

SUBSEA CABLE PROTECTION PRODUCTS



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The Blue Ocean Projects range of Cable Protectors is aimed primarily at protecting subsea power cables, for instance at offshore wind or tidal energy foundations, in shallow water and at landfalls. Consisting of a series of interlocking half shell modules to form a vertebrae bend restrictor around the cable, the BOP Cable Protectors are normally manufactured from ductile iron to provide strength, impact resistance and seabed stability, whilst ensuring that the cable minimum bend radius is respected. A range of end fittings, including I-tube latches, flanges, bellmouths and cable clamps are also available.

When used as a bend restrictor, the BOP Cable Protector locks out on two opposed surfaces. This has three significant benefits

when compared to conventional articulated split pipe:

- Significantly increased strength in bending. Tests on 115mm and 130mm bore ductile iron castings have demonstrated the capability to withstand 50kN.m bending moment without permanent deformation
- Greater articulation angle can be achieved at each joint, enabling tighter lock out/minimum bend radii to be achieved for a given pitch length of cable protector
- Improved reliability and repeatability of lock out bend radius

In addition, the range has other benefits:

- Smooth bore. The internal bore of the BOP Cable Protectors is as smooth as possible to facilitate longitudinal cable movement where required, for instance for cable pull-in or cable tension relief
- All bolted assembly, with identical top and bottom castings for ease and simplicity of assembly whether onshore, on deck or subsea by divers
- Available in two versions: Multiplane and Uniplane

The products may be used in many different ways, for instance deployed on the cable during cable installation, fitted to the end of I or J tube as a duct, or retrofitted - please contact us to discuss your specific application.

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Multiplane Cable Protector

The Multiplane Cable Protector has a ball and socket (shoulder) joint between each interlocking module, providing a more conventional cable bend restrictor than the Uniplane design. The Multiplane Cable Protector allows the cable to move in any direction up to the lock out minimum cable bend radius.



Uniplane Cable Protector

The Uniplane Cable Protector has a hinge (elbow) joint between each interlocking module enabling movement in one direction only up to the lock out minimum bend radius. This can be used such that the allowable movement is in the vertical plane only, so that the cable protector assembly can follow the seabed profile, while preventing unwanted cable movement or vibration from wave or current action in the horizontal plane.

Specifications

BOP Cable Protectors can be supplied self coloured, or painted, or low friction nylon dip coated (for use as a duct), or hot dip zinc galvanized. Socket head cap screws are used as fixing bolts between each pair.

Example Sizes available in ductile iron include:

- 100mm diameter bore, 400mm pitch, 2000mm lock out bend radius (typ 39kg/m in air, 9mm wall thickness)
- 115mm diameter bore, 400mm pitch, 2000mm lock out bend radius (typ 42kg/m in air, 9mm wall thickness)
- 130mm diameter bore, 400mm pitch, 2000mm lock out bend radius (typ 52kg/m in air, 9mm wall thickness)
- 145mm diameter bore, 400mm pitch, 2500mm lock out bend radius (typ 65kg/m in air, 9mm wall thickness)
- 160mm diameter bore, 400mm pitch, 2500mm lock out bend radius (typ 70kg/m in air, 9mm wall thickness)
- 175mm diameter bore, 400mm pitch, 2500mm lock out bend radius (typ 76.5kg/m in air, 9mm wall thickness)
- 250mm diameter bore, 350mm pitch, 2500mm lock out bend radius (typ 137kg/m in air, 12mm wall thickness - intended for use as a duct)

(Please contact us for further technical details or for other sizes and specifications)

Latches, Adaptors & End Fittings

A range of end fittings to suit the Cable Protector range is available. These include I/J tube connectors and latches, flange end fittings, bellmouths, cable clamps and centralisers. Please contact us to discuss your specific application.

Male-to-male and female-to-female adaptors as well as Uniplane-to-Multiplane adaptors are available.



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