MULTI LOOSE TUBE UNDER WATER CABLE

Application
This cable exhibits excellent tensile strength and side press retardancy, having excellent mechanical and environmental performance. Featured by its thin diameter and light weight, it is best suited for underwater condition, junction communication system and long haul communication system.

Description
The cable consists of 5 to 36 fibers containing tubes or fillers stranded in up to 3 layers around a central strength member and bound under a PE jacket. Each tube contains 4 -12 fibers. Solid or stranded steel wire coated with polyethylene is usually used as central strength member. Fiber glass reinforced plastics (FRP) will be used as central strength member if non metallic construction is required. Either aramid yarn or fiber glass is wound around the tube to provide physical protection and tensile strength. The cable incorporates the first layer of PE inner jacket, a layer of corrugated steel tape armour, the second layer of PE inner jacket, a layer of steel wire armour and PE outer jacket. An optional Aluminium moisture tape can be incorporated under the jacket for water blocking and shielding purpose. An optional ripcord is located under the jacket to facilitate jacket removal.

Construction

Physical Properties

<table>
<thead>
<tr>
<th>Fiber Count</th>
<th>Nominal Weight (kg/km)</th>
<th>Nominal Weight (lb/kft)</th>
<th>Nominal Outer Diameter (mm)</th>
<th>Nominal Outer Diameter (in)</th>
<th>Maximum Pulling/Tensile Load</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Installation</td>
</tr>
<tr>
<td>2-24</td>
<td>650.0</td>
<td>436.24</td>
<td>20.3</td>
<td>0.798</td>
<td>8000/1800</td>
</tr>
<tr>
<td>26-36</td>
<td>716.0</td>
<td>480.54</td>
<td>21.6</td>
<td>0.849</td>
<td>8000/1800</td>
</tr>
<tr>
<td>38-72</td>
<td>1008.0</td>
<td>676.51</td>
<td>25.2</td>
<td>0.991</td>
<td>8000/1800</td>
</tr>
</tbody>
</table>
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**Mechanical Properties**

- **Minimum Bending Radius:**
  - Under installation: 20×OD
  - During operation: 0×OD for unarmoured cables; 20×OD for armoured cables.
- **Temperature Range:**
  - Operating Temperature Range: -40°C (4°F) to +70°C (+158°F)
  - Storage Temperature Range: -50°C (-58°F) to +70°C (+158°F)
- **Maximum Compressive Load:**
  - 4000N for unarmoured cables;
  - 6000N for armoured cables
- **Repeated Impact:** 4.4 N.m (J)
- **Twist (Torsion):** 180×10 times, 125×OD
- **Cyclic Flexing:**
  - 20×OD for armoured cables.
  - 100 cycles for unarmoured cables.
- **Crush Resistance:** 220N/cm (125lb/in)

**Fiber Compliance**

- **Temperature Cycling:** IEC60794-1-2-F2
- **Tensile Strength:** IEC60794-1-2-E1A
- **Crush:** IEC60794-1-2-E3
- **Impact:** IEC60794-1-2-E4
- **Repeated Bending:** IEC60794-1-2-E6
- **Torsion:** IEC60794-1-2-E7
- **Kink:** IEC60794-1-2-E10
- **Cable Bend:** IEC60794-1-2-E11
- **Cool Bend:** IEC60794-1-2-E11

**Safety Compliance**

- **General Purpose Grade**
  - Flammability Test: OFN(UL1581)
- **Riser Grade**
  - Flammability Test: OFNR/FT4 (UL1666)
- **Plenum Grade**
  - Flammability Test: OFNP/FT6(UL 910)
- **FRPVC Grade**
  - Flammability Test: IEC60332-1
- **LSZH Grade**
  - Halogen Content Test: IEC 60754-1
  - Acidity Test: IEC 60754; Smoke Emission Test: IEC61034-1/2
- **LSFROH Grade**
  - Halogen Content Test: IEC 60754-1
  - Acidity Test: IEC 60754; Smoke Emission Test: IEC61034-1/2
  - Flammability Test: IEC60332-1 & IEC 60332-3C/A
- **FR Grade**
  - Fire Resistance Test: IEC 60331 / BS 6387 CWZ

**Standard Compliance**

- **Telcordia GR-20**
- **RUS 7 CFR 1755.900 (REA PE-90)**
- **ICEA S 87-640**

**Features**

- Loose tube jelly filled for superior fiber protection
- Colored coded fibers and binders for quick and easy identification during installation.
- High tensile strength design
- Superior mechanical and environmental performance
- Rugged and lightweight design
- Durable construction to withstand high water pressure
- Sufficient waterproof to withstand water penetration