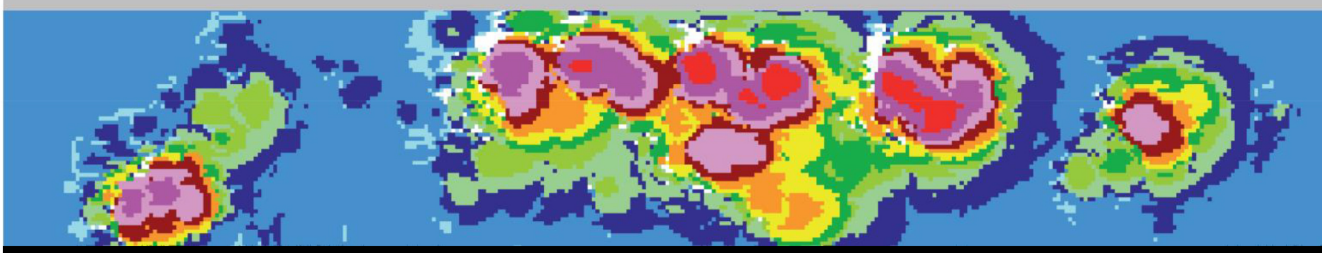
sonomatic®

innovative inspection technologies



Domed End Scanner

Effective Non-Intrusive Inspection (NII) of vertical pressure vessels typically includes inspection to determine the internal condition of the bottom domed end. The quality of inspection and the coverage achieved for the bottom domed end is often critical to justifying NII since this region has the highest susceptibility to internal degradation for many vessel types. Access, for inspection, to the material under the bottom domed end is often difficult, e.g. because of limited space within the skirt region or restricted size of the openings. This can mean it is not possible to meet the NII requirements and an internal visual inspection, reliant on production shut down, must be performed.

Sonomatic has addressed this issue by development of the Dome End Scanner which ensures effective inspection, meeting the NII requirements for vertical pressure vessels.

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Sonomatic has offices in strategic global locations so we can respond quickly to customers' 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.

The Domed End Scanner is a miniature, remotely controlled scanner designed primarily for ultrasonic inspection of vessel domed ends under skirt supports where access may be restricted. Its main application is corrosion mapping as part of Non-Intrusive Inspection (NII) programmes for vessels where it provides high quality wall thickness measurements on domed ends or other difficult to access regions. The scanner is based on a miniature, magnetic, wheeled crawler. It is controlled by, and interfaces with, Sonomatic's industry proven Microplus ultrasonic system for collection, analysis and presentation of data. It uses dedicated software which provides a range of formats for imaging of the data and stores all data collected (including individual a-scans) for subsequent on-line or off-line analysis as part of the NII evaluation.

Design Features

- Dual servo drive system
- Fully steerable plus ability to turn on own axis
- Fully mobile unit can be run from 110 V supply or generator
- Anodised coating for environmental protection
- Ability to run upside-down
- Up to 25 kg of magnetic pull force
- Water, dust and sand resistant
- Lightweight water feed couplant system
- Fully bonded, vulcanized rubber wheels to aid grip and minimise paint damage

Applications and Capability

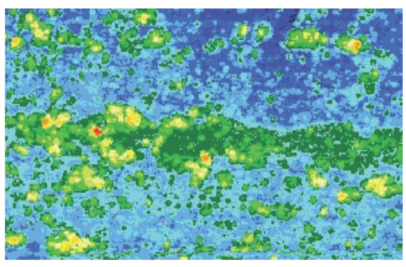
- Inspection of vertical pressure vessel bottom domed ends in support of NII
- Suitable for Type A, B, and C NII
- Remote inspection in areas of restricted access
- Inspection for localised and general wall loss (corrosion and/or erosion)
- Inspection techniques deployed
    - 0 degree corrosion mapping
    - 0 degree line scans
    - TOFD and TOFD fast screening
    - Automated angle shear wave
- Industry leading wall thickness measurement accuracy
- High probability of detection for low level degradation
- Inspection capability maintained on domed ends down to 800 mm diameter
- Min. access hole 150 mm Diameter

Unique Features

- Exceptionally small size and profile to maximize coverage for remote automated scanning
- High-precision ultrasonic inspection system
- Data integration with Sonomatic's video tracked Micro Map data collected in areas not accessible for fully automated scanning
- TOFD fast screening capability with data used to produce corrosion maps
- Data suitable for use in statistical analysis as part of NII justification
- Profiled probe shoe for close proximity scanning up to nozzles
- Sprung probe assembly keeps probe in constant contact with surface
- Lightweight and robust Aluminium and Polyethylene construction
- Cover for fall protection and moving parts guard
- Tested to maintain grip and magnetic adhesion on surfaces of paint thickness up to 1 mm

Specifications

Weight	1.4 kg
Size	140 x 116 x 169 mm
Drive	DC micromotors Speed 0 > 50 mm/s
Encoding	Incremental shaft encoders



QA and HS&E

It is Sonomatic's ongoing commitment to supply services and products, through the application of technical and engineering excellence, which complement both the customer's and our own QA and HS&E requirements.

Sonomatic's commitment to quality is maintained through continuous assessment and review of our Quality Management Systems to BS EN ISO 9001:2008. Sonomatic actively promotes the development, implementation and improvement of our QMS as a part of our ongoing drive to enhance customer satisfaction by meeting or exceeding customer requirements. In 2009 Sonomatic achieved UKAS accreditation as an Inspection Body to BS EN ISO/IEC 17020 (UKAS IB4276).