

Dynamic Response Spectroscopy (DRS)

Ultrasonic corrosion mapping through Technowrap[™]

Sonomatic and Walker Technical have collaborated on the development of Dynamic Response Spectroscopy (DRS). DRS is an innovative ultrasonic inspection technique developed by Sonomatic for corrosion mapping through challenging coatings, such as Technowrap[™], where existing ultrasonic techniques are ineffective. This technique has been designed to look through Technowrap[™] composite repairs to measure the remaining wall thickness of the underlying metallic pipe.

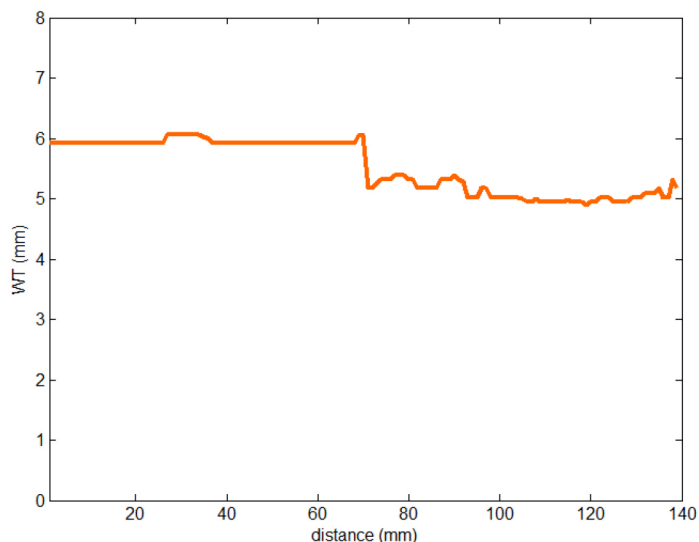
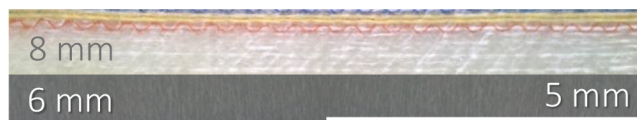
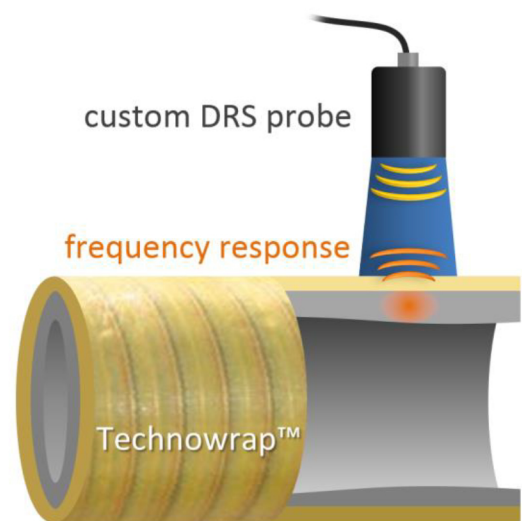
DRS Technique

A custom DRS probe excites the steel with a range of low ultrasonic frequencies, which pass easily through Technowrap[™].

The steel responds, vibrating at natural frequencies related to its thickness profile.

Using advanced algorithms, these frequencies are extracted from the returning signal at each location and used to determine the steel thickness.

The DRS probe travels over the Technowrap[™] constructing a map of steel thickness.



Integrity Assessment of Technowrap[™] Composite Repairs

Inspection of pipework using the DRS system, through a Technowrap[™] composite repair will provide the client with accurate data i.e. the current area and depth of the defect. Measurement of the actual defect size will enable in service integrity assessment of the repaired pipework, especially beneficial for long lifetime repairs where internal corrosion is present.

Comparing the measured size of defect with that assumed in the engineered design will ensure that the repaired pipework can still be considered fit for purpose.

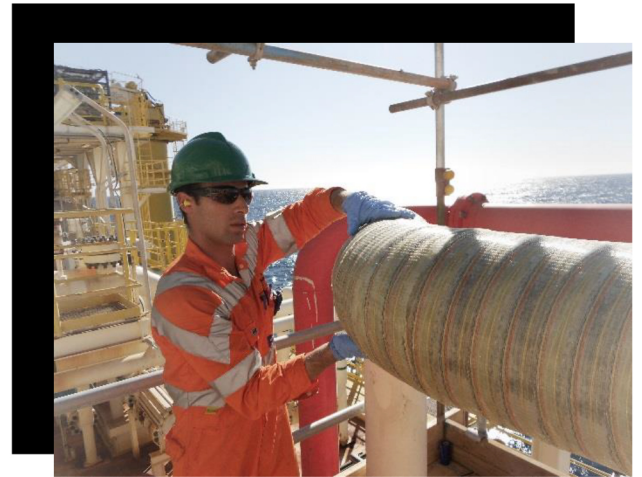
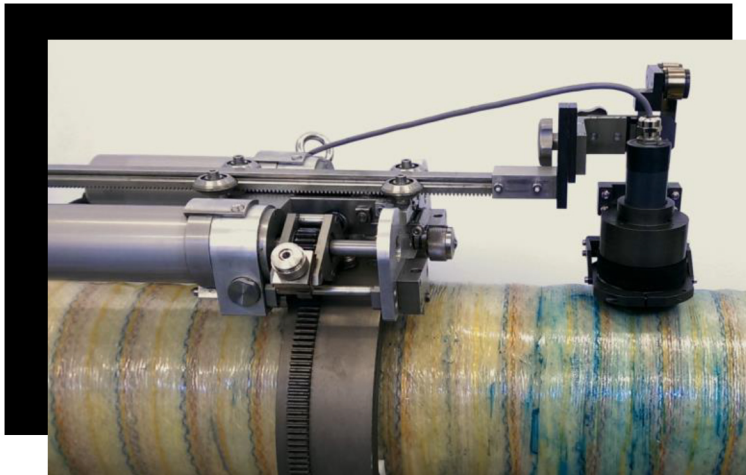
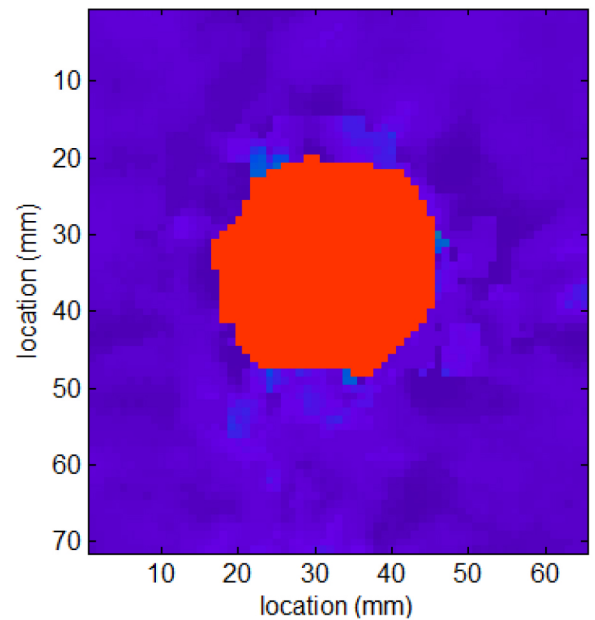
The graph demonstrates the accuracy of the DRS technique in measuring the remaining wall thickness (differentiating between a 5 and 6 mm wall thickness) underlying an 8 mm thick Technowrap[™] composite repair.

DRS Corrosion Map

- This image shows inspection through 15 mm of Technowrap™ on a steel plate with a flat bottomed hole.
- The wall thickness accuracy is 0.5 mm (80% tolerance).

DRS Deployment

- Sonomatic has extensive field experience of challenging inspections.
- The inspection systems are designed in-house and can be modified to suit specific requirements.



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Sonomatic has offices in strategic global locations so we can respond quickly to customer's requirements wherever they may be situated. Our high quality products are matched only by our customer service. In addition to our field services, we offer training and consultancy at our sites in the UK or at clients' premises anywhere in the world.

Sonomatic is committed to improving asset performance through applied and innovative technology; to delivering these benefits to our customers in the products and services that we provide; and to working with our customers, as value-added partners, to realise the maximum benefits of inspection technology.



ENGINEERED COMPOSITE TECHNOLOGY
INTEGRITY & MAINTENANCE SOLUTIONS

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Walker Technical are one of the leading composite pipe repair companies in Europe. Headquartered in Aberdeen, our team of experienced personnel manage and support our growing operations around the world. We have pioneered the use of composite technology for integrity management problems related to pipelines, piping systems, structures, caissons and risers and vessels. We have the knowledge, expertise and creativity to develop our composite repair products and supporting technologies. This ensures that we remain focussed on meeting the demands of our customers.