NDT IS IN OUR DNA

Originally established in June 2018 the company was renamed to **Taylor NDT** in April 2023 by Simon Bluff following the passing of his mother. Judith, or Judy as she was known to everyone was the original inspiration for the naming of **Taylor Forgings** (Taylor being her maiden name).

Our service is available at your site of choice or at our home in Sheffield.
We are always looking at improving our standards. Through continuous improvement projects on equipment, facilities and staff, we strive to become the best in our field.

Our inspection team have vast experience in all sectors of manufacturing. From aerospace components to welded structures, if it needs NDT, we have done it!

Our staff track record of audit success and customer satisfaction is proven. We have worked with and held approvals for a vast array of world class manufacturers such as:

- **Airbus**
- **BP**
- **BAe Systems**
- **Boeing**
- **Cameron**
- **Caterpillar**
- **Celeros Flow Technology**
- **GE**
- **Grayloc**
- **HM Government**
- **Leonardo**
- **Mondelez**
- **Rolls Royce**
- **Safran Aero, Helicopters, SLS**
- **Twiflex**
- **Vetco**

and many more.

Taylor Forgings Ltd, Acres Hill Lane, Sheffield, S9 4LR
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Current issue date: 6 September 2022
Expiry date: 5 September 2025
Certificate identity number: 10549381

Original approval(s):
ISO 9001 - 6 September 2019

Certificate of Approval

This is to certify that the Management System of:

Taylor NDT Ltd

Acres Hill Lane, Sheffield, S9 4LR, United Kingdom

has been approved by LRQA to the following standards:

ISO 9001:2015

Approval number(s): ISO 9001 – 00021916

The scope of this approval is applicable to:

Non destructive testing services including Ultrasonics, MPi and dye penatration.

Marta Escudero

Regional Director, United Kingdom and Americas (UKAM)

Issued by: LRQA Limited

UKAS MANAGEMENT SYSTEMS 0001

INVESTING IN THE FUTURE

Taylor NDT are investing in the future of Non-Destructive Testing.
The latest line in Ultrasonic equipment allows remote access to reporting, screen shots and PC control allow for advances in data sharing and real time information.

That's not all
To complement the existing facilities at our site in Sheffield we have built three new enclosed bays. These have been specifically designed to increase capacity & speed of throughput but also and most importantly improve the quality of service offered to customers, particularly those witnessing jobs being tested at our site.

Bay One houses Magnetic Particle Inspection.
Our purpose-built dark room gives on-site capability to reliably inspect parts up to 500kg using both black and fluorescent media. Bench unit, Flexible coils and cable, Leeches and Yokes can be utilised for testing to all national and international standards.

Bay Two houses Penetrant Inspection.
Once again, we have used our vast experience to design our Penetrant Inspection facility.
Fluorescent water wash is capable of being carried out on parts with major dimensions up to 1m. If colour contrast is your requirement, the only limitation is to our overhead crane which tops out at 10 ton.

Bay Three is our Clean Room.
Eddy Current and Visual Inspection can be completed with ease in surroundings conducive for the most complex of inspections.

Bay Four is home to Ultrasonic Inspection
Contact Ultrasonic on components up to 10 ton utilising the state-of-the-art testing equipment.

And there's more.
With in house Level 3's, Taylor NDT offer an unrivalled service of auditing, consultancy, quality assurance, procedures, techniques and training.

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MEET SHAUN HUDSON

Taylor NDT is headed by our Responsible Level 3, Shaun Hudson.

After starting in the engineering industry at 16 as a trainee metallurgist, he worked through the ranks and was appointed Melt Shop Assistant Manager at 19. Falling into NDT turned out to be a venture into the unknown and close to 30 years later, he's our Responsible Level 3. During his NDT career he has dealt with some low points, but he concentrates on the highs and is proud of his achievements.

He has worked alongside, trained and mentored some of the most talented people in the field and is rightly proud of his experiences. As he keeps letting us know. (If you know, you know)

Shaun's aim is to build Taylor NDT into a company that he and all his team can be proud of. By assembling a team of multi skilled technicians and training up apprentices Taylor NDT will be a company that, like its parent, can stand the test of time and serve in many sectors of engineering whilst also providing skilled employment for the next generation of budding engineers

PENETRANT TESTING

Penetrant Testing (PT), also known as Liquid Penetrant Inspection (LPI), is a low-cost non-destructive testing method used to detect surface breaking flaws in non-porous materials such as ceramics, metals and plastics.

After an initial pre-cleaning process, a liquid penetrant is applied to the inspection surface. The penetrant stays in contact for a pre-determined "dwell time", which allows the penetrant to soak into any flaws. The excess penetrant is then removed. Once the surface has been cleaned a developer is applied in a thin even coating. The developer acts to draw penetrant out of any surface flaws, leaving a visible indication in the location of the flaw.

This inspection method can be used to detect

- Porosity in castings and welds.
- Cracking in castings, ceramics, plastics wrought products and welds.
- Fatigue and stress related defects during in-service inspection.

Penetrant Testing can be carried out with both visible and fluorescent dyes for multiple inspection modes and sensitivity levels, viable for a variety of industries using conductive or non-conductive, magnetic or non-magnetic, metallic or non-metallic materials.
Advantages of Penetrant Testing

- Rapid, portable, low-cost test method on complex shapes.
- High sensitivity.
- Visual representation of indications Disadvantages of Penetrant Testing.
- Can only detect surface flaws.
- Pre and post cleaning reliant.
- Surface finish and roughness affect inspection.
- Multi-step process.
- Direct access required.

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MAGNETIC PARTICLE TESTING

Magnetic Particle Testing (MT), also known as **Magnetic Particle Inspection** is used to detect surface and slightly subsurface defects in ferromagnetic materials such as Cobalt, Iron and Nickle and their alloys by inducing a magnetic field into the part.

Magnetisation can be carried out by either the direct or indirect technique. Direct Magnetisation (Current Flow, Clamps or Prods)

An electrical current is passed directly through a component generating a circular field of magnetic flux in and around the component. The strength of the induced magnetic field is proportional to the amount of current applied. A residual field will remain in the component after the magnetising current has been applied. Indirect Magnetisation (Central Conductors, Coils and Magnets)

A strong external magnetic field is used to establish a magnetic field within the component. Indirect Magnetisation can be used to generate circular and longitudinal fields in components. During the magnetisation process, magnetic particles are applied to the component surface. These particles can be dry, solution based, coloured or fluorescent. The inspection surface must be pre-cleaned prior to test. Any surface coatings must be 50µm or less. Coatings greater than this will drastically impair the sensitivity of the test.
Surface or subsurface flaws will generate a magnetic flux leakage field causing the magnetic particles to be attracted to the leakage field, showing as a visible indication. By using different types of electric current, the flaw detectability depth can be increased.

- Alternating Current (AC) produces a skin effect, best for surface breaking defects.
- Full Wave DC (FWDC) is used for sub-surface defects with the depth of penetration dependent on current applied.
- Half Wave DC (HWDC) has the best of both waveforms. Surface defect detectability due to improved particle mobility than FWDC but deeper penetration than AC

Advantages of Magnetic Particle Testing

- Large surface areas can be inspected rapidly
- Surface preparation is less critical than Penetrant Testing
- Surface and subsurface flaws can be detected

Disadvantages of Magnetic Particle Testing

- Limited to ferromagnetic materials
- Requires testing in two 90° opposing directions
- Demagnetisation required after testing
- Invariably needs external power source

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ULTRASONIC TESTING

Ultrasonic Testing (UT) utilises a flaw detector and a probe (transducer) that together send high frequency sound wave into various types of material for flaw detecting, thickness measurements or for material characteristic purposes.

As an NDT method, Ultrasonic Testing is ideal for the detection of flaws, defects, wall thickness and corrosion. Used in industries such as aerospace, automotive, construction, general engineering and rail, this testing method can potentially prevent failure of parts and assets.

Materials with dense crystalline structures are ideal for Ultrasonic Testing, however ceramics, composites, concrete and plastics can be successfully tested, although at a reduced sensitivity.

Throughout industry, Ultrasonic Testing has various applications and can be applied on cast, forged / wrought or welded product of varying size and shape.

Contact Ultrasonic Testing is the manual manipulation of the probe across the component surface is the most portable form of Ultrasonic Testing.
Immersion Ultrasonic, Phased Array and Time of Flight Diffraction are other types of Ultrasonic Testing that can be employed successfully in the above industries.

Advantages of Ultrasonic Testing.

- Rapid, portable, consistent method allowing for defect detection deep in the part.
- Highly sensitive, able to characterise size, shape, orientation and nature of flaws.
- Non-hazardous to materials, plant or personnel.
- Can be employed when only one face is accessible.

Disadvantages of Ultrasonic Testing

- Training is more extensive than other methods.
- Not suitable for rough, small, thin objects.
- Surfaces must be free of loose contamination and meet strict surface finish criteria.
- Material properties must be known prior to commencing test.

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VISUAL TESTING

Visual Testing (VT), also known as Visual Inspection is the original NDT method. Employed with or without visual aids, many surface breaking can be detected by careful Visual Testing. Optical aids can be used to aid the inspection. These range from low powered magnifiers, microscopes to borescopes, endoscopes and fibre-optic camera devices.

Surface condition is vital to the success of Visual Inspection and along with the correct lighting conditions can offer a cheap, rapid inspection method. Surface preparation may be carried out by a simple wipe with a cloth or solvent cleaner to remove surface contaminants. Acid Etching may also be used to chemically remove microscopic amounts of the surface.

As the primary evaluation method, good eyesight and expertise are required to recognise a variety of process defects and material flaws. With the ability to identify potential failure initiation points and quality control discrepancies, Visual Testing is often conducted prior to other more sensitive NDT methods for an enhanced full inspection.

Advantages of Visual Testing

- Prompt detection of flaws structural issues.
- Rapid and cost effective.
- Little to no equipment needed.
- Easy to train and implement Disadvantages of Visual Testing.
- Can only detect larger surface flaws.

Disadvantages of Visual Testing

- Misinterpretation of potential defects.
- Easy to learn, Easier to get wrong.
- Correct lighting and surface preparation are vital.

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