

SPACE[®] Vernier

Visualise your well in 3 dimensions

SPACE[®] Vernier is a state-of-the-art high-resolution cased-hole ultrasound thickness and caliper tool. Using the established technology applied in medical ultrasound imaging, **SPACE[®]** is designed and built for the hostile environments encountered downhole. The tool is capable of measuring the internal diameter and wall thickness of tubing or casing in most production fluids. Proprietary software allows detailed mapping and visualisation of the tubing or casing, as well as statistical analysis of corrosion and damage.

Benefits

- High accuracy measurements of pipe internal diameter
- Direct measurement of wall thickness, at up to 288 points circumferentially
- Operates on adaptive high-speed telemetry system

Applications

- Tubing and casing measurement and analysis—internal diameter and wall thickness
- Tubular inspection—detection of corrosion, damage and deformation
- General imaging applications with extended features unavailable to optical cameras

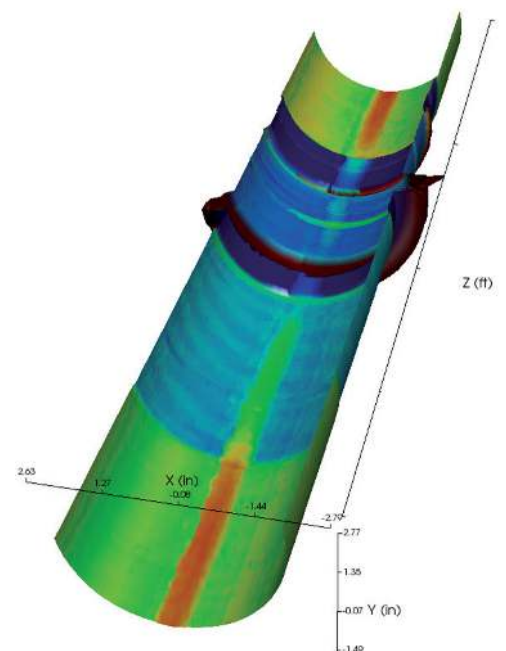


A circumferential multi-element transducer array is coupled with electronic focusing to optimise the ultrasound beam for different pipe diameters.

The transducer array of 288 elements operates in pulse echo mode, with the time of flight of the reflected echoes from the internal and external pipe surfaces providing both inner diameter and wall thickness. Multiple different sizes of tubular (e.g. production casing and tubing) can be logged in a single run in hole. A speed of sound sensor provides real-time calibration, ensuring accuracy.

Real time understanding

Logging is performed dynamically with detailed 2D measurement of the inner and outer surfaces. Both the number of transducer elements used and the vertical resolution of the sampling may be adjusted to allow a quick scan or a more detailed inspection. Our proprietary software enables the creation of thickness and diameter plots as well as 3D images.



Captured by SPACE®

Specifications - SPACE® Vernier

Physical

Outer diameter	3" [76 mm]
Length	52.8" [134.1 cm]
Weight	49.2 lb [22.3 kg]

Environmental

Maximum temperature	239°F [115°C]
Maximum pressure	7500 psi [517 bar]

Electrical

Voltage	240 VDC
Current	200 mA

Functional

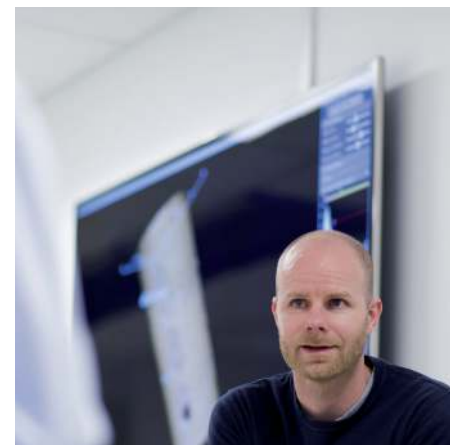
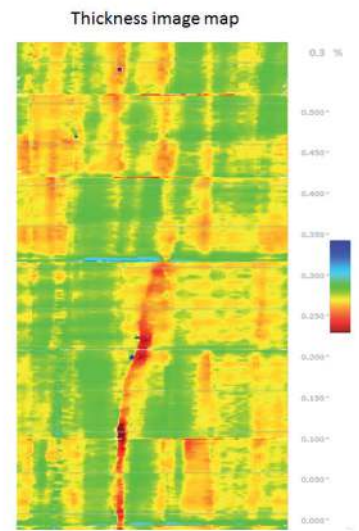
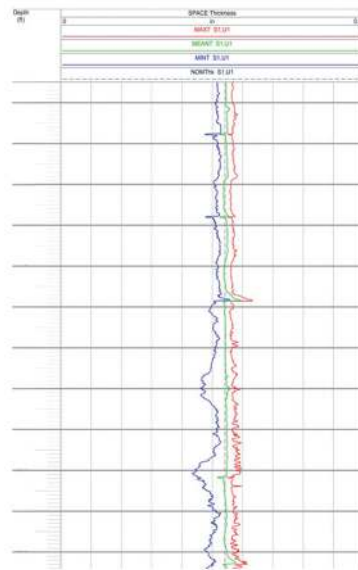
Number of sensors	288
Maximum azimuthal resolution	1.25 deg
Vertical resolution	0.39" [10 mm]
Precision-ID	±0.012" [0.3 mm]
Precision-Thickness	±0.012" [0.3 mm]
Measurement range-Thickness	0.2-0.8" [5-21 mm]
Measurement range-ID	4-13" [102-330 mm]

Operational

Logging speed	3-30 ft/min [0.9-9.1 m/min]
Logging mode	Real-time

Well conditions

Fluid	Water, brine, oil, produced liquids
Minimum casing ID	4-1/2" [114 mm]
Maximum casing size	13-3/8" [340 mm]



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