

Successful completion of NDT Level 2 in Ultrasonic Testing & Eddy Current Testing to Public Sector Organizations in Karachi



EEPCON successfully conducted Level 2 Ultrasonic Testing & Level 2 Eddy Current testing courses in Karachi from April 30th to May 04, 2018 & May 7th to May 11, 2018 respectively. Engineers & Scientists from various projects of strategic Public sector organizations participated in the courses. The courses were conducted in accordance with the requirements of American Society of Non Destructive Testing (ASNT). The trainings were aimed to provide in depth technical knowledge in NDT techniques to participants and develop their expertise in field application through hands on training on UT and ECT equipment's

Selection of EEPCON for NDT training courses to Engineers & Scientists is the reflection of trust & confidence of National organizations on the technical capabilities of EEPCON and its engineers.

We congratulate EEPCON South region team and its management for successful completion of the courses and pray for success in future endeavours.

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Phased Array Ultrasonic Testing

Time of Flight Diffraction



EEPCON
Innovative - Economical - Reliable



Eepcon deputed highly skilled and certified inspector to conduct on stream and off-stream NDE of equipment Being used in industries. With the increasing restrictions of industrial radiography, the need for alternate Inspection methods has increased. Modern techniques such as Phased Array Ultrasonic Testing (PAUT) and Time of Flight Diffraction (TOFD) offer the extra edge of improved performance, safety and overall cost Reduction. In comparison when PAUT and TOFD is performed, the quality of performance is superior to that performed with conventional radiography.

WHY PAUT

PAUT provides sharper detection capability for off-angle cracks and is capable of displaying multiple presentations simultaneously. It applies computer-controlled excitation to individual elements in a multi-element probe. By varying the timing of the excitation, the sound beam can be swept through a range of angles. The shape of the beam may also be Modified to a specific focal distance or spot.

Advantages over Radiography

- No safety barricade is required in conventional method thus eliminating all radiation protection measures.
- No health and safety hazards while using highly ionizing radiations.
- Higher reliable of examination than radiography
- Provides 100% coverage of welds with high scanning speed and reducing time
- Able to characterize and size a number of defects with two dimensional sizing
- Possible to deliver both hard and soft copies of results

Limitations

- Skilled operators are not easily available as the techniques are new.
- Tube wall thickness should be > 4.5 mm for the detection and characterization of defects accordance with the

Conclusion

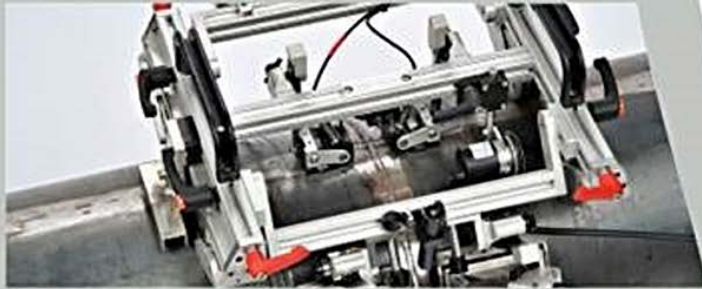
PAUT / TOFD provides advantage in saving time and money along with reducing health and safety implication. In addition to this, it can detect all types of defects and characterize them in accordance with the acceptance criteria.

Contact us

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Eepcon (Pvt.) Limited is an integrated inspection, testing and certification solutions provider, catering to the needs of major local and foreign companies in Pakistan. Since its inception in 2016 we have been offering these services with the help of our skilled human capital as well as state of the art inspection equipment.

Time of Flight Diffraction Services



The Time of Flight Diffraction (TOFD) is a Non Destructive Testing method developed for finding the accurate position and size of a weld defect. With the use of TOFD, the probability of detection increases greatly. This method differs from the traditional pulse echo technique. It monitors diffracted signals at the edges of defects which helps in finding the true position and size of defects.

Advantages for You

TOFD brings along the following benefits:

- ❖ The defect's height can be determined accurately.
- ❖ No barricading or safe distance is needed, as TOFD does not require any radiation.
- ❖ Saves time as no reshoot is needed during shutdowns.
- ❖ TOFD machines are portable and no external power supply is required.
- ❖ The inspection results are immediately available with a permanent record and a print of the weld.
- ❖ TOFD saves costs, if applied during construction, since it is possible to distinguish pre-service and in-service defects.

TOFD Applications

- In-service defect monitoring
- Defect detection
- Documentation and evaluation during manufacturing



Expertise in Conventional / Advance NDT

- ❖ ASNT level III (UT, RT, PT, MT)
- ❖ TOFD level III

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EEP CON is pleased to offer value added services of civil structure inspection to its valued customers. It is imperative to test civil structure after the surface has hardened, eroded, cracked in order to determine if the structure is suitable and safe for its designed usage. Integrity assessment of the structure is determined by the compressive strength measurement, pulse sonic velocity test, petrographic analysis, and study on ETAB/ SAP 2000 software. The integrity testing ensures cost saving and fitness of the concrete structure for future usefulness. The testing is conducted without causing any damage or harm to the civil structure. The range of properties that can be assessed using integrity test is quite large and includes fundamental parameters like compressive strength, rebound hardness value, density, surface absorption, reinforcement location, size and depth of crack in concrete.

Civil Structure Assessment Techniques

Different NDT and Load testing Techniques are employed as per site conditions and customer requirements

- ◆ Ultrasonic Pulse Velocity (UPV) Test ASTM C 597
- ◆ Rebound Hammer Test ASTM C 805
- ◆ Petrographic Analysis ASTM C 865
- ◆ Pile Integrity Assessment
- ◆ Dynamic Cone Penetrometer Tests
- ◆ Dynamic Response (Pulse echo, Impact Echo)
- ◆ Ferro scanning/Rebar Locator
- ◆ Infrared Thermography for Buildings
- ◆ Ground Penetrating radar
- ◆ Acoustic Emission
- ◆ Radiometry

Scope of Assessment

- * **Strength Assessment**
- * **Durability Assessment**
- * **Integrity Assessment**

Conclusion *Civil structure assessment ensure:*

- * That safety standards are adhered for residential and Industrial units
- * Guarantees public safety
- * Highly beneficial to owners as well as to buyers who plan to make huge investments.

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Tools & Equipment's	Range (s)	Unit	Un-Certainty
Pressure Gauges	0 ~ 8000	psi	(C.L=95%)
	0 ~ 600	psi	(C.L=95%)
	0 ~ 160	psi	(C.L=95%)
	0 ~ 60	psi	(C.L=95%)
Dead Weight	0 -5	kg	
Temp.Gauge	0~ 600	c°	(C.L = 95%)
Lab Wait/ Masses	0~ 500	gm	(C.L = 95%)
Micrometre	0~ 25	mm	(C.L = 95%)
Ver. Calliper	0~ 150	mm	(C.L = 95%)
Length Measurement	0~500	cm	(C.L = 95%)
Oven's/ Auto-claves	0~ 600	c°	(C.L = 95%)

EEPCON is offering Technical services to improve quality assurance and quality control of the products through calibration, standardization, testing, process validation and evaluation of engineering procedures & products. EEPCON also possesses the capability to help steel industries in selection and services of quality control tools and equipment's i.e Emission spectrometer, tensile testing machine, bending machine, hardness tester and impact tester, temperature gauges, pressure gauge, gauge block, balances and host of other testing and measuring tools.

Why EEPCON

EEPCON has the experienced qualified manpower with state of the art equipment infrastructure with traceability through PCSIR & NIST USA.

Clientele

- Power Plants
- Manufacturing, Fabrication plants
- Petrochemical
- Process, Chemical, Refineries, Oil & Gas

Conclusion

Reliable and Calibrated equipment's is the key requirement for effective process and quality control of the plant.

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Remote Visual Inspection Services



While vision may be the most acute of human senses, there is a limit to what our eyes can see. Unless a material is transparent like glass, we cannot see what lies behind it. In the field of nondestructive examination (NDE), there are situations where it is useful to look deep inside engines, gas turbines, machinery, behind walls, inside pipes and tanks, and into similar places where access is limited. Remote visual inspection (RVI) is a nondestructive technique that permits a user to visually inspect an area that has no direct visual access. In RVI, a slim and often flexible viewing device, commonly referred to as a "scope," is inserted into the inspection area through a small opening providing an image for the operator to examine. Like all NDE tools, RVI allows an inspector to discover hidden defects before they cause major problems.

Applications Include:

- Gas turbine and steam turbine periodic, remaining life, predictive Assessment.
- Electrical generators & transformers
- Sanitary piping & tubing
- Boiler water piping & components
- Nuclear reactor heads, reactor coolant pumps, demineralizers, containment structure, & other components
- Piping systems such as service water, fire protection, oil, coal handling,

Scope of Assessment

- * **Life Assessment**
- * **Periodic Assessment**
- * **Integrity Assessment**
- * **Failure Assessment**
- * **Predictive Assessment**

Conclusion *Remote Visual inspection ensure:*

- * RVI delivers the tremendous potential of true video-based technology to a much wider range of customers.
- * Highly beneficial for all types of Condition monitoring..

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MEP Services (HVAC, Plumbing, Electrical)



- EEP CON Mechanical team deals procurements, supply, operations in HVAC System
- All type of mechanical, electrical, plumbing, water supply works as per client requirements.
- Designing, planning, implementation & execution the job keeping all standards and safety rules with qualified Engineers and trained technicians.
- Successfully completion and working in supply & installation of HVAC equipment's with Top notch clients like HUBCO, Sindh Engro Coal Mining Company (SEMC) and Public sector organizations.

HVAC Works

- Supply, Installation & maintenance work for all type of HVAC systems covering domestic, semi-commercial and commercial I,e centralized, VRF, and unitary systems
- All type of duct works I,e G.I,P.I duct for supply, ventilation exhaust and fresh air section with fixing of filters, louvers, disc valves, dampers (volume control, fire, motorized), Grills(RAG, SAG), Registers and diffusers (RAD, SAD)
- Installation of chilled water, copper piping as per system requirements to be installed
- Maintenance work for chillers I,e condenser, evaporator and compressor repairing and domestic units(splits etc.)



Plumbing Work

- Assembling pipe sections, tubing and fittings, using couplings, clamps, screws, bolts, cement, plastic solvent, caulking, or soldering, brazing and welding equipment
- Modifies length of pipes, fixtures, and other plumbing materials as needed for a building

Automation Works

- HVAC and lightening control systems using PLC and SCADA
- Automated building system via PLC system I,e BMS, BAS
- Automate Remote control HVAC system for both centralized and VRF systems
- Management of switching, power quality, and distribution at control center for HVAC system



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Collaboration with Chinese Academy of Sciences



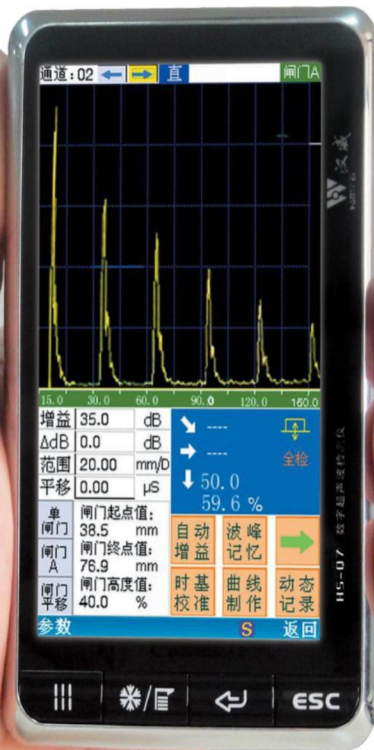
Experts Engineering Procurement Construction (Pvt.) Ltd

and their offices are authorized to quote, negotiate, sell, provide training and aftersale service for **Ultrasonic Inspection equipment**/products manufactured and marketed by **Zhongke Innovation Technology Co., Ltd.**

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Latest Digital Ultrasonic Flaw Detector



Applications:

- Weld Inspection
- Forgings Inspection
- Steel Plate Inspection

**Durable & Economical
with Customer Service
Support in Pakistan**

Features:

- * Very light, only 300g, like mobile phone
- * With high performance Li-battery, we supply 2 batteries for one instrument, to support long time working.
- * With metal shell to protect the instrument
- * With high-speed USB interface
- * With LEMO-00 probe interface
- * User Friendly English Language functions.
- * With large SD storage space, can record the dynamic testing waveform for more than 4 hours, can save 1000 sets testing waveform
- * With function to Measure the defect height with diffraction signal of defect tips With function to display the defect location in weld saw section
- * With touch screen and hot-key due operation models -
With high-light 4.3 inch TFT screen

Experts Engineering Procurement Construction (Pvt.) Ltd

We are pleased to announce availability of new Mini Mobile Ultrasonic Flaw Detector with complete specification for user-friendly inspection operations.

Excellent technology with reliable operations.

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