# Fiber Optic Cable Sub-tube



## Overview

Pre-Cabled Sub-Ducts Our Pre-Cabled Sub-Ducts – Cable in Duct solution features fiber optic cables pre-installed within HDPE ducts, ensuring shorter instal.

## Key Takeaways

Fiber optic cables should be installed in sub-tubes (innerducts) to provide mechanical protection, reduce friction, and allow for future cable upgrades. Purpose of Sub-TubesSub-tubes, also called innerducts, are smaller conduits placed inside a larger communications duct to subdivide space and protect fiber optic cables. They provide a low-friction pathway, mechanical protection, and allow multiple cables to share a single conduit efficiently.

Standard sub-tube diameters range from 25 mm to 40 mm for typical fiber optic cables, while micro-ducts for smaller cables can be 5 mm to 14 mm in diameter.

### Installation Considerations

Cable Protection: Fiber optic cables are sensitive to excessive pulling, bending, and crushing. Installing them in sub-tubes reduces the risk of damage during pulling and protects the cable from environmental hazards like moisture, temperature fluctuations, and chemical exposure. Bend Radius: Maintain the minimum bend radius specified by the cable manufacturer.

For loaded cables during installation, the minimum bend radius is typically 20 times the cable diameter, and for installed cables, 15 times the diameter. Exceeding these limits can cause signal loss or fiber breakage. Pulling Tension: Avoid exceeding the maximum tensile load of the cable.

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For stranded loose tube or ribbon cables, the maximum pulling tension is often around 600 lbF (2,700 N), but always consult the specific cable specification sheet. Pulling Techniques: Use a figure-eight coil when unspooling cable to prevent torsion and twisting. For long runs, consider intermediate assist winches or pulling from higher to lower elevation to reduce tension on bends and offsets.

### Conduit and Sub-

Tube Sizing: Ensure the sub-tube diameter allows for smooth cable movement. Typically, three 1. 25-inch innerducts can fit into a 4-inch duct.

Micro-ducts can be nested within innerducts for high-density installations.

### Future-

Proofing: Sub-tubes allow for additional cables to be installed later without disturbing existing cables. This is particularly useful in urban or high-capacity networks. Maintenance and UpgradesSub-tubes simplify maintenance and upgrades.

Technicians can pull new fiber optic cables through existing sub-tubes without extensive excavation, reducing disruption and preserving network reliability.

### Summary

Running fiber optic cable through a sub-tube ensures mechanical protection, reduced friction, and easier future upgrades. Key factors include respecting the cable's bend radius, maximum pulling tension, proper conduit sizing, and careful handling during installation. Following these guidelines helps maintain cable integrity and network performance over time.

## Article Content

Pre-Cabled Sub-Ducts

Our Pre-Cabled Sub-Ducts – Cable in Duct solution features fiber optic cables pre-installed within HDPE ducts, ensuring shorter installation times, added cable

Multi-tube fibre optic cables

APAR multi-tube fibre optic cables protect multiple fibres for low-loss transmission, durable outdoor performance and high-capacity telecom connectivity.

How Water Traps Light Like a Fiber Optic Cable

This same principle is used in fiber-optic cables, allowing light to carry data across continents at incredible speeds.

Stainless Steel Fiber Optic Tubes

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AFL''s stainless steel fiber optic tubes provide exceptional protection and performance in subsea and harsh environments. Designed for integration into

Multi-Loose Tube Fiber Cable

Product Number: FDSL012RG Indoor/Outdoor Riser Loose Tube OS2 12 Fibers Gel Block FX Indoor/Outdoor Loose Tube OS2 12 Fibers OFNR Sub-Units (12F) Gel Black Availability: Global

RapidMicroduct | Multitube Single Sheath OFC

This cable is a stranded micro loose tube cable with optical Fiber placed inside robust buffer tubes stranded around a Fiber reinforced plastic (FRP) central

Fibre Optic Cable

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The loose tube design offers mechanical ruggedness and environmental durability. The water-swellable yarn eliminates the need for gel-filling compound and allows

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AFL Sub-unitized MicroCore 2.0 cables continue to push evolution of high performance premise cabling. Now available in Base-8 cable configurations up to 144 fibers, and Base-12 configurations up to 216

101 Guidelines for Fiber Optic Cable Installation

Never directly pull on the fiber itself. Fiber optic cables have Kevlar aramid yarn or a fiberglass rod as their strength member. You should pull on the fiber cable strength members only! Never exceed the

The FOA Reference For Fiber Optics

All fiber optic applications are not the same. At the FOA, we''re mainly concerned with communications fiber optics - telco, CATV, LAN, industrial, etc., but fiber

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Is your home broadband always disconnected? is the monitoring screen stuck in ppt? is the temporary network at the construction site blown by the wind and the joints are dusty? stop using

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Outside Plant Fiber Optic Cable Jump To: Fiber Optic Cable Construction Fiber Optic Cable Types Cable Design Criteria Choosing Cables Cable Types: (L>R):

10Pcs Optical Fiber Protection Box Drop Cable Rotection FTTH SC

10Pcs Optical Fiber Protection Box Drop Cable Rotection FTTH SC Adapter Type Waterproof Protected Description ABS engineering plastics have excellent wear resistance and oxidation resistance. All

How Fibre Optic Communication Works – Wray Castle

Fibre optic communication is the process of sending data as pulses of light through thin strands of glass or plastic fibers. At its core, the technology converts electrical signals into light

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What Is Fiber Optics? Definition from SearchNetworking

What is fiber optics? Fiber optics, or optical fiber, refers to the technology that transmits information as light pulses along a glass or plastic fiber. A fiber optic cable can contain a varying

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