subsea ROV umbilical, AUV tether & sonar tow cable

# FST2178 Synthetic ROV Umbilical

## FST2178 Synthetic-Armored ROV Umbilical

DNV-ST-E402 / ISO 13628-5 · 3.0/3.3 kV · Subsea rov umbilical, auv tether & sonar tow




DNV-ST-E402 / ISO 13628-5 | 3.0/3.3 kV (-40 to +80 °C) | Subsea / Marine Outer Protective She

## Application

FST2178 Synthetic-Armored ROV Umbilical featuring single-mode / multi-mode optical unit and subsea / marine outer protective sheath (DNV-ST-E402 / ISO 13628-5, 3.0/3.3 kV, -40 to +80 °C, min. bend radius 8 × OD).

**Typical uses:** Work-Class & Observation ROV Umbilicals and TMS Tethers, Offshore Aquaculture Net Cleaners & Subsea Cage Inspection, AUV, Ocean Glider & Expendable Spool-Payoff Micro-Tethers, USV Towed Sonar Arrays, Seabed Crawlers & Subsea Trenchers

## Construction






Cross-section, not to scale

1. Single-Mode / Multi-Mode Optical Unit
2. Power & Control Copper Conductors
3. Aramid / LCP Braided Strength Member
4. Subsea / Marine Outer Protective Sheath

## Technical data

Typical values

| | | | |
|---|---|---|---|
| **Rated voltage / operating system** | 3.0/3.3 kV (DNV-ST-E402 FST2178 Synthetic-Armored Deepwater ROV Umbilical Standard) | **Core / conductor construction** | Single-Mode / Multi-Mode Optical Unit — Hermetic stainless-steel tube / tight-buffered optical unit |
| **Primary dielectric / optical buffer** | Power & Control Copper Conductors — Stranded copper conductors with Low-capacitance cellular Foam-Skin PE insulation | **Continuous operating temperature** | −40…+80 °C (submerged seawater & topside deck service) |
| **Hydrostatic & thermal cycling endurance** | Verified cold-bend and wet dielectric stability across −40…+80 °C per DNV-ST-E402 FST2178 Synthetic-Armored Deepwater ROV Umbilical Standard | **Storage & transport temperature** | −40…+80 °C on export wooden/steel cable drum |
| **Outer jacket / sheath protection** | Subsea / Marine Outer Protective Sheath — Red hydrolysis- & abrasion-resistant marine Polyurethane (PUR) outer sheath | **Minimum bending radius** | 8 × OD |
| **Reinforcement / screen / bedding layer** | Aramid / LCP Braided Strength Member — High-tenacity synthetic fiber braid absorbing dynamic tension | **Seawater, hydrolysis & oil resistance** | Resistant to permanent seawater immersion, hydrolysis, hydraulic oil and bio-fouling per DNV-ST-E402 FST2178 Synthetic-Armored Deepwater ROV Umbilical Standard |
| **Hydrostatic pressure & water blocking** | Radial and longitudinal water-blocking integrity verified per DNV-ST-E402 FST2178 Synthetic-Armored Deepwater ROV Umbilical Standard | **RoHS & REACH compliance** | RoHS 2 (2011/65/EU + 2015/863) & REACH SVHC compliant |
| **Standards** | DNV-ST-E402 FST2178 Synthetic-Armored Deepwater ROV Umbilical Standard | | |

## Sizes

3 standard constructions

**Tick the sizes you need** and send this page to info@tebaoflex.com or WhatsApp +86 185 9591 3361.

| Order designation | Configuration | Core / stranding | Outer Ø ≈ mm | Net weight ≈ kg/km | Max. pulling kN ≈ | Min. bend R mm |
|---|---|---|---|---|---|---|
| **FST2178 Synthetic ROV Umbilical Construction Schedule (−40…+80 °C)** 3 sizes | | | | | | |
| ☐ **FST2178 Synthetic ROV Umbilical Buoyant Ø9.5** | **2×1.5 mm² + 2×SM Fiber + 1×TP** | **SnCu + G.657.A2 + Aramid + Foamed PUR** | **9.5** | **92** | **6.5** | **60** |
| ☐ **FST2178 Synthetic ROV Umbilical Buoyant Ø13.2** | **4×2.5 mm² + 4×SM Fiber + 2×TP** | **SnCu + G.657.A2 + Aramid/LCP + Foamed PUR** | **13.2** | **168** | **14.0** | **80** |
| ☐ **FST2178 Synthetic ROV Umbilical Buoyant Ø17.8** | **3×6.0 mm² + 6×SM/MM + 4×TP** | **SnCu + Optical Unit + Synthetic Braid** | **17.8** | **315** | **28.0** | **110** |

– Custom core counts, optical fiber channels, wet-mate terminations and continuous winch lengths available per DNV-ST-E402 FST2178 Synthetic-Armored Deepwater ROV Umbilical Standard.

## Electrical, optical & thermal parameters

3 sizes

| Configuration | Max. DC $R_{20}$ Ω/km | Rating / Impedance / Load | Operating temp. |
|---|---|---|---|
| **2×1.5 mm² + 2×SM Fiber + 1×TP** | **13.30** | **3.0/3.3 kV · SG ≈ 1.01** | **−40…+80 °C** |
| **4×2.5 mm² + 4×SM Fiber + 2×TP** | **7.98** | **3.0/3.3 kV · SG ≈ 1.02** | **−40…+80 °C** |
| **3×6.0 mm² + 6×SM/MM + 4×TP** | **3.30** | **3.0/3.3 kV · SG ≈ 1.02** | **−40…+80 °C** |

– Every production length undergoes routine conductor DC resistance / OTDR optical attenuation, AC dielectric and dimensional verification.

## Standards and approvals

- DNV-ST-E402 / ISO 13628-5 Compliant
- EN 10204 3.1 Factory Test Certificate
- CE, RoHS 2 (2011/65/EU) & REACH

## Certifications

**Management systems:** ISO 9001, ISO 14001, ISO 45001

### Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.


WhatsApp / phone
**+86 185 9591 3361**

Email
**info@tebaoflex.com**

Web
**tebaoflex.com/cables/fst2178-synthetic-armored-rov-umbilical**


Typical values for this cable type, based on DNV-ST-E402 FST2178 Synthetic-Armored Deepwater ROV Umbilical Standard. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.