

A photograph of an offshore wind farm. In the foreground, a large wind turbine tower is visible, painted yellow and grey. In the background, another turbine is visible on the horizon. The sky is blue with some clouds. The water is dark blue.

# FIELD-PROVEN TECHNOLOGIES *for the* OFFSHORE WIND SECTOR

---



**BALMORAL COMTEC**

a BALMORAL GROUP company



**Balmoral has conquered many of the offshore energy industry's greatest challenges in developing high technology buoyancy, protection and insulation product solutions.**

For over four decades the company has developed subsea solutions and is now acknowledged as a highly experienced member of the offshore wind supply chain.

Offering project support that includes 3D modelling, hydrodynamic engineering, finite element analysis, as well as laboratory and testing services, the company is uniquely positioned in the supply chain.

Balmoral FIBREFLEX®  
cable protection system

J- / I-tube solutions

Balmoral HEXDEFENCE®  
scour protection

Subsurface buoyancy

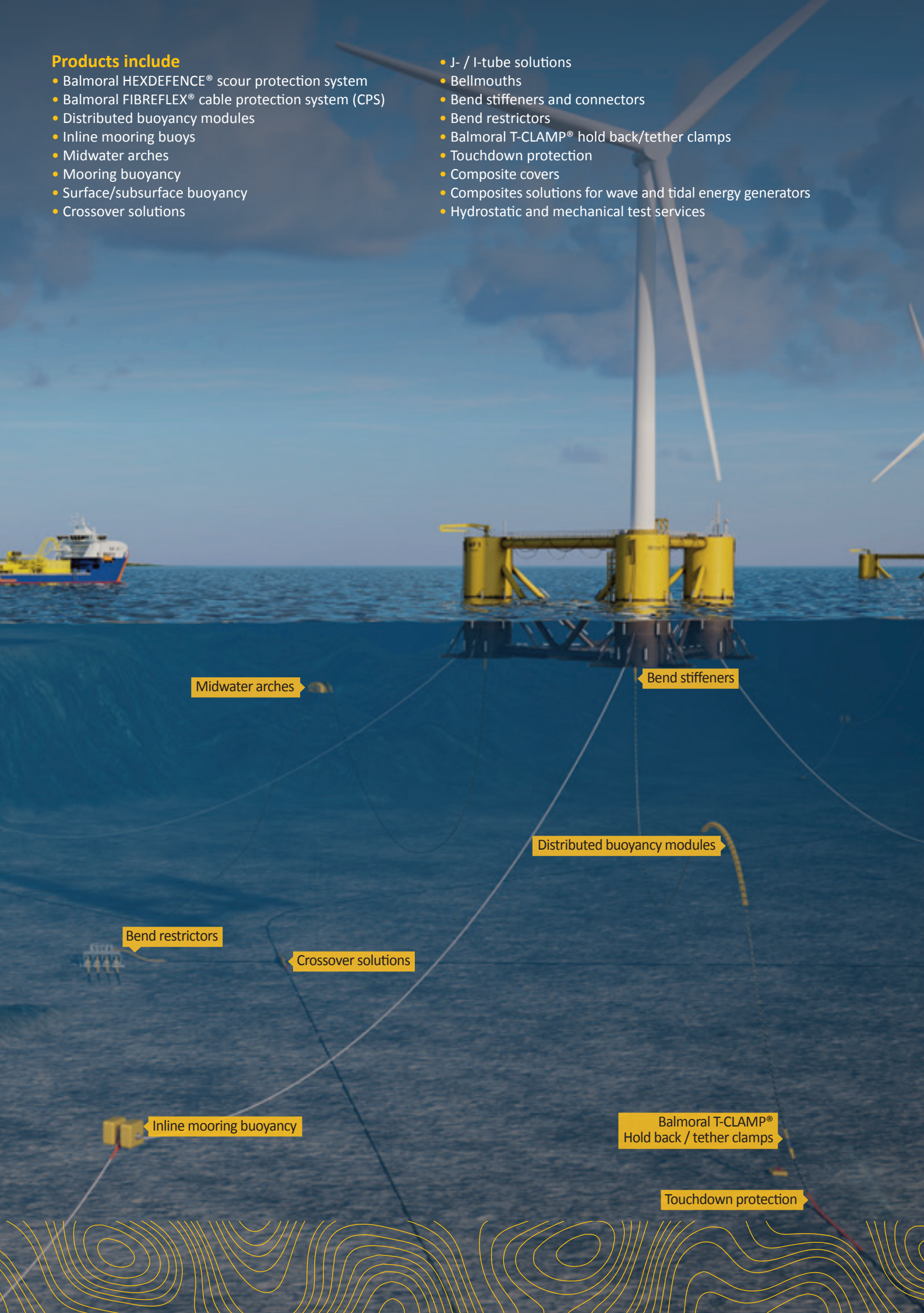


Scan for more



## Products include

- Balmoral HEXDEFENCE® scour protection system
- Balmoral FIBREFLEX® cable protection system (CPS)
- Distributed buoyancy modules
- Inline mooring buoys
- Midwater arches
- Mooring buoyancy
- Surface/subsurface buoyancy
- Crossover solutions
- J- / I-tube solutions
- Bellmouths
- Bend stiffeners and connectors
- Bend restrictors
- Balmoral T-CLAMP® hold back/tether clamps
- Touchdown protection
- Composite covers
- Composites solutions for wave and tidal energy generators
- Hydrostatic and mechanical test services



## Floating wind solutions

Balmoral provides engineered buoyancy and protection product solutions for the harshest subsea environments in the world.

The experience gained in consistently delivering the highest quality products has been transferred to the offshore wind market where patented technologies are exceptionally well suited to floating offshore wind installations.

These products, which form the core of the business, are tried, tested and supported by an extensive evidence-based track record and industry-leading installation times, vessel deployment optimisation and total cost of ownership.

## Fixed wind solutions

Balmoral HexDefence is an award-winning, globally patented solution that combats seabed scouring around fixed wind turbine structures, helping to reduce costs, risks and carbon footprint associated with fixed offshore wind turbine operations.

The company offers a range of cable protection systems (CPS) for fixed offshore wind inter array and export cables. Balmoral's patented FibreFlex® CPS solution predominantly comprises standard dynamic units (SDU's) specifically designed for the active environment within the dynamic section of the cable installation.

Solutions are provided for varying apertures on monopile installations, as well as J-tube and I-tube options for jacket structures.

## Balmoral Subsea Test Centre

### Hydrostatic testing

The Balmoral Subsea Test Centre offers 23 test vessels most of which allow tests to be monitored remotely.

Ranging from 1010mm (3'3") to 10,400mm (35'6") in length, with internal diameters of 360mm (14") to 2500mm (98") and pressures to 700bar, allowing us to perform testing to ensure subsea components are qualified for use in deepwater environments reaching depths of 7000msw.

### Test rig

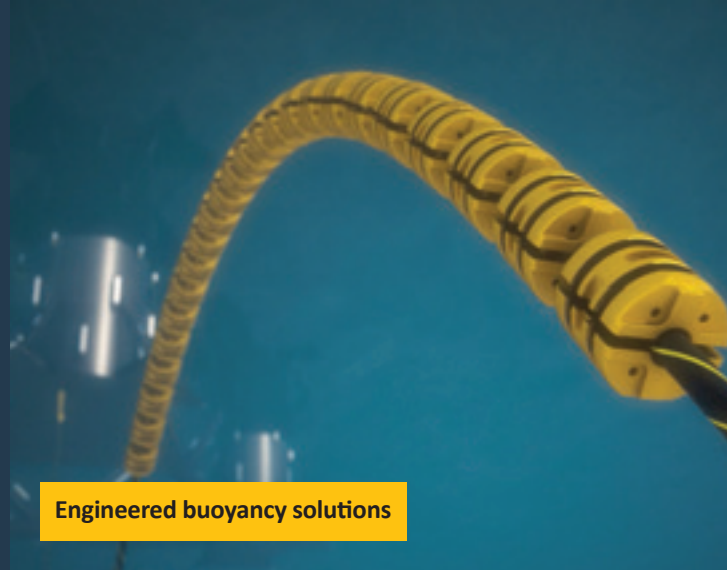
A fully comprehensive test rig for offshore wind-related products comprises winches, tower, monopile and J-tube entry options designed to simulate subsea interfaces and varying installation parameters.

Routine testing includes bending and axial stiffness, load, curvature, axial, operational and safety performance.

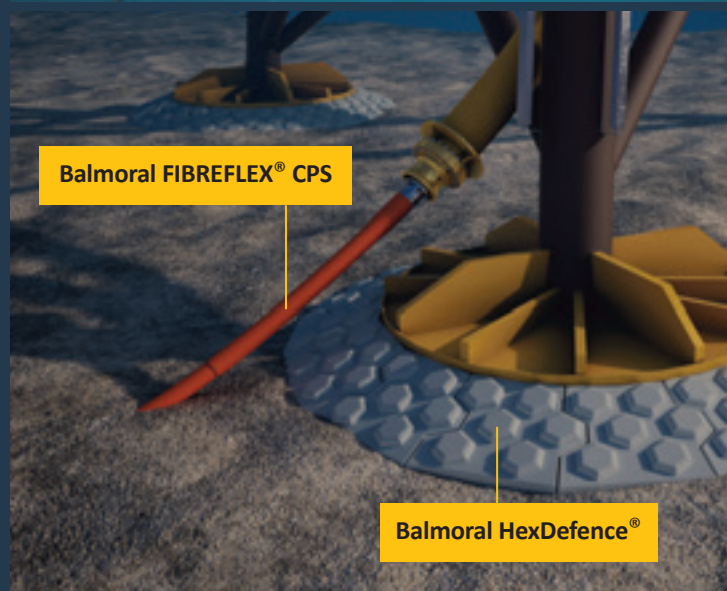
T +44 (0)1224 859000

E [surety@balmoral.co.uk](mailto:surety@balmoral.co.uk)

[www.balmoraloffshore.com](http://www.balmoraloffshore.com)



Engineered buoyancy solutions



Balmoral FIBREFLEX® CPS

Balmoral HexDefence®



Balmoral test rig

In-house test facilities

