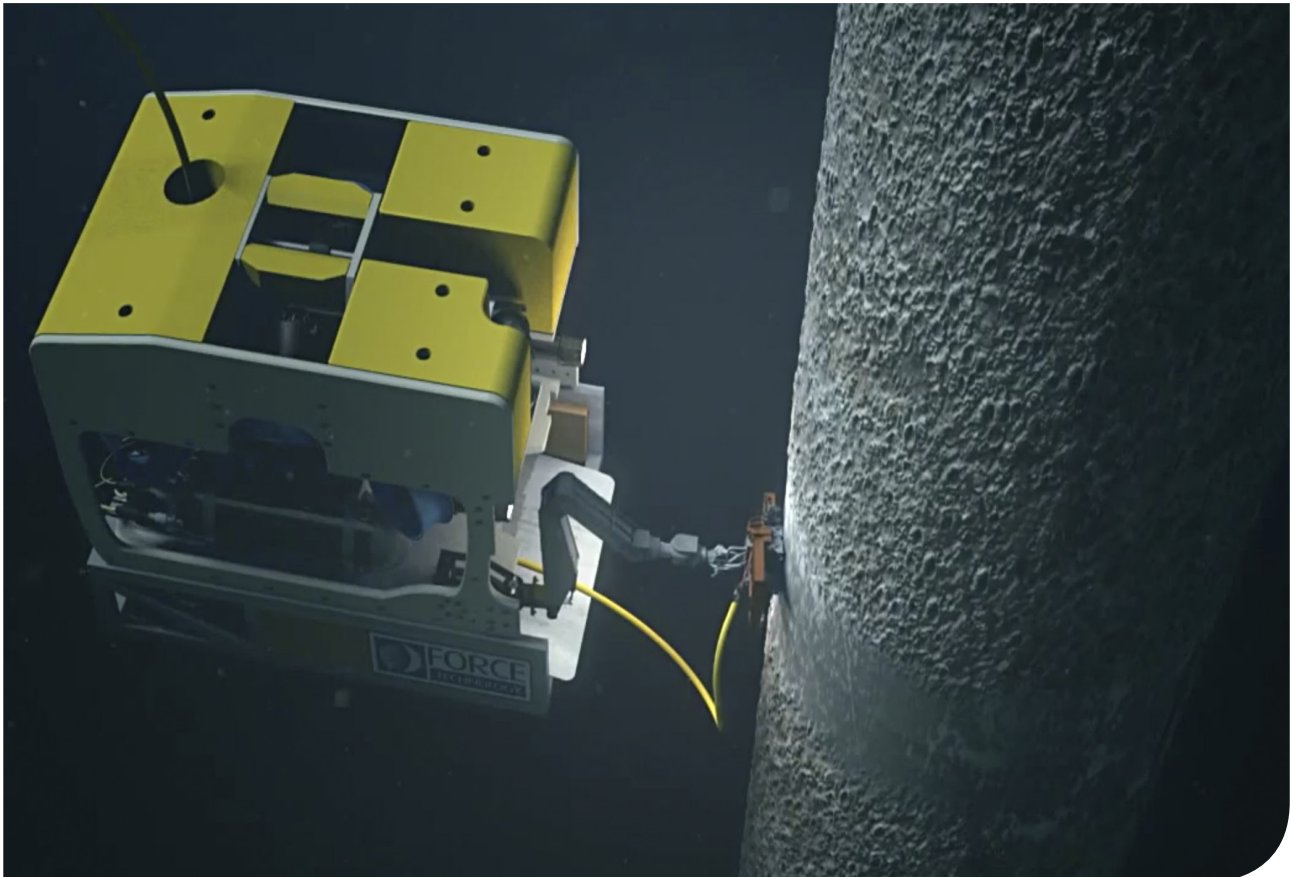


Automated Subsea Inspection

– Subsea P-scan



Cost effective, fast and flexible Subsea Inspection services are just some of the benefits provided by FORCE Technology - over decades worldwide securing owners of Subsea Constructions high quality data for professional consulting and optimal maintenance.

What is Subsea P-scan?

Subsea P-scan is a well proven tool for Automated Ultrasonic and Eddy Current Inspection of Subsea structures for fatigue cracks and corrosion mapping. Through more than two decades, the P-scan tool has successfully been used for inspection of tension legs, jacket structures, monopiles and pipelines. Based on a magnetic wheel scanner, the P-scan can be fitted with a wide selection of Ultrasonic probes and/or Eddy Current probes depending on application type; crack detection, corrosion mapping or weld inspection.

The benefits of Subsea P-scan are:

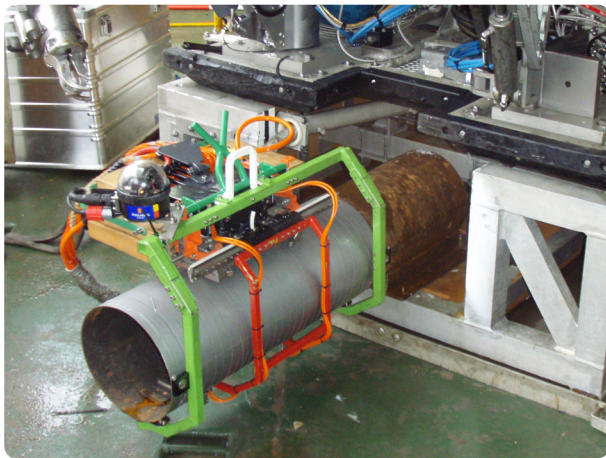
- Cost effective, sturdy durable design which is easy to handle by diver or ROV and hence fast inspections
- Wide range of technologies ensuring the most beneficial equipment for the individual task
- High quality data with high resolution, providing excellent basis for remaining life assessment
- Flexible magnetic wheel scanner which can be adapted to numerous applications
- Proven track record

Crack Investigation

The P-scan system can be fitted with different probes both Ultrasonic and Eddy Current probes. The Ultrasonic probes detect cracks in the full volume of the objects, where the Eddy Current probes are for detection of structure surface breaking cracks.

Corrosion Mapping (T-scan)

Depending on the area to be inspected, the P-scan system can be fitted with a single or a number of Ultrasonic probes. Starting at 0.1 x 0.1 mm, the scanning resolution can be set arbitrarily, which consequently influences the scanning speed. The measurements are displayed in a color coded map and the data can be exported to spread sheets for further evaluation.



Setup for Corrosion Mapping of pipeline

Weld Inspection (P-scan)

The P-scan system can be fitted with a number of different ultrasonic probes such as creeping wave probes, shear and longitudinal wave angle probes and normal probes. The probes can be set up to cover almost any weld geometry. The weld geometry can be overlaid the presentation to ease the defect characterization.

Time of Flight Diffraction (TOFD)

The TOFD Ultrasonic technique can be used for detection and height sizing of defects and can also be used for corrosion inspection of the root side of a weld.

Diver version

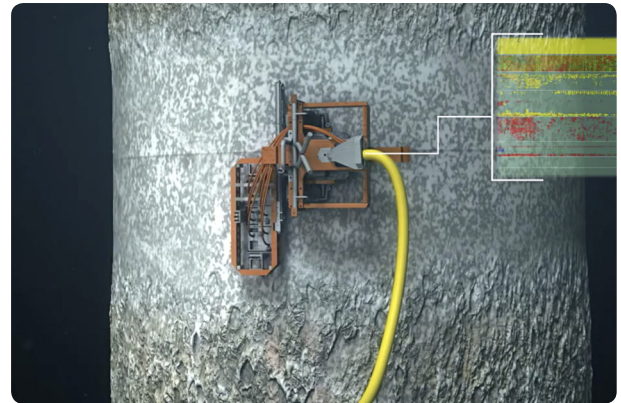
The diver system consists of a tool skid with a base for the magnetic wheel scanner and an electronics bottle, which is connected to the diving vessel with an umbilical cable.

ROV version

The system is fitted in a tool skid, which has neutral buoyancy, and is mounted below the ROV. The tool skid contains a docking bay with reference block for the magnetic wheel scanner, umbilical cable with storage basket and an electronics bottle. On the scanner and in the skid, cameras can be mounted for surveillance.

Surface requirements

The inspections require a clean surface free of marine growth and other materials that could prevent proper contact between probes and the material surface. The inspections can be carried out on paint coatings, plastic coatings or bare metal. Local conditions influencing the attraction force of the magnetic wheels of the scanner may require additional tools.



The Subsea P-scan system can be deployed either by diver or by ROV.

Technical specifications

	Diver Version	ROV Version
Operational depth	100 m (depending on diver)	1000 m (3000 m optional)
Power requirements	90-240 VAC, 50/60 Hz, 250 W	90-240 VAC, 50/60 Hz, 500 W
Communication	Multimode/Singlemode fiber umbilical	Single mode fiber through ROV
Hydraulics (umbilical)	-	Min. 140 bar 10 l/min.
Ultrasonic/Eddy Current channels)	8 channels	16 channels
Cable length (scanner to electronics)	10 – 50 m	

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