UNITECH TESTING & INSTALLATION SERVICES

SARAVANAMPATTI, COIMBATORE - 641 035

AN ISO 9001 : 2015 CERTIFIED COMPANY

Our Services :

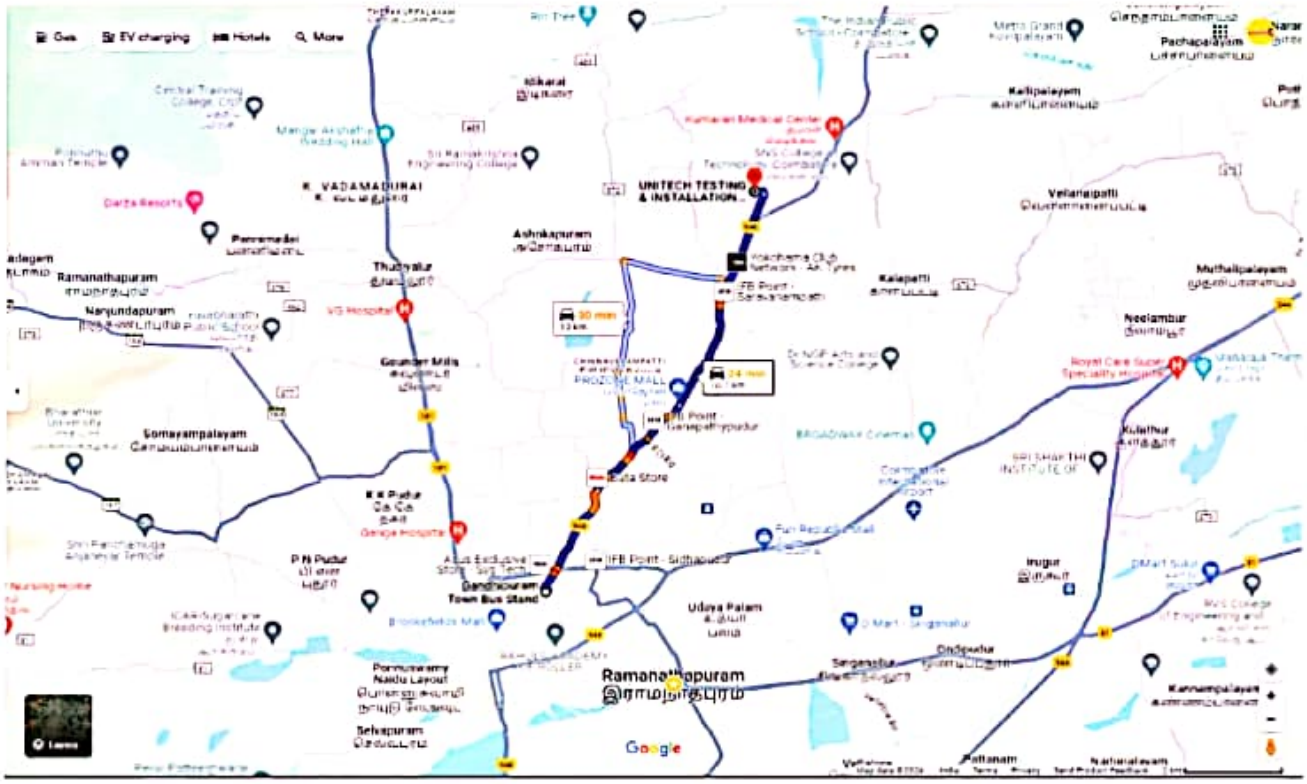
- Inhouse training &certification for level-II & I
- Preparation & approval of NDE procedures
- Calibration of NDE equipments
- NDE Level-III consultancy services
- ASNT NDT level-I&II training & certification Program:
- Courses Offered :
- Magnetic Particle Testing (MT)
- Liquid Penetrant Testing (PT)
- Radiographic Testing (RT)
- Ultrasonic Testing (UT)
- Visual & Optical Testing
- Electro - Magnetic Testing (ET)

PWHT Types of Jobs :

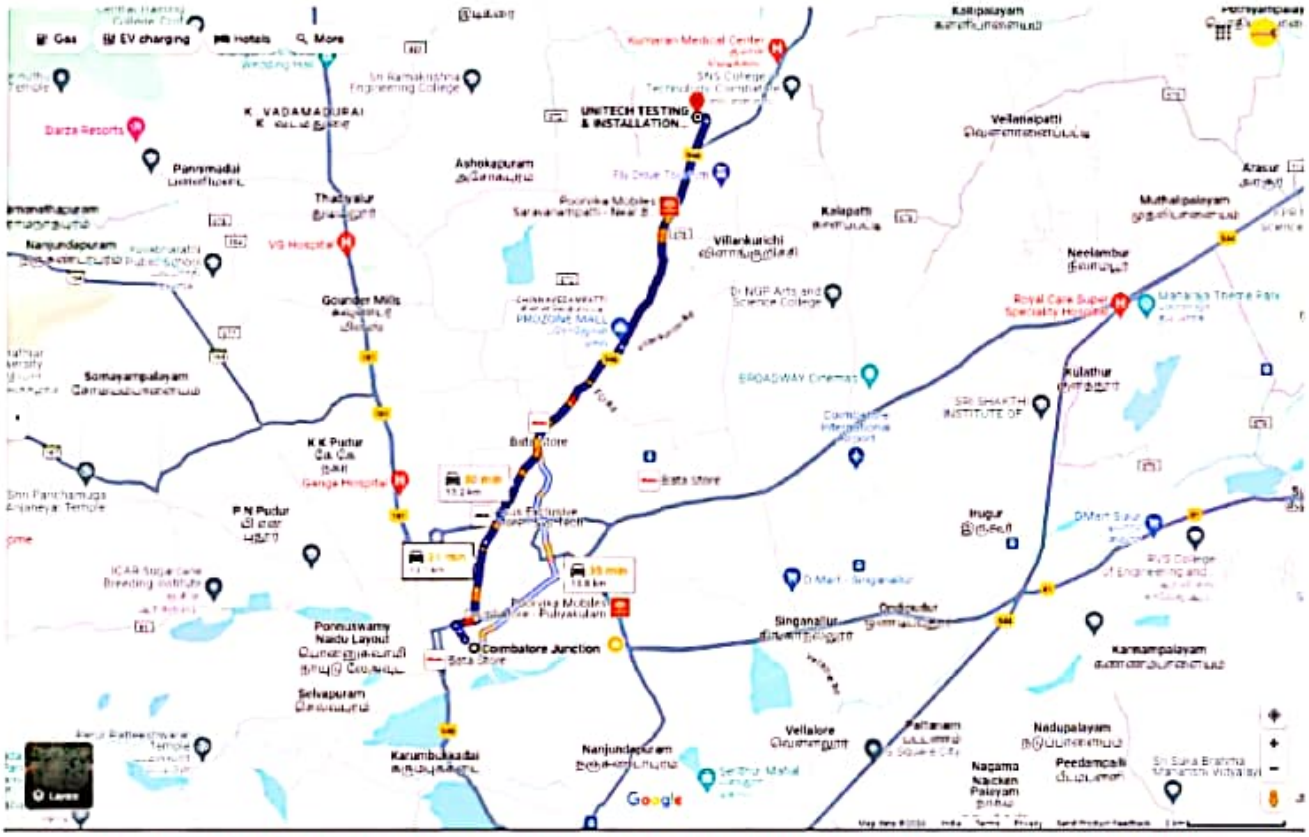
- Heaters - Boiler pipping - Plant Piping Cross Country Pipelines - Pressure vessels - Steel mill rollers -Tube sheets Structural jobs - windmill flanges - Tankage - Shipping

WELCOME TO OUR FACTORY LOCATION

11.087078,77.008630



11km from Gandhipuram Bus stand - UNITECH TESTING & INSTALLATION SERVICES



13km from Coimbatore Railway station - UNITECH TESTING & INSTALLATION SERVICES

PROFILE:

In the year 2016, Unitech Testing & Installation Services, made its modest entry into the Indian Industrial field commencing with testing of Heat Exchangers, Boilers, Pressure Vessels, Piping joints and casting valve body.

Over the years this activity has grown in stature and today Unitech Testing & Installation Services is rated as one of the indigenous facilities for finding out the solution in quality through SR & Non Destructive Testing (NDT) in Thermal Power Station, Atomic Power Plant, Oil Refinery and Fertilizer plant.

The services of Unitech Testing & Installation Sevices have earned recognition for absolute reliability from a wide spectrum of customers beginning with fabrication units and extending to foundries.

The testing laboratory of Unitech Testing & Installation Services is located at the Hub of, one of modern India's most buoyant Industrial Centers, CHENNAI & COIMBATORE is conveniently connected by Air, Road & Railways.

TESTING PERSONNEL:

The testing personnel, who are involved in Non-destructive testing are trained and certified as per the SNT-TC-1A of American Society for Non-destructive testing. The personnel who are all operating Gamma-Ray equipment and X-ray equipment are duly approved by BHABHA ATOMIC RESEARCH CENTRE, MUMBAI. The list of personnel is enclosed in the Annexure-I.

TESTING FACILITIES:

Unitech Testing & Installation Services has detailed testing capability, complimented by various methods.

i)Radiographic Testing:

Gamma ray equipment:

a)Sentinel – Delta – 3 Nos, Capacity-150 Ci of Ir-192

Safety Accessories: Radiation Survey Meters, Dosi Meters, Film Badge Services and relevant Safety accessories.
Densitometer – Make – Optel, Bombay

ii)Ultrasonic Testing:

We are having following models of Ultrasonic equipments for testing.

Sl.No.	Models	Make
01)	Einstein-II - 2 Nos (with printout facility)	Modsonic, Ahmadabad
02)	UT thickness Gauge	EEC, ETM-1

ii)Magnetic Particle Testing:

a)Magnetic Particle Testing

Equipments: A.C.Yoke - 2 Nos .
Prod Type - 2 Nos.

iii)Liquid Penetrant Testing:

Methods:
Visible solvent Removable Process
(Both fluorescent & Non fluorescent)

APPROVAL OF COMPANY:

The firm is also approved by:

The Director of Boilers, Tamil Nadu

CLIENTS:

We are providing services of Radiographic (X - rays & Gamma Rays) & Ultrasonic testing & SR to the clients (construction plants) at their fabrication units and foundries. Our details of experience for X-ray and Gamma rays are given in the Annexure-II:

FACILITY TO ATTEND YOUR WORK:

We shall undertake orders even through dialing to the numbers furnished below:

- 95978-42963 - Coimbatore RT Lab
- 83440-08130 - Mobile of our Director

Processing Capability:

We have sufficient processing tanks and other relevant accessories to setup processing facility at your site if you could provide a small room along with Air conditioning facility. This will enable us to process the films and submit for evaluation as and when the exposure is completed.

Training Facility:

We are conducting ASNT LEVEL I & II training & certification programme and Professional coaching for Quality Control in Oil field Engineering under the banner of Unitech testing & installation services Coimbatore.

Courses Offered:

- Radiographic Testing
- Magnetic Particle Testing
- Liquid Penetrant Testing
- Ultrasonic testing
- Visual Testing

We have conducted the training program so far to the clients listed in Annexure-III at their premises.

Besides we are also doing Level-III services and NDT consultancy.

Annexure

Sl. No.	Name & Designation	ASNT RT – Level II		BARC Certification
		Date of Certification	Date of Recertification	
01	E.CHOCKALINGAM RSO	LEVEL - III	April'2025	27/07/2011
02	V.Ganesan RSO			30/08/2013
03	S. Rajesh Kumar Cetified Radiographer			11-01-2014
04	R. Karthikeyan Certified Radiographer			15-02-2020
05	M.MATHIYAZHAGAN Certified Radiographer			18-10-2021

Scope of Work:

a)Ultrasonic Test:

Internal defects and discontinuities in welded joints, heat affected zone and parent metal of the boiler drum, circumferential and longitudinal joints and laminar defects in drum metal are tested by using this method as per ASME Sec.V.

b)Magnetic Particle Test:

The surface and sub surface cracks in the drum main joints, drum shell, down comer openings, drum bottom and drum manholes around 100 mm are tested as per ASME Sec.V.

c)Thickness Measurement:

The thickness of the drum shell are tested with Ultrasonic Flaw Detector.

d)Visual Inspection:

The surface defects like cracks and irregularities on the inner surface of the drum main joints, down comer openings, drum bottom and manhole area are visually tested by experienced and qualified UT Level II operator as per ASME Sec.V

e)Dye Penetrant Test:

The fine cracks and surface irregularities in the drum shell of the down comer openings are tested by Dye penetrant test using fluorescent method.

Name of Work :NDT in 50 MW Turbine

Scope of Work:

a)Visual Inspection

b)Ovality of Bends and Deformation – Measuring precisely the ovality of the bends with caliper and finding out the deformation.

c)Magnetic Particle Test:

Checking the lines, valves, equipments etc., by applying this method.

d)Ultrasonic Test – To the heat a□ected zone

e)Thickness measurement :

Measurement of wall thickness of the bends using Ultrasonic Thickness Gauge.

f)Hardness Test:

Testing the studs and cap nuts of size more than 42mm diameter for Brinell's Hardness using Standard Hardness Testing Meter.

g)Dye Penetrant Test:

Pre Heat Treatment

- Reduces the levels of thermal stress
- Compensates for high heat losses
- Minimizes the rate of weld hardening
- Reduces the porosity of the weld
- Reduces hydrogen cracking
- Improves microstructure of heat affected zone

Post Heat Treatment

Advantages of Post Weld Heat Treatment

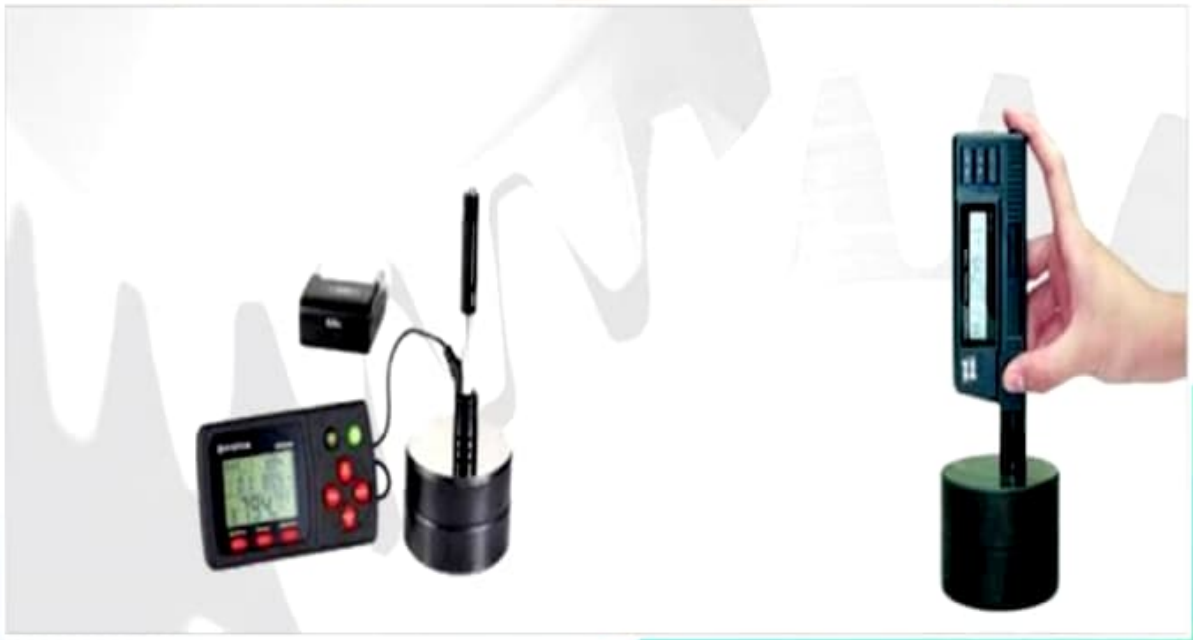
- Relaxes residual stresses
- Relaxes thermal stresses
- Tempers (softens)
- Removes diffusible hydrogen

It is a long established fact that a reader will be distracted by the readable content of a page when looking at its layout.

Hardness Testing

Simply stated, hardness is the resistance of a material to permanent indentation. It is important to recognize that hardness is an empirical test and therefore hardness is not a material property. This is because there are several different hardness tests that will each determine a different hardness value for the same piece of material. Therefore, hardness is test method dependent and every test result has to have a label identifying the test method used.

Hardness is, however, used extensively to characterize materials and to determine if they are suitable for their intended use. All of the hardness tests described in this section involve the use of a specifically shaped indenter, significantly harder than the test sample, that is pressed into the surface of the sample using a specific force. Either the depth or size of the indent is measured to determine a hardness value.



Hardness Scales:

There are five major hardness scales:

- **Brinell – HB**
- **Knoop – HK**
- **Rockwell – HR**
- **Shore – HS**
- **Vickers – HV**

PWHT Services

Advantage Post weld heat treatment

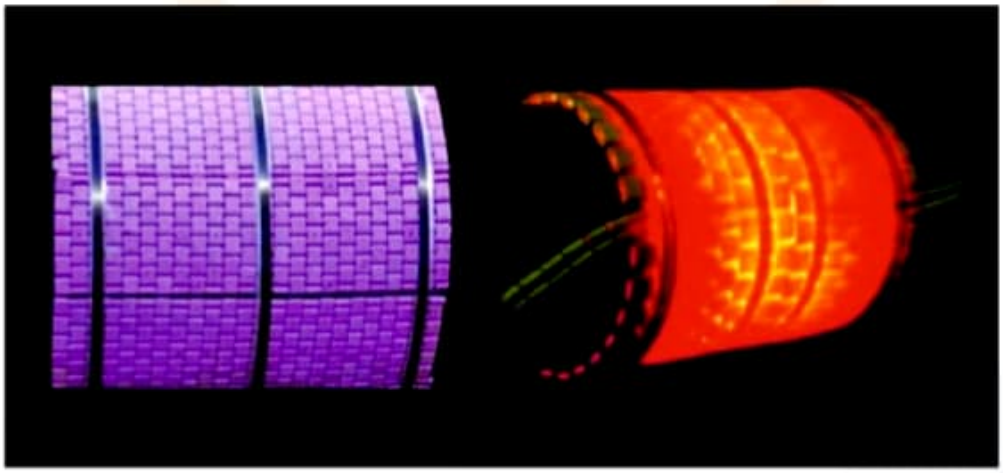
Post Weld Heat Treatment Services (PWHT) is defined as one of heat treatments done after welding / machining to improve the Chemical mechanical properties of weldment / machined surfaces. In concept, PWHT covers many different potential treatments. However, in steel fabrication, most common procedure used is Stress Relieving.

Advantage Post weld heat treatment

Post Weld Heat Treatment Services (PWHT) is defined as one of heat treatments done after welding / machining to improve the Chemical mechanical properties of weldment / machined surfaces. In concept, PWHT covers many different potential treatments. However, in steel fabrication, most common procedure used is Stress Relieving.

i.Stress induced by welding

As a result of welding process used to join metals together. The base material near the weld metal and the heat-affected zones transform through various metallurgical phases. Depending upon the chemistry of the metals in their areas. Hardening occurs in various degrees, depending mainly upon the carbon content. This is particularly very true in the heat – affected zone adjacent to the weld metal



deposit. The resultant stresses are highest due to melting and solidification. Stress, due to welding is of magnitude roughly equal to the yield strength of the base material.

i.Stress induced by machining

Machining induces stresses in parts. The bigger and more complex the part, the more stresses. These stresses can cause distortions in the part in long term. Cracking could occur and location changes causing parts to go out of tolerances. Stress Relieving heat treatment is used to reduce the stress that remain locked in a structure as a consequence of the various manufacturing processes. Stress Relieving, as the name implies, is designed to relieve these imposed stresses by reducing the hardness and increasing the ductility, and

by these, reducing the danger of cracking in the weldment.

How is Stress Relieving Done?

Stress Relieving is done by uniformly heating - fabricated equipment or the vessel or vessel part to a sufficiently high temperature, but below the lower transformation temperature range, then subjecting it to a thermal retardation for a sufficient time depending upon the material thickness and then finally uniformly cooling it which is also of utmost importance.

Advantages of Post Weld Heat Treatment – Stress Relieving

A much greater dimensional stability is obtained and maintained

The potential of stress induce cracking is reduced.

Metallurgical structure is improved.

Strength of the Material and Life of the equipment is Enhanced.

Advantage of Refractory dry outs

- Improves refractory strength
- Eliminates refractory separation
- Removes water content
- Avoids thermal stress

Industrial Annealing Services

Full industrial annealing solutions, annealing services is the process of slowly raising the temperature about 50 °C (90 °F) above the Austenitic temperature line A3 or line ACM in the case of Hypo eutectoid steels (steels with 0.77% Carbon) and 50 °C (90 °F) into the Austenite - Cementite region in the case of Hypereutectoid steels (steels with > 0.77% Carbon).

Aneealing is held at this temperature for sufficient time for all the material to transform into Austenite or Austenite-Cementite as the case may be. It is then slowly cooled at the rate of about 20 °C/hr (36 °F/hr) in a furnace to about 50 °C (90 °F) into the Ferrit e-Cementite range. At this point, it can be cooled in room temperature air with natural convection.

The grain structure has coarse Pearlite with ferrite or Cementite (depending on whether hypo or hyper eutectoid). The steel becomes soft and ductile.

Normalizing

Normalizing is the process of raising the temperature to over 60 ° C (108 °F), above line A3 or line ACM fully into the Austenite range. It is held at this temperature to fully convert the structure into Austenite, and then removed form the heating zone and cooled at room temperature under natural convection. This results in a grain structure of fine Pearlite with excess of Ferrite or Cementite. The resulting material is soft; the degree of softness depends on the actual ambient conditions of cooling. This process is considerably cheaper than full annealing since there is not the added cost of controlled cooling.

The main difference between full annealing and normalizing is that fully annealed parts are uniform in softness (and machine ability) throughout the entire part; since the entire part is exposed to the controlled furnace cooling. In the case of the normalized part, depending on the part geometry, the cooling is non-uniform resulting in non-uniform material properties across the part. This may not be desirable if further machining is desired, since it makes the machining job somewhat unpredictable. In such a case it is better to do full annealing.

Hardness Testing

Simply stated, hardness is the resistance of a material to permanent indentation. It is important to recognize that hardness is an empirical test and therefore hardness is not a material property. This is because there are several different hardness tests that will each determine a different hardness value for the same piece of material. Therefore, hardness is test method dependent and every test result has to have a label identifying the test method used.

Hardness is, however, used extensively to characterize materials and to determine if they are suitable for their intended use. All of the hardness tests described in this section involve the use of a specifically shaped indenter, significantly harder than the test sample, that is pressed into the surface of the sample using a specific force. Either the depth or size of the indent is measured to determine a hardness value.

UNITECH TESTING & INSTALLATION SERVICES

SARAVANAMPATTI, COIMBATORE - 641 035

AN ISO 9001 : 2015 CERTIFIED COMPANY

Thank You!!!...

TÜV NORD
TÜV NORD CERT GmbH
ISO 9001

Contact Us
P. Manikandan

UNITECH TESTING & INSTALLATION SERVICES

Lab SF.NO : 11/2A, 1A Site No : 28 & 29A,
V.K.V Industrial Estate, Kandasamy Nagar,
Coimbatore - 641 035
Ph.No : +91 95978 43963, 83440 08130
E-mail : unitechtesting@gmail.com
www.unitechtesting.com

Lab Flat No : 10G Kumaraguru Nagar,
Ward No : 004, North Zone,
Coimbatore - 641 035
Ph.No : +91 95978 43963, 83440 08130
E-mail : unitechtesting@gmail.com
www.unitechtesting.com