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AINDT

INDUSTRIAL EYE

THE OFFICIAL JOURNAL OF THE AUSTRALIAN INSTITUTE FOR NON-DESTRUCTIVE TESTING

RADIOGRAPHY ▪ ULTRASONICS ▪ EDDY CURRENT ▪ PENETRANT ▪ MAGNETIC PARTICLE

VIBRATION ANALYSIS ▪ LUBRICATION ANALYSIS ▪ THERMOGRAPHY ▪ ACOUSTIC EMISSION

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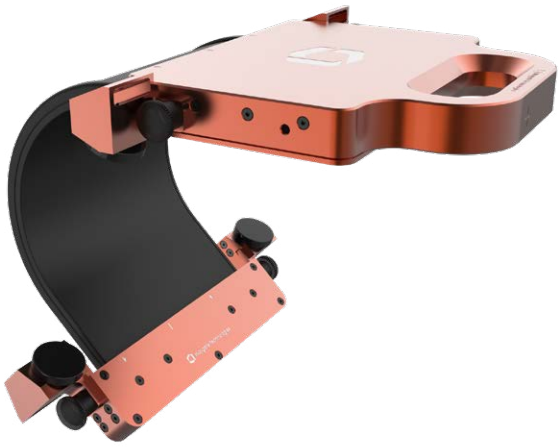

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President's Message

Joshua Morris

As we navigate the final complexities of transitioning our NDT certification to the latest revision of ISO 9712 Non-destructive testing — Qualification and certification of NDT personnel, I would like to emphasise a critical element that underpins our industry: the competence of our personnel. The effectiveness of NDT relies heavily on the qualifications of those performing the work. To uphold standards of quality, safety and reliability, it is imperative that NDT professionals are rigorously certified. ISO 9712 certification is recognised globally as a benchmark for ensuring that our workforce is adequately qualified.

During a recent overseas assignment, I had the opportunity to work with an NDE consultant who held Level 3 certification across several methods. However, it quickly became apparent that his two years of experience did not equip him for the Level 3 position he held. He struggled with fundamental concepts and admitted to misunderstanding the ISO 9712 experience requirements, believing that merely completing a course and passing an exam sufficed for certification. This experience underscores the importance of thorough experience verification in maintaining the integrity of ISO 9712.

ISO 9712 mandates proof of ongoing competence, requiring verifiable documentation of experience for initial certification and continuous work activity for renewals and recertification every five years. I have often been asked to endorse certification applications where candidates did not meet the necessary experience or continuous satisfactory work requirements. I have always refused to do so, and I urge all in our industry to uphold these integrity standards as well.

Every member of AINDT is bound by a code of ethics, committing to maintain the industry's integrity and dignity by accepting only professional tasks within their competence. Members are responsible for their work and those under their supervision, acting in the best interest of their employer and client with honesty, providing accurate and knowledgeable advice, and engaging in continuous professional development while supporting colleagues in their learning.

Integrity of our certification process builds trust among stakeholders—technicians, employers, asset owners, and regulatory bodies. Recent events, such as the PCN AQB NDT scandal, which led to the revocation of approximately 10,000 certificates due to fraud, remind us of the importance of maintaining our certification standards. The fallout from this scandal necessitated extensive re-inspections, significantly impacting industries worldwide including major capital projects in Australia.

AINDT has faced its own challenges regarding certification integrity. In 2013, a case of fraudulent certification on a major project resulted in severe repercussions, including the suspension of the offender's genuine certificates and loss of employment. This serves as a crucial reminder to employers and asset owners. AINDT certificates can be easily validated, I encourage everyone to utilise our certification verification tool available on the AINDT website.

Another pressing issue is the proliferation of limited application certificates. The volume of these certificates suggests a misunderstanding of their constraints by technicians, employers and customers. ISO 20807 was developed specifically for the manufacturing sector to inspect newly produced wrought plate for thickness as well as the presence of inclusions and laminations.

An example of a limited application scenario can be observed at a pipe mill, where either a manual or automated system is utilised to identify manufacturing defects. These tasks are inherently characterised as limited, repetitive, or automated. This type of certification is not considered appropriate for detecting in-service damage mechanisms. In such instances, appropriate ISO 9712 certification and job specific competence verification would be more suitable.

Within our institute, the NDT and Condition Monitoring Certification Boards work diligently to maintain the integrity of our certification processes. Currently, the NDT certification board seeks past and current Level 3 NDT personnel to join the AINDT NDT CB Panel of Examiners. Directed by its Chairman, the Panel of Examiners is tasked with managing the database of examination questions and maintaining the AINDT's list of approved examiners.

These roles carry significant responsibility within the Institute, and the expertise of these individuals is a highly valued resource that contributes to the continuous enhancement of the Institute and its ISO 9712 certification scheme. One advantage of joining the Panel is eligibility to claim points under the structured credit system for renewing or recertifying your own AINDT Level 3 certification.

Employing ISO 9712-certified personnel is a clear demonstration of an organisation's commitment to quality and professionalism, however it is equally essential for employers to verify the accuracy of certification records and continue to accurately document their employees' education, training, and work experience.

As we strive to uphold the highest standards in our industry, let us remember that the integrity of NDT personnel certification is vital for ensuring safety, quality and reliability. In an industry where personnel competence is paramount, maintaining integrity is imperative.

Warm regards,

Joshua Morris, President
Australian Institute for Non-destructive Testing

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INSTRUCTIONS TO AUTHORS OF TECHNICAL ARTICLES

Manuscripts should be submitted in electronic form:
1. in word
2. typed with single spacing
3. with figures as tif or jpeg files at better than 300dpi

Manuscripts should include:
1. symbols and abbreviations conforming to recognised standards; metric units (SI)
2. references listed, after the text, in the order in which they occur in the paper
3. references indicated in the text by arabic numerals in square brackets
4. tables and figures numbered separately but consecutively with Arabic numerals and brief, descriptive titles
5. a reference in the text to all tables and figures
6. graphs and diagrams made with lines of sufficient thickness to reproduce well
7. titles and address of authors

Procedure for submission of manuscripts:
1. articles should be sent to: journal@aindt.com.au
2. manuscripts will be submitted to referees who will remain anonymous
3. reprints of each paper will be supplied free to the author

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A Message from the CEO

Since begging the role of CEO with the AINDT I have had the privilege of attending NDT conferences in both the USA and the UK. I have also spoken at the World Congress for Condition Monitoring (WCCM) in China.

Stuart Norman

These conferences have been of great value as I educate myself about both industries, meet my international counterparts and gain an understanding of the role academia has played in the development of NDT and CM.

Having now been exposed to the industry both in Australia and internationally I'm wrestling with where the balance sits between the theory and the practical. Without the theory and academic pursuit of knowledge in our industries we could not have the training of technologies that are used today. There would also not be the development of new techniques or the quest for excellence.

However, while attending some of these conferences I wonder if this knowledge is attracting those who work at the practical end of our industries. In addition are these conferences attracting the type of attendee that the sponsors and exhibitors (suppliers) want to interact with.

While I don't profess to know the answer to this situation I do know that the AINDT will be at its conference in Newcastle in 2025 aim to strike a balance between the practical and the theoretical as neither can survive without the other.

In addition to the specific set of skills and knowledge connected to our industry I'm also mindful of the need to expose or provide a broader subject matters to our members and those who may attend industry conferences.

This aspect became aware to me when I was asked to present at the WCCM in China in October. I am not a technical expert, so I did not what to try and act as if I am. As such I chose to present on a topic that I had undertaken to complete my MBA. Ironically it was in China is the mid 2000's where I completed this study, and it only seemed fitting to speak on it again nearly 20 years later.

Of the all the keynote speakers and breakout rooms with over 100 presentations over the four days, I was the only one who was not speaking on a specific technical inspection method. My presentation was entitled "How Condition Monitoring is More than Testing Critical Assets". This presentation focused on the importance of service delivery and the dimensions involved to provide customer satisfaction.

It was surprising that those who I spoke with had not really thought about what they do on a day to day basis and a service for their customers. The feedback was we are so focused on getting our inspection and testing correct that no one had spoke to them about the customer.

In saying this I am not trying to downplay the importance of ensuring inspection and testing is not undertaken thoroughly or not to the latest best practices. What I am saying is that I think the AINDT and the broader industry needs to strive to do is to make the theory as practical as possible and make our conferences and events focused on those who manage and delivery the service.

With all this in mind the AINDT and the NSW Branch organising committee are working are looking to deliver the AINDT Summit 2025, in Newcastle striking the balance between the theoretical and practical.

In the coming months we'll be seeking expressions of interest from those who which to present. The theme for the Summit is 'The Power of Inspection'.

This theme aims to focus on how inspection services provide customer with a powerful information about their critical assets. The theme also lends itself to the future of Australia's power (energy) mix and the potential further inspection services.

We will be inviting those from within the industry to submit papers as well as inviting experts from outside our industries to give their view on what they need and want from us. While we can often focus just on the services we deliver we also need to be mindful of where the industries we service are looking to do into the future.

As such I am asking that you keep November 18–20, 2025 free so you can attend this event in Newcastle 2025.

The Institute will also be contacting potential sponsors and exhibitors to support the event. We are well aware that without corporate support of such events we can not deliver them. However, we do have limited exhibition space as we want to ensure we attract premium corporate partners for the event.

More information will begin to flow between now and March with delegates being able to register from April 2025. I hope you can put these dates aside as we look forward to seeing you in Newcastle to explore "The Power of Inspection".

Best Regards
Stuart Norman, CEO
Australian Institute for Non-destructive Testing

AINDT SUMMIT 2025

THE POWER OF INSPECTION 18-20 NOV

SAVE THE DATE

THE POWER OF INSPECTION

18-20 NOVEMBER 2025

NEWCASTLE CITY HALL

MORE INFORMATION TO FOLLOW

federaloffice@aindt.com.au 03 9486 9267 aindt.com.au

Member List

March 2024

The AINDT is a national peak body that promotes the professional practices of non-destructive testing and condition monitoring personnel. Our mission is to provide members, industry and the community with independent and professional service in relation to the science and practice of non-destructive testing.

Through the work of our state branches and federal office, AINDT is committed to fostering a community of professionals and organisations dedicated to the fields of non-destructive testing, engineering, and materials and quality testing.

We offer a tiered membership structure, inviting businesses to enhance their professional standing and industry influence by becoming a Company, Corporate, or Sustaining member. Our memberships unlock a suite of benefits, including marketing opportunities, heightened support, streamlined staff certification management, and much more.

AINDT would like to thank the companies below for their valued support.

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D R May Inspections
EnerMech
SRG Industrial Pty Ltd
Intertek

SUPPORTING MEMBERS

Chevron

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AXT Pty Ltd
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Hofmann Engineering
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Integrity Engineering Solutions
MJ Engineering Inspection Services (Welshpool)
NDT Instruments Pty Ltd
Vertech
Optiflow Pty Ltd
Portable Scientific Pty Ltd
Weld Integrity
Wood - Asset Performance Optimisation

Membership Registrar Update

The recent AINDT Branch AGMs across the country testament to the strength and unity of Australia's NDT industry. From the stunning backdrop of Sydney Harbour and the Elizabeth Quay Waterfront in Perth to vibrant gatherings in Brisbane, Gladstone, Adelaide and Melbourne, each event was an opportunity for networking, sharing achievements and a chance for members to connect. It was a time to celebrate the past year's successes, and look to forward to future events and developments.

AINDT's CEO Stuart Norman attended all the Branch AGMs, which enjoyed good numbers. These meetings facilitate open communication between members and the Federal Board. They are a chance for two-way dialogue and accountability for actions raised over the past year, helping to ensure decisions are made in the best interest of AINDT.

These actions will then be raised at the upcoming AINDT AGM and Federal Council Meeting scheduled for 11 to 13 November 2024 in Melbourne. If you are in Melbourne at this time, please be sure to attend AGM on the afternoon of Wednesday 13 November. A reminder that you can contact your local Branch member with any questions that you want to be raised at the upcoming Federal Council meeting. This is one of the main forums used to highlight feedback from our members.

Unfortunately, our new Certification Services Manager (Peter Dawson) recently informed AINDT that he needs to resign due to personal circumstances. Peter has added a lot of value to the AINDT, particularly working with the AQBs to tidy up audits that had not been completed late last year. We wish him the best in his future endeavours.

The AINDT CEO, Branch Presidents and Membership Registrar continue to meet on a monthly basis to review Federal Office updates, future events and Branch discussion points. These meetings continue to look at current and future membership benefits.

Please continue to support the AINDT association and members.

Regards
Craig Taylor

The recent New South Wales Branch AGM.

The recent Queensland Branch AGM.

The recent South Australia Branch AGM.

AINDT
Australian Institute for Non-destructive Testing

RENEW YOUR MEMBERSHIP

RENEW FOR REWARDS: STAY A STEP AHEAD WITH 2024-2025 AINDT MEMBERSHIP

AINDT MEMBERSHIPS ARE NOW DUE

Whether you're looking to enhance your knowledge, expand your network, or influence industry standards, AINDT is your gateway to success. Connect with top professionals and thought leaders in an environment that celebrates innovation and progress. Just some of the member benefits are outlined below.

- Regular editions of the AINDT Journal (6 per year)
- Substantial discounts on certification fees and expenses
- Access to our online portal and resources
- Eligibility for exam and industry service awards
- A host of networking opportunities, including branch events, workshops, seminars, and our conference
- Exclusive Corporate Member benefits like free and discounted advertising rates, and technical advice

RENEW NOW >>>

aindt.com.au

Non-destructive Testing Certification Board Update

As you are aware, Peter Dawson has stepped down as AINDT's Certification Services Manager.

Whilst it was a short term, Peter brought a wealth of experience, patience and a wise approach, and for his efforts we are extremely grateful. Thank you Peter. This position remains open, and the Institute is actively seeking a suitable replacement.

In the meantime, the AINDT NDTCB continues to perform its activities in a steady and efficient pace thanks, in no small part, to the efforts of the AINDT staff and the team of volunteers on the application committees. Please may I remind you that all the AINDT staff are on your side and want nothing more than for your situation to have a swift outcome and to be resolved. However, depending on the nature of the enquiry, the answers you receive may not what you want to hear.

In this case, please take a moment. The AINDT staff come to work each day to work for you. They understand exactly how important a certification is to you, your employer or you client. If you are struggling with a certification matter, please put it in writing and email the team.

They will direct you to the appropriate person and have the matter worked out as swiftly as possible for you. Nothing resolves a matter faster than clear and polite communication.

The NDTCB has been busy working within its charter, to preserve the impartiality of the AINDT scheme, and to take into consideration the specific certification needs of industry. With this, the re-forming of the Panel of Examiners is under way. The Panel of Examiners, under the direction of its Chair, is responsible for the database of examination questions and the management of the AINDT's database of approved examiners. These are very serious positions of great responsibility within the Institute.

The skills and NDT knowledge of the selected individuals we hope to assemble will assist the continuous improvement of the Institute and its ISO 9712 certification scheme within its scope of operation.

At the upcoming November 2024 NDTCB meeting, the Panel of Examiners will be formally accepted. From then, regular quarterly meetings of the Panel will be held. It is also expected that at the upcoming NDTCB meeting there will be a great deal of discussion, amongst other pressing issues, on the current guide to qualification and certification and prerequisites for certification.

I personally am looking forward to an extremely productive face-to-face meeting this year in Melbourne. I expect positive and constructive discussion will be had and work clearly set out for the coming year.

Finally, I would like to remind all referees and candidates—whether you are applying for initial certification, renewal or recertification—of the implications of providing false statements of experience hours on applications to the Institute. The excuses of "sorry I made an error" or "I did not know" are not good enough anymore. Do not risk appearing before a disciplinary committee facing the denial, suspension, or withdrawal of certifications. There is a zero-tolerance policy on this behaviour as it falls squarely outside of the AINDT Code of Ethics. Steps are continuously being undertaken to reinforce the verification process for hours claimed on applications and to uncover fraudulent claims. This is being supported by members of the AINDT NDTCB.

Regards,
Mark Welland

Condition Monitoring Certification Board Update

As the year 2024 is closing fast and this time of year is very busy in both business and personal life, the Condition Monitoring Certification Board (CMCB) is working on preparing for AINDT's end of year meetings. As always, the Board also continues to work on many aspects of certification from internal processes, examinations, and processing applications.

The Board is conducting a review of the Certification guide, ensuring the currency and accuracy of the document. The Board reviews the guide regularly to ensure the documentation is reflective of current operations and certification processes.

One goal of the CMCB is to transition to online capability for examinations. This will occur when all IT systems are ready, and the Board is satisfied with the system and security. The examination process will still require an invigilator to be physically present to ensure proper process and identification of the candidate. When all examination processes and systems are in place the online examination process will commence.

On Friday 1 November 2024, the Australian Professional Thermography Association (AUSPTA) is holding a full day conference on all things thermography and condition monitoring. The conference will be held at Melbourne University Graduate House in Victoria. This is a great opportunity for anyone interested in viewing the latest technology available, with three camera manufacturers to be in attendance. The conference agenda will be released shortly. For further information visit AUSPTA's website: https://www.auspta.asn.au

The CMCB will meet in person in October to discuss and further improve all aspects of certification. In the past, physical meetings have seen more work done and promoted better communication. The Board is looking forward to meeting soon and setting goals for the next 12 months.

Shawn Moore
Chairperson
AINDT CMCB

Condition Monitoring Training Centres

Unlock the future of your career with top-tier condition monitoring training from trusted providers.

These training centres have earned the endorsement of AINDT, aligning perfectly with the national syllabi approved by the AINDT Certification Board. This ensures that you receive the highest standard of education and training.

To maximise your learning experience, AINDT recommends obtaining a copy of the training module—either directly from the training provider or by downloading it from the AINDT website. This will ensure you are well-prepared for your course.

For those seeking certification, it's crucial to successfully complete the specified training program and required training hours outlined in ISO18436. This is essential for achieving certification in your desired conditioning monitoring method, category, and industry sector.

All examinations are conducted by the AINDT.
For exam dates and further details, please contact AINDT via: federaloffice@aindt.com.au.

Elevate your skills and advance your career with the industry's best training and certification programs.

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Authorised Qualifying Bodies

AQBs are authorised to offer AINDT-approved training and initial and recertification examinations in any Australian state, at any time throughout the year.

The AINDT also conducts scheduled examination rounds twice yearly, with dates advertised in The Industrial Eye and the AINDT e-newsletter.

While the AINDT strives to notify certificate holders of impending certification expirations, it remains the responsibility of the certificate holder to initiate the renewal and recertification process before their certification expires. Please note that late fees apply to overdue certification applications.

South Australia

Kuzer Technical
T: 1300 199 086
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W: **kuzer.com**

NDT methods, levels, and industry sectors offered:
- Magnetic Particle Level 1, 2 and 3 Multisector (ISO 9712)
- Dye Penetrant Level 1, 2 and 3 Multisector (ISO 9712)
- Ultrasonics Level 1, General Engineering (ISO 9712)
- Ultrasonics 2 and 3 Welds (ISO 9712)
- Phased Array Level 2 and 3 Multisector (ISO 9712)
- Time Of Flight Diffraction Level 2 and 3 Multisector (ISO 9712)
- Radiographic Testing Level 2 and 3 Welds (ISO 9712)
- Visual Testing Level 1 and 2 Multisector (ISO 9712)
- Eddy Current Level 1, 2 and 3 Multisector (ISO 9712)
- Level 3 Basic Exam Prep (ISO 9712)
- OCTG drill pipe inspection
- Material Science in NDT – Multisector
- NDT for Managers & Engineers
- Radiation Safety (exceeding the syllabus of national module EA612)

Victoria

ATTAR
T: 03 9574 6144
E: training@attar.com.au
W: **attar.com.au**

NDT methods, levels, and industry sectors offered:
- Computed and Digital Radiography 2, 3
- Ultrasonic Testing 1,2,3 Welds, Casting, Wrought,
- Aerospace, Thickness
- Radiographic Testing 2,3 Welds, Casting, Aerospace
- Magnetic Particle Testing 1,2,3 Multisector, Aerospace
- Penetrant Testing 1,2,3 Multisector, Aerospace
- Eddy Current Testing 2,3 Multisector, Aerospace
- Magnetic Flux Leakage 2
- Tank Bottom Testing
- Phased Array levels 2 and 3 Ultrasonics 2 Multisector
- Visual/Optical Testing 2 Multisector
- Time of Flight Diffraction (TOFD) levels 2 and 3 Welds
- Heat Treatment
- ISO 9712 UT Level 2 Corrosion/Erosion Detection and Mapping (CDM)

Western Australia

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NDT methods, levels, and industry sectors offered:
- Computed and Digital Radiography 2, 3
- Ultrasonic Testing 1, 2,3 Welds, Casting, Wrought,
- Aerospace, Thickness
- Radiographic Testing 2,3 Welds, Casting, Aerospace
- Magnetic Particle Testing 1,2,3 Multisector, Aerospace
- Penetrant Testing 1,2,3 Multisector, Aerospace
- Eddy Current Testing 2,3 Multisector, Aerospace
- Magnetic Flux Leakage 2
- Tank Bottom Testing
- Phased Array 2, 3 Ultrasonics 2 Multisector
- Visual/Optical Testing 2 Multisector
- Time of Flight Diffraction (TOFD) 2, 3 Welds
- Heat Treatment
- ISO 9712 UT Level 2 Corrosion/Erosion Detection and Mapping (CDM)

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NDT methods, levels, and industry sectors offered:
- Ultrasonic Testing 1,2 Welds
- Magnetic Particle Testing 1,2 Multisector
- Penetrant Testing 1,2 Multisector
- Phased Array Ultrasonic Testing 2 Multisector

Queensland

Protecs Global
T: 07 3492 9213
E: hamed.madani@protecsglobal.com.au
W: **protecsglobal.com.au**

NDT methods, levels, and industry sectors offered:
- Ultrasonic Testing 1 (General Engineering) 2 Welds
- Magnetic Particle Testing, 2 Multisector
- Penetrant Testing, 2 Multisector

Queensland Branch Update

Springtime Success: AINDT QLD Branch News and Events.

As the vibrant spring season unfolds in Queensland, the AINDT Queensland Branch is energetic with activity and achievements.

This time of year not only means renewal but also reflects our commitment to fostering growth and excellence. We're excited to share highlights from our recent events and what's on the horizon for our members.

Success of the Technical Night with Emerson in Gladstone

We are pleased to report the success of our recent technical night held in Gladstone in partnership with Emerson. This event brought together industry professionals for an engaging evening of discussions on the latest advancements in condition monitoring technology. Attendees gained valuable insights into wireless technology, compelling case studies, and updates on Emerson's evolving technology roadmap.

Many thanks to Ratish Venugopal and Gary Fenigan from Emmerson for their kind cooperation.

Upcoming Technical Night in Brisbane

Building on this momentum, we are excited to announce another tech night scheduled for October in Brisbane. This event will continue our commitment to enhancing knowledge and skills within our community, providing an opportunity for members to connect and learn from industry experts. Stay tuned for more details.

Technical Night in Gladstone.

Join Us and Stay Engaged

As we move forward, the Queensland Branch remains committed to fostering innovation, knowledge sharing, and professional development within the NDT field. We encourage all members to actively participate in our upcoming events and initiatives.

Your engagement is vital to our continued success. Together, let's make the remainder of 2024 a year of continued growth and achievement.

AINDT
Australian Institute for Non-destructive Testing

WESTERN AUSTRALIA BRANCH

ANNUAL GOLF DAY

18 holes of golf, shared motorised cart, on course snacks and refreshments, BBQ and trophy presentation in clubhouse

Thursday 28 November 2024
Registration: 10am | 1st Tee-Off: 10.45am

Collier Park Golf Course
Hayman Rd, Como WA 6152

$75 for Members
$150 for Non-Members

REGISTER NOW >>>>

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South Australia and NT Branch Update

The South Australia and Northern Terittory Branch of the AINDT is excited to share some key developments aimed at enhancing the experience and engagement of our members.

New Events Calendar in the Works

We are in the process of creating a dedicated events calendar that will offer a diverse range of activities. This includes social gatherings to foster connections within the community and technical evenings that provide opportunities for professional development. These events are designed to promote both learning and camaraderie, reflecting our commitment to community engagement.

Welcoming Our New Council Leaders

We're pleased to announce our new leadership team: Tyson Jenke takes on the role of President, supported by Luke Jones as Vice-President, Hanz Zuidland as Treasurer, and Nick Hart as Secretary. Their collective experience and enthusiasm are sure to steer our branch towards continued success.

Encouraging New Membership

As we look towards the future, one of our key goals is to grow our membership. If you are interested in being part of an energetic, supportive, and professional community, we encourage you to join us. With a host of exciting events and opportunities on the horizon, there's never been a better time to get involved.

We look forward to a productive year ahead and to welcoming new faces to our growing community. Stay tuned for more updates as our events calendar and other initiatives take shape.

Victoria and Tasmania Branch Update

As we transition into the final months of 2024, the Victorian AINDT Branch has been working on multiple fronts. Here's a snapshot of recent developments discussed during our 596-meeting held in September 2024.

Our efforts to resolve some certification issues raised by members remain ongoing, with Samad Asghary continuing his dialogue with representatives. The history and selection process for the prestigious JH Cole Award, an important annual recognition, were also highlighted. Peter Milligan is working closely with Glen Haberl to finalise the nomination for this year.

In terms of financial updates, we are ensuring transparency in Branch operations, particularly around the 2024 AGM. Our Treasurer, Sadegh Abbaspour and Shaina Johnson, are overseeing the reconciliation of the event's costs, as we were overcharged by the venue.

Upcoming Events

On the technical front, we have several exciting events lined up. In October 2024 we will host our Eddy Current Array systems technical night, hosted by Miro Katouzi and Eddyfi Technologies. In addition, there's a thermography technical night planned for December, and we are also preparing for our annual Family Day Christmas Function.

Planning has hit a slight roadblock, as we are currently searching for a new venue. Our former go-to, The Golden Gate Hotel, is no longer responsive.

We're looking for a space that can accommodate approximately 25 people, is centrally located, and can support our technical presentation needs. If you have any suggestions, please reach out.

In the spirit of collaboration, it was suggested that the Victorian Branch sponsor a cause that could positively impact our community. We are still brainstorming options for this, and all suggestions are welcome.

Administration and Operations

One key area of focus has been around improving AINDT operations at the Branch level. There is an ongoing conversation about automating document management, which would streamline workflows across all Branches. We are also seeking better clarity regarding the AINDT portal, particularly for membership payments and renewals, to enhance user experience.

As always, we strive to keep our members informed and engaged. I encourage anyone interested to join us at our upcoming meetings, and if you have any suggestions or questions, feel free to reach out.

Thank you for your continued support of AINDT and the Victorian Branch. We look forward to your participation in our upcoming events.

Western Australia Update

The Western Australia Branch recently held its Spring seminar, focused on Advances in Inspection Technologies: PipeWIZARD™ iX.

Hosted by Evident Test and Measurement at Empire Bar in Lathlain, the event was exceptionally well-attended and featured live demonstrations with plenty of audience engagement.

The PipeWIZARD™ iX is a turnkey system dedicated to one specific and unique application: the inspection of girth welds during pipeline construction (offshore and onshore).

The type of inspection is called AUT (Automated Ultrasonic Technique) in the pipeline industry. It includes the following techniques: Zonal Discrimination, PA (sectorial, linear, compound), ToFD, Conventional UT.

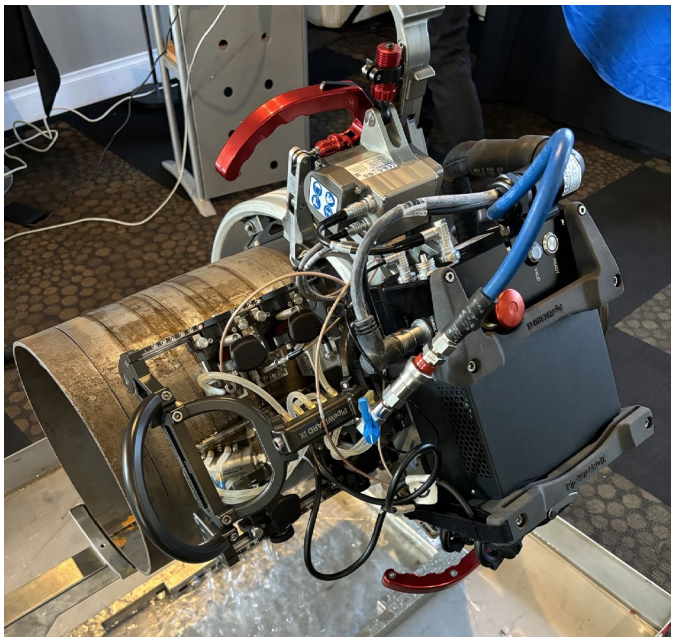
AUT systems are always composed of an acquisition unit, a motorized scanner (holding the probes) and a software for collecting and analysing data.

The complete motorised scanner in PA/TOFD configuration is 18kg (40lb), including the acquisition unit. This is 25% lighter than the V4 scanner (without acquisition unit).

Even with the integrated acquisition unit, the scanner is compact and easy to handle. Compared to V4, the band width has been reduced by 40% and the coating cutback by 27% for coating between 25mm (1in) and 100mm (4in) thick. The new acquisition unit only weight 4.8kg (10.6 lb), allowing to be integrated on the scanner.

Based on the powerful QuickScan iX PA 64:256, it comes with two PA connectors and 10 UT connectors configurable in pulser-echo or pitch-catch mode.

An external heat sink with two fans regulates the internal temperature as need for inspections up to 50°C (122°F) ambient. No warm-up time is required for inspection as low as -30°C (-22°F). Acquisition unit casing is rated IP65 allowing continuous inspections in harsh conditions.



AINDT
Australian Institute for Non-destructive Testing

SHAPE THE FUTURE

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Standards Update

Standards Australia Committee MT-007 *Non-Destructive Testing of Metals and Materials* has been very active over the last quarter, with a number of Standards being reviewed or assessed for possible adoption.

These Standards include:

- A revision of AS 3978 *Non-destructive testing – Visual inspection of metal products and components* is being undertaken after the Standards Australia Welding Committee proposed that this Standard be revised. A working group is being formed that will include a number of members of the Welding Committee, possibly members of the Casting Committee, and others. It was proposed and accepted that Paul Grosser would Chair this working group.

Once revised, this Standard will be made public for comment prior to publication.

- The adoption of EN 4179 *Aerospace series – Qualification and approval of personnel for non-destructive testing* was formally accepted and passed. This will replace AS 3669 Non-destructive testing – Qualification and approval of personnel – Aerospace, which was still being seen as withdrawn. However, another Standard had not been adopted to take its place.
- The 2020 version of ISO 4993 *Steel and iron castings* was being compared against the new 2024 version to determine if the revision was acceptable to current practices and industry.

Recently closed ballots include:

Reference & Title

- ISO/FDIS 18563-2: Characterisation and verification of ultrasonic phased array equipment – Part 2: Array probes
- ISO/TS 22809: Discontinuities in specimens for use in qualification examinations
- ISO/FDIS 16810: Ultrasonic testing – General principles
- ISO/NP 25335: Thermographic testing – Mechanical and electrical equipment testing

Current open ballots for voting include:

Reference & Title

- ISO/DIS 2400: Ultrasonic testing – Specification for standard block No. 1
- ISO/DIS 5577: Ultrasonic testing – Vocabulary
- ISO 12718: Eddy current testing – Vocabulary

Standards Australia Committee MT-007 has also nominated for the following ISO Working Groups:

- ISO/TC 135/SC 3/WG 7
- ISO/TC 135/SC 3/WG 7
- ISO/TC 135/SC 7/WG 10
- ISO/TC 135/SC 7/AHG 1
- ISO/TC 135/SC 6/WG 1

Our involvement in a range of Standards has significantly increased, and we're excited to keep everyone informed about the latest developments. This includes updates on upcoming public ballots and announcements when they become active. Stay tuned for more information as we continue to engage with the Standards community.

Please contact me using the details below if you have any questions or require further information and I will reply at the first opportunity.

Angelo Zaccari
MT-007 Standards Chairperson
azaccari@aben-tech.com.au

Thermography in Action

Category 2 Mechanical Thermography Certification is Finally Here

After several years of collaboration, the Australian Professional Thermography Association (AUSPTA) has assembled images and question packages to enable the development of a Category 2 Mechanical Thermography certification exam.

It has been an honour to be involved along the way, with other technical matter experts from within the association providing images and assisting with the development of questions to build a Category 2 exam in line with the requirements of the Australian and International Standard AS/ISO 18436-7 *Condition monitoring and diagnostics of machines – Requirements for qualification and assessment of personnel – Part 7: Thermography.*

The outcome has delivered AINDT the capability to assess and certify individuals who wish to apply for a Category 2Mechanical Thermography certification.

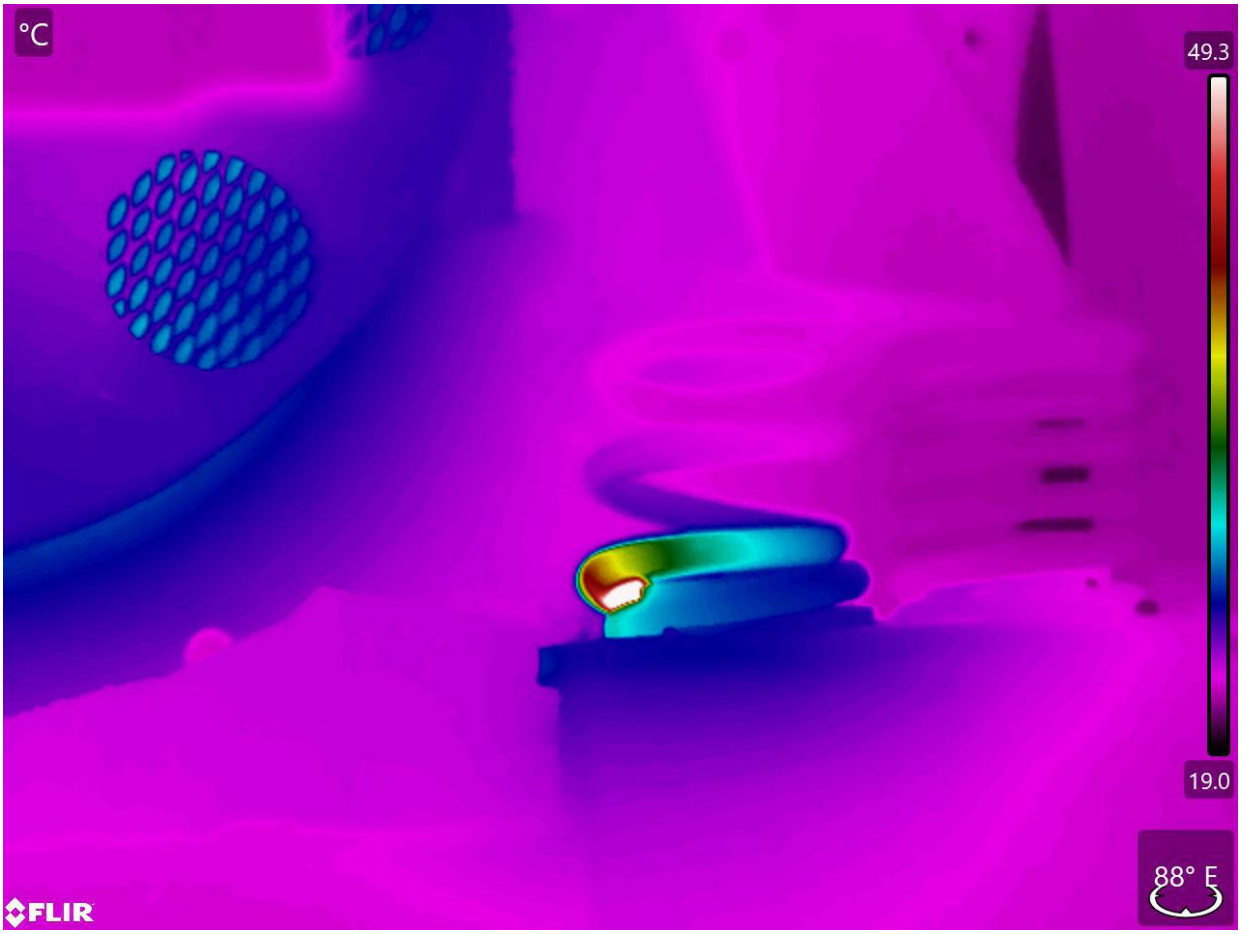
The examination can be undertaken together with the General Category 2 Exam. Or, if you already hold the General and Electrical Category 2 Examination and Certification, you can now add the Mechanical Examination and Certification.

You will need to provide proof of training in mechanical systems and experience in thermography on mechanical systems to apply for certification.

AUSPTA has again been instrumental in growing the training and certification in the Australian professional thermography landscape, working closely with AINDT the Australian certifier, to deliver professional outcomes to meet business demands and work to the highest standards.

Congratulations to all involved along the way in finally delivering for all professional thermographers throughout Australia.

Scott Fletcher
AUSPTA Committee
Foundation Member



Thermal image of a coil spring with a broken coil. Image courtesy of Thermographer Erik Thorup.

AICIP Update

Enrolments have opened for the 2025 AICIP examinations.

Recognised nationally, AICIP certification can expand your career options and job opportunities. Examinations assess the level of skill, knowledge and capability of professionals working in the pressure equipment sector to ensure the integrity and safety of plant and pressure equipment inspection.

Dates and fees

Exam Papers	National Locations	Dates (March)	Dates (September)	Time
Exam Enrolment Deadline	Nationally**	16th February 2025	16th Aug 2025	No Enrolments after this date APPLY HERE.
Exam Onboarding Deadline	Nationally**	11th March 2025	9th Sep 2025	No Onboarding on day of exam
ISI paper A & B - Theory	Nationally**	13th March 2025	11th Sep 2025	AM - PM
ISI paper E – Practical*	Nationally**	14th March 2025	12th Sep 2025	AM
SISI Paper C & D - Theory	Nationally**	15th March 2025	12th Sep 2025	AM - PM

Additional dates for the exams may be added/deleted depending upon the applicant interest.
** Nationally – Sydney, Adelaide, Brisbane, Melbourne, Perth and *Darwin.
* Darwin applicants, please note, for the exams to run, there needs to be a minimum amount of enrolments, therefore candidates may need to opt for a different region to sit their exams. Candidates will be notified accordingly.

In-Service Inspector (ISI) – Pressure Equipment : Sit Papers A, B & E	Senior In-Service Inspector (SISI) – Pressure Equipment : Sit Papers C & D
$885.00	**$495.00**

Suggested Prior Attributes Of Candidates

There are no prerequisites, prior qualifications, training or experience required for ACIP in-service inspectors' examinations. However, candidates with insufficient industry experience will have difficulty passing the theoretical Paper B and practical Paper E.

To have a reasonable likelihood of demonstrating the required competency and passing the exams, it is strongly recommended that applicants have at least the following:

- Qualifications:
  - Year 12 High School, a trade certificate or equivalent knowledge.
  - Knowledge of common pressure equipment types and terminology used in Australian Standards.
  - Basic mathematics ability (for example, to calculate the volume, thickness and hoopsters of a cylinder).
- Training: 100 hours of either self or on-job training in pressure equipment inspection and the application of AS/NZ 3788.
- Experience: five years (full time equivalent) including two years in inspection. Experience should be sufficient to develop basic technical skills and good communication skills.
- Pressure equipment knowledge: an understanding of the main technical inspection terms relating to pressure equipment.
- Personal skills:
  - Ability to read, write and communicate orally in English.
  - Maturity and reliability.
  - Good eyesight and hearing (with or without correction).

For SISI applicants, more in-depth experience, calculation and technical ability is desirable.

To enrol in an AICIP examination, visit: **inspectors.aicip.org.au**

NDT World Event Calendar

NDE 2024

12 to 14 December 2024 | Chennai, India

The 34th Annual Conference and Exhibition on Non Destructive Evaluation will be hosted by the Indian Society for Non-destructive Testing (ISNT) in Chennai in December. With over 50 keynote talks, 40 technical sessions and over 120 exhibitors, it is shaping up to be an engaging event. It is set to attract over 2,000 delegates. Chennai is one of India's largest and most vibrant cities, known for its rich cultural heritage, historical landmarks, and thriving economy. The city is a major economic hub in India, with a diverse economy that includes industries such as automobile manufacturing, information technology, healthcare, and the film industry, contributing significantly to India growth.

For further information, visit: **www.isnt.in**

SINCE 2025

27 to 28 February 2025 | Singapore

Hosted by the Non-Destructive Testing Society Singapore (NDTSS), the fifth Singapore International NDT Conference and Exhibition will take place in February 2025. The conference includes a technical program that will present the latest research and technology developments as well as practical applications of NDT in all major industrial areas. The technical programme will feature keynote presentations from internationally-renowned industry leaders. The associated exhibition will emphasise the close links between research and development and the equipment and instruments used in the industry, focused on Industry 4.0 and additive manufacturing.

For further information, visit: **www.since2025.org**

3rd International Conference and Exhibition on NDE 4.0

3 to 6 March 2025 | Bengaluru, India

The International Conference on NDE 4.0, a pivotal event initiated by ICNDT's Special International Group, focuses on the integration of Industry 4.0 technologies in non-destructive evaluation and inspection. This conference highlights advancements in robotics, drones, AI, machine learning, IIOT, augmented reality, and digital twins, revolutionising industrial inspections. Following successful events in 2021 and 2022, the third conference will be held in Bengaluru, India. It will feature an exhibition showcasing cutting-edge products and services, offering attendees opportunities to share knowledge, network, and accelerate NDE 4.0 adoption in their industries.

For further information, visit: **www.2025.nde40.com**

Pan-American Conference for Non-destructive Testing

9 to 12 June 2025 | Ontario, Canada

The next Pan-American Conference for Non-destructive Testing (VIII PANNDT) will be held at the Fallsview Casino Resort at Niagara Falls in Ontario, Canada from 9 to 12 June 2025. The exhibition area will have space for over 100 booths. This valuable conference is a must-attend event for inspection, quality assurance, quality control, manufacturing, and non-destructive testing personnel. The program will feature presentations from leading researchers, technicians, companies, and organisations who will demonstrate the latest technologies, trends, tools, and techniques. The conference is being hosted by the Canadian Institute for Non-Destructive Evaluation.

For further information, visit: **www.panndt.org/panndtconference**

ASNT Research Symposium

23 to 27 June 2025 | Indianapolis, United States

Hosted by the American Society for Non-destructive Testing, the ASNT Research Symposium is the premier event for the Non-destructive Evaluation Community. Make plans now to attend, present, and network as we hear about cutting edge research from some of the best minds in the field, spotlight up and coming researchers, listen to engaging award lectures, and network with peers and friends. With the theme of New Horizons: The intersection of technology, community, and collaboration, the symposium will look at how digitalisation, artificial intelligence, and automation are enhancing efficiency and accuracy in NDE.

For further information, visit: **www.asnt.eventsair.com/rs2025**

Intertek: From Testing Edison's Lightbulb to a Global Leader in Quality Assurance Expertise

In the dynamic field of industrial quality assurance and testing, AINDT Sustaining Member Intertek has established itself as a trusted leader, renowned for its commitment to innovation and reliability.

With a rich history spanning over 130 years, Intertek has consistently pushed the boundaries of what's possible in ensuring the safety, quality, and sustainability of products and services across a multitude of industries.

A Legacy of Innovation

Intertek's story begins in 1885 when Caleb Brett founded a UK marine surveying business testing and certifying grain cargoes before they were shipped across the seas. This pioneering spirit set the tone for decades of innovation to come.

In 1896, the company's narrative took an electrifying turn when Thomas Edison, the father of the light bulb, became part of its story. Edison established the Lamp Testing Bureau, which later evolved into the Electrical Testing Laboratories (ELT), laying the foundation for Intertek's commitment to electrical safety and quality. At the same time, Milton Hersey established an independent chemical testing laboratory in Montreal.

From these auspicious beginnings, three pioneering businesses in the United Kingdom, Canada and North America combined to build the foundation of Intertek, driving the company's growth around the world—while maintaining the ETL mark of quality.

Since listing on the London Stock Exchange in 2002, and entering the FTSE 100 in 2009, Intertek has steadily acquired many other businesses and expanded its service offering to further protect consumers and brand reputations. The company has adapted to changing market demands, continuously broadening its service portfolio to meet the evolving needs of industries worldwide.

Global Reach, Local Expertise

Intertek's global footprint is nothing short of impressive. The company operates in over 100 countries, with more than 1,000 laboratories and offices staffed by over 44,000 employees. This extensive network allows Intertek to provide localised expertise while leveraging global resources and knowledge.

The company's services span a wide range of industries, including consumer goods, commercial and electrical products, commodities, chemicals and pharmaceuticals, and industrial assurance. Intertek's comprehensive approach to quality assurance encompasses Assurance, Testing, Inspection, and Certification (ATIC) services, offering clients a holistic solution to their quality and safety needs.

Australian Operations: A Microcosm of Excellence

Intertek's presence in Australia mirrors its global commitment to quality and innovation. The company's Australian operations serve as a crucial hub for the Asia-Pacific region, offering a comprehensive suite of services tailored to the unique needs of the Australian market.

One of the standout features of Intertek's Australian operations is its focus on non-destructive testing (NDT) services. These services are critical in industries where the integrity of materials and structures must be verified without causing damage. Intertek's NDT capabilities in Australia include advanced techniques such as immersion ultrasonic testing, radiographic testing, magnetic particle inspection, time of flight diffraction, and eddy current testing.

> Intertek's expertise and knowledge in NDT and materials testing means their experts can select the right techniques and procedures to detect defects and irregularities in products, equipment, production facilities or plant assets and provide with necessary data to assist in making informed decisions.

Intertek helps its clients avoid the potential for catastrophic consequences and financial losses with early detection of problems before they cause damage, operating inefficiencies or in-service failure.

In addition to their NDT and materials testing services, Intertek provides a complete welding support service to help with welding requirements, comply with international and national codes and standards, and to enter new markets with their welder training and welder qualification.

Intertek's NDT services find applications across various sectors, including mining, oil and gas, aerospace, and infrastructure. For instance, in the mining sector, Intertek's NDT experts help ensure the structural integrity of critical equipment, reducing downtime and enhancing safety.

In the oil and gas industry, these services play a vital role in maintaining the integrity of pipelines and storage facilities, preventing potential environmental disasters and ensuring operational efficiency.

PROBE Analytical Laboratory Australia

Intertek's PROBE Australia analytical laboratory offers rapid, analytical testing service solutions, from quality control, method development, and validation, through to problem-solving and troubleshooting.

Materials tested include advanced chemical analysis of polymers, plastics, petroleum, fuels, pharmaceuticals, and many other products. PROBE provides comprehensive analytical testing services for polymer manufacturers, converters, master batch and additives suppliers, and the end-users of polymers and plastics.

The lab's capabilities include: chromatography laboratory analysis, gas chromatography testing for petroleum, FTIR analysis, specialised polymer and plastics analysis, scanning electron microscopy, nuclear magnetic resonance (NMR) analysis, chemical trace analysis, ultra-trace metals analysis (ICP-MS), and a range of other materials testing.

PROBE laboratory is a licensed Therapeutic Goods Administration (TGA) laboratory, providing pre-market assessment support in technical areas as well as post market monitoring to help ensure that products are of acceptable quality—as defined by official standards or specifications as agreed with the manufacturer.

PROBE is accredited by National Association of Testing Authorities (NATA) for analysis of biofuels, hydrocarbon fuels and related products. The lab also provides highly qualified consultants for patent infringement cases and technical expert witnesses for other legal matters.

Spotlight on the Intertek Minerals Global Centre of Excellence

One of the most significant aspects of Intertek's Australian operations is the Minerals Global Centre of Excellence. Located in Perth, Western Australia, this state-of-the-art facility serves as a hub for innovation and expertise in the minerals sector.

The Centre's location in Perth is strategic, placing it at the heart of Australia's mining industry. This proximity allows Intertek to work closely with mining companies, providing rapid turnaround times for sample analysis and offering expert consultations on complex geological and metallurgical challenges.

The Centre of Excellence is equipped with cutting-edge technology and staffed by world-class experts in mineral analysis and testing. It offers a comprehensive range of services, including geochemical analysis, metallurgical testing, and environmental testing. The facility's capabilities extend beyond traditional testing methods, incorporating advanced technologies like automated robotic sample preparation and high-precision analytical instruments.

Wat sets the Centre of Excellence apart is its focus on innovation and research. The facility serves as a testing ground for new methodologies and technologies, constantly pushing the boundaries of what's possible in mineral analysis. This commitment to innovation ensures that Intertek remains at the forefront of the industry, providing clients with the most advanced and reliable testing services available.

The Centre of Excellence also plays a crucial role in sustainability efforts within the mining sector. Its advanced capabilities in environmental testing help mining companies ensure compliance with stringent environmental regulations and develop more sustainable mining practices.

Intertek's Minerals Global Centre of Excellence in Perth, Western Australia.

Mine-Site Laboratory Services

Complete solutions for port and mine site laboratories in remote locations and key mining regions across the globe, including customised mine and port site sample preparation and assay services, automated and robotic laboratory systems and portable sample preparation and laboratories.

Robotics and Automation

Customised robotic and automated solutions operated by the global leader in minerals automation, providing everything from sampling systems, automated robotic sample preparation, and analytical systems including fusion, XRF, thermogravimetric analysis, wet chemistry fusion and digestion.

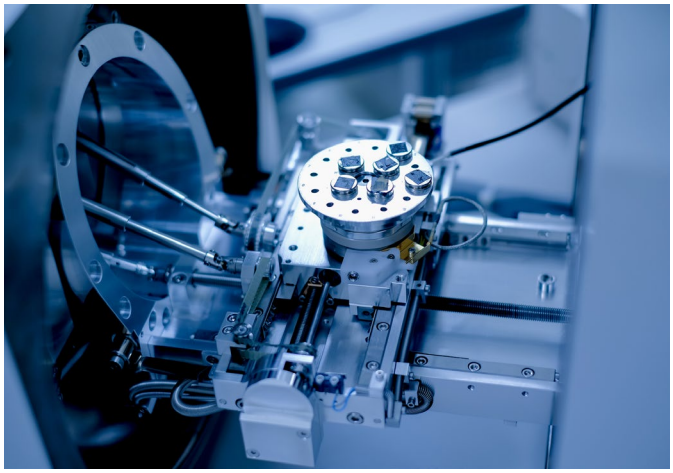
PhotonAssay Services

Using much higher energies than traditional X-ray methods, Chrysos PhotonAssay detects and counts atoms of gold, silver and complementary elements in as little as two minutes.

PhotonAssay allows large samples to be measured and provides a true bulk reading independent of the chemical or physical form of the sample. Using uniquely numbered sample jars, the process is completely non-destructive, and all samples can be retained for further analysis or testing if required

MineralSpace

With the latest video conferencing technology, this unique multifunctional space is available to customers and industry bodies for presentations, technical seminars, workshops and events.



A Commitment to Sustainability

Intertek's operations in Australia, much like its global initiatives, place a strong emphasis on sustainability. The company recognises its role not just as a service provider, but as a partner in helping clients achieve their sustainability goals. In the Australian context, this commitment is particularly evident in the resources sector.

Intertek's services help mining companies optimise their processes, reduce waste, and minimise environmental impact. From water quality testing to air emissions monitoring, Intertek provides the tools and expertise necessary for companies to operate responsibly in an increasingly environmentally conscious world.

Furthermore, Intertek's sustainability efforts extend beyond its services to its own operations. The company has implemented various initiatives to reduce its environmental footprint, including energy-efficient laboratory practices and waste reduction programs.

Looking to the Future

As industries continue to evolve and face new challenges, Intertek's role in ensuring quality, safety, and sustainability becomes increasingly crucial. In Australia, the company is well-positioned to meet these challenges head-on, leveraging its global expertise and local knowledge to provide innovative solutions.

The future of Intertek in Australia looks bright, with continued investment in advanced technologies and expansion of services. The company's focus on non-destructive testing and its world-class Minerals Global Centre of Excellence place it at the forefront of innovation in these critical areas.

As Australia continues to play a significant role in global resource markets and strives for leadership in sustainable practices, Intertek stands ready to support these efforts. Through its comprehensive range of services, cutting-edge technologies, and unwavering commitment to quality, Intertek is not just a service provider but a true partner in progress for Australian industries.

In an increasingly complex and interconnected world, the value of quality assurance and testing cannot be overstated. Intertek, with its rich history, global reach, and local expertise, continues to lead the way in bringing quality, safety, and sustainability to life.

As we look to the future, one thing is clear: wherever there's a need for trust and assurance in industry, Intertek will be there, innovating, testing, and ensuring that the highest standards are met.

For more information about Intertek, visit: **intertek.com**

Thermal Analysis Test Case of Development of a Thermal Fault on a 22KV Cable Head Connection

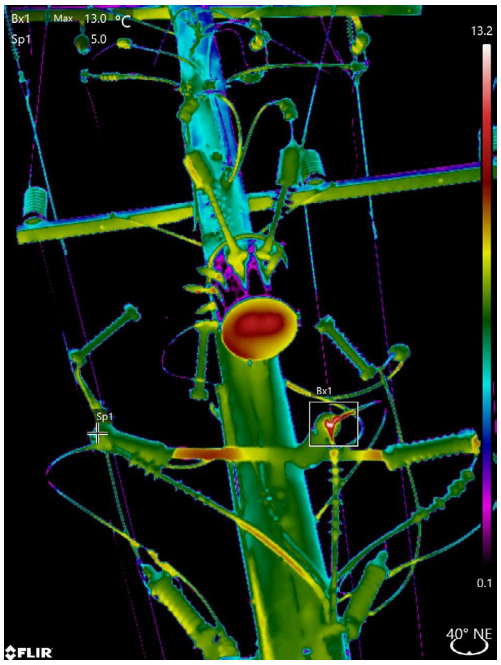
‘Predictive maintenance’ relies on an in-depth knowledge of failure modes of certain equipment, combined with expected environmental and loading conditions under which this equipment will be running.

BY ERIK THORUP, DIRECTOR IR TECHNOLOGY AUSTRALIA
CATEGORY 3 THERMOGRAPHER, ELECTRICAL/MECHANICAL (AINDT/BINDT)

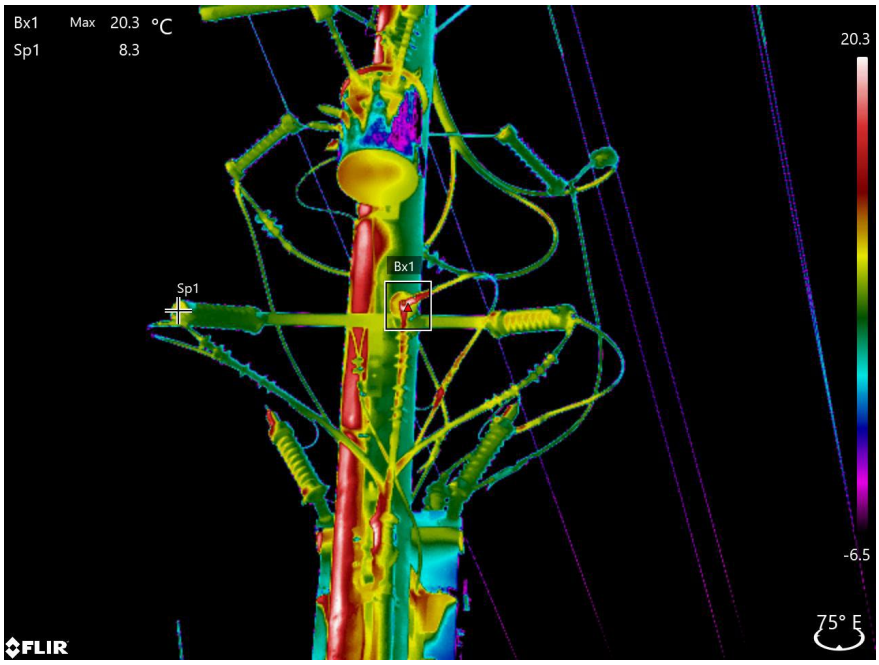
But can we really predict within some relative precise period that a component or equipment will fail?

One technique which must be used in predictive maintenance is Condition Monitoring (CM). There are various technologies of CM which are used in the electrical industry with visual inspection probably being the primary method. Thermography would likely come in as a close second and is eminent for finding high resistance connections and contacts without infringing on the equipment and while it is under normal load.

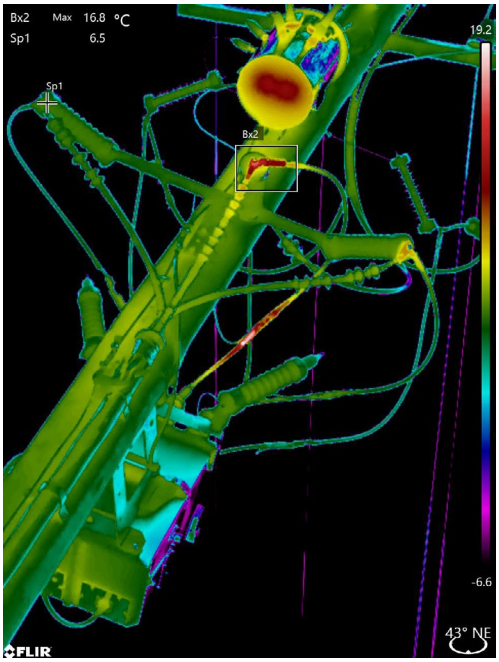
This article is presenting some thermal images of a 22KV cable head which was found some years ago (June 2020) having a slightly elevated temperature at one connection. Thermal differences or Delta T of the connection temperatures will be presented here, and the results will be discussed. The astute and attentive reader will see other thermal anomalies in these images but only the cable head centre phase connection will be investigated here.



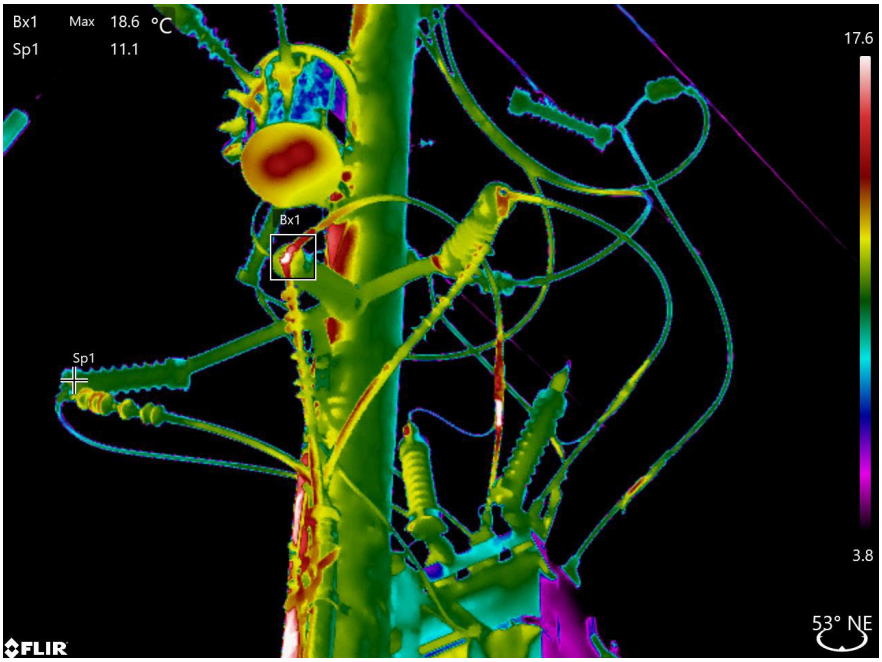
Date: 23/6/2020
Max: 13°C Normal: 5°C
DeltaT: 8K



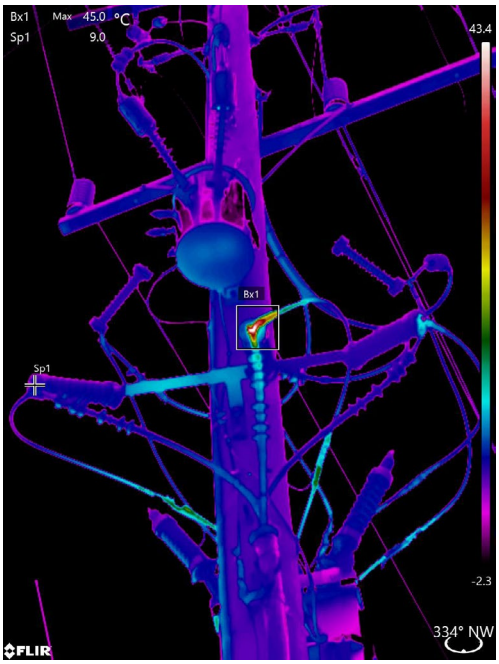
Date: 21/6/2021
Max: 20°C Normal: 8°C
DeltaT: 12K



Date: 21/6/2022
Max: 17°C Normal: 7°C
DeltaT: 10K



Date: 14/7/2023
Max: 19°C Normal: 11°C
DeltaT: 8K

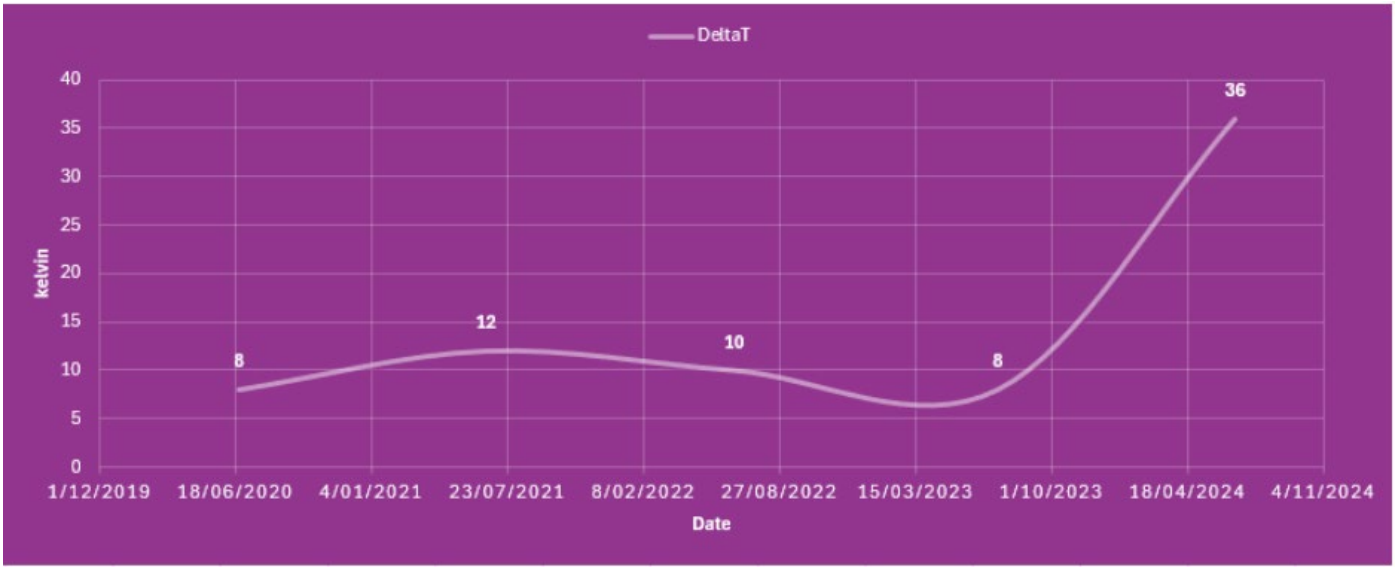


Date: 27/6/2024
Max: 45°C Normal: 9°C
DeltaT: 36K
3 phase 22KV Cable Head connections

Shown are the five images shown in temperature linear mode, taken on site over five consecutive years, using the same FLIR T660 camera with normal 24° lens and 640x480 resolution. The emissivity was set at 1.00 and it was attempted to focus the images as well as possible.

As it can be seen, the composition of the images is not the same in each image. The component had been imaged out of personal interest only, and the asset owner and the end consumer were not informed of the anomaly before the image in 2024 was captured.

This means we have no knowledge of the load (ampere) on the components at the time of the recording of any of the five images.



A chart of the DeltaT temperatures (in kelvin) can be seen above.

Conclusion

Increase in load on a high resistance connection will increase the temperature of the connection. In this instance, other anomalies seen in the images seem to tell us that the load has not changed drastically between the surveys, and therefore the high increase in temperature of the cable head connection seems to be due to a worsening of the integrity of that connection. Remember the increase in temperature (DeltaT) caused by the current "flowing through" the resistive connection, should follow the square of the load (I2). $P = U \times I$ or $P = R \times I2$.

Since we only have annual surveys on this particular piece of equipment, the sudden increase in the fault temperature may have happened anytime within the last year – so it could be 'more exponential' than shown in this graph. The resistance may have increased exponentially.

In this case, a predictive approach may not be the best way forward, but either a repair scheduled asap, or more frequent monitoring following condition based maintenance (CBM) practices to follow further changes would be necessary until action is taken. For a predictive approach to be taken, we do not have all the parameters needed to predict when this connection might fail.

A 'failure' point might also look different seen from the consumers point of view: they have no control over the repair process, and have backup generators on the ready, and the distribution company point of view who may be fined for loss of customer supply, and have to satisfy a Bush Fire Mitigation Plan.

Initially, once we saw a DeltaT four years ago, we should have also as a minimum have started trending the load on the equipment and we should probably have initiated scheduled surveys of this connection more often (monthly?) to keep an eye on what changes there would be.

As it is, we have saved on surveys, but possibly left ourselves open to a sudden change in DeltaT which could have caused the connection to fail 'unexpectedly'. We just may have been lucky that we caught this evolving fault in time, and the connection can be serviced without much damage. Still waiting for feedback.

The Benefits of Small Focal Spot Size in Radiography and Computed Tomography

The focal spot size has a direct correlation to image resolution in both radiography and computed tomography (CT), and their ability to detect or resolve small defects.

BY DR CAMERON CHAI, PETER AIREY AND DONNA DAY, AXT

Geometrical Un-Sharpness

The geometrical un-sharpness (Ug) results in blurring of details in an X-ray image as the source X-rays originate from a surface rather than a single focal point (Figure 1). Figure 2 shows in more detail how radiation from the source reaches the detector/film. As can be seen, the edges of the object will produce a blurred area in the detector, resulting in geometric un-sharpness.

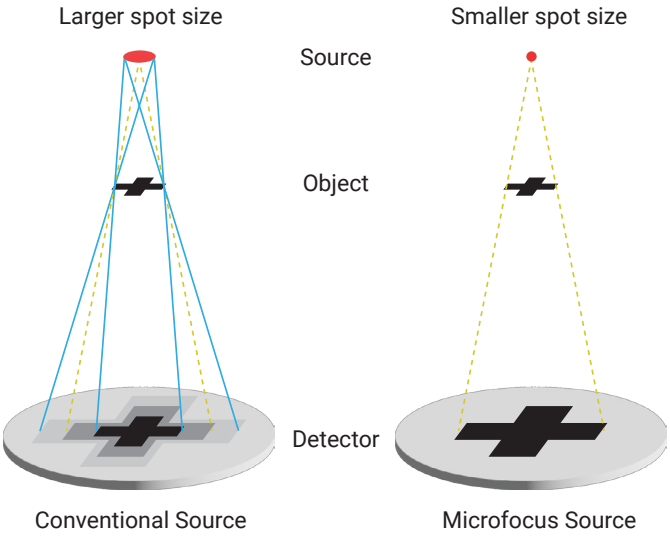


Figure 1. Comparison of focal spot size on image sharpness.

Geometric un-sharpness is determined by:

1. The size of the focal spot (f)
2. Distance between object and the source (a)
3. Distance between the object and detector/film (b)
   Where Ug = f x (b/a)

Reducing Geometric Un-sharpness

One way of decreasing Ug is to decrease the focal spot size (f) from say 3mm down to 1mm, which results in a three-fold improvement in the geometric un-sharpness.

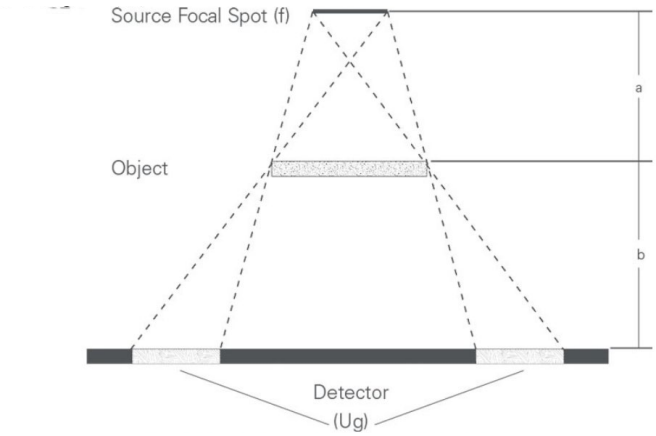


Figure 2. Schematic illustrating how un-sharpness (Ug) is calculated.

Manufacturers like Comet offer tube heads with both 3mm and 1mm focal spot sizes to cater for this.

Similarly, reducing the distance between the object and detector can also reduce the geometric un-sharpness. However, this may not always be possible due to the geometry of the object or in the case of CT, where space is required to allow the sample to rotate.

Reducing Exposure Time

Dose rate (I) is inversely proportional to the square of the distance from the source to the detector per:

$I = 1/d^2$

Similarly to Ug, the exposure time is proportional to the focal spot size and the dose rate. So, by decreasing the spot size from 3mm to 1mm, the exposure time will be one-third as long, allowing you to take more shots in a given time.

Summary

As shown above, using a small focal spot system will increase the image sharpness/resolution enabling you to more accurately see smaller features. Furthermore, using a system with small focal spot will also reduce your exposure time increasing your workflow efficiency and throughput and hence your earning capacity.

Colour Blindness in Non-Destructive Testing

Colour vision deficiency, commonly known as colour blindness, affects approximately 8% of males and 0.5% of females worldwide.

In Non-Destructive Testing (NDT), where colour discrimination can be crucial, this condition presents unique challenges. However, colour blindness doesn't necessarily disqualify individuals from the profession.

This guide explores the impact of colour blindness on NDT, discusses opportunities for affected individuals, and provides a protocol for assessing its impact on work performance.

Understanding Colour Blindness in NDT

Colour vision plays a significant role in many NDT techniques, particularly in:

- Colour contrast penetrant testing (PT)
- Fluorescent magnetic particle testing (MT)
- Visual inspection of welds and other components

The impact of colour blindness can vary depending on the specific type and severity of the condition, as well as the particular NDT method being used.

Colour vision deficiency encompasses several types, each affecting colour perception differently:

- **Protanopia:** This type involves an inability to perceive red light, resulting in reds appearing as beige or grey, and greens may seem more yellow. In NDT, this can affect tasks like colour contrast penetrant testing, where red dyes are commonly used.
- **Deuteranopia:** This is the most common type, characterised by difficulty distinguishing between red and green hues. Red and green can appear very similar, which poses challenges in NDT methods that rely on these colours for identifying defects.
- **Tritanopia:** This rare form affects blue and yellow perception. Blues may appear greener, and it may be challenging to distinguish between blue and yellow. While less common, it can still impact NDT tasks that use these colour contrasts.

Industry Standards and Accommodations

ISO 9712 Non-destructive testing — Qualification and certification of NDT personnel, the standard for qualification and certification of NDT personnel, acknowledges the importance of colour vision in NDT. While the ability to distinguish colours or shades of grey is essential, the standard allows for accommodations based on specific job requirements.

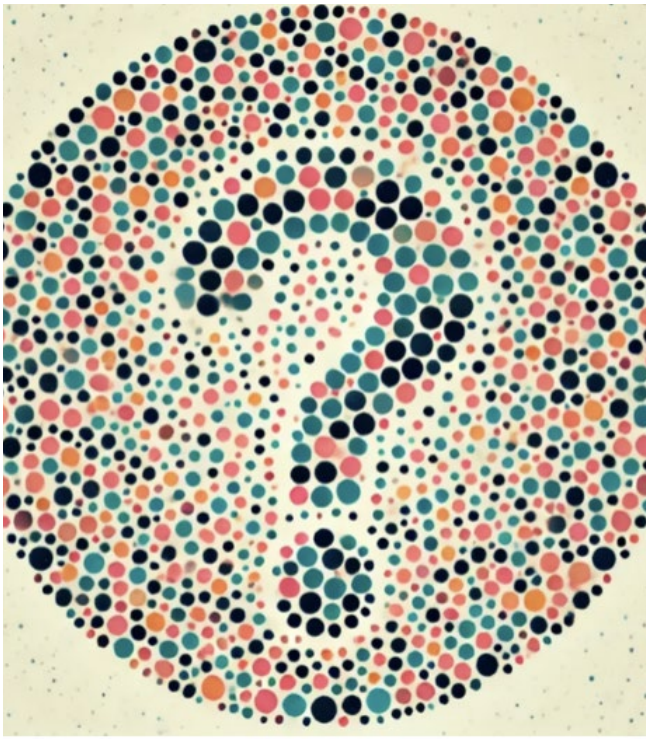
Challenges and Opportunities in Different NDT Techniques

Fluorescent Techniques: A Bright Spot

Fluorescent NDT techniques, such as fluorescent MT and some PT methods, present unique opportunities for those with colour vision deficiencies:

1. High Contrast: These methods use particles or dyes that glow bright yellow-green under ultraviolet (UV) light, creating high-contrast indications against a dark background.
2. Colourblind-Friendly: Most forms of colour blindness, including the common red-green type, should not significantly impact the ability to perform these tests.
3. Research Gap: There's been limited research specifically addressing colourblindness in fluorescent NDT, indicating a potential area for future study.

Colour blindness does not greatly affect any flouro methods, because the detection of the indications is more a matter of luminance detection and not colour distinction. Luminance detection is handled by the shades of grey assessment and not colour assessment.



Colour Contrast Penetrant Testing: Challenges and Solutions

Colour contrast PT is the method most affected by red-green colour blindness because the red can't be contrasted against the grey/white background properly. If this scenario is a concern, a mitigation can be increasing the sensitivity by using fluorescent techniques.

The British Institute of Non-Destructive Testing (BINDT) offers a guidance document on assessing visual acuity, but leaves it to the employer for how to navigate any colour deficiencies with their staff. The BINDT guidance document on visual acuity and colour perception can be downloaded via: **www.bindt.org/downloads/PSL44.pdf**

Assessment Protocol: Determining the Impact of Colour Blindness on NDT Work

For NDT professionals, assessing how a technician's colour blindness affects their work requires a systematic approach. Here's a concise protocol:

Initial Screening

- Conduct standardised colour vision tests (such as Ishihara, Farnsworth-Munsell 100 Hue)
- Document the type and severity of colour blindness

Task Analysis and Controlled Testing

- Identify colour-critical elements in each NDT task
- Set up controlled tests mimicking real-world NDT scenarios
- Compare the technician's performance to established standards

On-the-Job Observation and Performance Metrics

- Observe the technician performing actual NDT tasks
- Track detection rates, false positives, and time taken for colour-dependent tasks

Technician Self-Assessment and Accommodation Testing

- Encourage open communication about challenging situations
- Trial and assess potential accommodations (such as enhanced lighting, colour-correcting glasses)

Method-Specific Evaluation

- Assess performance in colour contrast PT, fluorescent methods, and visual inspections
- Use digital image analysis tools for objective measurement when possible

Ongoing Management

- Schedule periodic re-evaluations
- Consult specialists for complex cases
- Maintain thorough documentation compliant with privacy laws and company policies

This assessment should be conducted respectfully, prioritising the technician's dignity and adhering to relevant employment laws and regulations.

Conclusion

While colour vision deficiency presents challenges in some aspects of NDT, it doesn't preclude a successful career in this field.

With appropriate support, accommodations, and focus on strengths, individuals with colour blindness can thrive in various NDT roles.

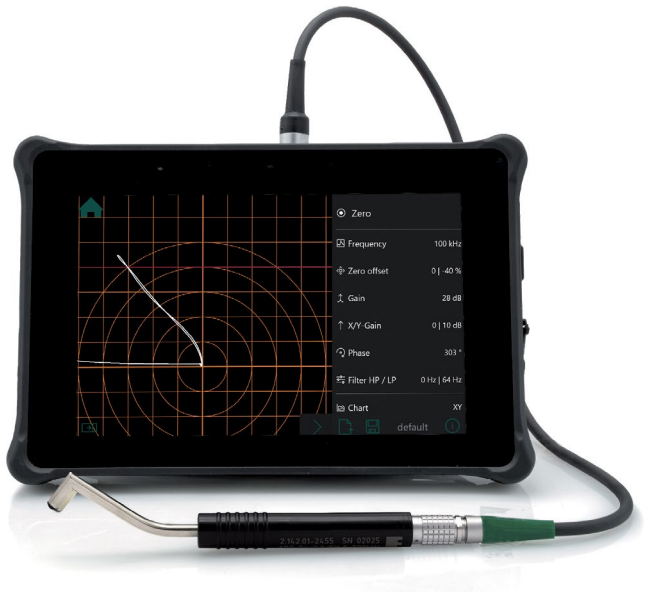
Understanding your visual capabilities is crucial for your NDT career. Kuzer offers comprehensive visual acuity assessments, including colour vision testing, for all students on their NDT courses. For further information, visit: **www.kuzer.com**

Introducing FOERSTER's TCM 2.142

NDT Instruments Australia, a subsidiary of NDT Instruments Singapore, began its operations in 2023 in Perth, Australia.

With a clear mission to identify, source, and supply high-quality products to customers in the fields of Non-Destructive Testing (NDT) systems and quality assurance and control, NDT Instruments Australia has quickly established itself as a key player in the industry.

One of the flagship products offered by NDT Instruments Australia is FOERSTER's new mobile universal device for non-destructive eddy current testing, the TCM 2.142. This innovative Test Channel Mobile (TCM) platform is poised to revolutionise portable NDT with eddy current technology.

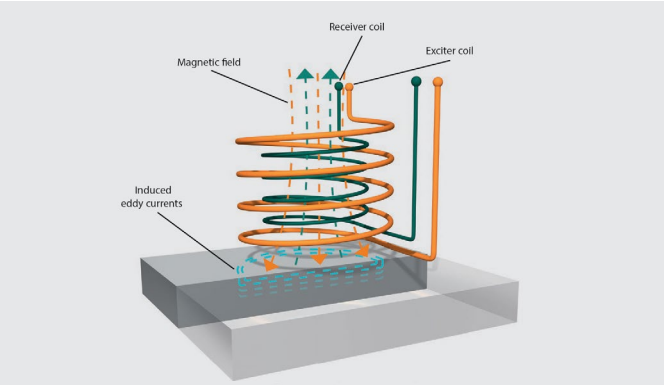


TCM: A Versatile Testing Solution

The TCM platform is designed for multi-purpose use, serving as a unifying platform for established eddy current testing products. It integrates deep-penetrating low-frequency (LF) testing with the DEFECTOSCOP for measuring residual wall thickness and high-frequency (HF) testing with the DEFECTOMETER for detecting the smallest cracks. Additionally, the TCM platform includes conductivity measurement capabilities for non-ferromagnetic materials.

Understanding Eddy Current Testing (ECT)

Before exploring the capabilities of the TCM 2.142, it is essential to understand the principles of eddy current testing (ECT). ECT is a non-contact method that uses electromagnetic induction to detect flaws in conductive materials. When an alternating current passes through a coil, it generates a changing magnetic field, which induces eddy currents in the material under inspection. Variations in the material, such as cracks or inclusions, disrupt these currents, which can then be detected and analysed. This method is highly sensitive and suitable for inspecting metals without causing any damage.



Key Features and Benefits of TCM 2.142

The TCM 2.142 is equipped with several advanced features that make it an indispensable tool for NDT professionals. Here are some of the standout features.

Universal Eddy Current Testing with DEFECTOSCOP

- **Versatility in Probe Usage:** The DEFECTOSCOP module allows for universal eddy current testing using a variety of probes, including rotating, HF, and LF probes. This flexibility enables the device to handle a wide range of testing scenarios, from surface inspections to deeper subsurface defect detection.
- **C-Scan Visualisation:** The device supports high-resolution C-scan visualisation, which is particularly useful for documenting and analysing the test area. This feature allows inspectors to get a detailed view of the material's condition, facilitating accurate assessment and reporting.
- **Multi-Frequency Inspection:** The ability to conduct multi-frequency inspections enhances the device's capability to detect defects at various material depths simultaneously. This feature is critical for comprehensive inspections where different layers of material need to be evaluated.

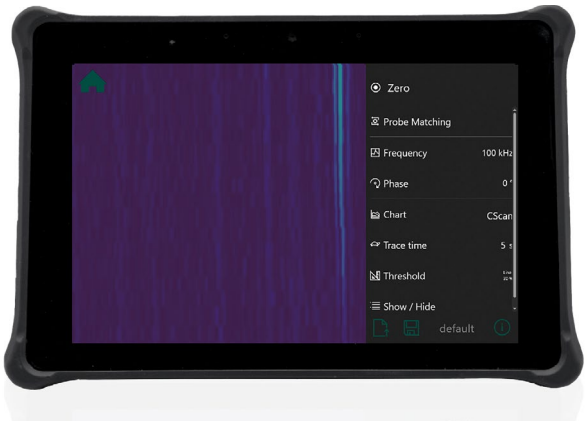
- **Post-Processing Capabilities:** Inspectors can freeze eddy current signals and adjust parameters such as gain, phase, and filters during post-processing. This flexibility ensures that the most accurate and relevant data is obtained and analysed.

Conductivity Measurement with SIGMATEST

- Wide Frequency Range: The SIGMATEST module measures the electrical conductivity of non-ferromagnetic metals across a broad frequency range. This capability is crucial for applications such as quality control, material composition testing, and sorting of metals.
- Accurate Results with Shielded Probes: The use of shielded probes helps avoid edge effects and ensures precise measurements even near edges or complex geometries. This feature is particularly important in applications requiring high precision, such as aerospace component inspections.
- Durability and Ease of Use: Probes with titanium protection ensure long service life, and automatic probe recognition simplifies operation. These features contribute to the overall reliability and user-friendliness of the device.

Large-Area Testing with Eddy Current Array (ECA)

- Comprehensive Surface Scanning: The ECA module enables large-area testing with sensor arrays of up to 512 elements. This capability allows for the quick and thorough scanning of extensive surfaces, making it ideal for applications like aircraft fuselage inspections or large pipeline assessments.
- Defect Localisation: Spatially resolved eddy current data provides positionally accurate defect detection. This feature enhances the reliability of inspections by ensuring that defects are precisely located and documented.
- Thorough Documentation: The device supports 100% documentation, with eddy current images saved as PNG or PDF files. This capability ensures that all inspection results are thoroughly recorded and easily accessible for future reference or regulatory compliance.



Robust Design and User-Friendly Interface

- Durability: The TCM 2.142 boasts a robust design, capable of withstanding drops from 1.5 meters and operating in temperatures up to 50°C. Its IP66 protection ensures resistance to water and dust, making it suitable for use in harsh industrial environments.
- Intuitive Interface: The device features an intuitive touch interface with automatic probe recognition, simplifying operation and reducing the learning curve for new users.
- Battery Life and Portability: Extended runtime with additional batteries and a quick-charge function ensure that the device is always ready for use. A shoulder strap facilitates mobile use, allowing hands-free operation during longer testing tasks.

Probes and Standards for Eddy Current Testing and Conductivity Measurement

A wide variety of probe elements with corresponding properties are available for crack detection:

- Absolute Probe: Not direction-dependent; high influence from the base material.

- Difference Probe: Directional (blind to longitudinal defects); low material influence.
- Cross-Winding Probe: Directional (blind to 45° defects); low material influence.

The Right Probe for Every Application

For crack testing, the sensitivity of the testing system is adjusted using primarily flat crack standards made of the material under test. Since test sensitivity depends on the quality of the standard, the standards must comply with the highest dimensional tolerances. FOERSTER optionally offers an exact determination of the dimensions with a laser microscope.

Each of these probe elements can be incorporated into a wide variety of probe shapes. Besides a wide selection of standard sensors, FOERSTER also offers customised sensor shapes to access even the most hard-to-reach test positions. Likewise, a probe can be built with other options, such as integrated guidance or wear protection made of materials like titanium. Each probe element can also be constructed as an array probe with up to 512 integrated elements.

Standards for Conductivity Measurement

Appropriate conductivity standards are used to check and set up conductivity measurement with the SIGMATEST module. The better the quality of this reference standard, the better the final measurement result. FOERSTER offers conductivity standards traceable to an AC measurement of the NPL (National Physical Laboratory) and a DC measurement of the PTB (Physikalisch-Technische Bundesanstalt).

All the probes available for the proven SIGMATEST 2.070 system can be used for conductivity measurement; they are also offered in a robust version with titanium protection. Available diameters include 14 mm, 8 mm, and 5 mm

Extensive Range of Accessories for Diverse Applications

Hand-Held Rotating Head for Inspecting Boreholes

The hand-held rotating head drives the respective probe and transmits the sensor signals to the test instrument. FOERSTER's hand-held rotating head turns at up to 3000 rpm, making it an efficient tool for borehole inspections.

Docking Station Expands TCM's Utility

The docking station turns the TCM into a full-fledged workstation. The high-performance Intel processor and Windows 10 provide familiar handling, just like with a laptop. The docking station, along with an external monitor and keyboard, turns the TCM into a convenient workstation, allowing the user to write and edit reports or other documentation directly on the device.

Shoulder Strap for Testing on the Go

For testing tasks that take a little longer or require walking around, FOERSTER offers a comfortable shoulder strap that facilitates mobile use and leaves hands free for other purposes.

Ideally Equipped for Adverse Conditions

The robust TCM can go with you on any field application. Signals are clearly displayed on the 8" HD touch display. With 800 nits (measure of the luminous intensity), its screen is easy to read even in strong sunlight. The TCM's rugged design protects it from drops up to 1.5 meters and against temperatures up to 50°C. If it ever gets wet, this is no problem due to the IP66 protection.

Extended Runtime with Additional Batteries

Batteries can be charged either externally, in a separate charging station, or directly in the TCM. A quick-charge function ensures the battery is full again after just a few minutes.

Conclusion

FOERSTER's TCM 2.142 offers versatility and precision in eddy current testing and conductivity measurement. With features that cater to a wide array of industrial applications, from aerospace to automotive and oil and gas, the TCM 2.142 ensures that inspections are thorough, accurate, and reliable.

By integrating advanced capabilities such as multi-frequency inspections, high-resolution C-scan visualisation, and robust design, the TCM 2.142 stands out as an innovative tool for NDT professionals.

Its user-friendly interface and durable construction make it suitable for challenging environments, while its comprehensive documentation and post-processing features ensure that inspection results are meticulously recorded and analysed.

As NDT Instruments Australia continues to grow and innovate, the TCM 2.142 exemplifies the company's dedication to providing high-quality solutions that enhance safety, efficiency, and quality across various industries.

With advanced tools at their disposal, NDT professionals are better equipped to detect and address defects, ensuring the integrity and reliability of critical

Alliance Solutions Group (ASG)

Alliance Solutions Group (ASG) provides high quality non-destructive testing equipment and accessories throughout Australia and New Zealand. ASG has established strong trading partnerships with global manufacturers which enables us to fulfil any inspection requirements.

ASG is proud to introduce its latest partnership with TPAC.

TPAC is a global team of dedicated professionals with a passion for Ultrasonic Non-Destructive Testing (NDT). Their experts—ranging from application specialists and electronic engineers to physicists and software developers—are ready to guide your Ultrasonic Testing (UT) project from start to finish.

ASG now offers support for TPAC's specialised products, including:

- Explorer: A compact, lightweight, yet powerful device for phased array, FMC/TFM, and advanced imaging techniques.
- Pilot: A multi-channel UT device for demanding UT inspection needs such as inline, immersion and so on.
- Concerto: User-friendly software for surface and corrosion mapping.
- Prelude: Advanced software designed for weld inspection.

Whether you're choosing the right equipment, software, and techniques, or need custom probe design and software development, TPAC has the expertise to streamline your R&D process. TPAC's full-time employees are located in 16 cities worldwide, offering local support in your language.

ASG and TPAC are committed to providing tailored UT solutions for your unique project.

For more information, visit: **asgndtsupplies.com**

VisiConsult Intelligent X-Ray Inspection Systems from AXT

The demand for non-destructive X-ray inspection of parts, devices, and structures is on the rise, ensuring they meet quality standards and maintain reliable service over time. To help meet this growing demand, AXT has teamed up with VisiConsult, and now offers their range of inspection systems to the local market.

VisiConsult is a leading designer and manufacturer of X-ray inspection systems with over 25 years of experience. Based in Germany, they provide intelligent end-to-end non-destructive testing (NDT) solutions, from software via systems through to service. They produce inspection systems used in industries including aerospace, aviation, automotive, defence, electronics, energy, oil and gas, science, education and forensics.

With expertise in automation, robotics, Automatic Defect Recognition (ADR) and image enhancement, VisiConsult's experienced engineers produce solutions that set new industry standards. Their cutting-edge X-ray systems allow their customers to get an optimum handle on additive manufacturing parts, composites, castings, electronics, pipes, tubes and tanks, plastics, turbine blades or welding. This helps solve challenges in (NDT), product development, quality assurance and process improvement.

VisiConsult's range of X-ray inspection systems ranges from standard products to modular and fully custom systems. VisiConsult is also a software developer and provider. Their x.OS software platform underpins all their inspection systems, including:

- ECO Line: NDT inspection cabinets with excellent cost/performance ratios
- PRO Line: Sophisticated X-ray inspections with future flexibility
- X Line: Custom-made inspection systems

AXT is the only official sales and service partner in Australia and New Zealand representing VisiConsult.

For further information, visit: **axt.com.au/visiconsult**

EN DE TEK Australia

EN DE TEK Australia's industrial borescope systems have always excelled in saving time and money for their customers. With cutting-edge technological design enhancements and flexible ergonomic features, their borescopes lead the industry. EN DE TEK Australia continuously upgrades their hardware to ensure top-notch performance in non-destructive remote visual inspections.

Recent improvements in resolution, tip articulation, illumination, and modularity make our borescopes ideal for complex inspections across various fields, including pipe and tube inspections, engine gearboxes, building and pest control, industrial manufacturing, tanks and vessels, underwater inspections, steel mills, border security, police, defence, and aviation.

They offer flexible probes from 1.8mm to 8.0mm in diameter with lengths ranging from 1 Mtr to 15 Mtr with two-way and four-way tip articulation. These probes can be customised upon ordering with varying viewing directions and depths of field. The probes are all designed to be modular for quick field swapping at the job site. All pixel resolutions vary across the range from 160,000 up to 1080P and all probes offer high-intensity LED illumination.

Newer and more sophisticated versions of their videoscope range such as their Dellon VX, GL, and SVPro provide 2D, and 3D high-definition dimensional measurement in real-time to measure cracks as fine as silk threads. Three-dimensional colour modelling facilitates intuitive analysis.

For further information: **endetek.com.au/borescopes**

International Tube Testing

Active in the NDT industry since 1978, Charlie Panos has over 40 years of experience. He provides International Tube Testing (ITT) was established by Charlie Panos in 2000. With over 40 years of industry experience, Charlie has in-depth expertise and qualifications in the engineering, testing and inspection industry.

ITT was formed to fill a growing need for accurate, dependable specialised engineering testing services. ITT provides specialised IRIS and RFT tube testing and has tested almost every boiler design in the process, petrochemical and power industries in Australia, the Pacific Islands, Papua New Guinea, Indonesia, Malaysia, Philippines and India.

The company can test tube sizes from 16mm up to 200mm, including straight tubes and tubes with bends for industries as diverse as pulp and paper, fabrication, maritime and aerospace.

ITT prides itself on delivering personalised, ethical service every time and has the field proven experience, technology and determination to ensure all your requirements are exceeded.

For further information, visit: **tubetesting.com.au**

NDT Instruments Australia

NDT Instruments Australia is a subsidiary of NDT Instruments Singapore. The company offers a wide range of products, including our parent company FOERSTER's new mobile universal device for non-destructive eddy current testing: the TCM 2.142.

TCM (Test Channel Mobile) is an innovative platform that can revolutionise portable non-destructive testing (NDT) with eddy current.

Mobile testing often requires a variety of testing systems. Designed for multi-purpose use, FOERSTER's versatile new TCM serves as a unifying platform for established eddy current testing products. It enables:

- Deep penetrating Low-Frequency (LF) testing with DEFECTOSCOP for measuring residual wall thickness
- High-Frequency (HF) testing with DEFECTOMETER for detection of the smallest cracks are now integrated in a single device
- Conductivity measurement of non-ferromagnetic materials

Software Modules Available

- DEFECTOSCOP: Universal eddy current testing with rotating, HF and LF probes
- SIGMATEST: Measures electrical conductivity of non-ferromagnetic metals
- ECA (Eddy Current Array): Eddy current testing via sensor arrays with up to 512 channels

TCM Advantages at a Glance

- Large-area testing: Testing with up to 512 probe elements in parallel
- Easy to use: Automatic detection of probes and setting of all relevant hardware parameters
- Localisation of inconsistencies: Spatially resolved eddy current data for position-accurate fault detection
- 100% documentation: Eddy current images can be saved as PNG

NDT Instruments also provides a comprehensive range of other quality products.

For more information, visit: **ndt-instruments.com/product/eca-tcm/**

OMS

OMS is the all-in-one NDT business management platform—an advanced LIMS and ERP software, verified for vulnerability and boosted with AI (Augmented Intelligence). It is designed to streamline laboratory Operations Management Systems in compliance with ISO 17025, ISO 17020, NATA and ISO 9001 standards.

Since 2009, OMS has delivered over two million use hours. It can save businesses up to $200,000 per annum per branch by eliminating most IT hardware (computers, servers and laptops), software (Windows, MS Office and anti-virus) and human resource related costs such as non-conformity reports, quality assurance and rework costs.

OMS works 24/7 to automate mundane repetitive tasks in NDT, inspection, metallurgy, mechanical and chemical testing, and hydro pressure test companies. One click generates a report that complies with standards, without transcription errors, executes secure signing of report and sends emails without an external email program.

OMS includes automation for accounts bookkeeping, timesheets, productivity reports, automatic debt collection, assets data and calibrations, staff inductions and certificates, document sharepoint, CRM, quotations, and more.

OMS saves you time and money, replacing several fragmented generic applications at the cost equivalent of one cup of coffee per day. OMS also delivers continuous automation and the regular addition of brand new features at no extra cost, created by its 30+ strong team of developers and subject matter experts. OMS is available at zero upfront cost for implementation, customisation, training, and has no lock-in contract, and zero exit fees.

For further information, visit: **omssoftware.com.au**

RFS Has Leak Detection Covered

When it comes to leaks—and finding them—RFS has many resources available. Whether you're inspecting compressed air or vacuum air, through to liquid, welds or heat, RFS is sure to have the solution.

For air and gas leaks, the Spectroline Marksman listens to the high frequency sound emitted by the air or gas and can pinpoint it with the laser pointer. There is also a sound transmitter that can be placed in a container or on the other side of a door seal and the sound path found by the Marksman on the other side. For seals on ship hold doors, the Cygnus Hatch Sure can be used helping to prevent cargo damage from water ingress.

For liquid leak detection, the Spectroline range of products—including Oil-Glo, Gas-Glo, Fuel-Glo and Water-Glo—can be added to systems, with leaks detected using a powerful ultra-violet torch.

CrackTest FLT-65 is a fast-acting quick drying penetrant used for checking welds in tanks such as transformer tanks. The FLT-65 is applied to one side of the vessel that is welded while the other side is inspected with an ultra-violet torch. The FLT-65 usually takes just 30 seconds to complete an inspection. No oily residue is left when the penetrant dries.

Infrared Inspection by HIK Micro is used for looking for heat losses and water leaks behind walls and in roofs.

For further information, visit: **rfsales.com.au**

RPC Technologies

RPC is a global leader in the design, engineering and manufacturing of Fibre Reinforced Polymer (FRP) solutions. FRP composites have key advantages over metals for tanks, vessels and piping used to store corrosive materials. But their unique properties also present challenges for inspection and fitness-for-service assessments.

RPC's validated, quantitative methodology for non-destructive FRP assessment, licensed by UTComp is making inspection of these assets easy, cost-effective and reliable.

A longstanding barrier to FRP's more widespread use has been the lack of a proven NDT methodology to assess damage to FRP equipment after it is in service.

UltraAnalytix® overcomes this barrier. Now you can tell whether your FRP assets have three days or 30 years of remaining service life.

UltraAnalytix® is an attenuation-based ultrasound method for assessing FRP that quantifies polymer damage in the material. It is the world's only proven NDT method for reliable, safe, cost-effective fitness-for-service assessment of FRP equipment.

RPC is the licensee of UltraAnalytix® technology in Australia, New Zealand and south-east Asia.

With UltraAnalytix®, RPC is able to provide a reliable, repeatable and scalable method for inspecting your FRP assets and ensuring their safe performance and maximum lifespan.

Unlike conventional methods, UltraAnalytix®:

- Is non-destructive
- Is non-intrusive
- Minimises confined space entry
- Saves owners money by avoiding shutdowns and unnecessary repairs or replacement

UltraAnalytix® gives trained inspectors the tools they need to quantify the condition of the FRP and provide fitness-for-service assessments that allow end-users to make data-based decision about their FRP assets.

For more information, visit: **rpctechnologies.com**

Vertech Group

Vertech Australia, New Zealand and USA deliver a comprehensive array of inspection, Non-Destructive Testing (NDT) and maintenance packages all underpinned by innovative specialist access systems.

Vertech has over a decade of experience supplying specialist services to a wide variety of sectors. In that time, the company has come to understand all of the frequently encountered challenges, how to provide the most value to their clients, and how to perform every job safely.

Vertech's services include but are not limited to:

- In-service inspection
- Project and program management
- Rope access services
- Marine class inspection

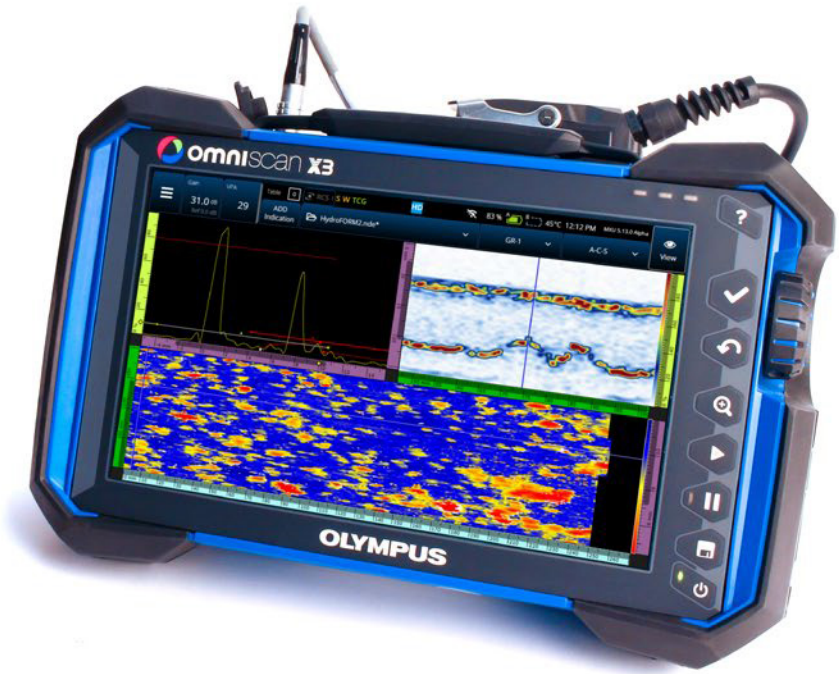
The Vertech Group is made up of complementary and specialist service providers who help innovate in project delivery across multiple market verticals. They include:

- Geo Oceans: an industry leader in Mini-ROV IRM and subsea inspection services
- Sonomatic: who are recognised as a global leader in specialised NDT
- AUAV: a specialist unmanned aerial vehicle, drone and data analytics company
- REMO Technical Services: a specialist supplier of turbine installation, turbine maintenance, and turbine inspection services

For more information, visit: **vertechgroup.com.au**

EVIDENT

Powerful Corrosion Solution Package



OmniScan™ X3 16:64 Flaw Detector & Next-Gen HydroFORM™ Scanner

Optimized for compatibility and efficiency, the OmniScan X3 and HydroFORM scanning package transforms your corrosion inspection workflow.

Easy Setup

The OmniScan X3 scan plan wizard and features such as automatic probe detection make setting up your HydroFORM configuration quick and easy.

Fast and Efficient Phased Array

Offering excellent coverage and resolution, the OmniScan X3 flaw detector and HydroFORM scanner produce phased array imaging data that is easy to use and understand.

Improved Data Accuracy

The scan speed warning light on the HydroFORM scanner's ScanDeck™ module enables you to acquire high-quality data on your first pass, avoiding the need to rescan.

To learn more, contact your local Evident representative or visit EvidentScientific.com.

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