



Fiber Optic Broadband Networks
for Rural Areas

Cost-efficient networks with Hexatronic Micronet
and Ribbonet® Air Blown Fiber Systems.



Effective Installations for Rural Networks

The expansion of fiber based broadband is accelerating, to meet the continually growing demand for fast and reliable internet. As the information and communication needs continue to grow, it becomes more important than ever to connect people and places.

A well-established broadband network provides opportunities for business, education, public services, products and entertainment. Bringing vital broadband access to rural areas also attracts jobs and investment and enables small, vulnerable communities to remain intact and become stronger as they connect digitally with the rest of the world.

When building or expanding fiber optic broadband networks in rural areas, there are some factors to take into consideration.

- Long distances with only a few connection points can increase installation costs.
- Low initial acceptance rates can make the total costs higher for the few who install and pay for it.
- The future demand is currently uncertain, therefore the ability to expand capacity whenever it is needed is vital.

Fiber optic solutions from Hexatronic focus on the advantages that installing broadband in rural communities has to offer. There are several opportunities for reducing costs and ensuring easy installation and expansion.

Easy Installation

Hexatronic's solutions don't require any in depth knowledge to perform an installation of a rural broadband network. By performing the work in-house and with voluntary help from the local inhabitants, the installation costs can be substantially lowered.

Reliable Operation

Hexatronic's solutions are thoroughly tested and robust enough to withstand normal handling. It is important that the installed network is constructed in such a way to allow for trouble-free operation for as long as possible.

Quality Assurance

The Ribbonet® and Micronet systems make it easy to expand the network without additional costly installations. Hexatronic's quality assurance ensures that the finished fiber network maintains a high market value. A well performing network which requires a minimum amount of maintenance is considerably more interesting for future interested parties, in the event of a sale or transfer of the network.

Fiber Optic Broadband Solutions

The air blown fiber technique reduces both time and costs when installing FTTH (fiber to the home), compared to traditional cable solutions. Air blown fiber also secures high performance and reliability.

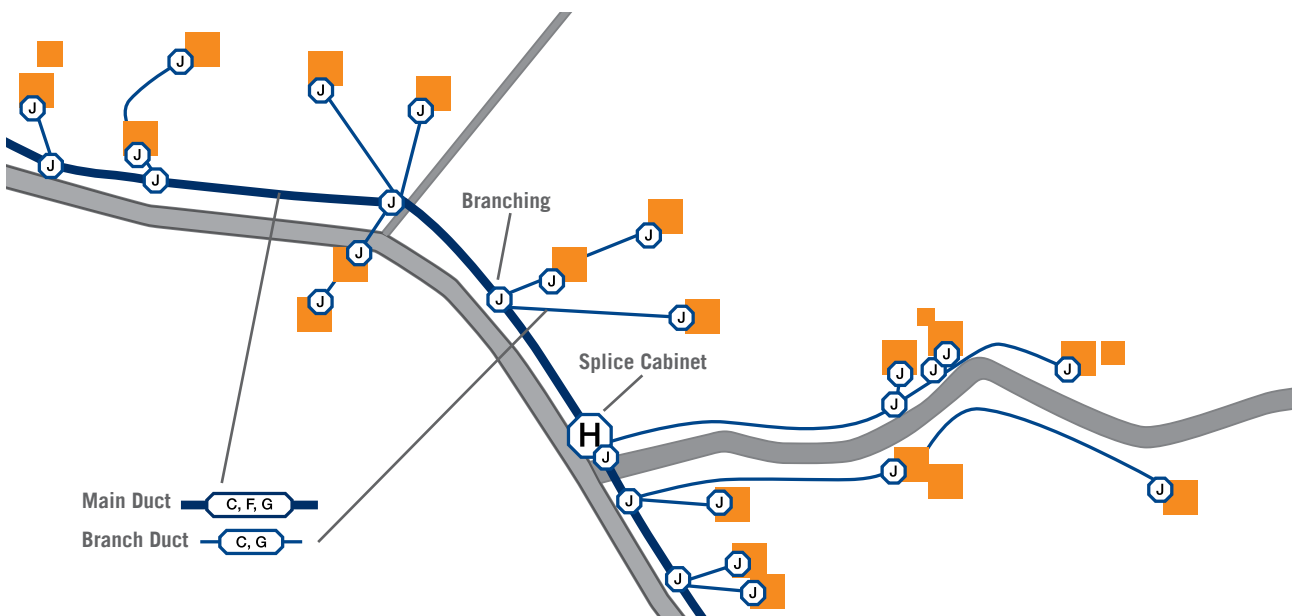
Air blown micro cable technology offers great benefits for quick and easy incremental installations of cables. The capacity of the network can quickly be increased by inserting new cables in spare microducts when needed. The system also minimizes the number of fiber splice joints in the network compared to traditional cable solutions. The air blown fiber technique also guarantees high performance and reliability, ensuring a strong digital future for each rural community.

The Hexatronic Micronet and Ribbonet® Air Blown Fiber Systems have been developed in close collaboration with fiber optic installers in Sweden. Our solutions are based on a long history within the fiber optic telecommunications industry with a vast experience in fiber technology.

The Hexatronic product range is specially developed for networks with the highest requirements for scalability, performance and reliability. All products undergo extensive quality testing and are used by leading network owners worldwide.

The well-proven solutions are simple to use and can be easily adapted for any environment. In most cases it is enough to install only one duct, which is relevant to the area and property networks. This means that planning is made much easier, with a single type of ducting virtually everywhere. Installations are also simpler, for example there is no need for several cable rollers. Easy branching to individual properties, in any location is possible, even at a later date.

Possible Network Solution for a Rural Network



The above example shows a possible network solution for a rural network. The starting point is a **main duct** with micro ducts, where both micro cable and air blown fibers are installed (**C, F, G**). This **branching (J)** is to individual properties with a **branch duct** (micro ducting and air blown fiber) (**C, G**). Every duct is sealed. Only a few different components are required for assembly of the duct system and fiber splicing for the entire area occurs at one single point, in a compact **splice cabinet (H)**.

A COMPLETE SYSTEM FOR RURAL NETWORKS

Hexatronic's system for rural networks contains all the main components needed for an installation or expansion. Components are developed and tested to work together and with the highest precision, which is essential for quick, easy and cost effective installations.

Microducts

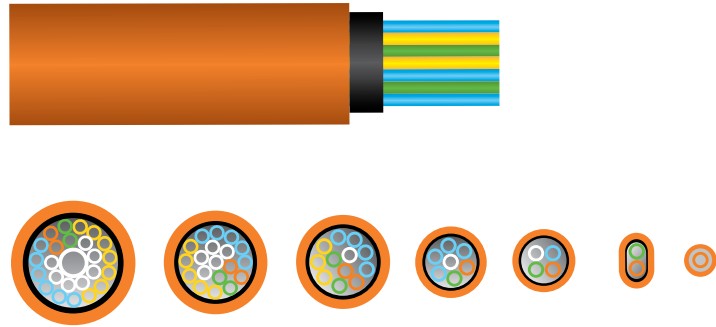
MPB 302 44+

Ducts composed of 5/3.5 mm microducts with a heavy-duty HDPE sheath that enables direct buried installation. The ducts are available dielectric or with a moisture barrier of aluminum foil to prevent water diffusion when permanently submersed. The microducts have a solid, low-friction inner surface coating for best installation performance.

TYPE: Direct buried installation, dielectric or metallic moisture barrier

DIMENSIONS, MICRODUCTS: Ø 5/3.5 mm

CAPACITY: 1, 2, 4, 7, 12, 19, 24, 26-way



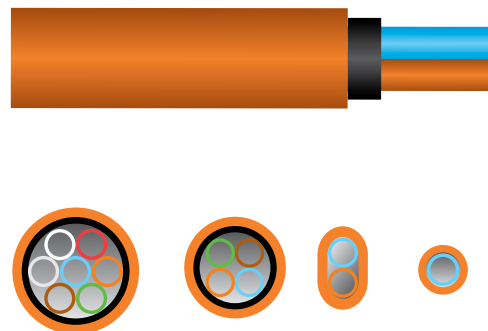
MPB 302 72+

Ducts composed of 10/8 mm or 12/10 mm microducts with a heavy-duty HDPE sheath that enables direct installation in the ground. The microducts have a solid, low-friction inner surface coating for best installation performance.

TYPE: Direct buried installation

DIMENSIONS, MICRODUCTS: Ø 10/8 mm or 12/10 mm

CAPACITY: 1, 4, 7-way



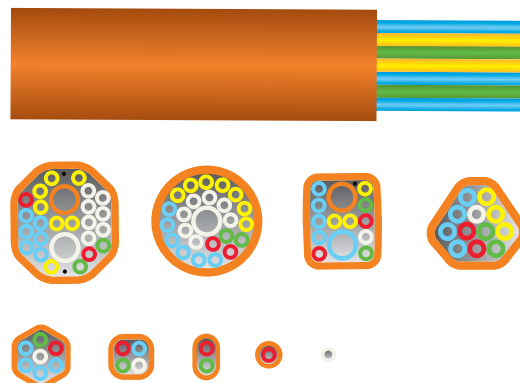
MPB 302 78+, MPB 302 79+

These thick walled ducts are made of 7/3.5 mm microducts. Compared to conventional tight protected duct assemblies, thick walled microducts offer lower splicing and branching cost.

TYPE: Direct buried installation or installation in existing pipes

DIMENSIONS, MICRODUCTS: Ø 7/3.5 mm

CAPACITY: 1, 2, 4, 7, 12, 19, 24-way



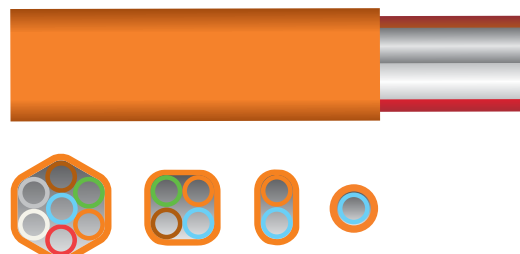
MPB 302 77+

These thick walled ducts are made of 14/10 mm microducts. Compared to conventional tight protected duct assemblies, thick walled microducts offer lower splicing and branching costs.

TYPE: Direct buried installation or installation in existing pipes

DIMENSIONS, MICRODUCTS: Ø 14/10 mm

CAPACITY: 1, 4, 7-way



Duct Joint and Branch Kit

NDE 451 40+

Flexible kit including materials and tools for jointing, branching and mid-span of microducts/multiducts. A vulcanizing cloth is used for sealing, and strong and flexible PVC tape provides mechanical protection. Refill kits are available. Microduct snap-in connectors are not included. NDE 451 40/2 is a kit without tools.

TYPE: Cold seal, branch joint

SEALING: IP class 68

CAPACITY: approx. 10 joints/kit



Micro Cable, Outdoor

TOL 401 9017+

Micro cable based on a slim loose tube design with up to eight tubes per cable. The design facilitates fiber preparation and mid-span access. The cable is suitable for long-distance, air blown installation in microducts, with an inner diameter of as little as 8 mm. The cable has excellent bend performance and extremely wide operational temperature range.

DESIGN: Loose tube

TYPE: Dielectric, slim

DIMENSIONS: Ø5.7 - 8.1 mm

CAPACITY: 12 - 144 fibers



Air Blown Fiber, in a Pan

RPM 258+

Pre-connected air blown fiber (ABF), consisting of fibers encapsulated in a round multi-layer, high-performance coating. The connected ABF is delivered on lightweight reels, optimized for use with the Ribbonet® fiber blowing tool. The ABF is made of bend-resistant G657A2 fiber. The pre-connected ABF is available with 2 or 4 fibers.

TYPE: 2 or 4 fibers, G657A2

CONNECTOR OPTIONS: SC, SC/APC, LC, LC/APC

STANDARD LENGTHS: 30, 50, 70, 100, 150, 200, 250, 300, 350, 400, 500...1000 m



FAT Fiber Jointing Cabinet

NBD 116 501

Outdoor street cabinet designed for blown fiber or cable splicing. It consists of an outer cabinet and an inner splicing compartment. The cabinet is made of aluminum. The cabinet can be used with traditional microducts, thick walled ducts or any type of fiber optic cables.

TYPE: Outdoor cabinet

SIZE: 430x250x860 mm (above ground)

SEALING: IP class 54

CAPACITY: 96 (single)/192 (ribbon) splices, 96 microducts



Duct Joints and Other Duct Equipment

MPB 306+

Microduct snap-in connectors for quick and easy splicing of microducts. The body is transparent for easy fault location during installation. The connector is available for 12/10 mm and 10/8 mm ducts.



Type: Straight connector, Easy Connect

Dimensions, microducts: Ø 10/8 mm or 12/10 mm

The divisible seals for microducts provide a gas and watertight seal for open duct ends installed with air blown fiber. The seals are designed to be installed after the fiber or cable has been blown in to the microduct.



TYPE: Divisible seal for micro cables

DIMENSIONS, MICRODUCTS: Ø 5/3.5 or 7/3.5 mm

Microduct snap-in connectors for quick and easy splicing of microducts. The connector is available for 7/3.5 mm ducts and can be direct buried. It is equipped with safety locks to prevent opening during installation.



TYPE: Straight connector

DIMENSIONS, MICRODUCTS: Ø 7/3.5 mm

The divisible seals for microducts provide a gas and watertight seal for open duct ends installed with micro cables. The seals are designed to be installed after the fiber or cable has been blown in to the microduct.



TYPE: Divisible seal for micro cables

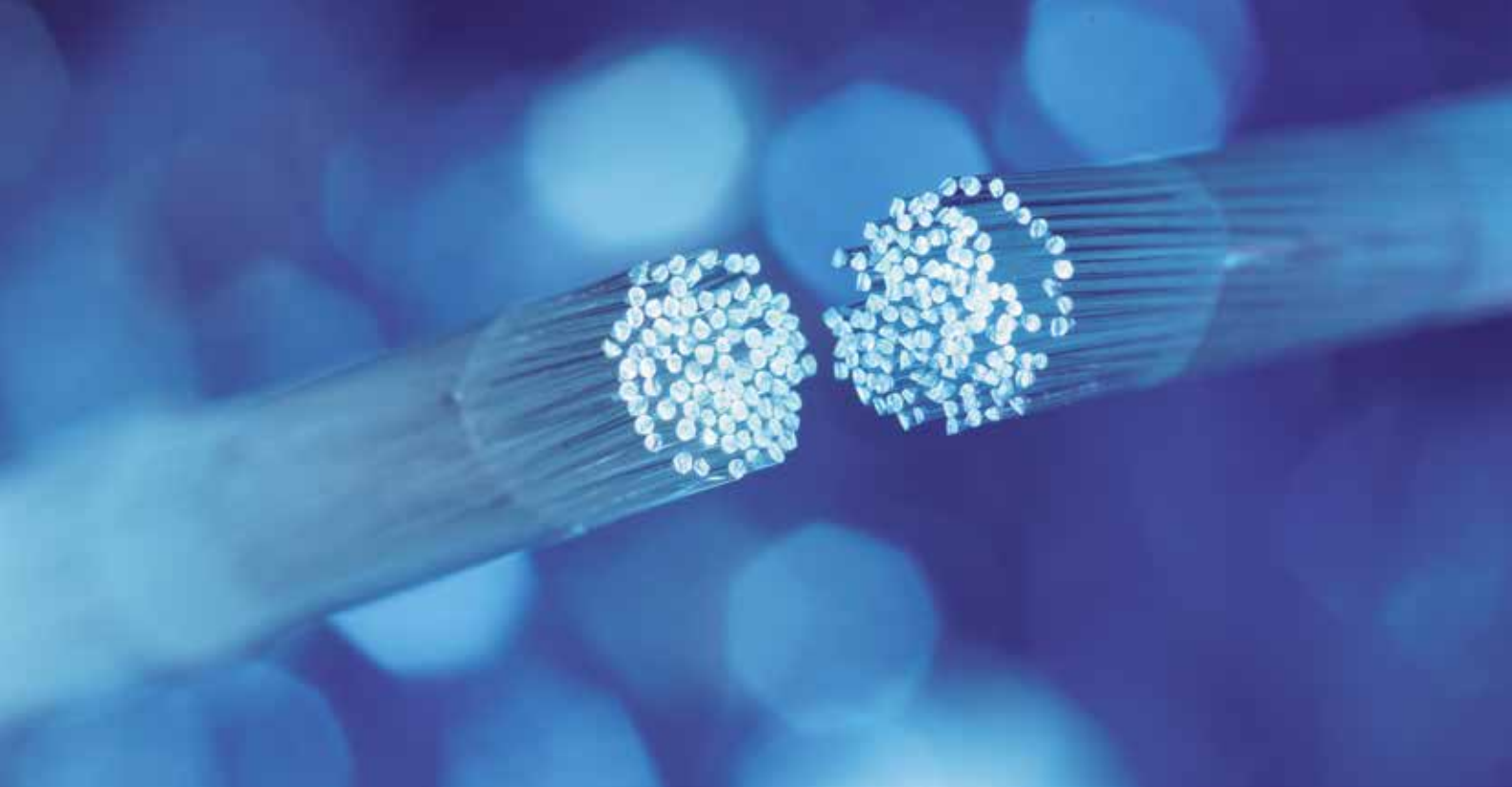
DIMENSIONS, MICRODUCTS: Ø 10/8, 12/10 or 14/10 mm, cables Ø2.5 - 3.9 mm, 5.0 - 6.5 mm, or 6.5 - 8 mm

Microduct snap-in, end-stop connectors for permanent or temporarily sealing of unused microducts to prevent water and dust getting into the duct. This type is intended for thick walled ducts.



TYPE: End stop for TWD

DIMENSIONS, MICRODUCTS: Ø 7/3.5 mm



A guarantee for the future: 20 year warranty on the **Ribbonet**[®] Air Blown Fiber System

Hexatronic offers a 20 year system warranty, for product quality assurance and peace of mind when installing the Ribbonet[®] system.

The guarantee is an assurance that Hexatronic has the best quality products and that the operating performance is a high priority, long after the system has been installed.

The functionality warranty applies to the entire delivered Ribbonet[®] system and its relevant optical specifications in the rare event of an unexpected fault, with the following conditions:

- A Ribbonet[®] certified installer has performed the installation.
- The installation is done according to the installation instructions and recommendations for the Ribbonet[®] products.
- All products within the Ribbonet[®] system are delivered by Hexatronic.
- The fiber units are installed with the Ribbonet[®] fiber installation tool.
- The system is registered, as required.

The 20 year warranty is only valid for the product and its functionality not for damages caused outside the product, faulty handling or procedures outside of Hexatronic's control.

For a full description of the scope of the warranty, registration and claim procedure, contact Hexatronic Cables & Interconnect Systems AB at sales@hexatronic.com or +46 650 54 01 50.



Industry Leading System Solutions for Fiber Optic Communications

Hexatronic Cables & Interconnect Systems develops, manufactures, markets and provides solutions within the fiber optic cable infrastructure, for telecom companies. Hexatronic Cables & Interconnect Systems manufactures fiber optic cable, duct, copper cable and network accessories. The company originates from the former Ericsson site in Hudiksvall. Our products are developed and manufactured by Swedish specialists, with many years of experience and unique expertise in fiber optics. The product portfolio includes the industry leading brands Ribbonet® and Micronet.

A Part of Hexatronic Group

Hexatronic Cables & Interconnect Systems is a part of Hexatronic which is an innovative Swedish technology group, specializing in fiber communications. The Group provides products and solutions for the fiber optic network and together, the five independent, entrepreneurial companies offer a full range of passive infrastructure. We combine our large corporate stability and resources with small company flexibility and speed.

Our customers are companies within the telecommunications industry such as communications and telecom suppliers, operators and network owners. The other companies within The Group are Memoteknik in Skellefteå, Hexatronic Elektronik & Data in Gothenburg, The Blue Shift and Proximion in Stockholm.

For more information about Hexatronic Group: www.hexatronicgroup.com



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