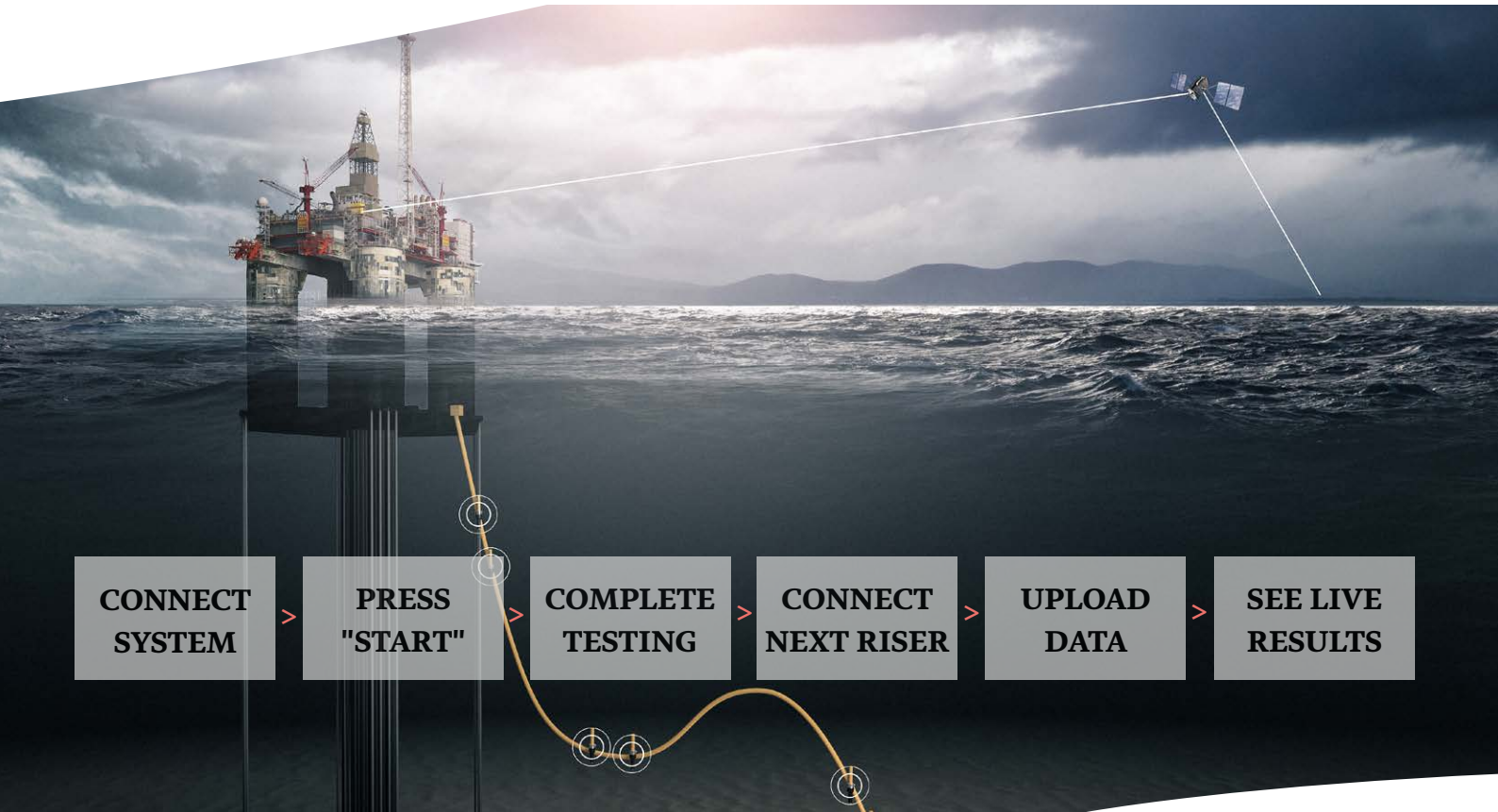


Portable Annulus Tester - PAT™

Automated and cost effective riser annulus testing



CONNECT
SYSTEM

PRESS
"START"

COMPLETE
TESTING

CONNECT
NEXT RISER

UPLOAD
DATA

SEE LIVE
RESULTS

The Portable Annulus Tester PAT™ is an “Engineer-in-a-box” solution that removes the requirement for mobilising dedicated third-party personnel offshore. The patent pending system is the first in the world to completely automate and digitise flexible riser annulus testing.

4Subsea offers products, services, and software related to flexible pipes, umbilicals, and ancillaries used for subsea operations, including **Annulus Vent Gas Monitoring (AMOS™)**, **Portable Annulus Tester (PAT™)**, **Integrity Management, Repair Clamps (EPIC™)**, **FlexTrack™**, **FlexIns™**, and **Untethered Pipe Inspection Tool (UPIT™)**. We specialise in **Flexible Pipe Engineering and Research**.

KEY BENEFITS

- Operators avoid mobilising third-party personnel offshore
- Enables significant cost reduction compared to traditional annulus test methods
- Measures key asset integrity parameters
- Results are digitised and presented immediately during testing
- Provides high degree of flexibility when planning test campaigns
- Uses standardised algorithm of data interpretation to ensure consistent results and history of integrity assessments
- Streamlines logistics with small, portable unit
- Includes 24/7 4Subsea expert advice service



PAT™ Portable Annulus Tester


Most oil companies operating flexible risers carry out annulus testing on an annual basis to ensure the integrity of the risers, and to detect anomalies early. The objectives of such tests are to verify the flexible riser outer sheath integrity and the functionality of the ventilation system. With the patent pending Portable Annulus Tester PAT™ we have eliminated the need to send two technicians or engineers offshore by helicopter to perform the tests.

The hand-carried test unit performs complete annulus tests, and algorithms are enabling the operator to take immediate action if anomalies are detected. The system presents results on the FlexTrack™ digital platform, accessible to both onshore and offshore personnel. Click [here](#) to watch a demo video.

Features

- Automated annulus free volume testing
- Detects outer sheath breaches
- Detects blocked vent ports
- Detects liquid filling in annulus
- Hardware and software fail-safe mechanisms
- Touchscreen interface
- Pre-programmed tests of site-specific risers
- On-site test configuration/modification possibilities
- Touch screen display with live test progress and results
- Easy download of measured data to FlexTrack™
- Portable, easy-to-use device

Specifications

- Dimensions: 624 x 490 x 302 mm
- Weight: 28 kg
- Power: 100 - 240V AC
- Power consumption: < 250 W
- Operating pressure range: -1 - 3 barg
- Design pressure: 20 barg
- Mechanical relief pressure: 3.5 barg
- Environmental protection rating: IP 65
- Ambient temperature range: $-10^{\circ}\text{C} \leq T_a \leq +40^{\circ}\text{C}$
- Process medium temperature: $-10 \dots +80^{\circ}\text{C}$
- Free volume measurement accuracy: $\pm 10\%$
- Flow measurement accuracy: $\pm 10\%$
- Component EX classification:  II 3G, Ex d e nA IIC T4 Gc



4Subsea is a leading provider of technology and services that help operators maintain production from subsea oil and gas fields and offshore wind farms. By combining expert engineering competence, practical experience and a digital service, we ensure the integrity of assets all the way from reservoir to deck.

We deliver solutions on a unique digital platform, aiming to be in the forefront of digitising oil, gas and offshore wind operations worldwide. The company was established in 2007, and clients include all the major oil and gas operators as well as the large suppliers of subsea equipment.

Click [here](#) to view a short video of our solutions and offerings.

4Subsea - Share ideas, move forward

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