Hardware Selection Guide for PowerGuide® ADSS Cable

Contents

1. General

1.1 This document describes the hardware that is used to attach *PowerGuide* ADSS cable to the pole or tower structure. Currently, only one hardware vendor – Preformed Line Products (PLP) – is approved to provide attachment hardware for *PowerGuide* cable[3]. This hardware approval requires extensive qualification testing to ensure safe and reliable service with *PowerGuide* cable. Attachment hardware from other vendors is not recommended for use with *PowerGuide* cable.

2. FIBERLIGN Lite Tension Dead-End

2.1 FIBERLIGN Lite Tension Dead-Ends (Figure 1) are used to transfer cable tension to the pole or supporting structure. The Lite Tension Dead-End is intended for short-span distribution or FTTH applications where the maximum short-term cable tension does not exceed 800 lb. The Lite Tension Dead-End is not recommended for use over critical spans, e.g., highway or river crossings.

2.2 Lite Tension Dead-End assemblies are used in the following applications.

- Cable starting and ending locations.
- Splice locations (requires 2 dead end assemblies).
- Slack storage locations (requires 2 dead end assemblies).
- Where the span length exceeds the maximum recommended span length for standard suspension hardware (requires 4 dead end assemblies, 2 at each end of the long span).
- Where a change in direction or elevation (line angle change) exceeds the maximum recommended line angle change for standard suspension hardware, usually 20 degrees (requires 2 dead end assemblies).

[1] FIBERLIGN is a registered trademark of Preformed Line Products, Cleveland, OH.
[2] ADSS-CORONA is a trademark of Preformed Line Products, Cleveland, OH.
[3] ADSS hardware from the former Tyco Dulmison Division is also approved for use with OFS PowerGuide cable. Tyco's Dulmison Division was acquired by PLP in December 2009.

2.3 The Lite Tension Dead-End is a single layer, light duty, formed-wire dead-end. The legs of the dead-end are coated with latex and flared at the ends to prevent cable damage during and after installation. The dead-end assembly is color coded for easy identification and installation.

2.4 Lite Tension Dead-Ends are available for cable diameters ranging from 0.375" to 0.75". The dead-end for your application must be selected based on the outside diameter (OD) of the *PowerGuide* cable.

2.5 The Lite Tension Dead-End includes the dead-end grip and a thimble eye. The assembly does not include the pole hardware (through bolt, square nuts, and washers).

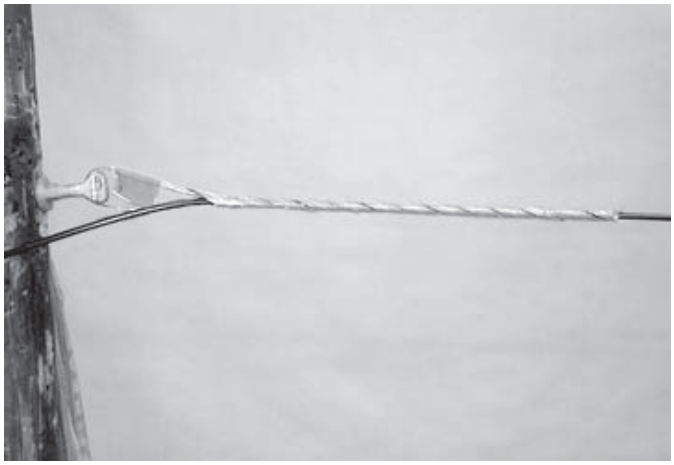

Figure 2 – Light Tension Dead-End

3. FIBERLIGN Dielectric Dead-End

3.1 FIBERLIGN Dielectric Dead-Ends (Figure 2) are used to transfer cable tension to the pole or supporting structure. Dead-end assemblies are used in the following applications.

- Cable starting and ending locations.
- Splice locations (requires 2 dead end assemblies).
- Slack storage locations (requires 2 dead end assemblies).
- Where the span length exceeds the maximum recommended span length for standard attachment hardware (requires 4 dead end assemblies, 2 at each end of the long span).
- Where a change in direction or elevation (line angle change) exceeds the maximum recommended line angle change for standard suspension hardware, usually 20 or 30 degrees (requires 2 dead end assemblies).

3.2 The dead-end assemblies are available for a broad range of cable diameters. The dead-end assembly for your application must be selected based on the OD of the *PowerGuide* cable.

3.3 Dead end assemblies are available for low, medium, and high tension applications as summarized in Table 1.

3.4 The dead end assembly is color coded for easy identification and installation.

3.5 The Dielectric Dead-End assembly includes the structural reinforcing rods, dead end grip, thimble clevis, extension link, and eye nut. The assemblies do not include the pole hardware (through bolt, square nuts, and washers).

Table 1

Application	Maximum Cable Tension
Limited Tension	2500 lb
Medium Tension	4000 lb
High Tension	7500 lb

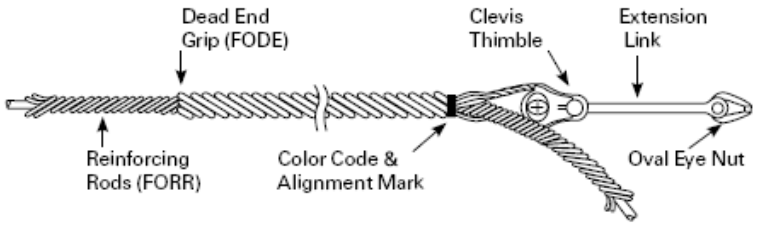

Figure 2 – FIBERLIGN Dielectric Dead-End

4. FIBERLIGN Lite Support

4.1 FIBERLIGN Lite Supports (Figure 3) are used to support the cable at intermediate pole locations where the line angle change (direction or elevation) does not exceed 20 degrees.

4.2 The maximum recommended span length for the Lite Support is 300 ft. It is intended for applications where the vertical load does not exceed 1000 lb under storm-load conditions.

4.3 The Lite Support is designed to support two cables. The cable inserts must be selected to match the cable OD.

4.4 The housing of the Lite Support is made from a high-strength urethane material. The inserts are made from a soft dielectric material that cushions and clamps the cable within the housing. The cable insert is sized to grip the cable without exerting excessive clamping forces.

4.5 The support assembly includes the top and bottom housing sections and cable inserts. The assembly is mounted on a standard 5/8" through bolt. The assembly does not include the pole hardware (through bolt, square nuts, and washers).

4.6 The Lite Support can also be band mounted on the pole. When band mounted, the steel banding occupies one of the cable positions.

4.7 FIBERLIGN Lite Supports are not recommended for use with *PowerGuide* Track Resistant (TR) cable.

4.8 FIBERLIGN Lite Supports ***are not recommended for use as a cable stringing device***.

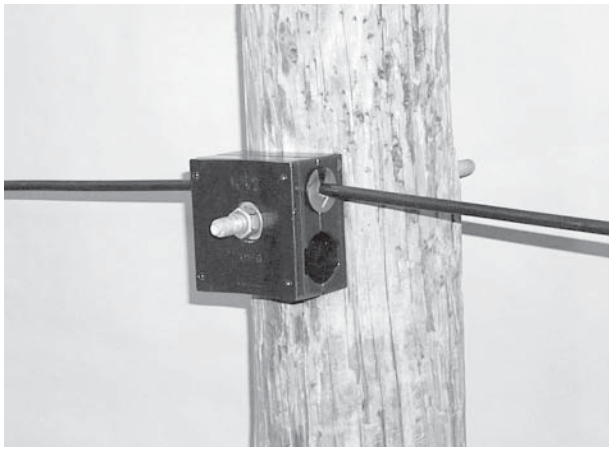

Figure 3 - FIBERLIGN Lite Support

5. FIBERLIGN Dielectric Support

5.1 FIBERLIGN Dielectric Supports (Figure 4) are used to support the cable at intermediate pole locations where line angle changes (direction or elevation) do not exceed 20 degrees.

5.2 The maximum recommended span length for the FIBERLIGN Dielectric Support is 600 ft for cable ODs < 1.00". For larger cables, the maximum recommended span length is 300 ft.

5.3 The Dielectric Support includes a cable insert which is sized to provide slip strength performance without imposing excessive clamping forces on the cable. The nominal slip strength is 300 lb.

5.4 The assembly includes the top and bottom housing sections, cushioned insert, and captured bolts with washers. The assembly is mounted on a standard 5/8" through bolt. The assembly does not include the pole hardware (through bolt, square nuts, and washers).

5.5 FIBERLIGN Dielectric Supports are not recommend for use with *PowerGuide* TR cable.

5.6 FIBERLIGN Dielectric Supports ***are not recommended for use as a cable stringing device***.

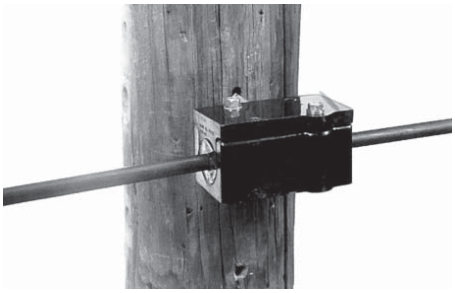

Figure 4 – FIBERLIGN Dielectric Support

6. FIBERLIGN Aluminum Support

6.1 FIBERLIGN Aluminum Supports (Figure 5a) are used to support the cable at intermediate pole locations where line angle changes (direction or elevation) do not exceed 20 degrees.

6.2 FIBERLIGN Aluminum Supports are recommended for span lengths up to 600 ft for cable ODs < 1.00". For larger diameter cables, the maximum recommended span length is 300 ft. The maximum recommended vertical load under storm-load conditions is 1000 lb.

6.3 The Aluminum Support includes a cable insert which is sized to grip the cable without exerting excessive clamping forces. The nominal slip strength is 300 lb.

6.4 The Aluminum Support can be bolted or banded to the pole. Multiple aluminum supports can be stacked together as shown in Figure 5b.

6.5 The Aluminum Support assembly includes the housing, cable insert, and captured bolt and washers. The assembly does not include the pole hardware (through bolt, square nuts, and washers).

6.6 FIBERLIGN Aluminum Supports are not recommended for use with *PowerGuide* TR cable.

6.7 FIBERLIGN Aluminum Supports ***are not recommended for use as a cable stringing device***.

(a) **(b)**

Figure 5 – (a) FIBERLIGN Aluminum Support and (b) two Aluminum Supports stacked together.

7. FIBERLIGN Aluminum Suspension

7.1 FIBERLIGN Aluminum Suspensions (Figure 6) are used to support the cable at intermediate pole locations where line angle changes (direction or elevation) do not exceed 20 degrees.

7.2 The Aluminum Suspension is recommended for span lengths up to 600 feet

7.3 Optional structural reinforcing rods are available for the Aluminum Suspension (Figure 7). When used with the optional reinforcement rods, the Aluminum Suspension can be used for line angle changes up to 30 degrees and span lengths up to 1200 ft.

7.4 The structural reinforcement rods are recommended when the Aluminum Suspension is used with *PowerGuide* TR cables.

7.5 The Aluminum Suspension assembly includes the housing w/captured bolt, lock nut, cable insert, shackle, eye nut, and (optional) structural reinforcement rods. The assembly does not include the pole hardware (through bolt, square nuts, and washers).

7.6 Suspended tangent supports ***are not recommended for use as a cable stringing device***.

Figure 6 – FIBERLIGN Aluminum Suspension

Figure 7 – FIBERLIGN Aluminum Suspension with structural reinforcing rods

8. FIBERLIGN Dielectric Suspension

8.1 The Dielectric Suspension is a dual-layer formed-wire attachment assembly (Figure 8) used to support the cable on intermediate structures where line angle changes (direction or elevation) do not exceed 30 degrees.

8.2 The Dielectric Suspension is recommended for use on spans up to 2000 feet in length.

8.3 The Dielectric Suspension provides bend radius protection for the cable, protects the cable from the dynamic stresses of aeolian vibration, and reduces compression and bending stresses on the cable.

8.4 The assembly includes the structural reinforcement rods, cable inserts, housing, outer support rods, Y-clevis, and eye nut. Additional fittings or hardware that may be required to attach the assembly to the structure are not included.

8.5 The formed-wire attachment assembly is color-coded for easy identification and installation.

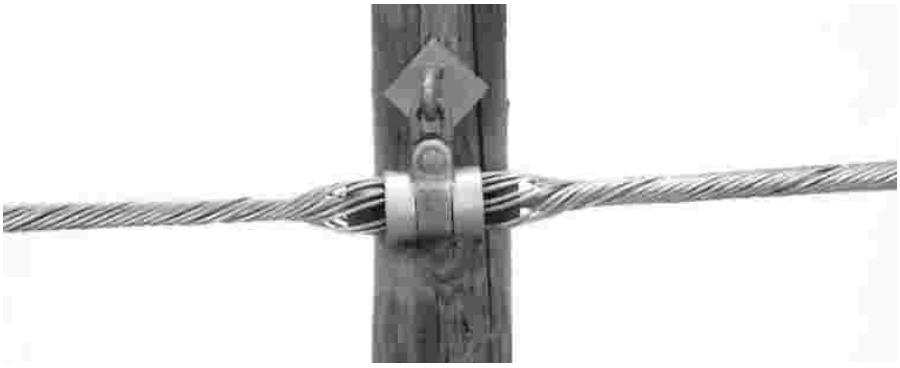

Figure 8 – FIBERLIGN Dielectric Suspension

9. FIBERLIGN CLAS Storage System

9.1 The CLAS (Center-Lock Aerial Slack) Cable Storage System (Figure 9) is used to organize and store slack cable at splice locations and designated cable storage locations.

9.2 Two cable storage brackets, or “snow shoes”, are typically used at each cable storage location. The ADSS cable must be dead-ended on both sides of the pole at the cable storage location. The snow shoes are suspended from the ADSS cable using UV resistant cable straps.

9.3 The CLAS Storage System accepts cables up to 1” in diameter and provides a bend diameter of 18” (20” when the cable is stored adjacent to the expansion tabs).

9.4 Two snow shoes and a pole-mounted cable guide are provided with each kit.

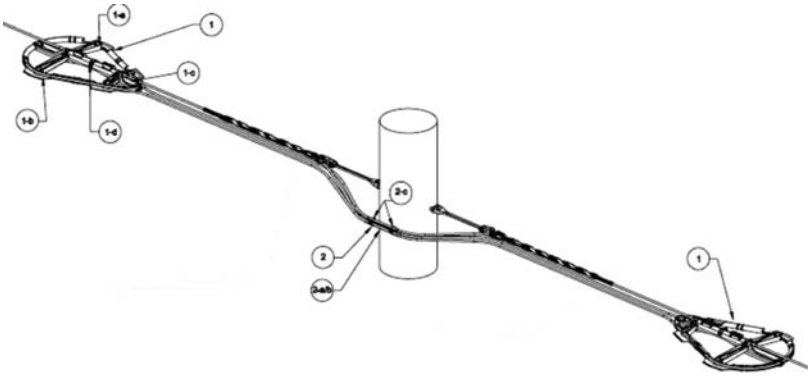

Figure 9 – FIBERLIGN CLAS Cable Storage System

10. FIBERLIGN Dielectric Dampner

10.1 The FIBERLIGN Dielectric Dampner (Figure 10) is a spiral vibration dampner used to reduce aeolian vibration in *PowerGuide* cables. Aeolian vibration is low magnitude, high frequency cable vibration that can cause fatigue failure of cable support hardware and in extreme cases may cause cable damage or failure.

10.2 OFS recommends the use of spiral vibration dampners on all transmission line applications as well as critical long-span crossings over rivers, canyons, highways, etc. Dielectric Dampners should also be used in any area where there is a history of aeolian vibration in existing cables.

10.3 The Dielectric Dampner is selected based on the OD of the cable. The number of vibration dampners required in a span is dependent on the span length. Please refer to OFS Application Note AN-812 for further installation details.

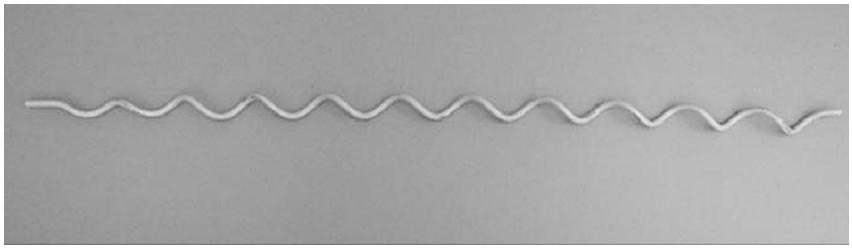

Figure 10 – FIBERLIGN Dielectric Dampner

11. ADSS-CORONA Coil

11.1 ADSS-CORONA Coils (Figure 11) are used to reduce the electrical stress at the ends of metallic dead-end grips and structural reinforcement rods on cables installed in high-voltage electrical fields. The corona coils are designed to suppress electrical arcing that may occur at the ends of the metal rods and damage the outer jacket of *PowerGuide* cables. Corona coils should be used on all installations where the electric field space potential exceeds 12 kV (all installations that require *PowerGuide* TR cable).

11.2 The ADSS-CORONA Coils are designed for use with PLP Dielectric Dead-Ends, Aluminum Suspensions with structural reinforcement rods, and Dielectric Suspensions. They should not be used with other dead-ends or suspension devices.

11.3 The corona coil is installed by wrapping the gripping section directly over the structural reinforcement rods. The corona suppression coil must be centered over the ends of the rods for maximum stress reduction. Proper use and installation of the corona coil will increase the onset of corona discharge to space potentials greater than 30 kV. Please refer to OFS Application Note AN-811 for further details.

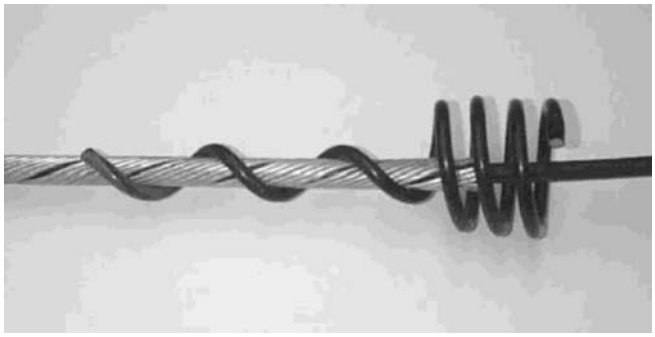

Figure 11 – ADSS-CORONA Coil

12. FIBERLIGN Downlead Cushion

12.1 FIBERLIGN Downlead Cushions (Figure 12) are used to secure two riser cables to the pole or supporting structure. The cable grooves are sized to match the OD of the *PowerGuide* cable.

12.2 The downlead cushion is a two piece block made from a weather resistant urethane. It is available with mounting hardware for wood pole or steel lattice-tower applications.

Figure 12 – FIBERLIGN Downlead Cushion

13. FIBERLIGN ADSS Cable Abrasion Protector

13.1 The ADSS Cable Abrasion Protector is used to protect the *PowerGuide* cable from abrasion. The abrasion protector is used in areas where the cable may be exposed to abrasion from other cables, apparatus, or adjacent utility activities.

13.2 The abrasion protector is made from low density polyethylene and is slit along its length to allow installation over the cable. The abrasion protector is provided in 6 ft lengths and is available in three diameters.

Figure 13 – FIBERLIGN ADSS Cable Abrasion Protector

14. FIBERLIGN Limited Tension Banding Bracket

14.1 Limited Tension Banding Brackets (Figure 14) are used to attach FIBERLIGN Downlead Cushions and FIBERLIGN Dielectric Supports to steel or concrete poles.

14.2 When used to support Downlead Cushions, the bracket is attached to the pole using a single 3/4-inch high-strength steel band (not supplied) and can support a maximum vertical load of 500 lb.

14.3 When used to support a Dielectric Support, the bracket is attached to the pole using a single 1-1/4" high-strength steel band (not supplied). The bracket is rated for a 1000 lb vertical load when used with the 1-1/4" steel band.

14.4 The banding bracket is supplied with a 5/8" x 3-1/2" bolt, hex nut, and washers.

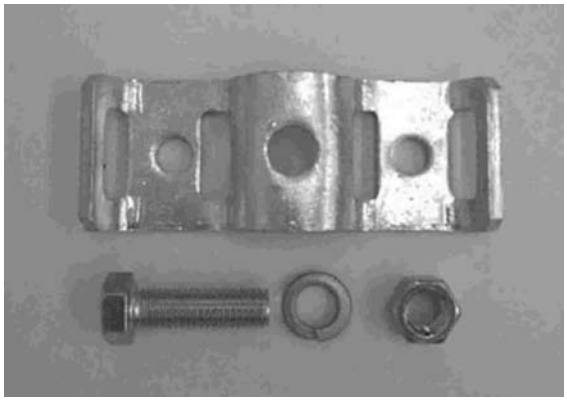

Figure 14 – FIBERLIGN Limited Tension Banding Bracket

15. FIBERLIGN 12K lb Banding Bracket

15.2 FIBERLIGN 12K lb Banding Brackets are used to attach FIBERLIGN Dielectric Dead-Ends to concrete or steel poles. The banding bracket is attached to the pole suing two 1-1/4 inch high-strength steel bands (not supplied) and is rated for a maximum tensile load of 12,000 lb.

15.3 The banding bracket is supplied with a 5/8" x 2" bolt, nut, and lock washer.

Figure 15 – FIBERLIGN Banding Bracket

Please contact OFS customer service at 888-FIBER-HELP (888-342-3743) if you have questions or need further information regarding this document.