Belarus Air-blown Optical Cable Construction



Overview

Disclosed in the present invention are an air blown optical cable suitable for a high-temperature installation working environment and a construction method therefor.

Key Takeaways

Air-blown optical cables use compressed air to install microcables through pre-installed ducts, offering flexible, low-friction deployment and future network expansion. Cable StructureAir-blown optical fiber cables are designed to minimize friction and facilitate long-distance installation. A typical construction includes: Cable Core: The central element that may contain one or more optical fibers.

Loose Tube: Sleeves the cable core, allowing fibers to move freely and absorb stress. Strengthening Layer: Often mesh-shaped or made of aramid yarns, wrapped around the loose tube to provide tensile strength and prevent damage during blowing. Outer Jacket: Encases the strengthening layer and may include a drag reduction structure with alternating protrusions and recesses to reduce contact with microtubes, lowering surface friction and improving air-blown performance (EP 4194914 A1).

This design allows the cable to float inside microducts, reducing friction and enabling longer installation distances without fiber damage. Installation MethodAir-blown cable installation, also called blowing or jetting, involves: Pre-installed Microducts: Ducts are laid in the desired route before fiber installation. Compressed Air Injection: Air is blown through the duct, creating a low-friction environment that allows the cable to move easily.



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Mechanical Pushing: A tractor or pushing device applies force near the cable inlet to assist movement. Floating Cable: The combination of air flow and pushing force keeps the cable suspended, minimizing contact with duct walls and reducing stress on fibers. Air-blown systems can install continuous cable lengths exceeding 1 km, depending on duct layout, cable stiffness, and bends.

Stiffer cables perform better in straight or undulating ducts, while flexible cables navigate complex routes more effectively.

Advantages

Future Expansion: Microcables can be added later without re-laying ducts, supporting scalable networks. Reduced Labor and Costs: Long cable lengths can be installed in a single operation, lowering installation time and material handling. Minimized Optical Loss: Fewer splices and interconnections improve signal quality.

Versatility: Suitable for indoor, outdoor, urban, and underground deployments. Components of an Air-Blown Fiber SystemMicroducts: Network of small ducts connecting distribution points. Blowing Apparatus: Generates air flow to pull microcables through ducts.

Optical Fiber Microcables: Lightweight, flexible cables designed for air-blown installation. Termination Cabinets and Hardware: Facilitate connections and branching at network nodes.

Application in Belarus

While specific Belarusian deployments are not detailed in the sources, the air-blown optical cable technology is globally applicable, including urban and rural networks in Belarus. It is particularly suitable for Fiber-to-the-Home (FTTx), underground networks, and areas requiring future network scalability. The system allows pre-installation of ducts, enabling flexible fiber deployment as demand grows.

Article Content

WO2024125365A1

Disclosed in the present invention are an air blown optical cable suitable for a high-temperature installation working environment and a construction method therefor.

Air Blown Optical Fiber Cable

BLOLITE is easily installed using compressed air and fibers are easy to terminate and are compatible with all standard optical connectors. BLOLITE is extremely reliable, with a zero failure rate since the

WO/2024/125365 AIR BLOWN OPTICAL CABLE SUITABLE FOR

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Disclosed in the present invention are an air blown optical cable suitable for a high-temperature installation working environment and a construction method therefor.

Air Blown Fiber

The micro cables are of a multiple loose-tube construction and are introduced into the microducts using a combination of pushing and blowing, using the compressed air as a lubricant to increase the

Whitepaper Guide to air blown cabling systems

Several case studies has been performed comparing air blown cabling sys-tems with traditional cabling technologies as well as upcoming variations of traditional cabling systems such as preterminated

Installation of Optical Fiber Cable by Blowing/Jetting

There are two basic methods of cable installation in a preinstalled duct – Pulling method and Blowing method. The cable installation method is selected based on site conditions and availability of

Air-Assisted Installation Considerations

Placing optical fiber cables in duct systems using air-assisted installation techniques presents different installation requirements than traditional pulling. In return, these techniques enable installation of

EP2579079A1

The invention discloses an optical cable structure suitable for air blowing installation and a manufacturing method thereof.

The FOA Reference For Fiber Optics

Indoor cables must meet appropriate fire codes and outdoor cables must be designed to prevent moisture damage. And since air pressure is being used to

Installation of Optical Fiber Cable by Blowing/Jetting

ABSTRACT This application note discusses fiber optic cable installation by blowing technique, the factors effecting blowing performance and best practices.

Indoor-Outdoor Air Blown Optical Cable

Conventional microduct cables, so-called air blown optical cables are limited to outdoor usage, and high- density polyethylene is generally used as their outer sheath to withstand crush force added during

Fiber Blowing Technology Explained

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Understanding the Air Blown Fiber Installation Principle Air blown fiber installation uses a combination of pulling force, compressed air propulsion, and the mechanical thrust of the cable

Air Blown Fiber

As such, air blown fiber eliminates this risk by preinstalling a microduct route and then blowing in (and paying for) the fiber element only when it is required. Air blown fiber systems are engineered to

Duct Cables | Air Blown Fiber Optic Cable Ducts | Corning

Ducts (or conduits) offer a highly protective environment for fiber-optic cables. They are typically buried, and then the cables are air-blown, jetted, pulled or pushed

Air Blown Optical Fiber Cable

Leviton Air Blown Fiber Systems offer solutions for internal and external applications with their market leading Blolite and MicroBlo.

A comparison of conventional fiber and blown cable

Blown cable has four components: 1) microduct, 2) the blowing apparatus, 3) the optical-fiber bundles, and 4) the connecting/terminating hardware. The microduct consists of multiple individual tubes,

Whitepaper Guide to air blown cabling systems

Why is air blown cabling systems superior to traditional cable solution in FTTH? Air blown Fiber, Nano Cables and Micro Cables are flexible and cost-effective cabling systems for installation of optical

Air-Blown Micro Fiber Optic Cables: Types, Structures, and Applications

From EPFU to GCYFY, discover all types of air-blown micro cables for indoor, outdoor, and last-mile FTTH fiber deployments with microduct systems.

Related Video Reference

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