NDT & ADVANCE NDT SERVICES

From construction sites, pipelines and refineries to shipyards and nuclear power plants, you need to monitor and improve the reliability of your processes and equipment. Our non-destructive testing (NDT) services offer you complete or sample examination of your assets, using well-designed procedures and highly trained and certified NDT inspectors.

Our skilled and experienced personnel

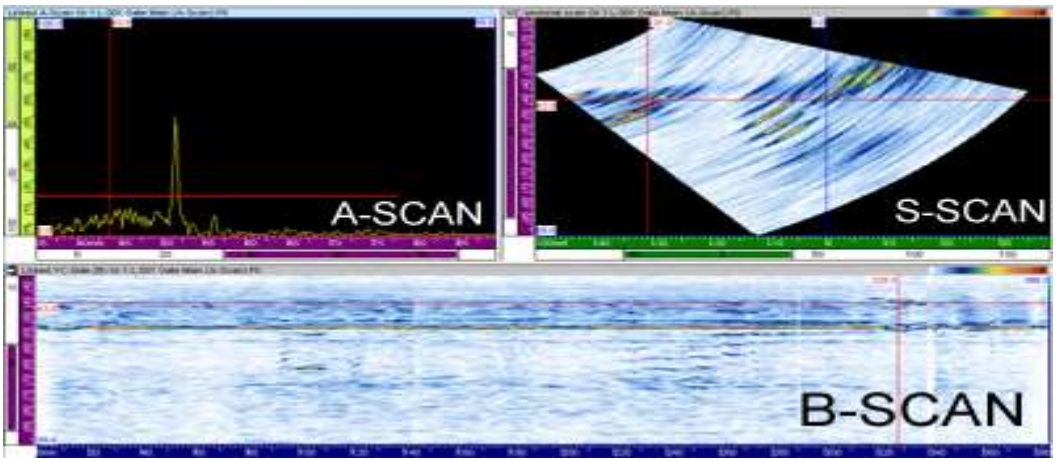
UIC's highly skilled and certified personnel hold qualifications with the following industry bodies:

- **PCN** - Personnel Certification in Non Destructive Testing
- **ASNT** - American Society of Non-destructive Testing
- **API** - American Petroleum Institute
- **AWS** - American Welding Society

ADVANCE NDT:

- ## PAUT:

The Phased Array UT technique ensures reliable and fast results. By combining different scanning angles in a single scan, the method saves you time and is extremely cost-effective, while it also increases the likelihood of detecting any defects in equipment or facilities. The method highlights the exact location and size of any defects using graphic colour images.
Phased Array UT provides both fast and accurate results for checking everything from your small boiler tubes to your massive turbines and vessels.



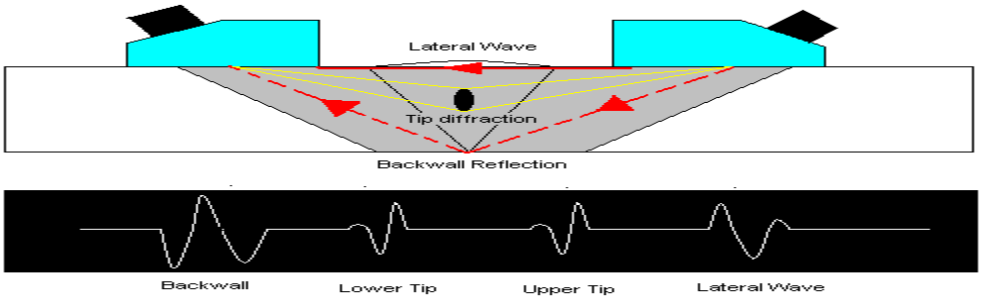
A Phased Array probe acts as a probe that has been split into several small elements. Each of these elements sends and receives signals. Our inspectors can control the direction and focus of the sound impulses by varying the time of the pulse elements.

All detection and sizing, which is usually carried out today using conventional UT techniques, can also be performed with Phased Array UT.

- ## TOFD:

Time-of-flight diffraction (TOFD) can be used for a variety of applications, its primary use is rapid weld testing of circumferential and axial weld seams, also known as perpendicular TOFD scanning.

TOFD is usually performed using longitudinal waves as the primary detection method. Ultrasonic sensors are placed on each side of the weld. One sensor sends the ultrasonic beam into the material and the other sensor receives reflected and diffracted ultrasound from anomalies and geometric reflectors.



TOFD provides a wide area of coverage with a single beam by exploiting ultrasonic beam spread theory inside the wedge and the inspected material. When the beam comes in contact with the tip of a flaw, or crack, diffracted energy is cast in all directions. Measuring the time of flight of the diffracted beams enables accurate and reliable flaw detection and sizing, even if the crack is off-oriented to the initial beam direction.

- ## Eddy Current Testing:

Eddy current testing of tubes is an effective way of assessing the condition and lifespan of tubes, particularly in the power generation, petrochemical, chemical, fertilizer and air conditioning industries. The technique is applied to detect corrosion, pitting, cracks, erosion and other changes to both the tube's interior and exterior surfaces.

- ## Borescope Testing:

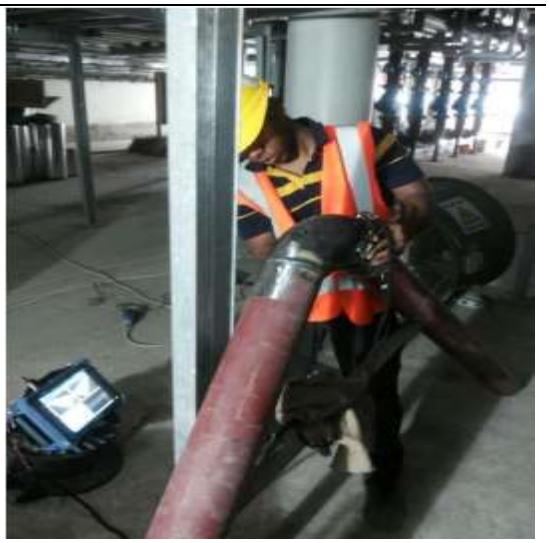
Borescopes (sometimes spelled "boroscopes") allow inspectors to examine places that are otherwise inaccessible or not viewable by the naked eye. This is made possible by a camera that is connected to an eyepiece via a relay tube, which may be flexible or rigid.

Because of their ability to offer up-close access to these places without having to dismantle or destructure the object, borescopes are valuable tools for inspections, especially in nondestructive testing.

NDT & ADVANCE NDT SERVICES OFFERED BY UIC:

1. **RT (RADIOGRAPHIC TESTING)**
2. **UT (ULTRASONIC TESTING)**
3. **UTG (ULTRASONIC THICKNESS TESTING)**
4. **MT (MAGNETIC PARTICLE TESTING)**
5. **PT (LIQUID PENETRANT TESTING)**
6. **VT (VISUAL TESTING)**
7. **PAUT (PHASED ARRAY ULTRASONIC TESTING)**
8. **TOFD (TIME OF FLIGHT DIFFRACTION)**
9. **ET (EDDY CURRENT TESTING)**

EDDY CURRENT TEST



PAUT & TOFD TESTING

ADVANCE NDT CARRIED OUT AT ONE OF UIC'S CLIENT SITE

OTHER TEST SERVICES OFFERED BY UIC:

- **PMI Services**

  Positive material identification (PMI) is an essential non-destructive testing (NDT) method utilized to verify that supplied materials conform to the proper standards and specifications. As a result, assurance can be gained that the chemical makeup of the metallic parts has the correct percentage of key elements.

PMI WITH CARBON **PMI WITHOUT CARBON**

- ## Vacuum box testing

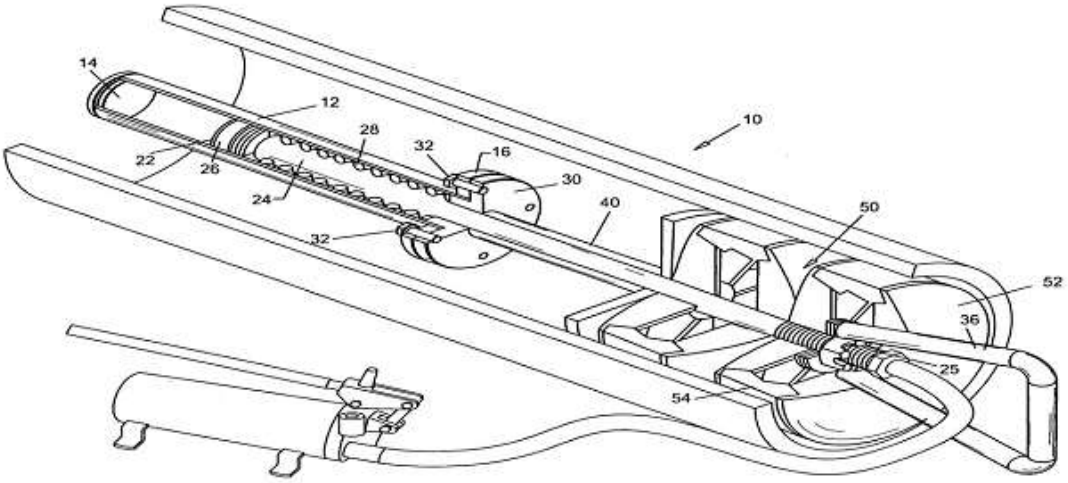
Vacuum Box testing is used to check for any leaks or fault in the welding of bottom & annular plates of the storage tank. The vacuum pump attached creates a vacuum in the vacuum box, which shows bubbles on the soap water applied on the weld in case of any leaks or faults. This is one of the most adoptive test methods to detect leak or defects and widely used in the bottom plate of Tank, Ships & barge bottom plates etc.

VACCUM BOX TEST

- ## Hardness test

The principal purpose of the hardness test is to determine the suitability of a material, or the particular treatment to which the material has been subjected. The hardness test is typically performed by measuring the depth of indenter penetration (Rockwell, IIT, Ball Indentation Hardness) or by measuring the size of an impression left by an indenter (Vickers, Knoop and Brinell)

HARDNESS TEST



PNEUMATIC TEST