



Market Brochure

Blown Fiber Cable Systems: Reliable and scalable FTTH networks





Air Blown Fibre Systems

Air Blown Fiber (ABF) technology is quickly becoming the preferred system of choice in access networks, where cost per home passed, speed of deployment, flexibility and future scalability are of utmost importance.

There are two main ways to install fiber optic cables – you can push it or pull it. Traditional installations include pulling fiber whereas pushing fiber using jetting equipment is known as a blown fiber system. While many perceive blown fiber to be new, it actually originated with British Telecom in 1982, developed to allow future fiber types to be added as needed with extra space in the ducting. Today, blown fiber optic cabling is an increasingly popular option for network owners, as well as residential developers for both single family residences and multi-dwelling units (MDUs). Air Blown Fiber allows them to maximize their networks' efficiency, speed, and future-proofing as fibers can be added on an as-needed basis.

Cable blowing systems use high-pressure, high-velocity airflow combined with a pushing force to blow (or "jet") the cable. The compressed air is fed into very small ducts called micro ducts. The air functions to create a floating effect that significantly reduces friction of the cable, while also providing additional thrust for the fiber. An electronic, hydraulic or pneumatic powered drive wheel or belt is used to push the cable into the micro duct at rates up to 150 metres per minute.

Blown cable systems have four basic components: 1) micro duct; 2) the blowing apparatus; 3) the air blown fiber units or micro cables; and 4) the connecting/terminating hardware. See Figure 1 for a basic outline of the key components in a blown fiber system

The micro ducts, through which these fiber units are blown, are manufactured of tough, flexible materials and bundled in groupings of up to 25 color-coded micro ducts, forming a multi-duct assembly. These duct assemblies can be installed above ground, aerially, underground or within buildings. Using simple press on couplers, installers easily connect individual micro ducts to drop out of the main duct assembly to provide pathways through which micro cables or fiber units are blown to achieve splice-free, point-to-point, high-performing, rapid installations. This reduces total cost and improves overall network performance.

There are two types of blown fiber systems depending on the segment of the network. In the first, the feeder portion of the network utilises air blown micro cables, typically from 12 to 144 fibers though specialised ABF micro cables up to 864 fiber are available. In the second, for the access (i.e., last mile distribution and drop) FTTH segment, air blown fiber "units" are utilised. These are typically 1 to 24 fiber units.

Components of a Basic Micro Duct ABF System

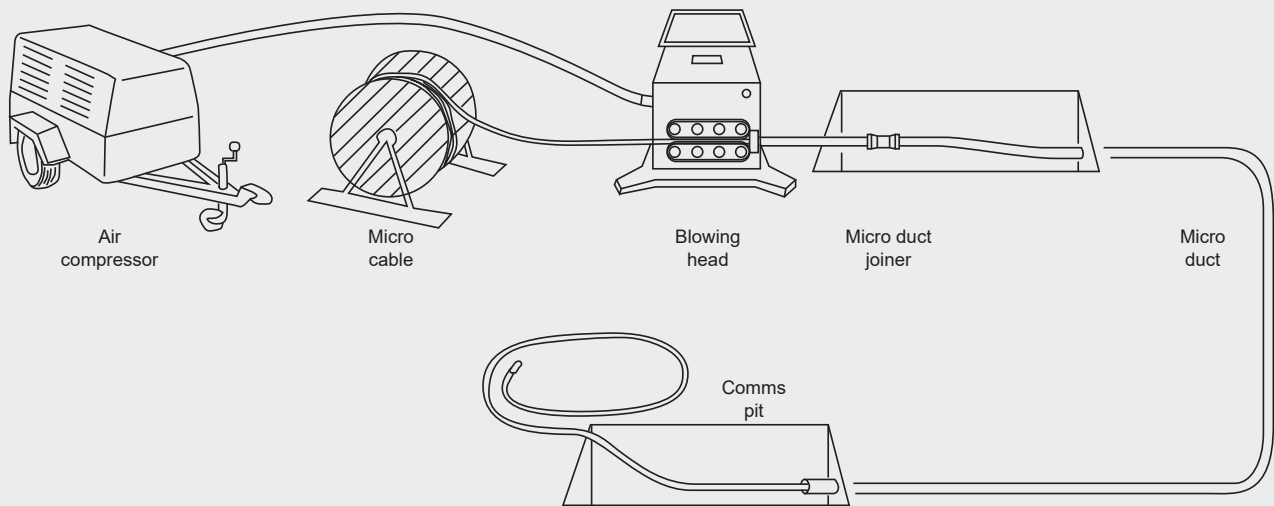


Figure 1: Components of a basic ABF system

Advantages of an ABF Network

The cost of a typical brownfield FTTH project usually is divided into 80 percent labour and installation and 20 percent materials. Choosing an air blown fiber system for your optical network can have a significant impact on the total cost of ownership by reducing the expense of both the initial network build, as well as streamlining future adds and maintenance.

When comparing blown fiber systems to conventional optical networks, blown fiber systems have less up-front costs as less fiber is initially installed and fewer fiber access terminals are required. In a blown fiber network, continuous pathways are created from an Air Blown Fiber Access Terminal (ABFAT), servicing as many as one hundred end users or more, and access fiber is blown only as users take up service. This improves efficiency and optimizes the network's overall quality.

Air blown networks also offer a significant benefit in rural and semi rural FTTH networks. In typical applications, air blown fiber units and micro cables can be blown up to 1000m and 2000m respectively. This makes FTTH viable in regions that would otherwise be simply impractical or too expensive using conventional FTTH methods.

A common misconception around blown fiber is there is a lack of pre-connectorised options and therefore deployment time and simplicity cannot compete with

traditional cabling. Hexatronic offers a range of pre-connectorised air blown fiber options, maintaining all the advantages of blown networks, while offering cutting edge speed and reduced cost for customer activation.

A further misunderstanding concerns the difficulty of building and connecting a blown fiber network. Extensive evidence from small and large FTTH deployments around the world shows blown fiber networks are rapid to deploy. And with modern and advanced blowing equipment, installers require very little training to effectively implement the Hexatronic ABF system. Hexatronic also offers pre- and post-sales field support and training services as part of our commitment to our customer's successful network implementation.

All these factors combine to make blown fiber systems the best option for FTTH networks.

Figure 2: Thick wall duct branching example





Components: (from top left)
Main Duct Assembly
Viper Micro Cable
Customer Termination Box
Internal Wall Plate
Secondary Duct Assembly
Stingray Drop Cable
Drop Duct Assembly
Air Blown Fibre Joint Closure