

When laying optical cables using the air blowing method



Overview

Cable installation by using high speed air flow combined with additional mechanical pushing force is called as “blowing or jetting”.

Key Takeaways

Air-blown optical cable installation requires proper cable selection, duct sizing, mechanical pushing, and controlled compressed air to ensure safe and efficient deployment. Cable and Duct Requirements

- Cable Types: Standard optical fiber cables (uni-tube, multi-tube, armored, unarmored) and microduct cables can be installed using this method . Cables should have low friction outer jackets to reduce resistance inside the duct .
- Cable Stiffness: Stiffer cables are preferred for straight ducts and longer distances, while more flexible cables are suitable for routes with multiple bends .
- Duct Size: The duct should be slightly larger than the cable to allow smooth airflow and reduce friction. The Duct Fill Ratio (DFR) should ideally be between 30–80% depending on calculation method .



- Microducts: For microduct installations, cables with polyethylene (PE) sheaths and optimal stiffness are recommended to prevent buckling and facilitate navigation through bends .

Equipment and Installation Procedure

- Blowing Device: A tractor mechanism with traction rollers is used to push the cable a few hundred meters into the duct before introducing compressed air .
- Compressed Air: Air is injected to “float” the cable, minimizing sidewall pressure and friction. Air pressure should be controlled to avoid cable damage, using the minimum required to move the cable .
- Blowing Head: The cable is attached to a blowing head or piston that seals the duct and allows air to push the cable forward. For larger ducts, piston-assisted blowing is preferred .
- Crash Test: Before full installation, a crash test is performed by pushing the cable into a sealed duct section to determine the maximum safe pushing force and prevent jacket damage or buckling .

Environmental and Operational Considerations

- Temperature: Avoid installing cables in extremely cold conditions, as the jacket may become brittle and more prone to damage .
- Route Planning: Straight trajectories allow longer blowing distances, while multiple bends or undulations may require mid-assist devices to extend cable reach .
- Lubrication: Optional low-friction lubricants can be applied to further reduce resistance and facilitate cable movement .

Performance and Distance

- Typical Lengths: Single air-assisted devices can install 1,500–2,100 meters of cable under optimal conditions. Longer distances can be achieved using mid-assist devices along the route .
- Force Distribution: In blowing, the pulling force is distributed along the cable length due to air drag, unlike jetting which uses a reaction head . By following these requirements—selecting the right cable, ensuring proper duct sizing, using controlled air pressure, and performing pre-installation tests—optical fiber cables can be efficiently and safely installed using the air-blowing method.

Article Content

Installation of Optical Fiber Cable by Blowing/Jetting

Cable installation by using high speed air flow combined with additional mechanical pushing force is called as “blowing or jetting”.

Fiber Optic Cable Blowing Procedure: Full Guide (2024)

What Is The Fiber Optic Cable Blowing Procedure? Maximizing Its Performance
Blowing vs Pulling Cables: Which Is Better? How Do You Bury Fiber Optic Cable in A Blowing Installation? How Do You Pull Fiber Optic Cable Through A Conduit? Essential Fiber Optic Cable Blowing Procedure Equipment Its Benefits on Fiber Optical Networks Learn More About The Fiber Optic Cable Blowing Method
In a fiber optic installation, the cable is typically laid in an underground conduit to protect the cable jacket. The blowing head is inserted into the conduit, and the fiber optic cable is fed through it. The air pressure from the compressor pushes the fiber optic cable through the conduit and into place. See more on the network installers Corning

Air-Assisted Installation Considerations - Corning

Jetting and blowing are two common air-assisted cable installation techniques. Both methods require pushing the cable with a tractor

Blowing Method for Air Blown Fiber

Cable blowing is the process of installation of optical fiber cable into a pre-installed duct. Compressed air is injected into

Characteristics of Air-blowing Laying of Optical Cables

Air-assisted installation of optical fibre cables Summary Recommendation ITU-T L.156 describes air-assisted methods for installation

Duct Installation of Fiber Duct Cable Pulling & Air Blowing Method

As a rule of thumb, air blowing method for fiber optic cable installation is more favored than pulling method due to

Cable jetting

Cable jetting is the process of blowing a cable through a duct while simultaneously pushing the cable into the duct. Compressed air is

Fibre Optic Cable Blowing & Splicing Guide | PDF | Optical Fiber

It discusses the purpose and scope of the work, methods for installing fibre optic cable into HDPE ducts including cable blowing

Duct Fiber Optic Cable Installation: Pulling vs Air Blowing Explained

Trying to decide between pulling and air blowing for duct fiber optic cable installation? Here's a simple breakdown of the differences,

How To Blow Fiber Optic Cable

Blowing fiber optic cable, also known as air-blown fiber installation, is an efficient and effective method of installing

The FOA Reference For Fiber Optics

Air Blown Fiber Installation When designing and installing optical fiber cables, one must forecast the future.

Fiber Blowing Technology Explained

Understanding the Air Blown Fiber Installation Principle Air blown fiber installation uses a combination of pulling force,

How to Blow Fiber Optic Cable: A Comprehensive Fiber Jetting Guide

Fiber optic cable blowing, also known as fiber jetting, is the most efficient and cost-effective technique for installing

Blowing Method For Air Blown Fiber

"Cable blowing" or "jetting" refers to a cable installation approach that employs high-speed air flow and added mechanical force. In

ITU-T Rec. L.156 (03/2018) Air-assisted installation of optical fibre ...

Air-assisted installation of optical fibre cables Summary Recommendation ITU-T L.156 describes air-assisted methods for installation

Fibre Optic Cable Blowing & Splicing Guide | PDF | Optical Fiber

This document provides a method statement for fibre optic cable blowing by jetting method and splicing/testing. It discusses the

Strategies For Maximizing Air Blow Distance Of Fiber Optic Cables

In modern communication engineering, optical cable jetting technology has become an efficient method for laying

Installation of Optical Fiber

Cable blowing is the process of blowing optical fiber cable through a duct while simultaneously pushing the cable into the duct.

Installation of Optical Fiber Cable by Blowing / Jetting

Cable by Blowing / Jetting Author Prasanna Pardeshi and Sudipta Bhaumik Issued Feb 2015 Abstract This application note

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