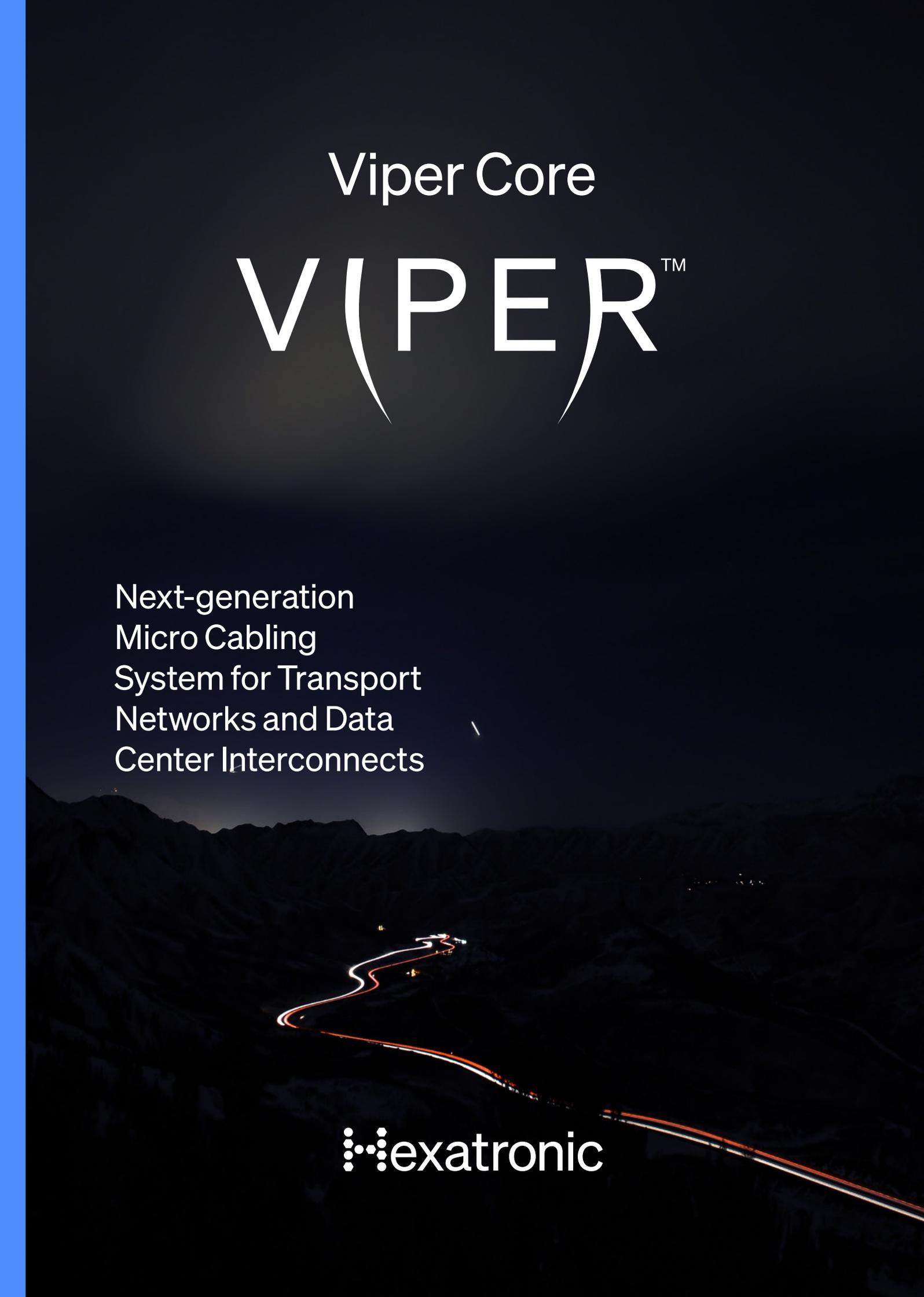


Viper Core

VIPER™

Next-generation
Micro Cabling
System for Transport
Networks and Data
Center Interconnects



 exatronic

A Smarter Way to Build the Backbone of Modern Communication Networks

Hexatronic Viper Core is redefining how core or transport fiber optic networks are built. These long-distance, high-capacity layers form the foundation of modern fiber infrastructure.

As global demand for bandwidth grows and operators seek lower-cost, more sustainable solutions, traditional installation methods with heavy, rigid cables fall behind. The Viper Core system—built on Hexatronic’s state-of-the-art Viper micro cable series—replaces bulky infrastructure with slim, flexible, installation-optimized micro cabling. Engineered for high-performance transport networks and mission-critical data center connections, Viper Core combines advanced micro cables, robust microducts, and specialized accessories to deliver lower total cost of ownership and a significantly reduced environmental footprint. Discover a smarter way to build transport networks.

The Viper Core System



Viper Core - Enhanced Micro Cables

- Available from 12 to 864 fibers
- Ultra-low attenuation for long-distance performance
- Extremely slim, lightweight, and robust design

Read more on page 4.

Robust, Super-slim Microducts for Long-Distance Blowing

- Optimized for transport and backbone routes
- Strong, compact design built for tough conditions
- Ultra-smooth inner surface enabling exceptional blowing distances

Read more on page 5.

High-Capacity Joint Closures for Micro Cable

- Super-high capacity, up to 1344 fibers
- Toolless seals speed up installation
- Adapted for Viper Core micro cables

Read more on page 6.

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Viper Core Applications



Transport Networks

A transport network is the long-distance backbone of a communications system, carrying large volumes of data between cities, regions, data centers, and core network nodes. It provides the high-capacity, long-haul connectivity that supports services like FTTH, 5G, and inter-city or international links. Because it aggregates traffic from millions of users, it must deliver very high bandwidth, long reach, and excellent signal integrity.



Data Center Interconnects

Data center interconnect links connect data centers and campuses, enabling ultra-reliable, high-capacity data transfer between compute, storage, and interconnection points. They form the backbone of modern AI, cloud, and enterprise systems, supporting real-time synchronization and workload scaling across sites. As part of the highest-capacity fiber networks, they demand top-tier performance, density and efficiency.

The Benefits of Viper Core



Faster, Longer, Easier Installation

Viper micro cables are engineered for speed and distance. Blowing distances regularly exceed 3,000 m (9,800 ft), and even 6,000 m (19,600 ft), with center blowing. This reduces cable splicing and intermediate manholes by up to 33%, cutting labor—and minimizing optical loss points.



Reduced Repeater Cost

With ultra-low-loss fiber cables (0.18 dB/km), longer distances can be achieved without the need for repeaters to regenerate the signal power. Reducing the number of repeaters reduces CAPEX and OPEX by up to 20%.¹



Built for Growth

Multi-way microducts let you expand capacity only when demand arrives. Unlike traditional conduit systems, the Viper solution can reduce high-capacity

upgrade costs, enabling you to defer investments until they're truly needed—significantly improving CAPEX by up to 60% without limiting future upgrade paths.¹



Rugged and Reliable

Despite their small size, Viper cables and microducts offer superior stiffness and impact resistance—well above those of traditional conduit systems. The cables operate from -40°C to $+70^{\circ}\text{C}$ (-40°F to $+158^{\circ}\text{F}$) and perform reliably in any environment.



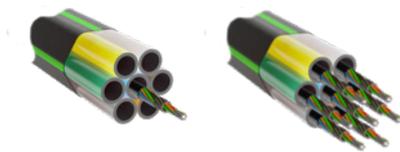
A More Sustainable Network

Viper Core and its microduct infrastructure uses significantly less material—4–6× lower volume and weight than traditional cable and duct systems—reducing product Scope 3 emissions and transport emissions by up to 15× and lowering environmental impact at every stage.

¹ For details, read our whitepaper [Micro Cabling Systems – Driving the Future of Fiber Optic Transport Networks](#)

Micro Cables for Transport Networks

The Hexatronic Viper micro cable series is designed for air-blown installation in microducts, supporting long installation distances and low optical attenuation in transport networks. Cable diameter, jacket friction, stiffness, and fiber attenuation are balanced to ensure outstanding installation performance without sacrificing mechanical or environmental performance. The slim loose-tube design supports up to 36 tubes per cable, simplifies fiber handling and mid-span access, and allows installation in microducts with inner diameters down to 8–12 mm.



Up to 6,048 fibers!

To achieve ultra-high fiber counts, a 7-way duct fully populated with seven 864-fiber cables delivers a total capacity of 6,048 fibers—providing a compact, scalable platform for high-capacity data center interconnects.

Custom versions

Beyond the two standard series, we manufacture custom variants including alternative fiber types such as G.654.E, hybrid fiber combinations, and extreme low-loss configurations. Please contact us for more information.

Viper Core Micro Cable Series

The Viper Core transport-grade micro cables are available in two series, each designed to meet different installation needs and capacity requirements. Together they cover a wide range of transport-network applications, offering reliable performance from medium to ultra-high fiber counts.

High-Performance – TOL4019049+ Series

Featuring bend-resistant 250 μm fibers and full ITU-T G.652D/G.657A1 compliance, this series offers reliable handling and consistently low attenuation. It is the ideal choice for transport networks requiring up to 432 fibers per microduct.



- Up to 432 fibers
- Slim, compact design
- Optimized stiffness for extra-long blowing installation
- Robust inner-tube construction that resists kinking
- Extra wide temperature range: -45 to $+70$ $^{\circ}\text{C}$ (-49 to $+158$ $^{\circ}\text{F}$)
- Excellent bend performance (≥ 75 mm)
- Ultra-low cable attenuation, typically 0.18 dB/km

High-Performance Super-Slim – TOL19110+ Series

Built with 200 μm fibers for maximum compactness, this series fits into the narrowest microducts while still supporting up to 864 fibers. Fully compliant with ITU-T G.652D and G.657A1, it delivers high capacity in an ultra-slim form factor.



- Up to 864 fibers
- Super-slim, high-capacity design
- Optimized stiffness for extra-long blowing installation
- Robust inner-tube construction that resists kinking
- Wide temperature range: -40 to $+70$ $^{\circ}\text{C}$ (-40 to $+158$ $^{\circ}\text{F}$)
- Excellent bend performance (≥ 75 mm)
- Ultra-low cable attenuation, typically 0.18 dB/km

Transport-Enhanced Microducts

Designed for long-distance networks, transport-enhanced microduct systems enable long air-blown installation distances when paired with Hexatronic Viper micro cables. The low-friction inner surface supports runs exceeding 3,000 m (9,800 ft), even with high fiber counts, reducing splice points and lowering deployment cost.

A compact, mechanically robust design ensures reliable performance in demanding environments. Available as single ducts, bundled, or protected variants, these systems provide a scalable foundation for backbone and long-haul networks and support future capacity growth.



Microduct accessories

We offer a full range of accessories to joint, seal, and locate microducts, ensuring reliable installation and long-term network integrity. All components are fully adapted to Viper Core cables and microducts.

Core Microducts

There are several dimensions and configurations of microducts suitable for transport networks, and the optimal choice depends on the specific application. As a general guideline, two featured versions for transport-grade installations are shown below. For other dimensions and configurations, contact us.

18/14 mm Microducts – MPB303xx+ Series

The 18/14 mm dimension (OD/ID) offers an ideal balance between strength, capacity, and blowing performance. They are suitable both for direct-buried installations and for use as subducts inside existing conduits.



- 1- to 7 way
- For direct buried or installaiton in existing conduits
- Slim design with capacity for cables up to 864 fibers
- High ring stiffness and crush resistance
- Super-low-friction inner layer enabling blowing distances up to 3,000 m (9800 ft)

20/15 mm – MPB303yy+ Series

The 20/15 mm (OD/ID) dimension offers extra robustness and superior mechanical protection, outperforming standard conduits in demanding transport-network environments. They are ideal for direct-buried installations.



- 1- to 7 way
- For direct buried applications in harsh environments
- Slim design with capacity for cables up to 864 fibers
- Extra-high ring stiffness and top-tier crush resistance
- Super-low-friction inner layer enabling blowing distances up to 3,000 m (9800 ft)

Joining the Core — Hexatronic Dome Closure System

To support the slim Viper Core micro cables, the Hexatronic Dome Closure Family—Slim (SHDC) and Large (LHDC)—provides compact, high-capacity fiber splicing with efficient organization. High splice density allows large fiber counts in smaller manholes, enabling the use of compact chambers such as the “Viper Den.” Installation is simplified by a toolless cold-seal system that reduces on-site time and eliminates heat-shrink steps. Structured routing, mid-span access, and integrated tube management support fast handling, straightforward maintenance, and cost-effective network expansion.



The Viper Den

Viper Den, the HUS00056 Series, is a compact, easy-to-install vault designed for efficient, reliable network buildouts. Its clean layout and robust design make handling simple - even in tight spaces. Paired with the Hexatronic dome closure system, it delivers a seamless, durable setup for secure splicing.

Versions and Key Features

Hexatronic Dome Closures come in several versions and sizes and are supported by a wide range of accessories. For transport networks based on micro cables, the two main recommended series are shown below:

Slim Hexatronic Dome Closure – SHDC+ Series

The SHDC is a compact dome closure designed for high-fiber-count micro-cable installations in transport networks. Its slim design and efficient fiber layout make it ideal where space is limited.



- Slim, high-density construction
- Supports configurations up to 576 fibers
- Organized and efficient fiber management
- Fast, tool-free cold-seal installation
- Fully compatible with Viper Core micro cables

Large Hexatronic Dome Closure – LHDC+ Series

The LHDC is a spacious dome closure designed for very high fiber capacities in micro-cable based transport networks. Its larger internal layout offers maximum flexibility for organizing and protecting high-count Viper Core splices.



- Large, high-density design for maximum fiber capacity
- Supports configurations up to 1344 fibers
- Efficient, well-structured fiber management
- Fast, tool-free cold-seal installation
- Fully compatible with Viper Core micro cables

Reduced Footprint, Reduced Cost — Two Outcomes, One Smart Solution

As sustainability becomes a defining factor in infrastructure development, network operators are increasingly prioritizing solutions with lower carbon footprints. Micro cabling offers a clear advantage: by using significantly smaller cable and duct dimensions, it reduces plastic consumption, cuts material volumes, and lowers CO₂ emissions throughout the entire lifecycle—from raw material production to transportation, installation, and long-term operation.



Traditional cabling systems can require 4–6× more material, resulting in a dramatically higher environmental impact. Even more concerning are oversized conduit systems, such as 4-inch duct installations, which can generate up to 15× higher CO₂ emissions than an equivalent microduct solution.² These differences underline the importance of choosing modern, material-efficient infrastructure.

Micro cabling is more than a product shift—it represents a strategic move toward leaner, more adaptable, and more sustainable transport networks. While traditional designs were built for legacy needs, today’s backbone networks demand solutions that deliver superior performance, reduced operational costs,

and strong environmental benefits. Viper Core and its microduct ecosystem meet those demands head-on.

Reduced Material Consumption

One of the strongest environmental advantages of micro cabling is its efficient use of materials.

Smaller diameter, massive savings

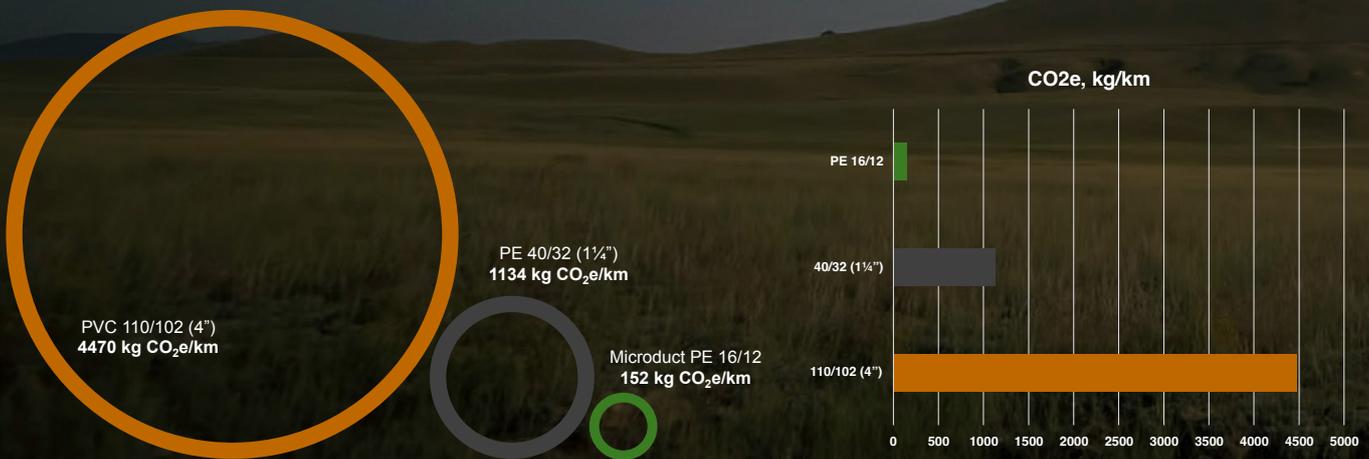
A conventional transport cable typically has a diameter 2–2.5 times that of a micro cable. This small dimensional difference translates into a 4–6× increase in volume and weight, meaning traditional systems require vastly more plastic for both the cable and its ducting. Switching to micro cabling, therefore, reduces the consumption of raw materials at every stage.²

More efficient duct systems

Because large legacy cables require larger conduits, the environmental cost multiplies. Micro cabling uses slimmer ducts that contain far less plastic, further reducing total system material use. In large-scale transport networks, these savings compound across every kilometer—significantly cutting CO₂ emissions and overall environmental impact.²



² For details, read our whitepaper [Micro Cabling Systems – Driving the Future of Fiber Optic Transport Networks](#)



Connectivity creates opportunity. Hexatronic delivers future-ready fiber solutions for critical infrastructure, from telecom networks to rugged environments and data centers. Our systems are built to last, designed to scale, and supported by expert training and field services. In close collaboration with our customers, we shape solutions that strengthen communities and drive innovation in a connected world.



Want to learn more about the benefits of micro cabling in transport networks?

[Read our white paper: Micro Cabling Systems – Driving the Future of Fiber Optic Transport Networks](#)