



ODAK

NDT TECHNOLOGIES PVT LTD



Ultrasonic Testing

Radiography Film Interpretation

Radiography Testing

Liquid Penetrant Testing

Ultrasonic Thickness Gauge

Visual Testing

Magnetic Particle Testing

TOFD & PAUT

Eddy Current



ABOUT NON DESTRUCTIVE TESTING (NDT)

About NDT

NDT plays a key role in assessing Conformity and reliability of equipment And piping used in infrastructure and oil and gas and power industry. With the right NDT technology integrity assessments are made and corrosion data is gathered. New and older technologies, however, only bring added value when used in a

proper way. Therefore operator training and certification is key in every inspection program to ensure compliance and improve quality and integrity.

Often expectations are not met because the operator was not trained well or wrong equipment has been used. Bad performed inspections can lead to unsafe situations, productions loss and non

Conformities in international trade business.

The reliability of the NDT depends on many factors and operator training is one of the critical areas that are only too often overlooked. ODAK NDT Training & Examination Centre can help you to manage risk, protect your company and its reputation.

ABOUT ODAK NDT TRAINING & EXAMINATION CENTRE

About ODAK NDT Training & Examination Centre

India represents huge business Opportunities for every ambitious company in the Industrial markets. The market of India is ever increasing at an incredible pace, however, one area of concern that International clients have is the quality of the products produced in India. Often after delivery from the manufacturer in India it is found that the quality of the materials and products are not meeting the clients' requirements and expectation.

To manage this risk, NDT inspections are performed during and after manufacturing of the products, however, these tests and inspections are carried out by inspectors who have usually received little or inadequate training and examinations.

ODAK now offers internationally recognized training and certification services in Non-Destructive Testing in India. The aim is to create a wider availability of inspectors and technicians who are trained and certified in accordance with the European and American standards for the qualification and certification of NDT personnel, This will ensure an increased quality of the inspection and therefore provide a lower risk of products being out of specification on arrival at their destination.

The training and examinations that ODAK offers are in accordance with the highest European and American standards with a particular focus on the extensive training syllabus for all CONVENTIONAL NDT & ADVANCE NDT methods and will offer Personal certifications.

The need for high quality NDT service in Africa is growing at a rapid pace and this new service is attractive for all companies and institutions that are doing business with international customers. The courses will be held in dar es salaam and at company premises should it be specifically requested. Examples of these services are

- Basic NDT awareness for engineers and managers
- Level 1 and 2 certified courses in RT, UT, MT, PT, VT, ET
- QA / QC & Safety awareness certified courses
- Level 2 TOFD, PAUT, MFL
- Level 3 consultancy services
- ISO audit services & certified courses



How to **Book** Your Training Courses in Odak NDT

Level 1 and 2 certified courses in RT,

How to Book Your Training Course

To book a training course or to receive a quotation from the Odak Training and Examination Centre, simply call +91 9095481412 & info@odakndttechnologies.com. We will be happy to discuss your requirements with you. If necessary we can provide advice on which type of training and certification is appropriate for you or your company, as we can also conduct a specific training and examination course to meet your company requirements. Enquiries may

also be made via email to info@odakndttechnologies.com or by visiting us on the web www.odakndttechnologies.com. On confirmation of the booking we will send to you an application form which must be completed and returned to us in order to confirm the booking process. Our staff will be on hand to provide the necessary assistance and support in completing the required information.

Training courses will be conducted on a weekly basis at our Dar es salaam Training and Examination Centre in addition to this we are also able to conduct the services at your premises upon your request.

CONTACT US

Odak NDT Services

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Magnetic Particle Inspection (MT)

This method involves the component under inspection being magnetized, this magnetization process is supplemented by the application of ferromagnetic particles to the already magnetized surface. The magnetic particles are attracted to areas of flux leakage (escaping magnetism) and indications formed at that point. This method is used to test welds, castings, and forgings for surface or slightly subsurface defects.

However MT can only be used to inspect materials that can be magnetized, i.e. ferromagnetic materials. We can provide Magnetic Particle training courses and examinations suitable for any of the following certification schemes

- SNT-TC-1A in accordance with Tasa or Employer written practice.

We can also provide

- Preparation training for ASNT Level 3

An example of the syllabus that is used for magnetic particle training courses is shown below for Level 1 and Level 2. Tasa can tailor (make) the syllabus to satisfy the requirements of an individuals company specific written practice if requested.

LEVEL 1

General Theory

Safety Precautions

- Basic Principles of Magnetic Particle Inspection
- Methods of Magnetisation
- Inspection and Detection of Indications
- Checks and Calibrations
- Equipment

- Test Procedures
- Detectability of Defects
- Standards and Specifications

Specific Theory

Application of the Method and use of Codes, Specifications and Procedures, applicable to the company, including the relevant control checks.

Practical Examination

Follow written instructions and process the inspection test pieces, record and report defects from known datum markers, carry out pre-test calibration checks and post-test procedures.

LEVEL 2

General Theory

(in addition to the Level 1 Syllabus above)

- Safety Precautions
- Testing Procedures
- Detectability of Defects
- Interpretation and Reporting
- Post Test Procedures
- Calculations
- Selection of Appropriate Techniques

Specific Theory

Application of the Method to the specific requirements of the company, in particular making reference to those Codes, Specifications and Procedures used by the Company, including the relevant control checks. Product technology of the products for the relevant sector, i.e. welds, castings, forgings, this includes, manufacturing processes, defect formation and detection.

Practical Examination

Production of written instruction, determine the best inspection techniques for the individual parts, process the inspection test pieces, record and report defects from known datum markers, carry out pre test calibration checks, post test procedures.



Liquid Penetrant Inspection (PT)

This involves applying a liquid dye to the surface of a material and leaving the dye to “dwell” on the surface for a predetermined period of time. The liquid can be either a colour that is easily visible under normal lighting conditions or a yellow/green fluorescent colour that requires special lighting conditions to be seen effectively.

This liquid dye enters into discontinuities that are open to the surface of the material through a phenomenon called “capillary action”. This capillary action takes place throughout the dwell time and the discontinuity retains this dye when the excess dye is cleaned from the surface. A type of developer is then

applied to the surface of the material and the dye that is trapped inside the surface discontinuities is blotted back out on to the surface and forms an indication. This indication is then interpreted by a qualified interpreter.

The PT method is suitable on most non absorbent materials.

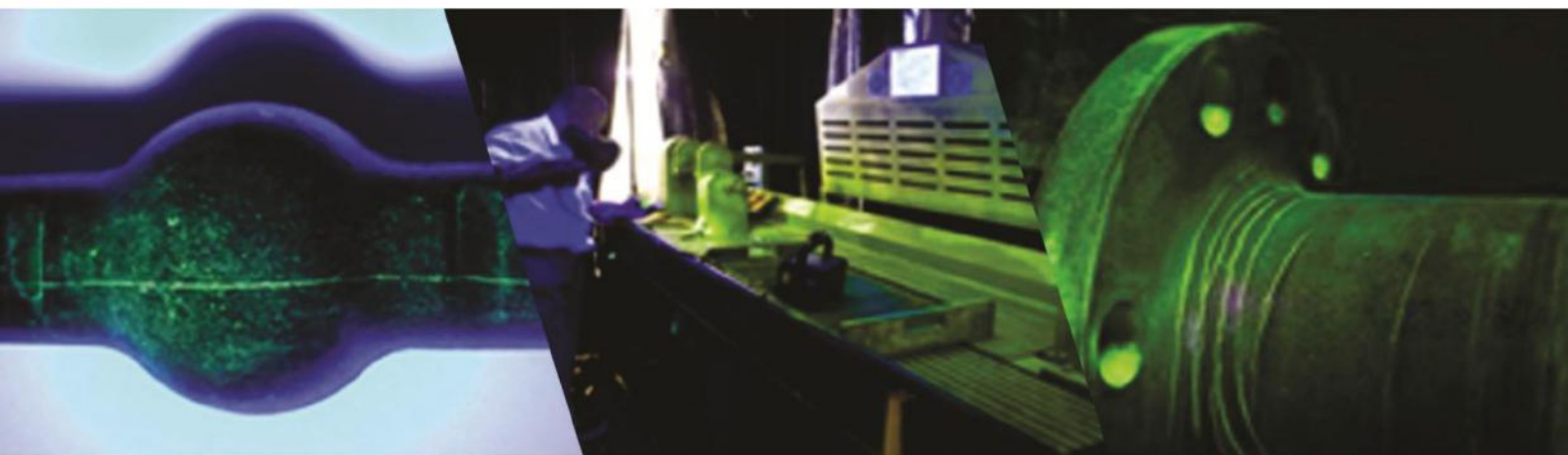
We can provide Liquid Penetrant (PT) training courses and examinations suitable for the following certification schemes at Level 1, 2 and 3

- SNT-TC-1A in accordance with Tasa or Employer written practice.

We can also provide

- Preparation training for ASNT Level 3

An example of the syllabus that is used for Liquid Penetrant training courses is shown below for Level 1 and 2. TASA can tailor (make) the syllabus to satisfy the requirements of an individuals company specific written practice if requested.



Liquid Penetrant Inspection (PT)

LEVEL 1

General Theory

- Basic Principles of Liquid Penetrant Inspection
- Safety Precautions
- Surface Preparation of Materials for Inspection
- Materials and Equipment used
- Assessment and Implementation of Control Tests
- Suitable Testing Technique
- Post Test Procedures

Specific Theory

Application of the Method and use of Codes, Specifications and Procedures, applicable to the company, including the relevant control checks.

Practical Examination

Follow written instructions and process the inspection test pieces, record and report defects from known datum markers, carry out pre-test calibration checks and post-test procedures.

LEVEL 2

General Theory

(in addition to the Level 1 Syllabus above)

- Safety Precautions
- Testing Procedures
- Detectability of Defects
- Interpretation and Reporting
- Post Test Procedures
- Calculations
- Selection of Appropriate Techniques

Specific Theory

Application of the Method to the specific requirements of the company, in particular making reference to those Codes, Specifications and Procedures used by the Company, including the relevant control checks. Product technology of the products for the relevant sector, i.e. welds, castings, forgings, this includes, manufacturing processes, defect formation and detection.

Practical Examination

Production of written instruction, determine the best inspection techniques for the individual parts, process the inspection test pieces, record and report defects from known datum markers, carry out pre test calibration checks, post test procedures.



Radiographic Testing (RT)

This method is based on the same principle as medical radiography in a hospital. A piece of radiographic film is placed on the remote side of the material under inspection and radiation is then transmitted through from one side of the material to the remote side where the radiographic film is placed.

The radiographic film detects the radiation and measures the various quantities of radiation received over the entire surface of the film. This film is then processed under dark room conditions and the various degrees of radiation received by the film are imaged by the display of different degrees of black and white, this is termed the film density and is viewed on a special light emitting device.

Discontinuities in the material affect the amount of radiation being received by the film through that particular plane of the material. Qualified inspectors can interpret the resultant images and record the location and type of defect present in

the material. Radiography can be used on most materials and product forms, e.g. welds, castings, composites etc.

Radiographic testing provides a permanent record in the form of a radiograph and provides a highly sensitive image of the internal structure of the material. Radiography is split into two main categories

- Radiographic Testing
- Radiographic Film Interpretation

The radiographic testing course is for NDT personnel who execute the practical inspection using radioactive material or radiation emitting devices. The radiographic interpretation course is designed purely for the interpretation of the resultant radiographic image. However, to understand the principles of image formation, sensitivity and correct techniques the general theory syllabus is the same for both courses.

For Radiography testing practicals

- Welds
 - Castings
 - Forgings
- Including dark room film developing

For Radiography Film Interpretation

- Welds
- Castings
- Forgings



Radiographic Testing (RT)

We can provide Radiographic Testing and Interpretation training courses and examinations suitable for following certification schemes

- SNT-TC-1A in accordance with TASA or employer written practice.
- We can also provide Preparation training for ASNT Level 3

An example of the syllabus that is used for Radiographic training courses is shown below for Level 1 and 2. Tasa can tailor (make) the syllabus to satisfy the requirements of an individuals company specific written practice if requested.

Radiographic Testing

Radiographic Testing is split into specific product sectors for certification at Level 1 and 2, this is

- Welds
- Castings
- Forging

Each of these categories is further split into sub groups

- Light Metal X-ray
- Dense Metal X-ray (and/or Gamma ray)
- Light and Dense Metal, both X-ray and Gamma ray

LEVEL 1

General Theory

- Properties and Production of X-ray and Gamma ray
- The Formation of a Latent Image
- Radiographic Film
- Development / Processing Practical Exercises
- Radiographic Quality
- Image Quality
- Radiographic Techniques
- Density Monitoring

Specific Theory

Application of the Method and use of Codes, Specifications and Procedures, applicable to the company, including the relevant control checks.

Practical Examination

Follow written instructions and process the inspection test pieces, record and report defects from known datum markers, carry out pre-test calibration checks and post-test procedures.

LEVEL 2

General Theory

(in addition to the Level 1 Syllabus above)

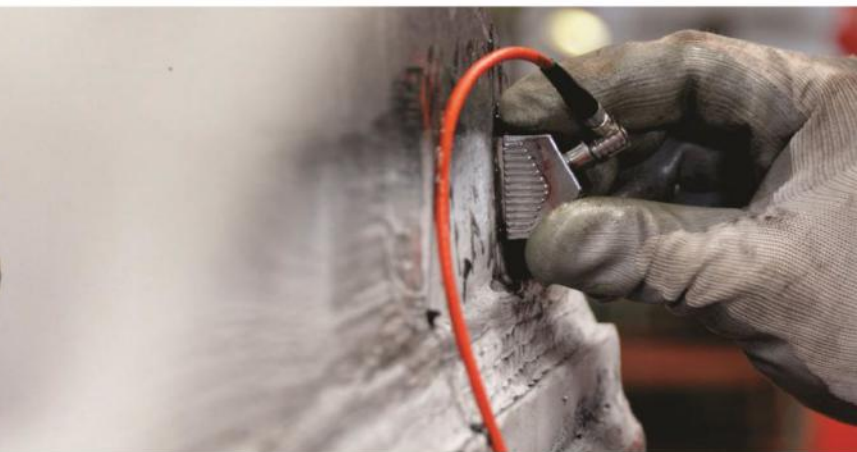
- The properties of X-ray and Gamma rays
- Personnel Protection and Safety
- Procedures
- Atomic Structures
- Generation of X-rays
- Natural and Artificial Gamma Radiation Sources
- Gamma ray Equipment
- Radiographic Film
- Intensifying Screens
- Exposure Charts
- Characteristic Curves
- Diagnostic Film Lengths
- Exposure Calculations
- Techniques for Weld Radiography
- Darkroom Procedures
- Radiographic Quality
- Introduction to the Interpretation of Radiographs
- Specifications and Procedures

Specific Theory

Application of the Method to the specific requirements of the company, in particular making reference to those Codes, Specifications and Procedures used by the company, including the relevant control checks. Product technology of the products for the relevant sector, i.e. welds, castings, forgings, this includes, manufacturing processes, defect formation and detection.

Practical Examination

Production of written instruction, determine the best inspection techniques for the individual parts, process the inspection test pieces, record and report defects from known datum markers, carry out pre-test calibration checks and post-test procedures.



Ultrasonic Testing (UT)

This method employs high frequency sound pulses that are emitted from a transducer; this sound wave is induced in the material through a probe which is usually in contact with the material.

These sound waves propagate through the material, and are reflected back to the probe when they reach an interface. The reflected waves are transmitted back through the probe and connecting leads to a detector which can be either analogue or digital.

The sound waves are then displayed as a series of signals on a monitor and the qualified inspector can measure, and interpret these signals to allow accurate evaluation of the internal structure of the material.

Ultrasonic testing can not only be used to indicate a surface or subsurface flaw it can also be used to determine the depth, size and type of flaw. Another advantage of using UT is the accurate measurement of the thickness of the material.

The method can be applied to most materials providing the material can transmit sound waves. UT is considered to be a fast and effective way of inspection providing high sensitive results.

We can provide Ultrasonic training courses and examinations suitable for following certification schemes

- SNT-TC-1A in accordance with TASA or Employer written practice
- We can also provide Preparation training for ASNT Level 3

In the SNT-TC-1A certification scheme Ultrasonic Testing is separated into three specific product sectors for training & practical purposes, these are

- Welds
- Wrought Products (Forgings)
- Castings

The welds sector is further sub divided into groups, these are

- Plate Butt Welds
- Pipe Butt Welds
- Constructional "T" Joint
- Nozzles
- Nodes



Ultrasonic Testing (UT)

An example of the syllabus that is used for ultrasonic examination training courses is shown below for level 1 and 2. TASA can tailor (make) the syllabus to satisfy the requirements of an individuals company specific written practice if requested.

LEVEL 1

General Theory

- Principles of Ultrasonic Testing
- Equipment
- Testing Techniques
- Calibration of Testing
- Systems

Specific Theory

- Detectability of Defects
- Factors Affecting the Performance of the Ultrasonic Test
- Codes of Practice and Standards
- Conducting and Recording the Test

Practical Examination

Follow written instructions and process the inspection test pieces, record and report defects from known datum markers, carry out pre-test calibration checks and post-test procedures.

LEVEL 2

General Theory

(In addition to the Level 1 Syllabus above)

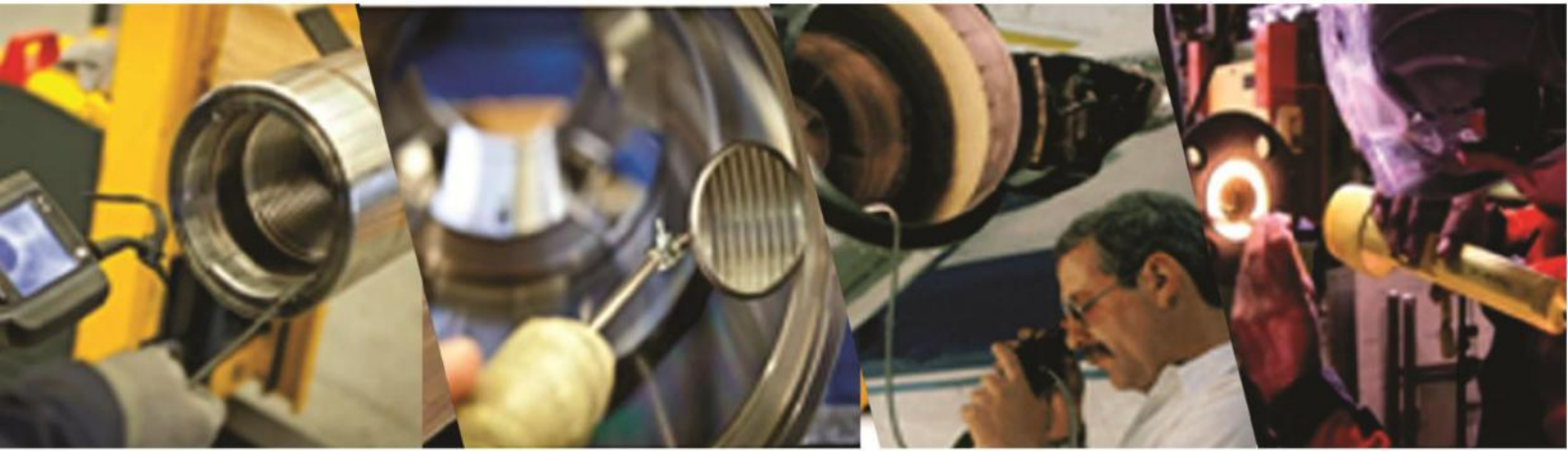
- Principles of Ultrasonic Testing
- Equipment
- Testing Techniques
- Calibration of Testing
- Systems

Specific Theory

- Detectability of Defects
- Factors Affecting the Performance of the Ultrasonic Test
- Codes of Practice and Standards
- Conducting and Recording the Test
- Interpretation of Test Results
- Product Technology Theory

Practical Examination

Production of written instruction, determine the best inspection techniques for the individual parts, process the inspection test pieces, record and report defects from know datum markers, carry out pre test calibration checks, post test procedures.



Visual Inspection (VT)

This method involves both direct and indirect visual inspection techniques, direct inspection is where the material is inspected directly by the human eye with no additional visual aids, indirect inspection may involve the use of magnifying glass, mirror, borescope (mini camera), closed-circuit TV etc.

Visual inspection is a crucial NDT method which is too often overlooked, this should be the basis for inspectors starting out in the NDT industry, for example, a visual examination of an operational plant can often reveal obvious problem areas, such as leaks, excess vibration, corrosion or misalignment, this inspection is a very cost effective exercise and can be used to identify areas that require further NDT applications.

We can provide visual test training courses and examinations suitable for following certification schemes

- SNT-TC-1A in accordance with TASA or Employer written practice
- We can also provide Preparation training for ASNT Level 3

An example of the syllabus that is used for visual inspection training courses is shown below for Level 1 and 2. TASA can tailor (make) the syllabus to satisfy the requirements of an individuals company specific written practice if requested.

LEVEL 1

General Theory

- Introduction to Visual Inspection
- Definitions
- Fundamentals
- Equipment
- Checks and Calibrations
- Test Procedures

Specific Theory

Application of the Method and use of Codes, Specifications and Procedures, applicable to the company, including the relevant control checks.

Practical Examination

Follow written instructions and process the inspection test pieces, record and report defects from known datum markers, carry out pre-test calibration checks and post-test procedures.

LEVEL 2

General Theory

(in addition to the Level 1 Syllabus above)

- Basics of Vision
- Lighting Techniques
- Material Attributes
- Environmental and Physiological Attributes
- Visual Perception
- Equipment
- Employer Applications
- Accept / Reject Criteria
- Recording and Reporting

Specific Theory

Application of the Method to the Specific requirements of the company, in particular making reference to those Codes, Specifications and Procedures used by the company, including the relevant control checks.
Product technology of the products for the relevant sector, i.e. welds, castings, forgings, this includes, manufacturing processes, defect formation and detection.

Practical Examination

Production of written instruction, determine the best inspection techniques for the individual parts, process the inspection test pieces, record and report defects from known datum markers, carry out pre test calibration checks, post test procedures.



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