

FIBER STORAGE | ARE YOU DOING IT WRONG?



Utilities and communication construction companies often make financial cutbacks on the front end of a project, only to find out that conservatism causes higher costs on the back end. After concluding projects, Project Managers realize that those expensive corrections could have been avoided if the right products and procedures had been used to facilitate a clean and safe cable environment.

In the early years of fiber optic cable storage, linemen had no reasonable way to store cable other than to simply coil it up on the line and create a “rats nest”. This method leaves the cable vulnerable to the elements and creates a tendency for the cable to migrate. Contractors were constantly revisiting these ineffective storage locations and wasting valuable time and money trying to correct an issue that could be solved with proper planning.

Now, storing, installing, and maintaining cable in a cost effective way is easy. Instead of using financial shortcuts on the front end of a project, engineers are now opting for a more economical way to store fiber in a manner that keeps it protected, thus saving money overall.

OPTI-LOOP™ FOS SOLUTION

The benefits of fiber storage loops have made them a preferred industry method for storing and protecting reserve lengths of lashed fiber and ADSS fiber. Hubbell Power Systems' OPTI-LOOP™ Fiber Optic Storage (FOS) solutions are the standard for aerially storing and protecting fiber optic cable in the field.

OPTI-LOOP™ FOS FEATURES:

- Sizes that will accommodate all types of cable up to 1.50"
- Some units can be stacked for even more versatility
- Offered in aluminum and plastic made of polypropelene containing UV inhibitor
- Lightweight and compact to minimize stress and ice loading on the fiber cable

Installation of the OPTI-LOOP system is designed to be a one man, one tool, one truck, 30-45 minute operation. The stored length of cable can be lowered and reinstalled in minutes without disturbing the main run. The reduced cost associated with hardware, labor and equipment saves time and money. OPTI-LOOP is neatly stored, and there are no coils, boxes, “arm” assemblies or unsightly cables running down the pole. They provide a convenient and safe splice closure mounting point because splice closures are mounted directly to the dead-end hardware, keeping it neatly secured with no load on the fiber cable. OPTI-LOOP is approved for use in both the communication and supply regions of the pole. There is no limit on amount of cable that can be stored, and they can be used on wood, steel or concrete poles.



FIGURE 1.1

STORAGE REEL

In some regions, cable storage is attempted with a device as shown in Figure 1.1. At first glance, this product seems to justify itself by essentially providing a storage area, as opposed to simply “looping” cable on a line. However, this method leaves the cable exposed and potentially hazardous, further costing an exorbitant amount in repair and lost service time.



FIGURE 1.2

CABLE TWISTING

This “garden hose” method of storing cable encourages cable twisting which results in attenuation and diminished signal strength. The preferred method of storage needs to address this concern and enable a safer method that will prevent twists in the fiber sheath when the cable is retrieved for later use.

CABLE PINCHING

Notice the way that the cable is installed on the device in Figure 1.1. Tie wraps are directly attached to this large bundle of cable. When this method is implemented, it pinches down on the cable causing damage to fragile fibers. Similar to twisting, the result is attenuation and lost signal to the customer. Cable needs to be stored in a way that minimizes contact with tight tie-wraps so that no pinching occurs. If cable is nestled into a channel (see Figure 1.2) and the tie-wraps cover the surface of the storage device as opposed to direct contact with the fiber, pinching is completely avoided.

CABLE MEMORY

Because of its construction, cable has a natural tendency to take on the shape to which it's molded. When cables are stored in a tight coil, uncoiling affects the cable memory. When contractors try to re-straighten that line, the tiny optical fibers have a tendency to migrate. An alternative method of storing cable would preserve cable memory by allowing the cable to bend naturally according to the outside diameter.

CABLE STRESS

When cable is stored in a method that does not support and protect it, cable stress occurs resulting in broken fibers and diminished or interrupted signal. It's always best to store cable inside a protective channel (Figure 1.2) so that you create a smooth transition to the messenger. An outward or inward facing channel also safely and securely protects cable from direct contact with harsh weather elements.

APPROVAL. IT'S IMPORTANT.

Always be sure your method of storing cable is approved for use by the manufacturer of that cable. Otherwise, when damage occurs from using ineffective methods of storage, the warranty will be voided.

BEND RADIUS

One-size-fits-all is never a good rule of thumb when storing cable. Bend radius is a real, ever-present issue that must be observed in order to protect the integrity of the cable. By tightly coiling cable in a device that isn't engineered to protect specific sizes of cable, all of the previously mentioned factors (twisting, memory, stress, etc.) will become a huge problem on your line. Additionally, those tender fibers will likely be broken.

SPLICING

Every fiber cable storage scenario must consider that one day, that particular cable will need to be revisited for service and/or splicing for new builds. When it's time to add new lines, splicing is one of the most expensive tasks. When systems are installed in ways that don't take future splicing into consideration, new problems arise. By storing fiber aerially on the line with reserve cable protected, splicing is simplified.



AESTHETICS

Large coils of fiber on a pole are an eye sore and get in the way of a lineman working at that pole. Storing the cable safely on a line creates a much more pleasant appeal.

By storing cable in a Figure “8” storage pattern, it prevents twists in the fiber sheath when stored cable is retrieved for use. The fiber resists attenuation and it will prevent outages resulting from damaged cable. The plastic direct-attach models of OPTI-LOOP units contain minimal conductive materials, and therefore may be used above ground neutral. The majority of standards engineers use OPTI-LOOP as the preferred method of storing cable to help eliminate fiber optic cable storage problems.





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