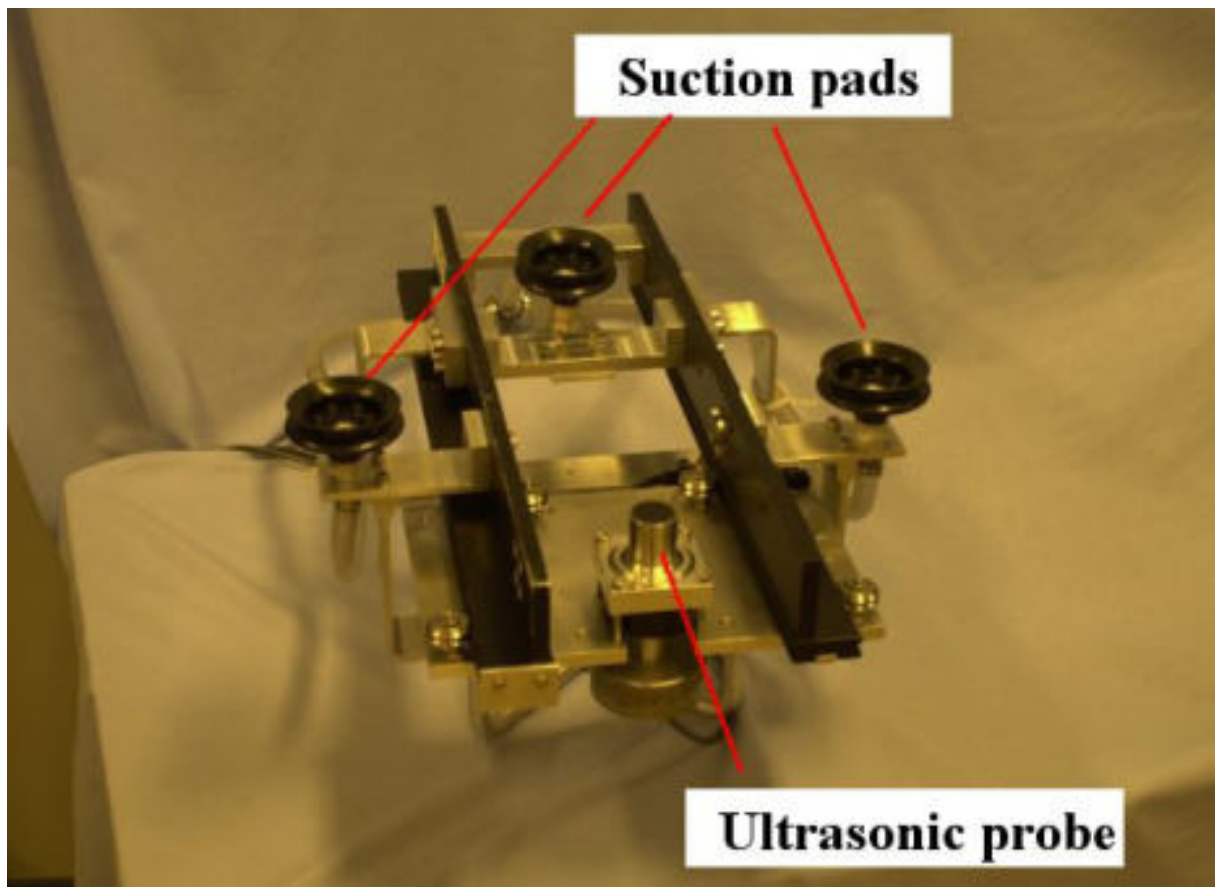


F-WATER LEVEL

The F-WATER LEVEL subsea scanner has an ultrasonic probe that can detect the content of a buoyancy tank or similar. The F-WATER LEVEL scanner detects the depth of the water column by an ultrasonic probe that is positioned exactly in the vertical axis below the steel tank.

The water level measurement scanner can be placed under a subsea tank to detect and measure the level of a liquid inside the tank, e.g. water or oil.

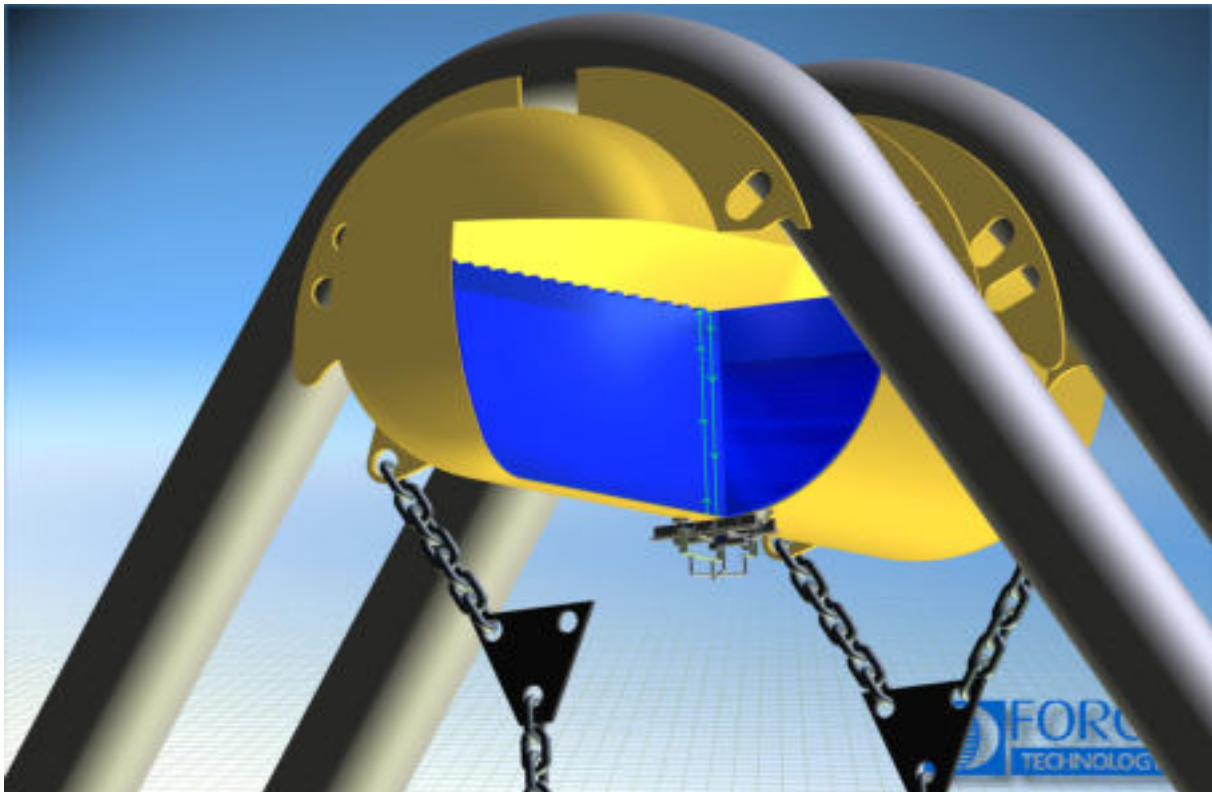


F-WATER LEVEL scanner for subsea ultrasonic inspection

Features

The ROSCAN system; comprising of a real time computer that controls a digital NDT system and a marinised stepper motor which drives the scanning movement.

- Topside workstation for real-time control and evaluation.
- A communication and transport system including the ROV and its umbilical.
- Low weight and small size. Subsea titanium computer-container: Ø190 L=200mm, weight is ~20kg/44lb in air.
- Depth compensated marinised stepper motor.
- Easily interfaced by any work class ROV. Communication through a twisted pair in the ROV umbilical current loop, or RS232/RS485 or Ethernet interface.
- Suction pad keep the scanner in position, allowing the ROV manipulator to let go of the scanner after positioning.



Scanner shown subsea during inspection

Operation

Pre-dive preparations

Testing of scanner operation and establishing communication through the diver or ROV umbilical topside. Calibration and establishing a reference level according to customer specifications for reporting all detected water levels.

Inspection

The scanner is positioned by the diver or ROV exactly below the buoyancy tank. The scanner is held in position by three suction pads. The tank then inspected by driving the probe until it is positioned on the very bottom of the tank, so that the sound propagates through a parallel steel surface to the water level, alternatively enabling echoes to be detected.

The motors drive the ultrasonic probe a short distance along the pipe until a clear ultrasonic measurement is seen online and captured for reporting purposes. The tank wall thickness is reported along with the water level.

Scan area approximately 1000mm along the tank.

Mechanical design

Three suction pads are resting against the tank wall, and a flexible ultrasonic probe holder makes the scanner suitable for any kind of dimension pipe. A wagon on the frame can drive the probe along the pipe axis until a good coupling for the probe is achieved. The scanner has ROV handles so it is easily handled by the ROV.

The scanner size is approximately

- 500 x 400 x 100 mm

Weight in air is approximately 7 kg.

When each measurement is complete, a quick online assessment of the recorded scanning data is performed, allowing re-scanning of interesting points to quality assure any wall thickness reduction or water level.

When analyzing is completed the scanner can quickly be relocated by the ROV to the next tank chamber subject to water level inspection.

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