



**LOCALIZED AND HEATED AIR POST WELD HEAT TREATMENT
CONVENTIONAL, ADVANCED AND SPECIAL NON-DESTRUCTIVE TESTING
QUALITY AND SAFETY PLANS
QUALIFICATIONS OF WELDERS AND HEAT TREATMENT TECHNICIANS**





Company presentation and profile

NDT SICILY s.r.l. is a company specialized in the execution of non-destructive tests, both in the industrial and civil fields, heat treatments and inspections. It was born in 2019 from a group of highly qualified technicians experienced by leading companies in the sector to guarantee excellent service to all customers..

NDT SICILY s.r.l. is equipped with technologically advanced instrumentation to guarantee innovative and specialized services and qualified 1st, 2nd and 3rd level personnel as well as welding inspectors.

NDT SICILY s.r.l. has a transport service for third parties for Sicily and the whole national territory.

NDT SICILY s.r.l. in the civil sector it has qualified technicians and instruments for checking any type of material

NDT SICILY s.r.l. has the means, equipment and technicians to operate throughout Italy and abroad with its own heat treatment and control services in the Oil and Gas, Energy, mechanical, naval and civil sectors.



conventional, advanced and special non-destructive testing

CONVENTIONAL

- Radiogammagraphies (traditional and digital)
- Ultrasound and thickness gauge
- Magnetic test
- Penetrant liquids
- Visual Test - Vacuum Box
- PMI - Identification of Materials
- Endoscopy
- Infrared thermography (with latest generation tools)
- Hardness Tests
- Structure checks (in masonry, reinforced concrete and composite materials)

ADVANCED

- Robolam
- Controllo Cavi
- Iris
- Tomoscan
- Phased Array
- Tofd & Phased Array
- Emissioni acustiche, laser scanner, correnti indotte
- Videomatic 2
- Rad View
- Omniscan MX2
- Floormap, repliche metallografiche

SPECIAL

- Climber magnetic tank for tanks and piping
- Hiscan for coupling pipes/plates
- Underwater corrosion control underground
- Structural stability analysis
- Controls with ropes and with indoor and outdoor drones

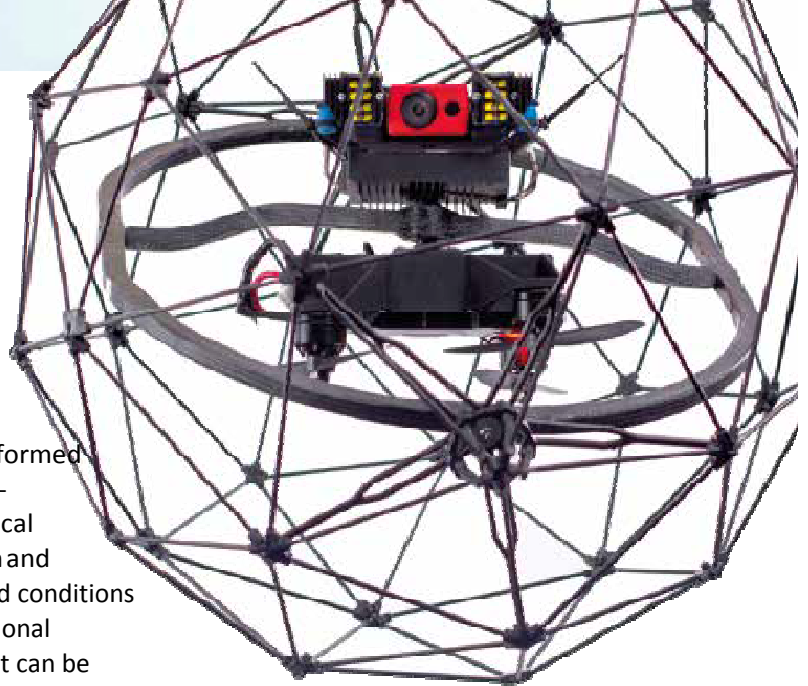
HEAT TREATMENT

- Localized pre e post heating
- Resistances, induction and heated air
- Infrared
- Modular temporary furnace



Industrial inspections with drones

The inspection activities performed with the help of drones represent the new technological frontier in the interpretation and obtaining of data in areas and conditions difficult to access with traditional techniques. It is a service that can be provided in the most diverse sectors: Oil & Gas and offshore, pipelines and power lines, photovoltaic parks, TLC and infrastructure, water pipelines. Furthermore, the use and employment of RPA (remotely piloted aircraft) in industrial inspection services guarantees a reduction in implementation costs for carrying out activities at height and a significant increase of safety-assurance.



The restitution of values with a high level of resolution, through applications of different types of sensors. Context regulated at national and international level.

Some possible controls are: visual examination, thermography, 3D laser scanner.

The aforementioned activities can be carried out both in areas not accessible by land or logistically difficult to reach and both inside the buildings with specialized drones also for this type of inspections.



Work at height
Exam. with operator on the rope.
Exam in the environment.

Exam in industrial areas.

Checks on structures

Industrial inspections with ropes



MAIN METHODOLOGIES OF CONTROLS:

- PMI (material identifications)
- Metallographic replicas
- Hardness
- Ultrasonic thickness control (EN 14127)
- UTD defect inspection
- Magnetic control
- Inspection with penetrating liquids
- Direct visual inspections
- Indirect visual inspections





Controls in the naval sector



In the naval field, especially on board ships, there are many non-destructive tests to be performed. The presence of lifting equipment, lifting cables, pressure vessels, pipes, steam generators and more, make the field very vast. Obviously the integrity of the hull itself and its composition welds should not be underestimated.

The most commonly used methods are as follows:

- ACFM method, (Alternating Current field measurement), to be applied mainly on the excavation and on lifting equipment to detect the presence of fatigue cracks and not on the welds
- MRT Method, (Inductive Magnetic Method to be applied mainly on lifting cables

The fall of a support for public lighting is almost always caused by corrosive phenomena.

These events are more frequent than one thinks and can have extremely serious consequences for the entity that manages them. There are recent cases of loss of human life caused by this phenomenon, which occurred in Italian and foreign cities. There are different methods to control corrosion according to the type of pole and the specific material and the reference standards. The technology applied to the control allows us to have completely innovative solutions compared to traditional techniques

- AT Method, (Acoustic Emission), to be applied mainly to pressure vessels, transformers, electricity transformation substations, fuel storage depots
- Guided wave GW method, for the inspection of pipes, poles, etc.

SPECIFIC TOOLS USED IN ADDITION TO THOSE ALREADY INCLUDED IN THE PRESENTATION:

ACFM: Instrumentation of the Lizard NDE.
MRT: AMC Italia instrumentation, AT: Vallen Systeme GMBH instrumentation, GW: G4 Guided Ultrasonics instrumentation.

which are commonly used to measure the level of corrosion of poles, trellises and metal structures. With the aid of specific devices, by ultrasound, guided waves or other methods, through probes inserted into the ground which transmit a signal to a computer which in turn processes the data received, and allow to establish the degree of corrosion of the pole and the time interval within which the next check must be carried out..

THESE ARE THE MAIN CONTROL METHODS:

- Ultrasound thickness control (in compliance with the UNI EN 14127 standard)
- Control with guided waves (OG) (in compliance with the UNI/TS 11317 standard)
- Corrosion rate measurement (LPR) (in compliance with ASTM G96-90 and ASTM G102-89 standards)

Controllo della corrosione dei pali, tralicci e strutture metalliche



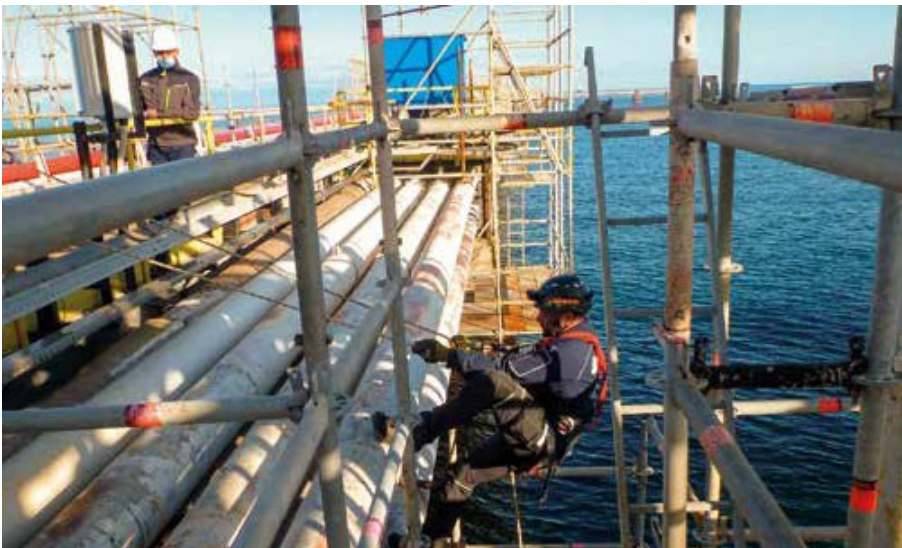


Pipeline

Non-destructive testing of pipelines in different geographical, logistic and structural conditions.

- In refinery plants
- In hydroelectric plants
- In water pipes
- In pipelines for gas and/or petroleum products in general
- In pipelines

Ndt Sicily has specialized technicians, equipment and means to carry out the various checks in all conditions and places, as can be seen from the published photos.



Advanced and special NDT

Automatic Ultrasonic Inspection of tube-plate of heat exchangers

It is the specific check for detecting defects in the critical areas of the tube-to-plate coupling, whether obtained by welding (fillet weld or IBW) or by rolling. In the first case, a targeted search for defects such as gluing, incomplete penetration, solid or gaseous inclusions is carried out, in the second case, the detection of anomalies such as excessive rolling, incisions, notches, swellings.



Guided waves

The method of inspection of pipelines by means of guided waves performs a non-destructive check on 100% of the pipeline in search of defects. It is a screening method that carries out a qualitative analysis of the state of conservation of the pipeline. The control must also be integrated by the classic punctual controls, (traditional or advanced), in the critical points highlighted by the same. The equipment used is nothing more than a special multi-channel ultrasound instrument.

Cobra scanner

The Cobra, a new hand scanner specifically designed to check welds in small diameter pipes.

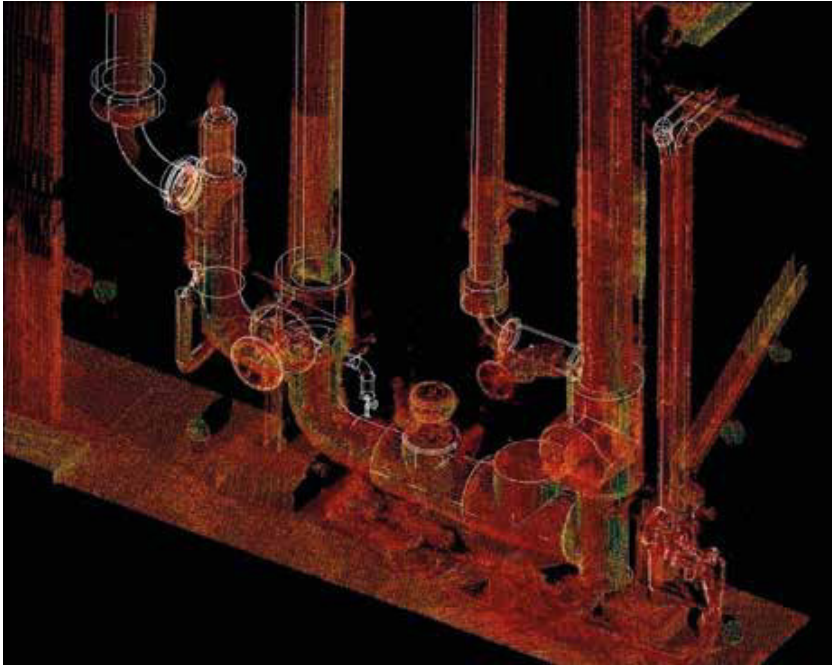


inserted in the mobile support with adequate hydraulic and electrical connections and with the right software, it allows to carry out all the phases of the checks in an innovative and safe way. Greater security, greater speed, less preparation time and above all greater ease of acquiring complete data and in larger areas.

Laser scanner

The use of the system based on laser scanner technology has grown rapidly in recent years and is the preferred methodology used for surveying in various sectors, from post-earthquake reconstruction to conservation, restoration and enhancement of cultural heritage. The level of accuracy, resolution, reliability and manageability achieved by systems based on laser scanner technology make them particularly suitable for carrying out surveys in various sectors, guaranteeing:

- Reduction of risks in construction site activities
- Reduced interference with other activities
- Possible detection during short periods of shutdown
- High resolution
- Easy surveys in complex environments
- Detailed capture of any (small) article
- Detailed reconstruction of surfaces
- Evaluation of possible deformations
- Completeness of collected data
- Visualization and on-site verification of acquired data
- Reduced risk of additional investigations
- Accuracy
- Reliability of returned data
- Possible use in "precision" applications



Floormap

Tank bottom analysis with stray magnetic flux technique - the Floormap system is today the easiest and most powerful Floormap-VS2i means for tank bottom analysis. The Floormap system uses two powerful permanent magnets to saturate the magnetic field of the tank bottom plates in the examination area.



Skorpion

Ultrasonic checks on pipes, tanks, exchangers, deposits and more. This tool allows you to carry out work even in conditions of difficult access to the plants themselves as it is a "robot equipped with wheels" that moves independently even at high altitudes through a remote control that allows the operator to control it from the ground.





Heat Treatment in Furnace

MOBILE FURNACE:

The ovens supplied by us are made up of internally insulated modular panels (layers of rock wool and ecological fiber useful for guaranteeing the maintenance and uniformity of temperatures

and equipped with stiffening carpentry. This method allows you to take advantage of a modifiable and versatile structure according to the different needs that can be encountered during the acquisition of several orders; in fact it is always possible to expand the size of the structure even if temporarily.



Localized PWHT

The Heat Treatment (PWHT) consists of heating typically at temperatures from 550° to 770°, depending on the materials, to reduce the residual welding stresses (always existing) and recover any hardening structures. Pre-heating and post-heating are typically localized treatments, i.e. only the welding area and the immediate vicinity are heated.



Referenze

