



OCC-206-7

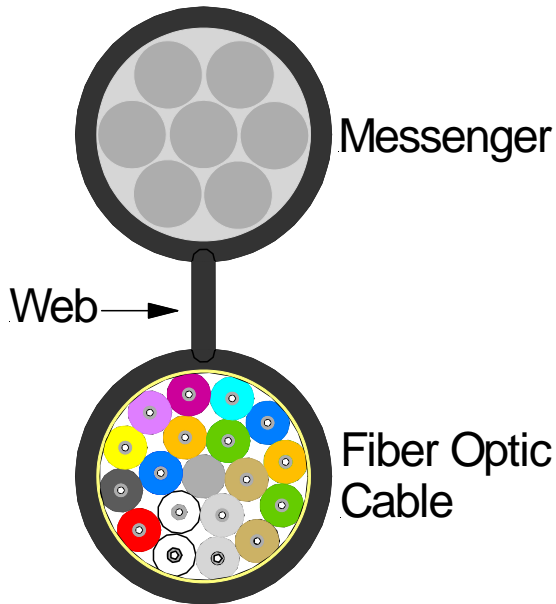
*Installation - Figure 8
Guidelines*

*Excerpt
from*

*Optical Cable Corporation's
INSTALLATION GUIDE*

Figure 8

A figure 8 fiber optic cable design incorporates a steel or dielectric messenger into the fiber optic cable thus, eliminating the need to lash a fiber optic cable to a messenger. A figure 8 fiber optic cable consists of three components: the messenger, the webbing, and the fiber optic cable.



A figure 8 messenger cable has several advantages. Installation material cost may be reduced by eliminating the need to purchase a separate messenger wire and lashing wire. The labor cost can be greatly reduced in that there is only one installation job, installing the figure 8 cable. This compares with two installation jobs required when first the messenger must be installed, and then the cable installed by lashing it to the messenger. Typically, the overall cost of the installation may be reduced by as much as 40 %.

The OCC figure 8 cables are also uniquely available in an all dielectric configuration. This may eliminate issues of use near other cables or reduce the possibility of lightning strikes in high lightning areas.

Installation Precautions

Some precautions to installing figure 8 cables include the following:

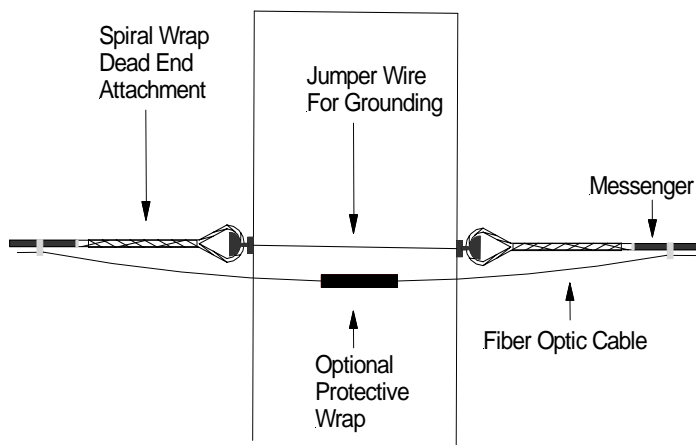
- Cables installed near high voltage lines should be grounded if they contain conductive elements
- Follow the National Electrical Safety Code (NESC) for all installations
- Cables that contain a corrugated steel tape should be grounded
- Steel messengers should be grounded
- Maintain proper clearances between the fiber optic cable and the power cables
- Make allowances for sag
- The cable should be kept on one side of the poles (avoid zigzagging from one side of the pole to the other)
- Avoid twisting of the cable
- Always pull cable by the steel or dielectric messenger
- Maintain the minimum bending radius (MBR). The minimum bending radius for Optical Cable Corporation's figure 8 cables are as follows:
 - o Short Term Tensile Loading
 - 20XOD
(fiber optic cable outside diameter)
 - o Long Term Tensile Loading
 - 10XOD
(fiber optic cable outside diameter)

Hardware

Dead Ends

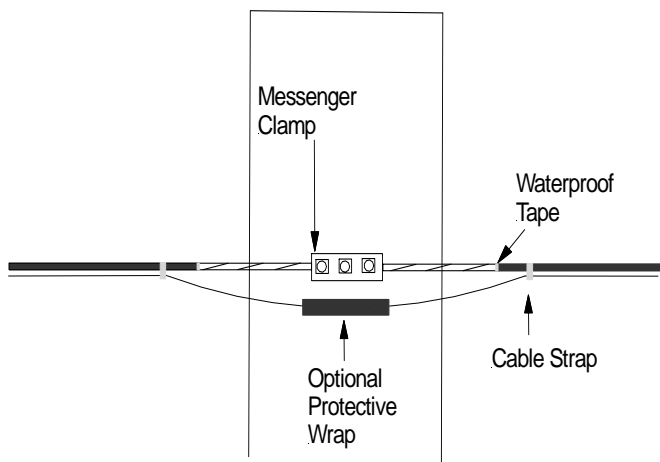
Dead ends maintain the tension in the cable. A typical dead end consists of spirally formed high strength steel wires which are installed to the bare messenger wire of the figure 8 cable.

Another type of dead end is a strandwise. This type of dead end grips the messenger by using a compression sleeve when installed on the messenger.



Tangent Support Clamps

Tangent support clamps are used to support the figure 8 cable where limited tension is applied to the figure 8 cable. Various types of tangent support clamps, typically 3-bolt designs, are available such as Type C, Corner Suspension Clamps, etc. Please consult the tangent support clamp manufacturer for pull tolerances, sizes, and angle departure.



J Hooks

J Hooks can be used to temporarily hold the cable on all poles during the installation until a dead end pole is reached.

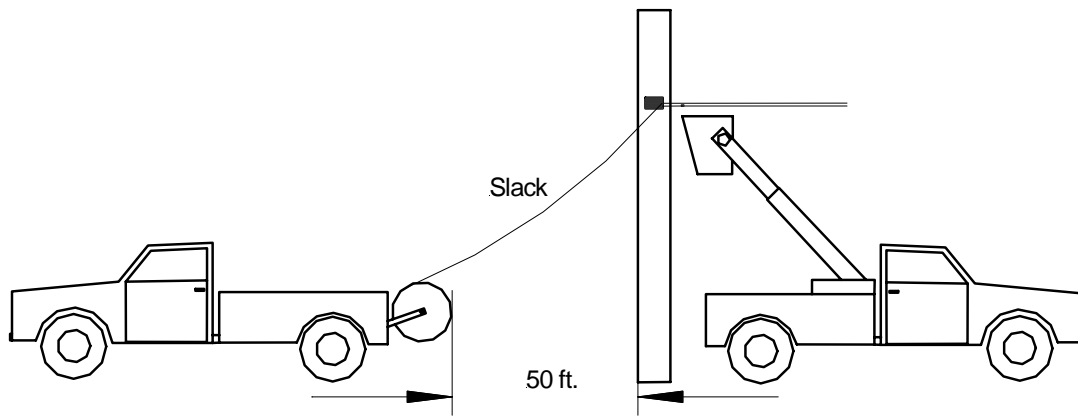
Installation

There are two basic types of installation techniques; moving reel method and stationary reel method.

Moving Reel Method

The moving reel method is best used when there are no obstacles between the cable reel and the aerial section of placement. Also, a clear path along side the poles is needed for the reel trailer and trucks. This method of installation is typically less costly than other methods due to the fact that there is less hardware involved during the installation.

The cable is payed off a moving reel trailer, or truck, while driving along the route of the poles. At each pole location, the reel must be kept at least 50 feet down the line from the pole while the cable is lifted into place on the pole. J Hooks are used to temporarily hold the cable in place on each pole until a dead end pole is reached. Once a dead end pole is reached, the messenger is tensioned and the messenger is terminated with dead end hardware and attached to the pole. Once the cable has been secured with the dead end hardware, the cable between the dead ends should be securely fastened to the poles by removing the J Hooks and attaching the proper tangent support hardware.



Moving Reel Method

Stationary Reel Method

The stationary reel method is best used when there are obstacles along the planned cable route that do not allow a reel trailer and truck to drive through. This method is generally more costly than other methods.

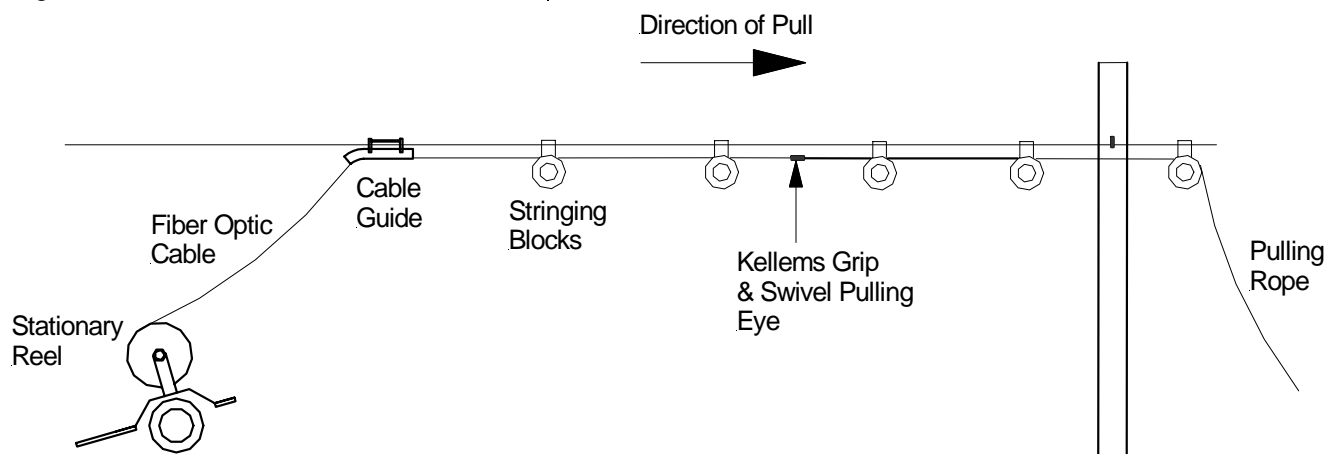
In the stationary reel method, the figure 8 cable is pulled into place using rope and stringing blocks placed at each pole along the route. The radius of the stringing blocks must meet the minimum bending radius (under installation load or short term load) of the cable.

During the pull of the cable onto the stringing blocks, Kellems pulling grips and a break-away swivel that is rated at the proper pulling tension of the cable should be used

to attach the pulling rope to the cable. Please refer to the Installation – General Guidelines of the Optical Cable Corporation Installation Guide.

Once the cable has been pulled into place, the messenger is tensioned and terminated with dead end hardware and attached to the pole at each dead end location along the route.

Once the cable has been secured with the dead end hardware, the cable between the dead ends should be securely fastened to the poles by removing the cable from the stringing blocks and attaching the proper tangent support hardware.



Stationary Reel Method

Installation – Figure 8 Guidelines Excerpt from Optical Cable Corporation's *Installation Guide*

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