
- + Caissons
- + Well Heads
- + Pipe Bundles
- + Meter Prover Loops
- + Turbines
- + Air Receivers
- + Drains
- + Flares
- + Exhausts

FPSO / Tankers / Standby Vessels

- + Engines
- + Gearboxes
- + Air Intakes
- + Thrusters + Sea Chests
- + Heat Exchangers
- + Hull Surveys
- + Propeller Shafts
- + Pipework
- + Tanks

We always recommend the best in solving

Gas thermal imaging

Inspectahire has become an industry leader in the Gas Detection / Inspection market, not only are we the leading distributor of the technology, we are also experts in carrying out the inspection. When we are tasked with the detection of fugitive gas emissions, FLIR's GF series of Optical Gas Imaging (OGI) cameras is our preferred technology to use.

We have worked for over three decades in the Oil & Gas industry, both in the North Sea and worldwide, this has led us to gain a strong expertise in the sector. Safety and cost are two of the biggest concerns in the offshore oil and gas industry. We realises this as much as anyone and therefore aim to tackle these challenges by using the best technologies available.

Cailean Forrester, Managing Director of Inspectahire stated "The offshore oil and gas industry are proactive in their search for the best technologies for detecting emissions that may affect the safety, profitability and environmental impact of their assets. At Inspectahire we strive to identify and offer the best available technological solutions for all remote inspection scenarios. Dangerous gas leaks are a concern to every oil and gas production plant. Not only do some of the gases harm the environment, but the leaks also cost companies substantial amounts of money".

"We have been using certain contact measurement tools like laser detectors or leak

sniffers. But the problem is that you have to go right up to the object, which is not always safe or even possible. In other words, this approach is limited and not very precise. With an Optical Gas imaging camera like the GF320 however, you can keep a safe distance and still detect gas leaks with great precision. The camera is very ergonomic and very sensitive," comments Cailean Forrester. "If a hydrocarbon leak is there, you will certainly see it with the GF320 camera, even if it is a small one. Small leaks can become big ones, that is why it is important to be able to detect them in an early stage. With the GF320, we are sure of an accurate and reliable detection."

The Inspectahire team is using the GF series of optical gas imaging cameras for maintenance inspections and for all its fugitive gas emission detection jobs. The GF cameras offers a range of tangible benefits compared to traditional leak sniffers, because they scan a broader area much more rapidly and monitor areas that are difficult to reach with contact measurement tools. The portable cameras also greatly improve operator safety, by detecting emission at safe distance.

There is a wide range of cameras in the series, all designed to detect different emissions in different industries. Our expertise will ensure the most appropriate camera is used when carrying out each inspection.







Atmospheric tank inspection

Over the past 10 year Inspectahire has specialised in carrying out RVI in hazardous / EX environments, vessels tanks etc.

In 2008 Inspectahire expanded into Atmospheric Tank Inspection, progressing the company forward into a new field.

Understanding the customer's requirements, complying with the established inspection standards (API 653 and EEMUA 159) and looking at technology to further enhance inspections has been a goal of the company.

Inspectahire deployed a team of technicians to Qatar to carry out an in-service inspection on an atmospheric tank. The inspection incorporated all of the tank features including drainage, foundations, shell, roof, wind girder, tank floor, welds, nozzles and man ways, flow lines, fire sprinkler system and all structures. A team of Rope access technicians with the appropriate NDT discipline qualifications were utilised to gather information and inspect areas where access was difficult. Meanwhile, a further team operated an Ultrasonic Crawler remotely from the ground gathering data on the tank shell and roof. In addition all works were overseen by a qualified tank assessor, who collates the information and carries out the required calculations so as to inform on the tank condition for further operations.

The two main types of atmospheric storage tanks encountered are Floating Roof Tank and

Fixed Roof Tank. Each type of tank requires a range of inspection techniques, for example:

- MPI-Magnetic Particle Inspection Used for the inspection of the Shell to Bottom Weld and seam welds
- + Dye Penetrate Used for the inspection of the Shell to Bottom Weld and seam welds
- Magnetic Flux Leakage Used to assess the condition of the tank floor and locate defects on underside of floor plates
- + Pulsed Eddy Current Used to assess the condition of the annular ring
- Vacuum Box Used to test the integrity of the Shell / Bottom weld and majority of Seam Welds
- + CCTV & Pneumatic Mast Used for the inspection of Drains, Pipes, and areas where access is most difficult, negating the use of scaffolding where access is at height
- + Ultrasonic & Remote Ultrasonic Remote
 Ultrasonic to measure the wall thickness of
 the Shell strakes and Tank roof plates by
 following vertical Scan Lines on the tank shell
 from the ground
- + Visual Overall inspection of foundations, holding bolts







IRIS inspection



Tubular Heat Exchangers are vital to the operation of a plant. Failures are considered unacceptable both economically and environmentally. Failure is usually caused by corrosion or erosion of the tube wall. Regular inspection is the best means of detecting wall loss at an early stage.

Brief Description

IRIS is an ultrasonic system that scans and measures the remnant wall thickness along the full length and circumference of tubes. IRIS uses an immersion pulse-echo technique. The probe is centred in the tube to be inspected and ultrasonic pulses are transmitted along a path parallel to the tube axis. These pulses are then redirected radially to the tube wall by a 45° mirror. The mirror rotates at high speed and scans the ultrasonic beam around the tube circumference.

Successive pulses build a screen image of the tube cross section at any given point. By withdrawing the inspection head from the tube at a pre-determined rate the ultrasonic beam is made to describe a helical path, the individual revolutions producing a continuous series of measurements covering the full surface area of the tube.

Capabilities

- Inspection of ferrous and non-ferrous tubes, ranging in size from 12.5mm to 75mm internal diameter
- + The system provides accurate wall thickness measurements
- + Provides 100% coverage of tube circumference
- + Sensitive to both internal and external defects
- + Typically, 10-12 tubes can be inspected per hour, dependant on tube length
- + Defect position can be located in relation to tube length
- + Data storage of test parameters and screen image

Limitations

- + Poor surface preparation or deposits may affect ultrasonic coupling
- + Will not detect tight, vertical planar defects
- + Only applicable to straight tube lengths
- + Access may be required to both ends of the tube

Preparation

+ The bore of the tube must be cleaned to bare metal along the full length for optimum results. This generally requires the tubes to be cleaned by high pressure water jetting.

Services Required

- + Adequate provision for personnel and equipment access
- + 110V AC electricity supply
- + Ready access to a clean, cool water supply.

Pulsed eddy current (PEC)



Inspectahire working in conjunction with Shell, successfully inspected in excess of 600 wells utilising both PEC and CCTV technology. We have also deployed it on other non oil industry assets. Additionally for non Shell operated assets we have worked closely with Applus RTD and their INCOTEST system.

OFFSHORE INSPECTION USING PULSED EDDY CURRENTS (PEC)

What is PEC?

PEC is an inspection technique for measuring thickness of steel objects, such as pipes and vessels, without the need for contact with the steel surface. PEC uses a pulsed magnetic field to measure wall thickness. A more detailed explanation of how PEC works is given at the end of this sheet.

PEC has been used offshore since 1997 and has the following benefits:

- + No need for surface preparation. PEC can measure through marine growth and coatings as thick as 250mm, and corrosion product up to 20mm thick. Also, PEC is not normally affected by surface roughness.
- No loss in production. PEC can be applied in-service, even if the equipment is operating at high temperature.

Some examples of where PEC is used offshore are described below.

Above the splash zone

PEC is regularly deployed for the inspection of a coated riser above the splash zone. This inspection is carried out without removing the coating and without disturbing the corrosion product. Over 100 risers have been inspected successfully in this way without any interference to production.

In the splash zone

Special jigs are available for the inspection of risers and caissons in the splash zone. These jigs enable the PEC probe to be rated around the riser or caisson, and the probe to be moved up and down through the splash zone. This scanning pattern allows wall thickness variations over the splash zone to be mapped with a typical accuracy of 0.5mm.



Wind turbine inspection

As people and businesses become more environmentally aware and want to reduce their carbon footprint, the switch to renewable energy gathers pace. To meet this demand the number and scale of wind farms are increasing, and so too is the requirement to ensure they are operating effectively.

Operating over 35 metres (114 feet) from the ground and with three blades each measuring over 20 metres (65 feet), a wind turbine is not the easiest piece of equipment to inspect.

Why is inspection necessary?

For obvious reasons a wind turbine is situated on a hillside in a fairly harsh environment, which means it is continually exposed to the elements. Couple this with the sheer scale of the technology involved, and the reasons for ensuring that all the components are operating the way they should and are structurally sound is clear.

After all, you MOT your car each year to make sure it's working as it should.

How do you inspect something of this scale?

With three decades experience of inspecting things this is a question which we are often posed. But, we are no strangers to answering such questions.

Using different technologies and techniques, including video probes and Non-Destructive Testing, we can survey every part of a wind turbine; from the concrete base on which it stands, to the very tip of its blades and all the mechanics in between. Each survey which we undertake is carried out in a way which minimises the risk to the inspector and the time involved in the turbine being out of operation.

The Tower

Continually exposed to the elements, with gale force winds battering it, the tower can bear the brunt of the weather. Constructed out of welded steel, each section of the tower is bolted together on the inside.

An inspection of the outside of the tower examines the integrity of the welds and also details any possible

damage. A remote access crawler attaches to the tower with the use of magnets, which allows it to travel vertically and horizontally on the structure to carry out an inspection and feed information back to the inspector on the ground. This eliminates the need for costly scaffolding or rope access.

Internally, visual inspections are carried out to identify any damage to the bolts or flanges.

Damage to these can impact on the safety of the turbine.

The Nacelle

organisation

has over

30 years

in inspection

technology

One of the most important parts the nacelle houses much of the mechanics of the turbine, including the gearbox, generator, brake, controller and yaw mechanism. If each of these items did not operate correctly then the turbine could fail to generate electricity.

Inspections are carried out with video probes to ensure that there is no damage and no debris has built up around the moving parts. If the yaw mechanism is damaged then the turbine may not be able to turn its blades against the wind which could result in greater damage.

As a turbine rotates heat is generated in the nacelle. If there was debris in the nacelle, this in

the worst case could ignite. Video probes allow the inspector to see parts of the mechanism which he can't by sight. Using retrieval tools debris can be removed.

The Blades

Exposed to whatever the weather throws at them, rotating at 10 – 22 rotations per minute and designed to endure more than 120,000 operating hours, the blades are some of the hardest working parts of a wind turbine. Made of fibreglass and weighing around 12 tonnes each there is a need to ensure they are structurally safe.

Thermographic cameras can be used to identify areas of the blade that are delaminating, as it detects variances in the heat of the blade structure. Inspection of the blades can also be carried out using a telescopic mast and a zoom camera which can examine the blade in detail.

The growing demand for clean, green energy will put greater demands on wind turbines so ensuring they are operating safely and effectively will become more important.





Equipment range







Thermographic / IR and Gas Leak cameras

Thermographic cameras are used to measure thermal or infrared energy, which is light that is invisible to the human eye. The camera provides precise non-contact temperature measurement capabilities.

Commonly used to measure the heat loss in buildings, improve efficiencies in cooling and heating systems and to locate overheating joints or parts in power lines and electrical circuits. Thermographic cameras offer a flexible and cost effective inspection solution.

Explosion Proof Cameras

Using normal cameras in many environments can be catastrophic, the risk of explosion from the atmosphere igniting after a camera's flash is extremely high. In comparison, the range of explosion proof cameras we provide are built from the ground-up to use technology that will not ignite the atmosphere. Meaning photographs can be taken without worry by the engineer.

Borescopes

A borescope is a rigid inspection device which provides straight-line access through a hole to an inspection site, such as an engine, turbine or wall cavity.

They use an optical system to transmit a high quality image from the lens at the inspection area back to the eyepiece. In some instances a camera can be mounted onto the eyepiece to allow the inspection to be visually documented.

Fibrescopes

A Fibrescope is a flexible inspection device that is made of a fibre optic bundle and transmits an image from a lens at one end to the user's eyepiece at the other end. The greater the number of individual fibres that are included in the bundle, then the better the resolution of the image.

Fibrescopes are constructed for tough industrial handling and are used in a variety of remote visual inspections, often in places which cannot be easily inspected by man. They are ideal for capturing bright, clear images from inside turbines, pipes, tanks, tightly packed equipment and small or difficult to reach places.

Remote access video technology

Technology has changed our lives and changed the way in which we inspect things. Video technology has evolved greatly and we can now inspect and record in the narrowest of spaces using video probes.





Video probes offer state-of-the-art technology to inspect pipe work of all sizes, ducting, wall/floor voids and many other areas – effectively places which are inaccessible to the human eye.

Video probes are fitted with lights which are either comprised of fibre optics or LED illumination. Fibre optic lighting tends to feature on smaller diameter instruments.

Push Rod Cameras

Ideal for applications such as: hazardous locations, process piping, pipelines and compressor stations, drainage systems, weld inspections, remote visual construction and commissioning inspections, structural elements, foreign object and debris removal, flare stacks, towers and chimneys, manufacturing (extruders, hydraulic systems, pumps, event monitoring), remote visual support for life assessment, forensics, turbines and compressors.

Retrieval devices

In the majority of inspections we undertake we are asked to identify what is causing the problem. However there are also times when we are asked to solve the problem.

In these occasions we are asked to locate and remove the item which is causing the problem – normally this is in a place which can't be

accessed without a costly tear down.

Lighting Solutions

Many of the inspections which we undertake are in places which have poor or no natural occuring light.

For smaller and more restricted spaces safety torches provide an effective and safe solution for lighting an inspection site. These can either be held in the inspectors hand or attached to clothing and the angle of the light can be adjusted up to 90°.

In larger spaces, lamps which are driven by high power compressed air generate safe and strong light. Light generated in this way has a strong safety track record and is extensively used in the petrochemical, oil and marine industries. It offers a safer alternative to mains and low voltage lighting and can be used in spaces which have an explosive atmosphere which could pose a serious risk to the workforce.

Another artificial lighting option which is explosion proof is light weight fibre optic illumination. This produces an intense, extremely white light which is ideal for close inspections and it can also floodlight hazardous areas.

Tractors

Technically described as, 'a motor vehicle with large rear wheels, used to pull heavy loads', the term is now used in inspection equipment to describe a vehicle which carries inspection equipment on land.

With either four or six wheels and controlled and powered by an umbilical, their rugged design allows them to be used in pipes, sewers and tunnels as well as on land. Some tractors are designed to be explosion-proof, allowing them to safely undertake inspections in hazardous areas. Fitted with zoom, pan and tilt cameras they offer a versatile inspection solution.

Pipeline crawlers

Pipe comes in many configurations, including tortuous path systems. Advances in robotic technology means that crawlers can be configured to carry different pay loads and this allows us to undertake inspections quickly and safely in places which humans cannot.

Crawlers come in all shapes and sizes and relay information to the inspector via an umbilical. They are able to carry out inspections and remedial work in pipes and surveys on tank walls and other sizeable structures.

ROV's

ROV's have become an every day piece of technology in the Oil & Gas industry. Their development has allowed them to carry out inspections, recoveries and much more.

We offer different sizes of ROV's which offer different degrees of flexibility, including one which can have a four wheeled skid with suction device attached to allow it to adhere and be driven on hard surfaces. An ROV offers a quick and safe inspection solution.

NDT / NDE

Non Destruction Testing (NDT) and Non Destructive Evaluation (NDE) are forms of inspection which allow parts and material to be inspected and measured without significantly damaging them.

While NDT locates the fault, NDE locates the fault but also measures something about it, such as the size, shape or orientation. We have a wide range of NDT and NDE equipment and they provide an excellent balance between quality control and cost effectiveness.

Laser Technology / Metrology

It is all very well being able to see inside void spaces but sometimes this does not give a full understanding of them and you need to measure



We are committed to carrying out inspections in the most effective & least distruptive manner possible

the size of the void. With modern laser technology we are now able to do this. The process is called metrology – the science of measurement.

We offer a range of laser technology which can be used to scan and measure voids, pipes, tanks, vessels and landslip areas.

Aerial Solutions

Not every inspection can be easily accessed from the ground. Difficult to reach equipment in awkward places is one of our specialities. We offer a range of access systems which minimise risk and downtime.

From aerial lift platforms for inspecting stacks to IRATA trained technicians who can abseil onto and into structures, we can offer an access inspection solution for almost any requirement you may have. We have a large amount of UAV (unmanned aerial vehicle) inspection technologies at our disposal, the UAV technology is in many cases the most effective form of inspection.

Positive Material Identification Services

We are a strong believer in the importance of PMI-positive material identification. For various PMI applications from construction to medical equipment, the importance of reliability and safety has never been greater. With constantly developing quality control standards, increased awareness and regulatory requirements, PMI is a necessity rather than a choice.

We are equipped with the latest PMI technologies our reliable equipment offers easy and completely non-destructive testing for every metal component. For a wide range of industries a PMI analyser is greatly important in order to avoid a number of detrimental results. These range from premature corrosion to explosions all of which in the past have been traced to the use of the wrong metals.

