

First quarter of 2015 (January to March) was very busy for the team wherein we put a new website; we also became an ISO 9001:2008 certified company during this quarter and many more activities.



Our sister company **M/s. Arora Technologies (P) Limited** which focuses on in-house manufacturing and system integration is pleased to introduce -

**General Purpose Ultrasonic Thickness Gauge - ATG I**, a simple & reliable thickness gauge suitable for various materials such as carbon steel, stainless steel, aluminium, glass, polystyrene, polyethylene etc.



### In this issue...

#### Products & Technology

- General Purpose Ultrasonic Thickness Gauge
- Infrared Thermography Solutions
- EQUOTIP 550
- CIVA 2015
- Eddy Current Array (ECA) made affordable
- Near Field Array (NFA) Tubing Probe

#### Inspection

- Bond Testing
- Employer Based Practice

#### Training & Certification Update & Schedule

#### Company News



The ATG-1 comes in complete, ready to use kit.

Other salient features include:

- Measuring range: 0.8-300 mm
- Measuring display: mm or inches
- Display resolution 0.1 or 0.01 mm
- Auto Probe Identification
- Minimum value hold
- Built-in reference block
- Sealed keypad with tactile-feedback keys
- Display: 128x64 LCD with backlight
- Adjustable velocity range from 1000m/s ~ 9999m/s (with 9 preset velocities)
- Operates for up to 250 hours on a single set of batteries
- Operating Temperature: -20 to 50°C
- 12 months limited warranty

**NDTS** is pleased to announce its co-operation with **M/s. FLIR Systems Inc., USA** for **Infrared Thermography Solutions**. FLIR thermal imaging cameras are must have tools for electricians and maintenance technicians. They give you the power to see problems in a way no other technology can, and allow you to inspect equipment quickly and take accurate temperature measurements from a safe distance. FLIR cameras help you find impending trouble before it hurts someone shuts things down or wastes energy.

FLIR thermal cameras can be used in many different areas of your business, which can accelerate your return on investment. Most electrical and mechanical devices get hot before they fail. Finding these problems early allows you to do repairs on a more convenient schedule rather than in an emergency. But there are plenty of other areas you can use your camera to save money, including flat roof water damage detection, process control and energy loss. Choose the thermal imaging product that is right for you:

### FLIR IR Windows



Eliminate the need for opening electrical enclosures & protect yourself from the threat of arc flash injuries with new FLIR IR Windows. With added safety between you & energized equipment, you'll save time & get more thermal & visual inspections done with greater confidence.

### Compact Thermal Imaging Camera

The FLIR C2 is the world's first full-featured, pocket-sized thermal camera designed for a wide range of building and electrical / mechanical applications. Keep it on you so you're ready anytime to find & show hidden heat patterns that point out hotspots, energy waste, structural defects, plumbing clogs, HVAC issues, and other problems.



### FLIR TG165 Imaging IR Thermometer

The FLIR TG165 gives you the advantage of thermal imaging to discover temperature issues you can't see with a typical IR thermometer. You'll work more quickly - & have confidence you won't miss anything vital. Equipped with FLIR's exclusive Lepton™ micro thermal camera, the TG165 helps you identify heat patterns, reliably measure temperature, & store images and data for reports.



### FLIR E4, E5, E6 & E8

Now every technician can afford to keep an E-Series camera handy for quick equipment scans & safety checks. Easier to use than a smart phone, FLIR's economical imagers offer everything you need for on-the-spot thermal inspections. These are invaluable tools that can help you clearly see & find hidden electrical & mechanical overheating in time to stop problems from turning into serious, expensive trouble.



### FLIR E40, E50 and E60

If you're a busy electrician, plant maintenance engineer or facilities technician who plans to do frequent thermal imaging inspections of high energy or high temperature equipment at a distance, you'll appreciate the features in this line of cameras. You can add wide angle or telephoto lenses to measure small objects from a distance, connect to smartphones & tablets, & do reporting right from the field with a comprehensive set of measurement tools.



### FLIR T-Series

If you want powerful communication & onboard infrared camera tools, superior thermal imaging, & the most ergonomic way to get more IR surveys done, T-series is as good as it gets. Packed with every expert feature in a portable thermo-graphy system, FLIR T-series cameras are designed for intensive inspections where long range or high temperature measurements are required, & high resolution and thermal sensitivity are critical.



### Equotip 550

Proceq SA is pleased to launch its 4th generation portable hardness tester Equotip 550. The new Equotip 550 is an all-in-one solution combining the Leeb and Portable Rockwell methods. The new generation Touchscreen Unit leverages the high measuring accuracy with an unmatched user experience leading to increased measurement efficiency. The instrument offers a unique range of functions which ultimately help to speed up on-site and laboratory inspections such as automatic on-site correlation of Leeb to Portable Rockwell true indentation hardness value & customized measurement reports through a modular configurator. Equotip 550 comes loaded with interactive wizards handpicked for specific industry applications in order to increase reliability and to assure precise measurements.



Leeb rebound hardness testing is mainly used for on-site testing of heavy, large or already installed metal parts but is also applied for testing composites, rubber & rock. The Portable Rockwell test method is particularly suited for scratch-sensitive, polished or thin parts as well as for profiles & pipes. Proceq is offering a variety of impact devices & accessories such as support rings, measuring clamp & adaptors to serve most hardness testing requirements & sample geometries. For more information about the new Equotip 550 instruments, please visit [www.equotip.com](http://www.equotip.com) or [www.proceq.com](http://www.proceq.com).

## CIVA 2015 with significant improvements

In addition to simulation capabilities, CIVA is now a powerful analysis tool for acquisition data as compared to CIVA 11.0 and includes a lot of issues corrections & optimizations



As multiple acquisition systems are now compatible with CIVA UT, many CIVA users want to use the CIVA to perform the analysis of their acquisition files. This is now possible with CIVA 2015.

CIVA UT Analysis now includes the tools allowing to easily and quickly extract indications from UT Data and to fill in an indication table that can be exported in ASCII file and/or prepare directly an examination report, including images, distances and comments by a simple click. Memory performance has been enhanced as well as the GUI in order to efficiently perform such analysis works even on large industrial acquisition data files, including Phased Array technology. This new version proposes both improvement of basic functionalities and powerful tools for advanced analysis and data

reconstruction. Analysis environment is also adapted to multi-sensor acquisitions.

These new analysis features are directly included in CIVA UT and can be used both for simulation and acquisition data. But it can also be available in a standalone version as a license of CIVA UT Analysis (i.e. without simulation tools but optionally with the CIVA beam computation module) to be used especially for data analysis, of course also on-site.

EMAT probes are now available in the GWT module. As in CIVA UT (introduced in CIVA 11.0), this requires a coupling with the ET module in order to define the probe and compute Lorentz Forces generation.

Finally, based on your feedback and our experience with CIVA 11.0, many malfunctions have been corrected in all modules and optimizations have been performed in several cases (in terms of robustness or accuracy). We hope that you will enjoy this new version and its numerous improvements. Of course we will be happy to continue to receive your feedback on this version.

## Eddy Current Array (ECA) made affordable

Eddyfi Canada has launched a portable unit called as REDDY for challenging surface eddy current array applications.



## Detecting & Sizing Cracks in Carbon Steel Weld

The Sharck is based on tangential ECA (TECA) technology, which was specifically developed for cracking in carbon steel. Not only does it enable measuring surface-breaking crack position & length,

but also sizing cracks as deep as 10 mm (0.4 in). Furthermore, the Sharck allows simultaneously scanning the weld cap, toe area, and heat-affected zone for longitudinal & transverse cracks without surface preparation or paint removal.



## Assessing corrosion in Tank Floor

Semi-flexible ECA probes can adapt to a tank floor's curvature and other geometric features, offering sufficient penetration to scan through thick aluminium/stainless steel (over 0.250 in or 6.35 mm thick). So doing, the solution is capable of detecting and characterizing corrosion-related defects such as pitting & thinning affecting as little as 10% of a plate's thickness.

## Detecting & assessing stress corrosion cracking

I-Flex probes are the most versatile ECA probes of the industry. Thanks to their multiple built-in topologies & flexible bodies, they can address a variety of applications. I-Flex probes are perfect for detecting stress-corrosion cracking (SCC) in both ferrous and non-ferrous materials. Whether SCC is affecting the integrity of pipelines, pressure vessels, or tanks (on base metal or internal cladding), encoded scans performed with I-Flex probes allow efficient sizing of clusters.



## Near Field Array (NFA) Tubing Probe

Eddyfi has taken near field testing (NFT) to a new level, supercharging it with an array of coils, giving birth to near-field array (NFA) technology. It is designed to efficiently & reliably inspect aluminium-finned tubes & ferromagnetic heat exchangers.

Aluminium-finned carbon steel tubes are the most challenging tubular component to inspect. The external aluminium fins on these tubes greatly influence the quality of inspection



signals. Various techniques like NFT, MFL, Partial saturation bobbin probe and IRIS are used depending the world region. The most popular technique is IRIS as it gives a C-scan & good depth sizing, but it remains a complex inspection using several mechanical components, water & most of the time the tube is not fully inspected because of lost echoes.

Eddyfi NFA probes can easily detect common defects found in finfan air cooler tubes or ferromagnetic heat exchangers. They include: inner-diameter (ID) pitting, internal cracking at the tubesheets, internal erosion, & wall loss. NFA Probes are compatible with Ectane or Ectane 2 with array capabilities.

## What's new in Inspection Services ?

### Bond Testing

NDTS India has successfully completed one more challenging work that involved inspecting a bond of metal to rubber Interface by using through transmission technique. The bond testing was carried out by using Dry Scan mode of Sonatest Masterscan Series conventional ultrasonic flaw detector & soft tips probes. The scanning area was grid marked & as there was access from both sides, probes were kept on both sides each. The disbond can be identified by change in the signal between bonds & disbonds. The signals from these two regions should be correlated with that of the standard reference block with programmed unbonds.

### NDTS India becomes 100% Endorser of ASNT Employer Based Practice (as per SNT-TC-1A)

NDTS has always challenged the conventional way of perceiving NDT. It is our commitment to quality that pushes us to endorse the best and cut the rest. Following the same thought process, once again NDTS has reached a new level of quality that very few have been able to touch in Indian NDT industry.

NDTS has now certified all of their NDT Engineers & technicians as per ASNT Employer based written practice (as per SNT-TC-1A). This puts our clients in more beneficial position as they can be rest assured about the capabilities and competencies of our inspection personnel.



## TRAINING & CERTIFICATION

### Update & Schedule



NDTS India successfully completed third batch of PAUT & TOFD course as per ASNT (SNT-TC-1A). This batch hosted candidates from Singapore, Gulf and India. A good mix of candidates working in various markets have added extra tinge of knowledge sharing to an already strong curriculum. The eagerness and participation of candidates to learn has taken the overall experience to a new high. The feedbacks speak for themselves as NDTS delivers one more batch of knowledgeable and well trained personnel to NDT market.

| COURSE ID | COURSE   | DATE              | TOTAL HRS |
|-----------|--|-------------------|-----------|
| PAUT-02   | Phased Array Ultrasonic Testing (PAUT) Level II as per SNT-TC-1A | 20 July - 06 Aug. | 96        |
| TOFD-03   | Time of Flight Diffraction (TOFD) Level II as per SNT-TC-1A      | 10 - 20 August    | 80        |

### Company News

We are now ISO 9001:2008 Certified Company. At NDTS India, we ensure to

comply with the International Standards on the Quality Management System.



### Upcoming Events

| Event 2015           | Location                    | Duration      | Booth No. |
|----------------------|-----------------------------|---------------|-----------|
| 7th MENDT            | Bahrain                     | 13 - 16 Sept. | G01 & 02  |
| IFAT India           | Bombay Exhibition Centre    | 13-15 Oct.    | A39       |
| India Nuclear Energy | Nehru Centre, Worli, Mumbai | 15-16 Oct.    | G16       |
| MINDTCE              | Kuala Lumpur, Malaysia      | 22 - 24 Nov.  | 20        |
| NDE                  | Hyderabad, India            | 26 - 28 Nov.  | TBD       |
| WELD                 | Vashi, Navi Mumbai, India   | 10 - 12 Dec.  | TBD       |



Seminar in Mumbai on Infrared Thermography. Demo & technical presentation by Mr. Mahesh Rajpurohit of M/s. FLIR Systems India, Feb 2015.



Organized in-house leadership training for all the department heads in February 2015.



Participated in Weld India Exhibition, held at Jamshedpur in January 2015