

MOOS Mooring Snubber Connector and Penetrator Requirements

FINAL

Rev. 1.7 31MAY02 MRC Changed depth rating to 150 meters. Modified mechanical assembly drawing reference.

Rev. 2.0 12DEC03 MRC Modified for second build.

Rev. 2.1 05DEC07 MRC Modified mechanical assembly drawing reference for build. No more connectors on pigtails. Added serial number marking requirement.

1.1 Connector mechanical specification.

1.1.1 Build to MBARI mechanical drawing 1001495DWG-2.0 and electrical/optical schematic 1001497SCH-2.0

1.1.2 Quantity required

1.1.2.1 See purchase order.

1.1.3 Electrical elements:

Connector wiring as shown in MBARI schematic 101497. 20AWG minimum for all electrical contacts.

The electrical conductors and contacts will be used at a working voltage between conductors, or between conductors and seawater, of up to 425 Volts DC. At this voltage, the maximum electrical stress present at any point in the cable insulation system shall be less than or equal to 2.0 kV/mm (51 volts/mil). The insulation system used must be suitable for continuous high D.C. electric field stress.

Insulation Resistance. The Insulation Resistance of each conductor in the as-built cable/connector assembly shall be a minimum of 3,000 Megohms measured at the working voltage for each conductor. The resistance shall be measured between the test conductor, and the other conductor(s) plus the cable armor plus any other metallic cable elements, tied together.

1.1.4 Optical elements

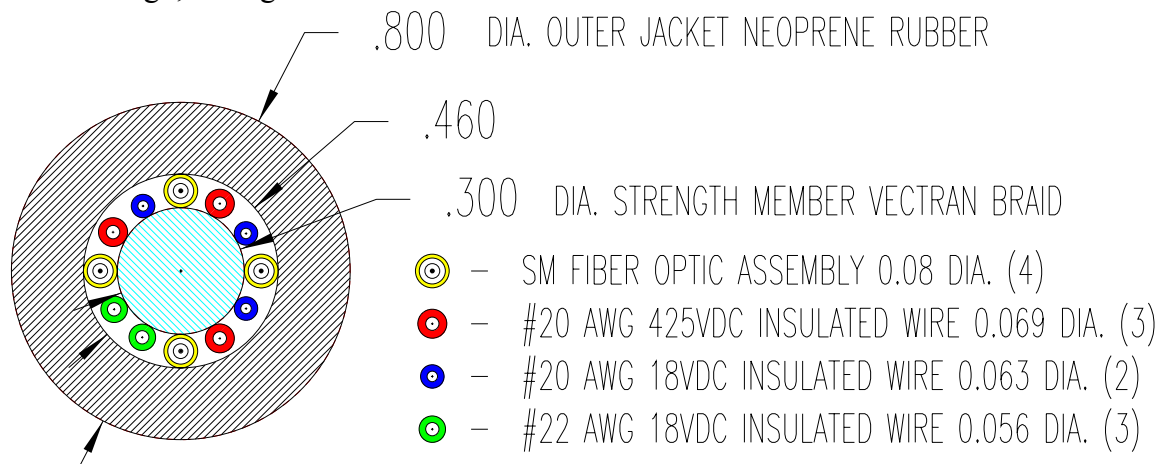
Four – single mode optical contacts in specific connectors as shown in MBARI schematic 101497, SMF-28 or equivalent.

Fiber Proof Test. Individual fibers will be proof tested at the time of manufacture to a minimum of 150kpsi.

Fiber Identification. Fibers or their over-jacketing shall be color coded or otherwise indelibly marked at least every meter for identification.

Wavelength - 1310 and 1550 nm, connector and penetrator optical finishing should be consistent with best practice. The CF cable uses 5.0 micron core diameter so standard optical measuring techniques using 10 micron core mating fibers produce inaccurate results. For this reason there is no specified requirement for optical attenuation. Previous connector builds have had attenuation values of around –3dB when measured with 10 micron mating fiber.

1.1.5 Cable design, see figure 1.



67% NEOPRENE AREA

COILCORD ELECTRO-OPTICAL CABLE

REV. 1 – WALTER PAUL, WHOI 2/14/02 drawn mrc 3/5/02

Figure 1. Customer furnished cable design (preliminary).

- 1.1.6 Configuration, see MBARI mechanical drawing 1001495DWG-2.0. NOTE: Penetrator must fit through opening for FCR connector at opposite end of upper and lower cable assembly to allow complete system assembly.
- 1.1.7 Working pressure, 150 meters sea water (no open face pressure rating required).
- 1.1.8 Temperature rating, 0-25 degrees C.
- 1.1.9 Connector materials, SST or Titanium (preferred).
- 1.1.10 Environmental, connector must operate while submerged for three years in seawater to 150 meters depth.
- 1.1.11 CF cable is to be terminated in CCP and FCR connector elements with strength termination to 500lbs. cyclic tension. Cable strength member is Vectran.
- 1.1.12 Cable bend limiter at connectors is required.
- 1.1.13 Each completed connector/cable assembly must be permanently marked with a unique serial number that will remain legible for two years in a typical marine environment.

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