

Geo-Sense Fiber Optic Cable Specification

Armored Cable

- Double wrap torque balanced galvanized steel wire(~20 first layer ~16 second layer) with bitumen+wrapping
- 50kN $\pm$ 10kN minimum breaking strength
- Outer Sheath HDPE
- Separate layer between the two jackets(tape)

Bend Radius

- The winch that MBARI currently uses and has the capacity for 1km of cable is a MacArtney winch(Model No.*****) with a drum radius of 0.3 meters

Weight in Sea water

- .25 - .5 $\frac{kg}{m}$ (negatively buoyant)

Fiber Optics

- Fibers need to be encased in a stainless steel k-tube Sheathed in HDPE
- Optical and mechanical specifications for the optical fiber: 2-4 fibers (Single Mode)
 - Optical specifications for fiber and optical connections in Onyx Datasheet (see below). The type of the fiber is specified (SMF-28e) as well minimum performance rating (e); operating wavelength (1550 nm) and maximum acceptable losses (18 dB per fiber) and attenuation (0.2 dB.km-1 at 1550 nm)
 - The optical fiber needs to be in the tight buffer configuration, (presumably 245 μ m buffer) to ensure good mechanical coupling of the optical fiber(s) to the fiber bundle assembly
 - Minimum of four (4) SMF-28e fibers (or better, SMF-28e+, or SMF-28 Ultra), per fiber bundle assembly
- Fibers will run down the core of the cable(not stranded)
- Fibers are to be compensated with gel for hydrostatic resistance(SWD=1000m)

Other Specifications

- Fiber breaking cable load ~20kN to 30kN
- Provide pull test documentation for ultimate breaking strength, fiber breaking cable load, and elongation at nominal operating tensile load(NOTS)
- OD of Cable 16mm - 20mm
- Excess fiber in tube 0.1 - 0.3%
- Outer jacket marked at one meter increments as follows
<Cable ID ><Product Order No> <Optical fiber type and quantity> <Vendor>
<year>, <meter>
- Application: Sea floor fiber optic strain cable
- Deployment/Recovery will be a dynamic condition
- Length 1000M