Flexible Pipe Engineering
Your expert partner for advanced subsea engineering

4Subsea has the knowledge and tools to perform the most challenging engineering tasks. Moreover, we continuously strive to simplify complexity and to develop optimal, tailormade solutions together with our clients. We aim to be the leading global provider of independent services on flexible pipes.

4Subsea offers a wide range of engineering services related to risers and flowlines, umbilicals and power cables. We cover all life cycle phases, starting with technology development and conceptual design through FEED and detailed design, procurement, construction, installation, operation, and decommissioning.

KEY DELIVERABLES
• A comprehensive, cost-effective service package ensuring safe operations of subsea systems and reduced life-cycle cost
• Advanced system analysis of riser systems, umbilicals, and cables
• Cross section analysis of riser systems and umbilicals
• Fully coupled response analysis of risers and mooring systems
• Concept and FEED studies
• Brownfield studies and service life assessments
• Lifetime extension assessments
• Seabed stability and upheaval buckling analysis
4Subsea is a Norwegian technology company specialised in production riser systems and subsea well systems. We deliver solutions to maintain production from subsea oil and gas fields, enabling cost reduction and increased service life of existing installations. We also provide our specialist services within offshore wind turbines and wave power systems.

4Subsea combines expert knowledge and practical experience with software and instrumentation to optimise operation of production risers and subsea wells, aiming to be in the forefront of digitising the oil and gas industry.

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. 4Subsea has offices in Oslo, Bergen, Kristiansand, and Trondheim.

**4Subsea - Share ideas, move forward**

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**Advanced Engineering Services**
4Subsea has the capability and available tools to provide the complete range of engineering and analyses for flexible pipe systems. We offer the unique combination of advanced analyses using state-of-the-art tools with hands-on knowledge and experience, allowing us to simplify complex challenges and find efficient solutions.

We use our tools and competence to provide expert advice within integrity management projects, e.g. establishing a full inspection, testing and monitoring plan for flexible pipes, umbilicals, and subsea assets.

**Enabling Operations**
- Advisory services – using our unique system understanding to work with our clients to find the best solutions
- Technology development and qualification
- Advanced global and local flexible pipe and umbilical analyses
- Research and Development projects towards integrity assessment

**System Engineering**
- Global analysis of riser, umbilical, and cable systems
- Concept and FEED studies
- Brownfield studies and reanalysis assessments
- Service life assessments and fatigue analysis
- Installation and lifting analysis
- Tie-In and In-place
- Upheaval buckling analysis
- Subsea routing

**Local Analysis**
- Flexible riser and umbilical local analysis including:
  - Impact
  - Over bending
  - Buckling
  - Carcass collapse
  - Bore blockage
  - Thermal induced axial load
- Flexible pipe diffusion analysis