



7 Fiber Cable Types to Consider for Your Environment

There are many reasons why fiber optic cables play an essential role in many of today's networks and infrastructure: They offer long-distance capabilities, fast speeds, excellent reliability and futureproof performance to support the next generation of technology.

You'll often find a few common fiber types being used in enterprise applications, data centers, smart buildings and industrial environments (both indoors and outdoors). Let's take a closer look at them.

Get to Know Central Loose Tube and Multi Loose Tube Fiber Cables

If you're dealing with uncontrolled temperatures, outdoor environments and/or moisture, then these cables can handle it. They can be buried directly in the ground or in a duct.


They're known as "loose tube cables" because the buffer (the tube or protective coating over the fiber) is loose. The fiber floats inside—with or without gel—to minimize contact and stresses with the buffer layer. This gives the fiber room to relax and contract at different rates when exposed to hot and cold temperatures without affecting signal performance.

Central Loose Tube Cable

The construction of a *central loose tube cable* is exactly what its name implies: It consists of one central loose buffer tube that contains one or multiple fibers inside a cable jacket. Because it contains only one tube, it's usually smaller in diameter and easier to install than a multi loose tube cable.

A *multi loose tube cable* has multiple buffer tubes (instead of one) cabled together around a central strength member—usually an all-dielectric fiberglass epoxy rod that provides tensile strength and prevents kinking. Because it contains more than one tube, a multi loose tube cable is usually larger and supports higher fiber counts than a central loose tube cable.

Deciding between central loose tube and multi loose tube fiber cable comes down to your specific application and what it requires in terms of space and fiber density.

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Get to Know Distribution Fiber Cables

Distribution Fiber Cables

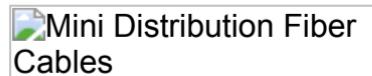
Distribution cables are designed for backbone applications that move signals back and forth between entrance facilities, equipment rooms and telecommunications rooms.

Typically, a distribution cable's fibers are tight buffered with aramid yarns and bundled in a single outer jacket. If the cable has a high fiber count (24 or more fibers—fiber counts in distribution cables can reach up to 144 fibers), then the fibers are grouped into subunits of six or 12 fibers. The tight-buffered coating is a standard 900 μm size so the cable can be easily connectorized and plugged in to patch panels with standard

SC and LC connectors.

Get to Know Mini Distribution Fiber Cables

Also called micro distribution cables, [mini distribution cables](#) are an evolution of traditional distribution cables—just miniaturized.

Mini Distribution Fiber Cables

They offer a practical way to increase fiber density while taking up less space than a distribution cable by eliminating unnecessary materials. These cables are ideal for use in high-density environments like data centers.

To fit more fiber into one cable, the tight-buffered coating is omitted, leaving the 250 μm fiber. Therefore, the subunits (tubes with multiple fibers in them) and jacket can be reduced in size while maintaining the necessary amount of aramid yarn for tensile strength and termination anchors. In this fashion, they differ slightly from loose tube cables, which do not make use of strength yarns inside the subunits. A loose tube subunit may substitute SAP-coated threads or waterblocking gel instead if moisture is a concern.

Get to Know Breakout Fiber Cables

Breakout Cable

Breakout cables contain between two and 24 “breakout units” that each contain a 900 μm fiber tight buffer with aramid yarns and a jacket surrounding it. In addition to having their own jackets, the breakout units are also encased in an overall jacket, creating a rugged design.

Breakout cables are sometimes used for intra- and inter-building backbones, as well as for junction boxes, patch panels and conduits, and on factory floors. For example: The cables can be run in a cable tray and patched to different sensors or panels on a production line.


Get to Know ADSS (All-Dielectric Self-Supporting) Fiber Cables

This cable type is used primarily outdoors and is strong enough to support itself. It's strung between structures (like poles) without any conductive metal elements like lashing wires.

Designed with materials that withstand hanging installations for long periods of time, ADSS fiber cables can also endure tough environmental conditions, from wind and ice to vibrational forces and lightning. They're used for network loop architectures from pole to building.

 ADSS Cable

Get to Know Ribbon Fiber Cables

 If you're in a high-density environment where installers need to get lots of work done quickly and space is a concern, then [ribbon cable](#) may be the right option.

Traditionally, each fiber in a cable must be connectorized or spliced, which takes up valuable time. For example: One loose tube cable containing 144 fibers will require more than 4.5 hours of time to terminate (assuming that each fiber takes two minutes to terminate).

Because ribbon cable arranges four, eight or 12 fibers into a flat strip, you can terminate much faster. The cable is pre-ribbonized (groups of individual fibers are bonded together or ribbonized) for faster, easier [mass fusion splicing](#). All fibers in the strip can be spliced at once.

Making the Right Choice

Picking the right fiber cable for your environment requires finding a balance between cost, application needs and timelines. How important is density? Do you need an extra-rugged cable? How quickly does installation have to be completed? How critical is uptime?

If you have any questions about what type of fiber cable to choose, then ask your Belden representative or [send us a note](#). We're here to help you find what you need.