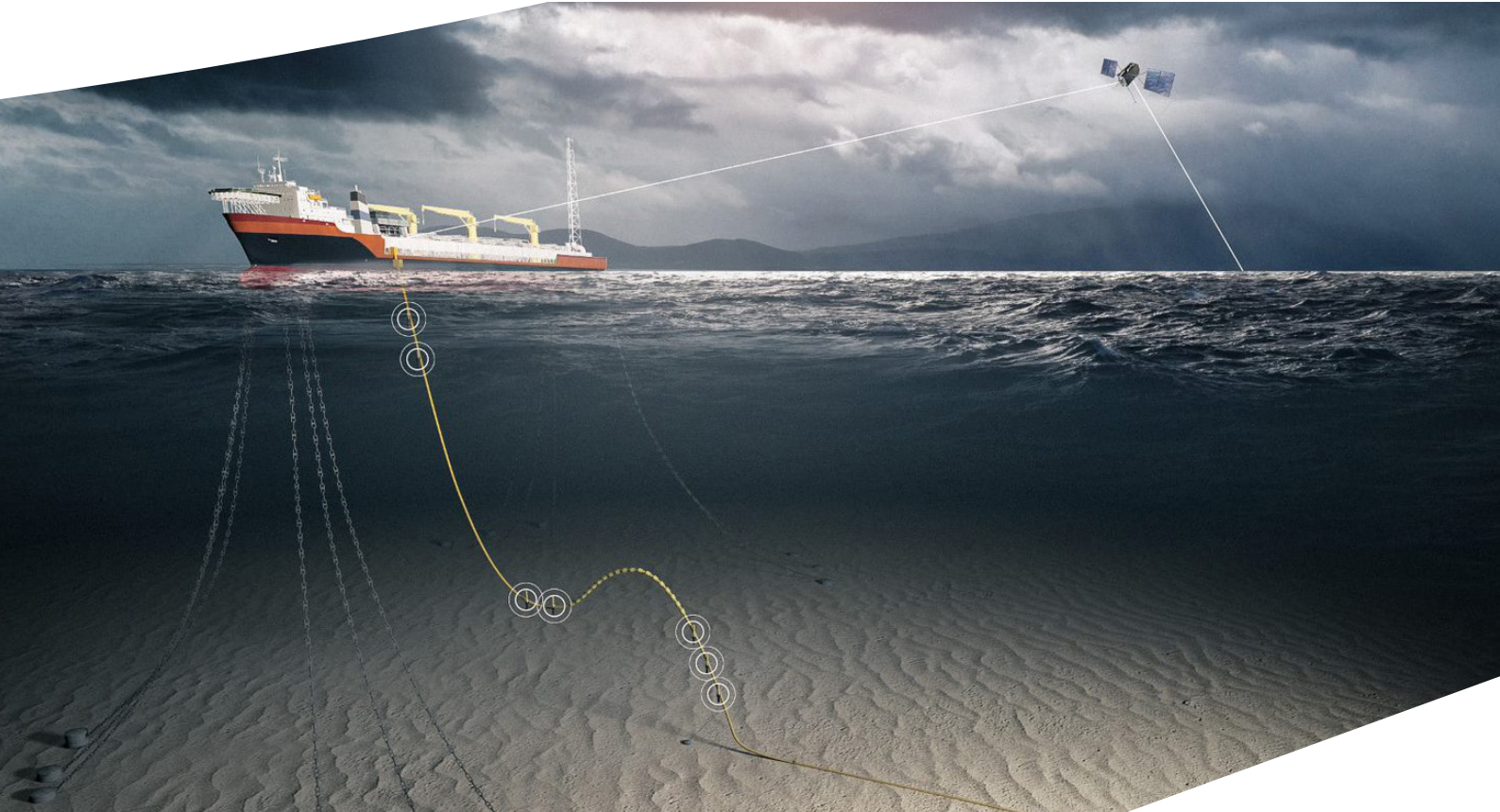


Annulus Vent Gas Monitoring

Reduce your flexible riser costs with AMOS™



AMOS™ provides safe and cost-effective operation of flexible risers. The system monitors the riser annulus diffusion rate, detecting early signs of riser failure, reducing risk and averting potential costly replacement of risers. The results are safe operations, improved decision making as well as reduced cost.

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**, **FlexTrack™**, and **FlexShare™**. We also specialise in **Advanced Engineering** and **Research** for flexible pipes.

KEY BENEFITS

- Reduces risk of production downtime
- Provides early warning in case of anomalies
- Performs free annulus volume measurements
- Provides real-time condition monitoring of riser
- Integrates to central control room
- Ensures installation without operational downtime
- Includes simple to use touch-screen interface
- Gives access to the 4Subsea experts' extensive experience and knowledge base
- Can be tailor-made to customer specifications



AMOS™ Annulus Vent Gas Monitoring

AMOS™ is a continuous annulus monitoring system for new and existing (retrofit) flexible risers. It uses a patent pending method to detect failures such as outer sheath damages and blocked ventilation ports early on, hence preventing costly replacements, shutdowns and accidents. AMOS™ also provides the option of automated annulus free volume testing as well as automated nitrogen annulus testing. 4Subsea has installed multiple AMOS™ units for major oil and gas operators since the system became commercially available in 2013.

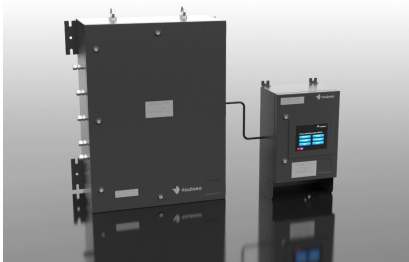
Application of AMOS™

- Failure mode detection
- Life extension studies
- Operational data reviews
- Integrity evaluations
- Annulus test reports
- Ventilation port capacity tests
- Post-installation testing
- Risk-mitigating actions



Specifications

- Stainless steel (SS 316) or glass reinforced plastic enclosure
- Control module dimensions for standalone system (SS 316): 400x300x200mm, 15 kg
- Instrument module dimensions (SS 316): 800x600x300, 65 kg
- Design flow rate capacity in operation: 0 - 300 Ndm³ / hr
- Flow rate capacity through relief valve: ~9000 Ndm³ / hr @ 1.7 barg
- Operating pressure range -1 - 3.5 barg
- Design pressure: 20 barg
- Mechanical relief valve release pressure: 1.0 - 3.5 barg
- Environmental protection rating: IP 65
- Ambient temperature range: -10°C ≤ Ta ≤ +40°C
- Minimum system accuracy: ± 10%
- Power rating standalone system: 100 VAC ... 240 VAC, 300W, 45 Hz ... 65 Hz
- Storage capacity for several years of data sampling
- Ex rating instrument module:
 - ⚠ II 2 G Ex db e mb IIC T4, -10°C ≤ Ta ≤ +55°C
- Ex rating control module:
 - ⚠ II 3 G Ex d e nA mb nC IIC T4, -10°C ≤ Ta ≤ +40°C



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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