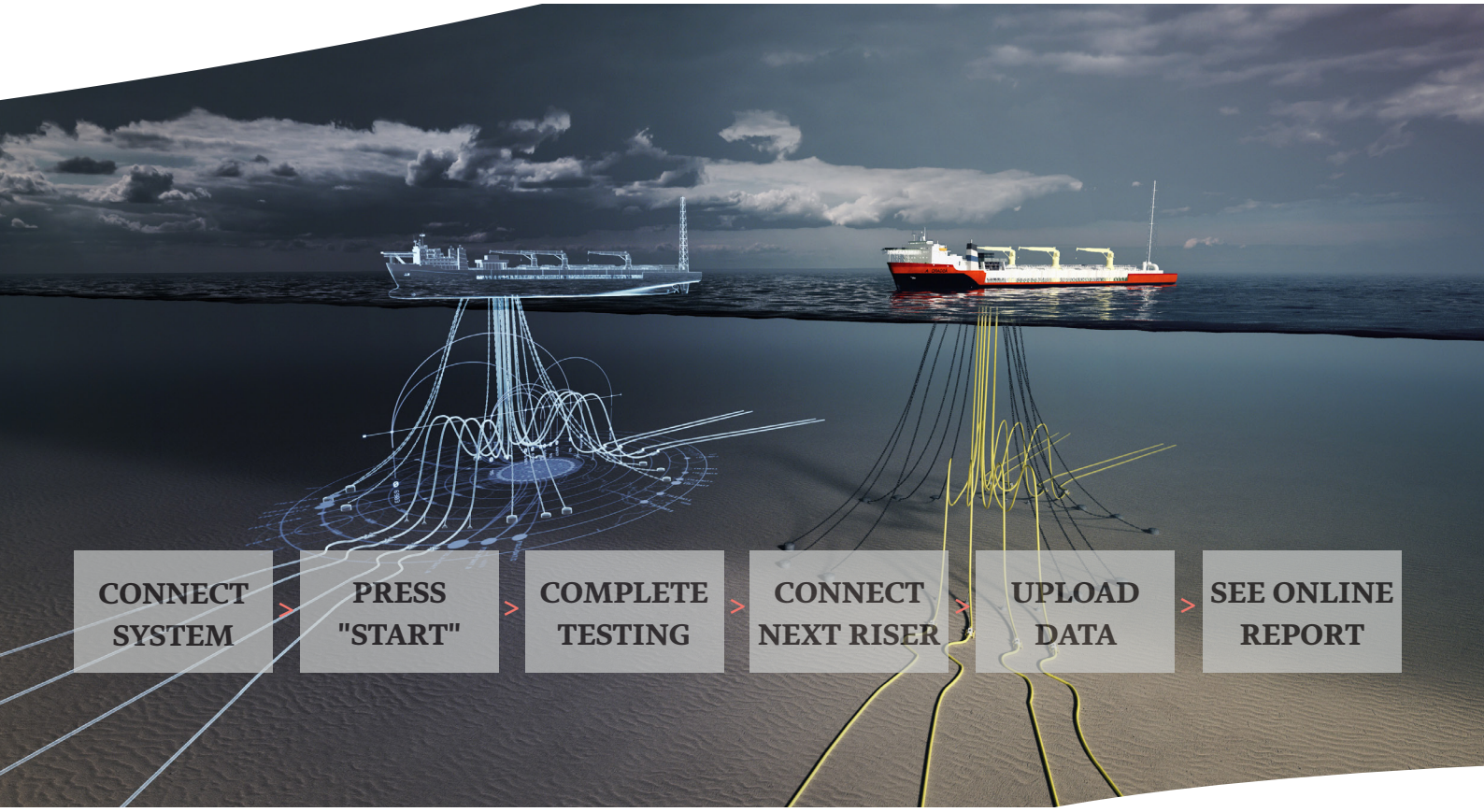
Portable Annulus Tester - PAT™

Automated and cost effective riser annulus testing

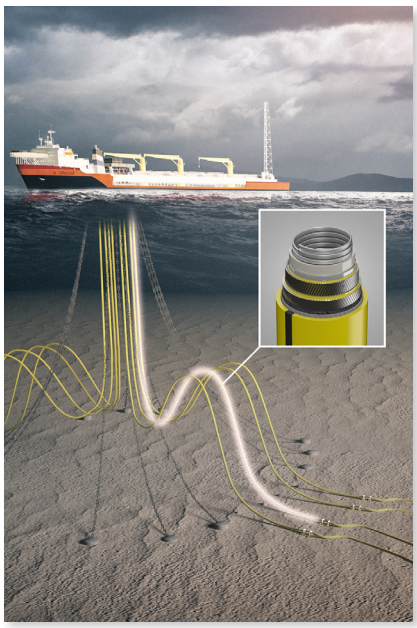


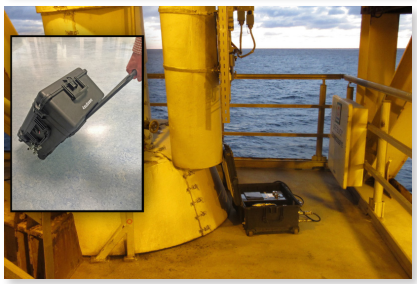
The Portable Annulus Tester PAT™ is an "Engineer-in-a-box" solution that removes the requirement for mobilising dedicated third-party personnel offshore. The patent pending system is the first in the world to completely automate and digitise flexible riser annulus testing.

4Subsea offers products, services, and software related to flexible pipes, umbilicals, and ancillaries used for subsea operations, including **Integrity Management on 4insight®, Annulus Vent Gas Monitoring (AMOS™), Portable Annulus Tester (PAT™), Repair Clamps (EPIC™), ValveTrack,** and **FlexShare™.** We also specialise in **Advanced Engineering** and **Research** for flexible pipes.

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. PAT™ can also function as a permanent monitoring device.

Features

- Automated annulus free volume testing (pressure and vacuum 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˚C ≤ Ta ≤ +40˚C
- Process medium temperature: -10 ... +80˚C
- Free volume measurement accuracy: ± 10%
- Flow measurement accuracy: ± 10%
- Component EX classification: Ex II 3G, Ex d e nA IIC T4 Gc

4subsea

4Subsea is a leading provider of technology and services that help operators optimise energy production from subsea oil & gas fields and offshore wind farms. We combine domain expertise with data analytics and digital services to maximise lifetime of assets, reduce operational cost and optimise future projects through data-driven design.

The company was established in 2007 and clients include the major energy operators as well as the large suppliers of subsea equipment. 4Subsea is headquartered in Asker, Norway with additional offices in Bergen, Kristiansand, Stavanger, Rio de Janeiro, and Aberdeen. 4Subsea is a company in the Subsea 7 Group. More info at www.4subsea.com.

4Subsea - Share ideas, move forward

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