L3HARRIS®
FAST. FORWARD.

MICRO-DIAMETER FIBER-OPTIC CABLE (MDF)

Enabling linked real-time, reliable, high-bandwidth ocean surface and subsea data transfer over extended ranges

Connecting advanced technology in the ocean surface and undersea environment is one of the most difficult, but vital requirements for military and commercial customers. L3Harris is filling that need with the most innovative Micro-Diameter Fiber-Optic Cable (MDF) available. It allows command, control and real-time high bandwidth data distribution between host and linked platforms.

OPTIMIZED PERFORMANCE

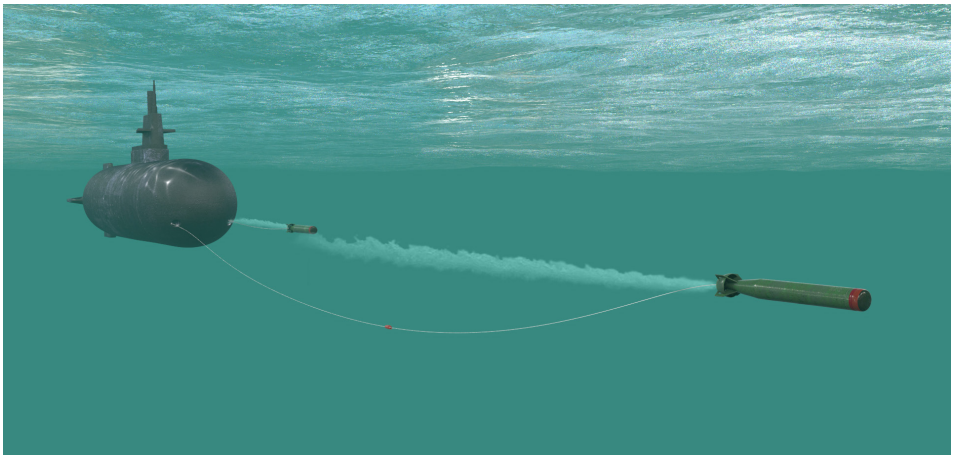
L3Harris MDF cable properties are optimized for performance in harsh ocean environments and under the operational demands of existing and prospective customer applications. These optimizations include size, strength, specific gravity, hydrostatic pressure resistance and high-speed payout resiliency. L3Harris offers industry-leading, field-proven precision winding services.

Traditional military and commercial subsea applications have been limited to legacy copper wire solutions or fiber-optic solutions packaged into significantly larger diameter cables. Each of these options presents its own set of challenges and limitations.

LIGHTWEIGHT, RESILIENT

MDF offers impressively high bandwidth data transfer through an extremely lightweight, resilient micro-cable. Through extensive development and optimization of the cable assembly and winding processes, MDF has become the enabling technology for multiple customer applications. It allows a data transfer rate over 10,000 times that of traditional copper systems and maintains this performance over greater distances.

During practical testing in rigorous, real-world operational ocean environments, L3Harris has demonstrated a repeatable manufacturing capability to produce an extremely predictable, resilient and quality-controlled product.



KEY BENEFITS:

- High break strength
- Tunable specific gravity
- Length – short to long and continuous
- Low optical loss
- Small bend radius
- Temperature tolerant
- High-bandwidth data transfer
- High-speed payout survivable

CABLE DEVELOPMENT SERVICES

Developing an MDF cable solution to meet specific customer CONOPS required specific L3Harris optical and mechanical engineering expertise and experience. The engineered solution can be quickly prototyped and characterized on our in-house development cable manufacturing lines.

WINDING SERVICES

A precise cable wind is critical for system spool performance, and L3Harris developed a state-of-the-art, precision winding capability to satisfy a broad array of mission needs. This process maximizes the usable fiber length and maintains reliable communications under the most demanding of applications, as proven through repeated payout testing and successful field demonstrations.

TEST FACILITIES AND QUALITY

Simulating real-world ocean and application specific payout conditions – including hydrostatic pressure, payout speed, tension, optical performance attenuation and specific mechanical dispensing mechanism for each application – requires a uniquely instrumented test facility. L3Harris invested in a new, state-of-the-art test tank on the Palm Bay, Florida campus. Quality control testing is performed on every cable run with samples taken from both ends of each manufactured spool. This testing includes visual inspection of the jacket, pull-testing to validate the expected break strength, and optical attenuation measurements at atmospheric pressure and at hydrostatic pressure loads typically ramping to > 1,500 psi.

SPECIFICATIONS	
Optical Fiber	Selectable; nominal cables are ITU-T G.652 compliant with Bend-Insensitive (G.657) variants available
Attenuation	≤ 0.25 dB/km @ 1550 nm (typical)
Cable Diameter	Variable; 0.35 mm to 1.20 mm
Outer Jacket	Multiple options available
Strength Member	High-tenacity yarns (typical)
Cable Weight	Variable, tailorable
Operating/Storage Temp	-40°C to +70°C (-104°F to +158°F)
Minimum Bend Radius Operation/Installation	Variable
Ultimate Tensile Strength	Tailorable; typically ranging from 30-120 lbf

KEY FEATURES

- **Depth rating/hydrostatic resiliency (> 1,500 psi)**
- **Compact fully wound packaging (< 20” length x 16” diameter) well in excess of 40 km**
- **Highly precise winding with typical fill factors > 75%**
- **Environmentally qualified – temperature, shock, hydrostatic, high-speed payout**

Micro-Diameter Fiber-Optic Cable (MDF)

L3Harris is the Trusted Disruptor in defense tech. With customers’ mission-critical needs always in mind, our employees deliver end-to-end technology solutions connecting the space, air, land, sea and cyber domains in the interest of national security. Visit L3Harris.com for more information.

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