

What is Plenum fiber optic cable



Overview

Learn what Plenum (OFNP) cable is, how it differs from OFNR, NEC compliance rules, cost differences, and how to choose the right fiber optic cable.

Key Takeaways

Plenum fiber optic cables (OFNP) are specially designed for installation in air-handling spaces, offering flame-retardant, low-smoke, and low-toxicity properties for safe indoor network cabling. What is a Plenum Fiber Optic CableA plenum fiber optic cable is a type of cable rated for use in plenum spaces, which are areas in buildings used for air circulation in heating, ventilation, and air conditioning (HVAC) systems, typically located above drop ceilings or under raised floors. Because these spaces facilitate airflow, any fire in a plenum area can spread quickly, and smoke can travel throughout the building.

Plenum cables are therefore constructed with flame-retardant and low-smoke materials, such as polyvinyl chloride (PVC), fluorinated ethylene polymer (FEP), or other specialized plastics.

OFNP Rating

Plenum fiber optic cables are commonly marked as OFNP (Optical Fiber Non-conductive Plenum). This designation indicates that the cable: Self-extinguishes within a short distance if exposed to flame. Emits minimal smoke and toxic fumes during combustion.

Is suitable for pressurized air-handling spaces and other plenum environments. Can be used in both horizontal and vertical runs, and in some cases, in riser spaces as well.

Construction and Features

Plenum fiber optic cables typically include: Tight-buffered or loose-tube fibers for protection and flexibility. Water-blocked sub-units to prevent moisture ingress in indoor/outdoor applications.

U

V and fungus-resistant outer jackets for durability in exposed environments. Single-mode (OS2) or multimode (OM1, OM2, OM3, OM4, OM5) fiber types for various bandwidth and distance requirements. These cables are designed for high-performance network installations, including LAN, WAN, and data center backbones, and can support high-speed Ethernet and fiber channel applications.

Comparison with Other Cable Types
Riser-rated cables (OFNR): Intended for vertical runs between floors, with lower fire-resistance requirements than plenum cables. They are not suitable for plenum spaces.
General-purpose cables (OFNG/OFCG): Used in non-plenum, non-riser areas, with minimal fire safety features.

LSZ

H (Low Smoke Zero Halogen): Offers low smoke and low toxicity but may not meet full plenum fire-resistance standards.

Applications

Plenum fiber optic cables are ideal for: Air-handling spaces in commercial buildings, schools, hospitals, and data centers. Indoor/outdoor campus networks, where cables may traverse both plenum and outdoor environments. High-fiber-count installations, including ribbon and breakout cables for backbone connectivity.

Installation Considerations

Must comply with National Electrical Code (NEC) Section 770 and local building codes. Typically more expensive than riser-rated cables due to enhanced fire safety materials. Can be installed in conduits, ducts, or cable trays, and are often used in tight spaces requiring flexible, high-density cabling.

Plenum fiber optic cables provide a safe, high-performance solution for critical indoor network infrastructure, ensuring compliance with fire safety regulations while supporting modern high-speed data transmission.

Article Content

What Is Plenum Cable? OFNP Cable Explained

What is Plenum Cable? Plenum cables are constructed in plenum space. Flame retardant cables are sheathed in low-smoke polyvinyl chloride

What is Plenum Fiber Optic Cable and What is OFNP

Learn what Plenum (OFNP) cable is, how it differs from OFNR, NEC compliance rules, cost differences, and how to choose the right fiber optic cable.

Understanding Plenum Fiber Optic Cables: What is OFNP and How It ...

What is Plenum Fiber Optic Cable? Plenum fiber optic cables are designed to meet stringent safety standards for fire and smoke in air distribution spaces. Unlike other cables, plenum

What is Plenum Fiber Optic Cable, and Should I Use It?

Plenum fiber optic cable or optical fiber non-conductive plenum (OFNP) is the designation given by the national fire protection association (NFPA) to interior fiber optic cables which contain no

Plenum, Riser, and LSZH Fiber Optic Cables: Know the

Learn the differences between plenum, riser and LSZH fiber optic cables and how to determine which to use based on cable path and fire safety

What Is Plenum Fiber Optic Cable?

Plenum fiber optic cable or optic fiber non-conductive plenum (OFNP) is the National Fire Protection Association (NFPA) designation for indoor

What is Plenum Fiber Optic Cable and What is OFNP

In practical terms, plenum fiber optic cable is the safer, code-oriented option for indoor fiber runs that pass through building air-handling areas. It provides the same optical transmission function as other

Riser vs Plenum Cables: When to Use Each Type

Plenum-rated cables exceed the fire resistance of riser-rated ones and are fully approved for vertical shaft use. Plenum cables are the safer, more versatile option to simplify ordering or

Plenum vs Riser Fiber Cable: Code-Compliant Selection

Plenum-rated fiber cable (OFNP for non-conductive, OFCP for conductive armored) uses fire-resistant jacket materials that produce minimal smoke and flame spread.

Fiber Optic Indoor Cables

Corning indoor fiber optic cables are used in spaces that require a flame retardant jacket. These cables may be deployed in duct (conduit) or cable tray.

Fiber Optic Cable Types: A Complete Guide

The plethora of fiber optic cable types can seem overwhelming, but choosing the right cable for the job is important. Read on to learn what fiber optic

OFNP OM4 Tight Buffer Fiber Cable | Corning Glass | Indoor & Outdoor

Get Professional-grade OM4 plenum fiber cable with Corning glass & 900um tight buffers. OFNP fire rated, water blocking design. Ideal for critical installations.

TLC Indoor/Outdoor Fiber Optic Cable with Aluminum Interlocking

This cable utilizes Corning SMF-28 Ultra singlemode fiber and is designed with a plenum-rated jacket suitable for both indoor and outdoor environments. Key Features Aluminum Interlocking Armor:

Quality Bulk Multimode & Single Mode Fiber Optic Cables

Bulk Fiber Optic Cable - Multimode & Singlemode Shop our diverse range of bulk fiber optic cables, tailored for various networking needs. We provide both single-mode and multimode options, catering

TLC 72 Fiber MM 50um OM3 Micro Distribution Fiber Optic Cable

OverviewThe TLC 72 Fiber Multimode 50um OM3 Micro Distribution Fiber Optic Cable is engineered for high-density indoor environments where space optimization is critical. Designed for data centers and

Planar OS2 Single-Mode LC Fiber Cable – 100m Plenum

Product Overview This Planar OS2 fiber optic cable is a 100-meter (328-foot) single-mode duplex assembly terminated with LC-to-LC connectors in an A-B polarity configuration. It uses 9/125 um

TLC Distribution Fiber Optic Cable with Aluminum Interlocking Armor, 6

OverviewThis distribution-style fiber optic cable features 6 optical fibers constructed with a 900um tight buffer. The cable is reinforced with aluminum interlocking armor to provide physical protection for the

TLC Micro Distribution Fiber Optic Cable, 72 Fiber, Singlemode, Yellow

This 72-fiber singlemode cable features color-coded subunits for organized deployment and utilizes Corning SMF-28 Ultra fiber, which provides enhanced macrobend performance and compatibility with

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