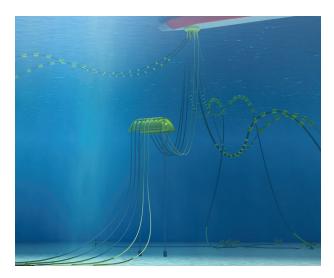
# SUBSEA UMBILICALS

Subsea Umbilicals for power & control, for both static & dynamic applications





#### **BACKGROUND**

Umbilicals supply power, data, hydraulic and other fluids to ensure a reliable control of subsea well, oil extraction and/or power. Designed to work within harsh environment and sustain the corrosive & dynamic stresses involved for many years, umbilicals are installed in shallow to deep water.

BARDOT Group has more than 10 years of Subsea SURF project experience and has achieved over 100 projects.

BARDOT Group has been delivering ancillaries from the top with bending stiffener, ballast and buoyancy module along the umbilicals.



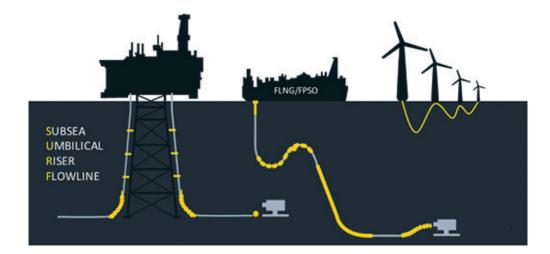
#### **FULL SURF PACKAGE**

BARDOT Group offers a complete package of umbilical inclusive of:

- Conceptual analysis
- Umbilical specification based on RFQ
- On bottom Stability analysis
- Static and Dynamic Analysis
- Fatigue analysis of the umbilical
- Specification and Purchase of the equipment
- Provision of necessary ancillaries
- · Full-scale and qualification testing
- On site delivery
- Installation

BARDOT Group offers full in-house engineering and testing capacities with the following software suite:

- STABLE-LINE (DNV): Stability Analysis
- DEEPLINES: (Principia-IFP) Static, Dynamic, Installation analysis
- ANSYS: Structural Analysis (ANSYS)
- AQWA: Hydrodynamic (ANSYS)







# SUBSEA UMBILICALS



#### QUALIFICATION & TESTING

BARDOT Group has developed its own in-house qualification and testing facilities.

A dedicated team will define, prepare and execute material and equipment tests to qualify selected solutions.

Qualification of existing equipment for international standards can also be performed in our labs.



### PROCUREMENT & INSTALLATION

BARDOT Group delivers the Umbilical package on site, ready for installation. We also prepare the installation analysis and procedure of your subsea solution.

A custom made Installation Procedure is provided for each Umbilical package project to ensure the proper assembly of your equipment including ancillaries.

Our engineers are also available for training and on-site installation monitoring, with the sole purpose of providing maximum support to our client.

### • FEATURES

Custom made design

Designed to fit your requirements of water depth, temperature, flow rate, and to accommodate the hydrodynamic stresses of your operation environment.

Long-lasting

Materials used have been selected for their good behaviour over time. Our design conservatively considers end of life properties, and guarantee that no maintenance will be necessary

**Light Structure** 

The low weight design facilitates installation.

**One Stop Shopping** 

The modular design allows quick on-board installation and simplifies interface issues.

Modular strapping systems

Our wide range of strapping systems provides adapted solutions to fit with your environmental loads and project life.

Compliance to standards

Designed with respect of international offshore standards, especially API17-L1 and API17-L2.

