



## INSTALLATION GUIDE OFFSHORE CABLES

Cables described in this section should not be installed at temperatures below minus 15°C, unless specified by the cable manufacturer, and where the cooling air temperature exceeds 75°C. The cables meet the relevant IEE, IEEE and IEC requirements for cables installed on decks, exposed to weather, in damp or wet situations, in machinery compartments and where water condensation or harmful vapours (including oil vapour) may be present. The sheathing compounds will withstand normal handling, installation and service, but in areas where mechanical stress is envisaged unarmoured cables should be fitted in pipes or conduit or trunking. Alternatively, armoured and sheathed cables should be used. To protect cables from avoidable risks of mechanical damage, and routed away from heat sources such as boilers, hot pipes and resistors. In addition cable runs should be selected to avoid action from condensed moisture or drips. Cables should not be installed across expansion joints but where this is unavoidable a proportioned loop of cable should be arranged, suitably supported and having an internal radius not less than twelve times its diameter. For services with duplicate supplies, the cables should follow different paths, and be separated as far apart as is reasonably practical. Wire and cable for mains and emergency power, lighting, internal communications or signalling should be routed away from galleys, machinery spaces, and other high fire risk areas except when supplying equipment in those places. High risk areas of mechanical damage such as storage spaces, cables should be protected by steel casing, trunking or conduit if the structure or attached parts do not afford sufficient protection, even to armoured cables. Any metal casing used should be sufficiently protected against corrosion. All cable supports and accessories should be robust and constructed from corrosion resistant material or suitably treated or resist corrosion. Metals or alloys with low melting points (eg aluminium) should not be used. Cables passing through watertight decks or bulkheads should be provided with deck tubes, watertight glands, multitransit assemblies or fire retardant packed boxes as appropriate to meet the requirements of the Authority approving the installation.

Where cables pass through non watertight bulkheads, beams or other steel structure, the holes should be glanded or bushed with non corroding materials to prevent damage to both cables and structure.



The means of fixing conductors and terminals should be capable of withstanding the thermal and dynamic effects of short circuits. When single core cables, with a current rating greater than 250A are installed close to a steel bulkhead, the clearance between cable and metal surface should be at least 50mm, unless the cables belonging to the same AC circuit are installed in trefoil. In the interests of safety and circuit reliability it is assumed that installers will adhere to the IEE regulations and recommendations for the electrical equipment of ships, and of mobile and fixed offshore installations, and any other relevant standards or Code of Practice where applicable. Particular attention should be paid to recommendations concerning cables with regard to their effect on navigational and radio equipment.

### **MINIMUM BENDING RADIUS**

Ideally cables should be bent as little as possible and never to radii less than the following:

#### **Cables to BS6883 and BS7917**

<u>Type of Cable</u>	<u>Minimum Bending Radius</u>
Instrumentation	8 x diameter
<u>Power and control up to 3.3/3.3kV :</u>	
Armoured up to 25mm cable diameter	4 x diameter
Armoured over 25mm cable diameter	6 x diameter
Unarmoured up to 10mm cable diameter	3 x diameter
Unarmoured over 10mm up to 25mm cable diameter	4 x diameter
Unarmoured over 25mm cable diameter	6 x diameter
<u>Power cable 3.8/6.6kV and above</u>	
Unscreened	12 x diameter
Screened – single core	20 x diameter
Screened – 3 core	15 x diameter

\*All fire survival (FS) cables to BS7917 - 8 x diameter.



### **Cables to NEK606 and IEC60092**

<u>Type of Cable</u>	<u>Minimum Bending Radius</u>
Instrumentation	8 x diameter
Power and control up to 3.3/3.3kV	
Unarmoured	4 x diameter
Armoured	4 x diameter

### **Cables to IEEE 45**

<u>Type of Cable</u>	<u>Minimum Bending Radius</u>
Instrumentation	8 x diameter
Power and control up to 3.3/3.3kV	
Unarmoured	4 x diameter
Armoured	6 x diameter

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