PREFORMED LINE PRODUCTS

Section 6 – FIBERLIGN® Hardware for ADSS

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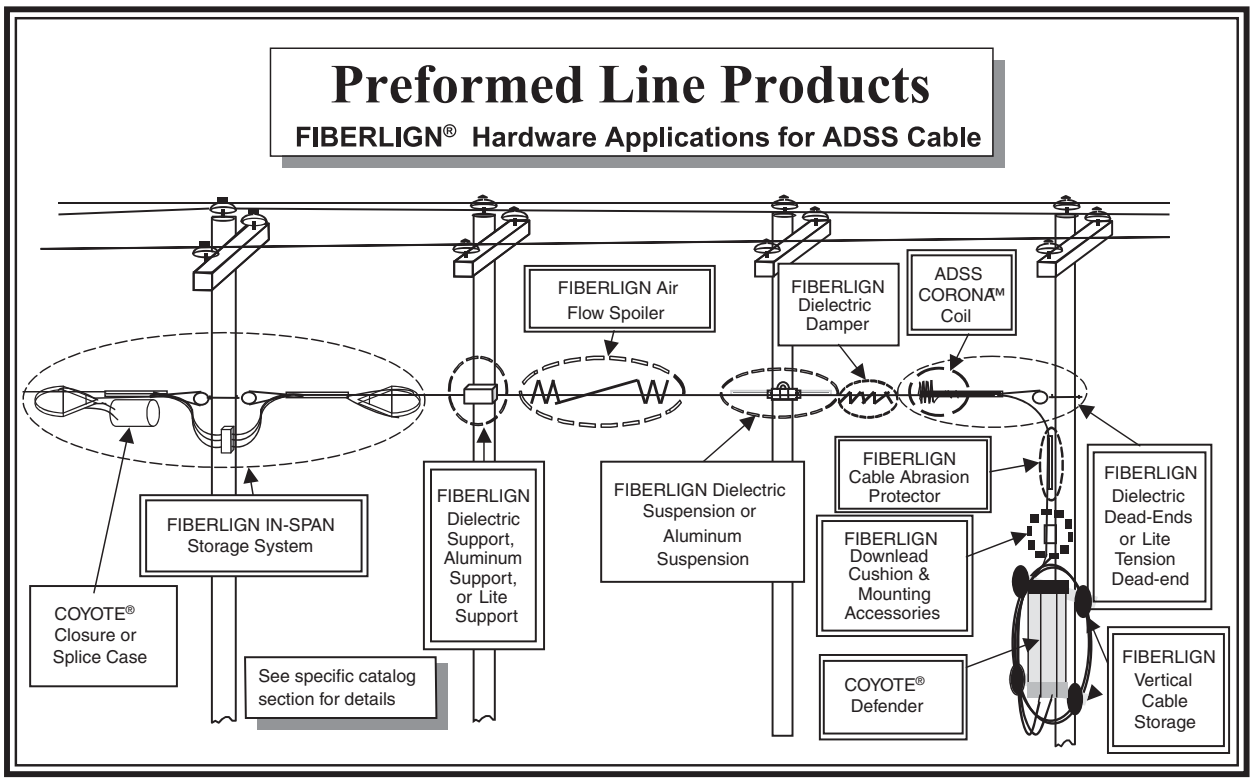
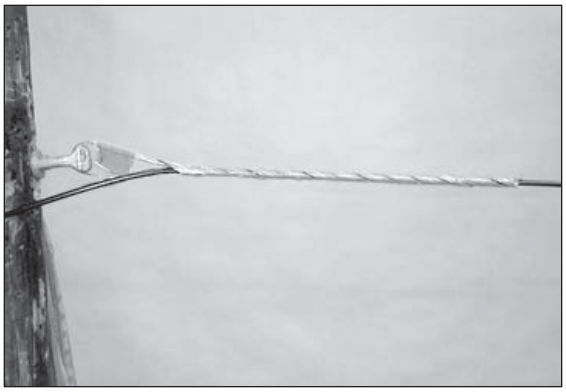
ADSS Product Layout

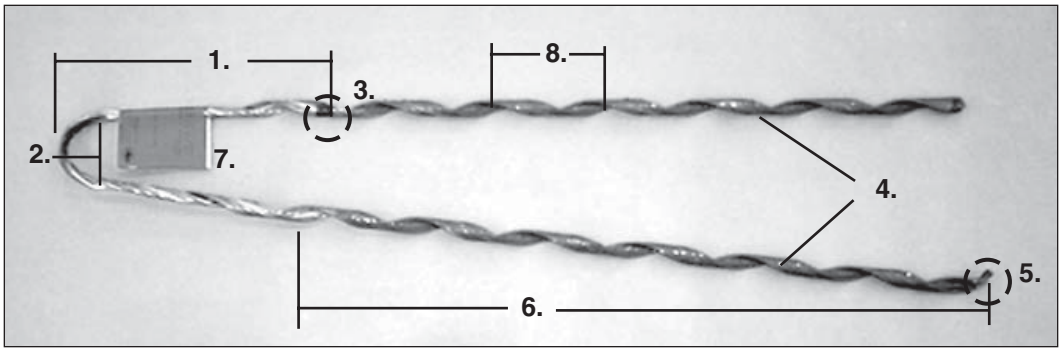


Note: For hardware accessories see sections 7 and 9.

FIBERLIGN® Lite Tension Dead-end for ADSS



FIBERLIGN® Lite Tension Dead-end for all Dielectric Self-Supporting (ADSS) Fiber Optic Cable Installed



NOMENCLATURE

1. **Loop length:** Length from the color mark to the end of the loop.
2. **Loop diameter:** The loop has a formed diameter designed to interface with standard fittings
3. **Color mark:** The dead-end color mark or crossover mark locates the beginning of dead-end contact with the cable during installation. It is used for identification as well.
4. **Dead-end legs:** The legs wrap onto the cable beginning at the crossover mark.
5. **Flared rod ends:** Special rod end treatment to prevent jacket damage.
6. **Latex coating:** Pliable coating applied over the dead-end legs.
7. **Product ID Tag:** Red Tag includes product description and application information.
8. **Pitch length:** The distance along the leg that represents one complete wrap of the formed helix around the circumference of the cable (360 degrees).

APPLICATION

The FIBERLIGN Lite Tension Dead-end is a dielectric dead-end designed to terminate short span, low tension ADSS fiber optic cables in low voltage environments. Unlike the Limited, Medium, and High Tension FIBERLIGN® Dielectric Dead-end designs found later in this section, the Lite Tension Dead-end is reduced to a single layer component that offers an economical solution for very light loads. The product effectively transfers the low axial load on the cable at the end of the dead-end legs to low uniform radial compression near the dead-end loop.

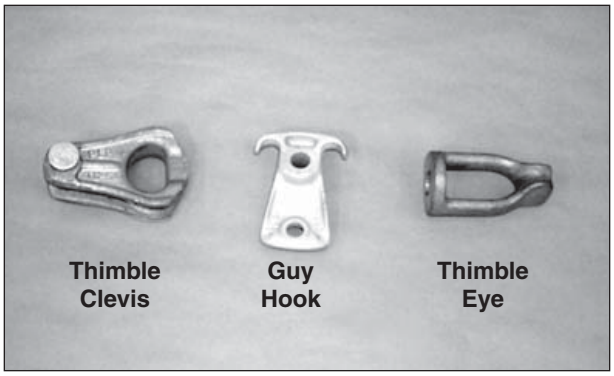
Superior Fatigue Strength: The small diameter wires that comprise each dead-end are a mixture of aluminum and aluminum clad steel to assure long term performance.

FIBERLIGN® Lite Tension Dead-end for ADSS

Dead-end performance depends upon a number of factors including cable brand and design, tension load requirements, temperature and environmental operating conditions among others.

The FIBERLIGN Lite Tension Dead-end has a pliable latex coating and flared rod end treatment that avoids possible damage to the cable jacket during and after installation.

ATTACHING TO THE STRUCTURE: The loop diameter of the Lite Tension Dead-end will fit over a minimum diameter of 1.5" (38mm) and a maximum diameter of 2¼" (57 mm). The Lite Tension Dead-end is designed to accept common guy wire dead-end pole fittings like thimble eyes and guy hooks.



Appropriate Fittings

The extended loop of the dead-end reduces the need for an extension link; however, PLP can provide other FIBERLIGN® fittings including extension links (with thimble clevis) if desired. PLP offers the TC-5F Thimble Clevis, Thimble Eye, and LCE-55-14 Extension Link.

In general, Lite Tension Dead-ends are intended for use with these conditions and limitations:

- Light Tensions, approximately:
  -600# (2.7 kN) maximum initial (stringing/nominal axial/long-term) tension
  -800# (3.5 kN) maximum loaded (working/loaded axial/short- term) tension
- Short Spans:
  -300' (91 m) maximum spans
  -not recommended for critical crossing spans (highways, rivers, etc.) see Medium or High Tension Dead-ends
- Very low strength cables
- "Standard" jackets
- Most cable brands
- No excessive operating conditions, cable motion or high temperatures

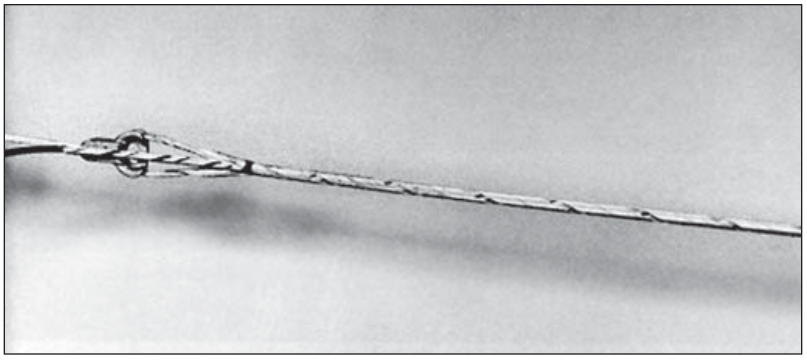
Lite Tension Dead-end features:

- Standard design parameters
- Broad cable OD ranges, listed on ID tags
- Economical single component design
- Optimized compact length
- Fast easy installation
- Accepts standard pole line fittings
- Latex coated with flared rod ends
- Uniform pressure design
- Superior fatigue strength wire design

Catalog* Number	Cable Diameter Range				Color Code	Overall Length	
	Min (in)	Max (in)	Min (mm)	Max (mm)		inches	meter
2875001	.375	.414	9.5	10.5	Red	28	.71
2875002	.415	.459	10.6	11.6	Orange	31	.79
2875003	.460	.505	11.7	12.8	Green	33	.84
2875004	.506	.557	12.9	14.1	Pink	37	.94
2875005	.558	.615	14.2	15.6	Yellow	42	1.07
2875006	.616	.680	15.7	17.3	Blue	45	1.14
2875007	.681	.750	17.4	19.1	Brown	49	1.24

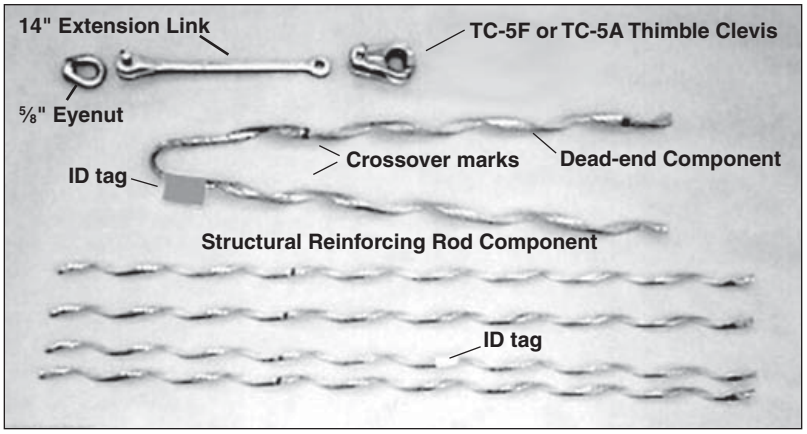
*Add suffix code TE to include Thimble Eye (Cat. No. TE-5) Number - Mount with $^{5}/_{8}$" or 16 m bolt and nut

FIBERLIGN® Dielectric Dead-end for ADSS



FIBERLIGN Dielectric Dead-end installed

NOMENCLATURE



GENERAL INFORMATION

The FIBERLIGN Dielectric Dead-end product line has been designed to securely but gently terminate All Dielectric Self-Supporting (ADSS) aerial fiber optic cable. A two component design consisting of appropriate size and length of Structural Reinforcing Rods and dead-end component is required to transfer axial tensile loads and distribute radial compressive forces through the plastic jacket and onto the internal strength members without damaging the fragile plastic jacket or internal optical fibers.

APPLICATION & PRODUCT SELECTION

Specific dead-end design and performance depends upon a number of factors such as cable brand and design, strength member construction, jacket type, tension load requirements, temperature and environmental operating conditions, and so on. Due to these factors, three types of dead-ends are offered:

- Limited Tension Dielectric Dead-ends
- Medium Tension Dielectric Dead-ends
- High Tension Dielectric Dead-ends

Limited Tension Dead-ends:

Intended for relatively low tension application usually associated with short span construction. They are not cable or line design specific but are designed to fit broad diameter ranges. Holding performance will vary by specific cable brand and operating conditions. Therefore, no specific holding strength rating is possible.

In general, Limited Tension Dead-ends are intended for use with these conditions and limitations:

- Low tensions, approximately:
  -1,000# (4.4kN) maximum initial (stringing/nominal axial/long-term) tension -2,500# (11.1 kN) maximum loaded (working/loaded axial/short-term) tension
- Short spans:
  -300' - 600' (91-183 m) typical maximum spans depending upon cable OD and tensions
  -not recommended for critical crossing spans (highways, rivers, etc.); see Medium or High Tension Dead-ends
- Low strength cables
- “Standard” jackets
- Most cable brands
- No excessive operating conditions, cable motion or high temperatures

FIBERLIGN® Dielectric Dead-end for ADSS

Limited Tension Dead-ends: (continued)

Limited Tension Dead-end features:

- Standard design parameters
- Broad cable OD ranges, listed on ID tags
- Short Structural Reinforcing Rods
- Short dead-end component
- Structural Reinforcing Rods and Dead-end components packaged in same carton.
- Fast, easy installation
- Utilizes economical TC-5F Thimble Clevis

Limited Tension Dead-ends				
Catalog Number*	Cable O.D. Range (inch)	Cable O.D. Range (mm)	Overall Length in. (m)	Color Code
2872001	.400-.424	10.1-10.7	48 (1.2)	Black
2872002	.425-.451	10.7-11.4	48 (1.2)	Yellow
2872003	.452-.481	11.4-12.2	48 (1.2)	Green
2872004	.482-.510	12.2-12.9	48 (1.2)	Orange
2872005	.511-.542	12.9-13.7	48 (1.2)	Blue
2872006	.543-.577	13.7-14.6	48 (1.2)	White
2872007	.578-.613	14.6-15.5	48 (1.2)	Red
2872008	.614-.651	15.5-16.5	48 (1.2)	Black
2872009	.652-.692	16.5-17.5	48 (1.2)	Yellow
2872010	.693-.737	17.5-18.7	48 (1.2)	Green
2872011	.738-.784	18.7-19.9	48 (1.2)	Orange
2872012	.785-.834	19.9-21.1	48 (1.2)	Blue
2872013	.835-.889	21.2-22.5	48 (1.2)	White
2872014	.890-.945	22.6-24.0	48 (1.2)	Red
2872015	.946-1.007	24.0-25.5	48 (1.2)	Black
2872016	1.008-1.073	25.6-27.2	60 (1.5)	Yellow
2872017	1.074-1.140	27.2-28.9	60 (1.5)	Green
2872018	1.141-1.212	28.9-30.7	60 (1.5)	Orange
2872019	1.213-1.288	30.8-32.5	60 (1.5)	Blue

*To include accessories in same carton, add suffix code(s) to Dead-end catalog number. Example: Cat. No. 2872001C1E1 includes Dead-end #2872001, TC-5F Thimble Clevis and Extension Link #71002366 in the same carton. See Dielectric Dead-end accessories in this section.

CAUTION: Some ADSS cables are not suitable for use with Limited Tension Dead-ends. Limited Tension Dead-ends are not recommended for track-resistant jacket applications. Consult PLP for specifics.

Medium Tension Dead-ends:

Designed for medium tension applications. Holding performance will vary by specific cable brand and operating conditions; therefore no, specific holding rating is possible.

In general, Medium Tension Dead-ends are intended for use with these conditions:

- Moderate tensions, approximately -2,000# (8.9 kN) maximum initial (everyday/string ing) tension -4,000# (17.8 kN) maximum loaded (short-term/working) tension maximum span length is dependent on cable O.D. and tensions
- For “standard” and most “track-resistant” jacket types of ADSS cables. (Contact PLP to verify acceptable track-resistant cable.)
- For severe operating temperatures and conditions
- Structural Reinforcing Rod length ranges from 85" to 105" (2.2 m — 2.7 m)

Medium Tension Dead-end features:

- Standard design parameters
- Broad cable OD ranges, listed on ID tags
- Moderate length
- Structural Reinforcing Rods and Dead-end components packaged in same carton
- Utilize TC-5F (or TC-6F) Thimble Clevis
- Accessories can be ordered with Dead-end components using suffix codes

Medium Tension Dead-ends				
Catalog Number	Cable O.D. Range (inch)	Cable O.D. Range (mm)	Overall Length in. (m)	Color Code
2872100	.482-.510	12.2-12.9	85 (2.2)	Orange
2872101	.511-.542	12.9-13.7	85 (2.2)	Blue
2872102	.543-.577	13.7-14.6	85 (2.2)	White
2872103	.578-.613	14.6-15.5	85 (2.2)	Red
2872104	.614-.651	15.5-16.5	85 (2.2)	Black
2872105	.652-.692	16.5-17.5	85 (2.2)	Yellow
2872106	.693-.737	17.6-18.7	85 (2.2)	Green
2872107	.738-.784	18.7-19.9	85 (2.2)	Orange
2872108	.785-.834	19.9-21.1	90 (2.3)	Blue
2872109	.835-.889	21.2-22.5	90 (2.3)	White
2872110	.890-.945	22.6-24.0	95 (2.4)	Red
2872111	.946-1.007	24.0-25.5	95 (2.4)	Black
2872112	1.008-1.073	25.6-27.2	97 (2.5)	Purple
2872113	1.074-1.140	27.2-28.9	100 (2.5)	Pink
2872114	1.141-1.212	28.9-30.7	103 (2.6)	Brown
2872115	1.213-1.288	30.8-32.5	105 (2.7)	Orange

FIBERLIGN® Dielectric Dead-end for ADSS

High Tension Dead-ends:

Custom designed and manufactured for more stringent holding requirements and operating conditions than Limited and Medium Tension Dead-ends. Holding performance will vary depending upon the specific cable brand and operating conditions, therefore no general holding strength rating is possible. Consult PLP® for the proper dead-end application.

In general, High Tension Dead-ends are intended for use with these conditions:

- High tensions, approximately
  - over 2,000# (8.9 kN) initial (everyday/stringing) tension
  - over 4,000# (17.8 kN) loaded tension
- Long spans - varies according to cable OD and tensions
- High strength circular cables
- “Standard” and “track resistant” jackets
- All cable brands
- Selection and design considers excessive operating conditions, cable motion and high temperature environments

High Tension Dead-end features:

- Custom design parameters
- Designed for specific cable diameter and OD ranges, listed on ID tags
- Custom length Structural Reinforcing Rods and Dead-ends to match tension applications
- Structural Reinforcing Rods and Dead-end components packaged in same carton
- Utilizes either ATC-20M and TC-6F Thimble Clevis
- Accessories can be ordered with Dead-end components using suffix codes

Figure 8 Fiber Optic Cable:
For All-Dielectric messengers, the messenger with jacket intact is separated from the fiber bundle and a two piece Dielectric Dead-end is applied over the jacketed messenger. For metallic messengers, a conventional strand dead-end is applied directly to the bare messenger. Consult PLP for specifics for either style messenger.

Component Reuse:
Once installed, the structural reinforcing rods and formed dead-end components may be removed and reinstalled once for repositioning purposes; do not reuse after this initial installation. The hardware may be reused as desired if in good condition. Do not modify any component.

Ordering Instructions:
For Limited Tension and Medium Tension Dead-ends, use the appropriate table in this section if your installation meets the restrictions for this product. For all other dead-ends, contact PLP with cable specifications, line design details and advise of unusual operating conditions or high temperature environments so that proper dead-end designs can be selected.

To have accessories included with any Dead-end, add the appropriate suffix to the dead-end catalog number. Example: #2872001C1E1 includes Dead-end #2872001, Thimble Clevis TC-5F and Extension Link kit. See next page for available accessories.

FIBERLIGN® Dielectric Dead-end for ADSS

All Dielectric Dead-ends require a proper size and strength Thimble Clevis and may utilize an Extension Link.

To include accessories with dead-end, add suffix code(s) to Dead-end catalog number.

Thimble Clevis:
Limited and Medium Tension Dead-ends require the Catalog No. TC-5F Thimble Clevis (Rated Strength 26,900# (119 kN)) suffix Code "C1" or Cat No. TC-5A Thimble Clevis (Rated Strength 12,000# (53 kN)). The galvanized ductile iron #TC-5F is standard with a 2¼" minimum seat and ⅞" minimum groove diameter. The aluminum #TC-5A is optional with the same dimensional characteristics.

High Tension Dead-ends require at least the 20,000# (89 kN) ATC-20M Thimble Clevis (code C2) or equal with 3" minimum seat and 1½" minimum groove diameters. For higher loads, use the 42,400# (188 kN) TC-6F (code C4) galvanized iron Thimble Clevis or equal with 2½" minimum seat diameter and 1 1/16" minimum groove diameter.

Extension Link:
An optional 15,000# (67 kN) 14" (356 mm) Extension Link with ⅝" Eye Nut (Cat. #71002366, code E1) is suggested and sometimes recommended by cable suppliers to increase the cable bending radius and reduce stress to the optical fibers at Dead-end locations. This link kit can be used with any type FIBERLIGN Dielectric Dead-end.

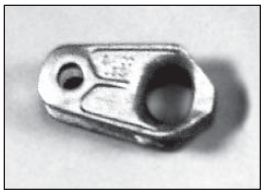
For higher loads, use the 25,000# (111 kN), 14" (356 mm) Extension Link (Cat.# LCE-66-14 or P/N 00060132 or code E2).

Loads up to 36,000 pounds can be handled with Cat. No. 000601325 (not shown).

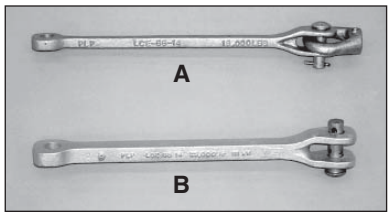
Banding Bracket:
Dielectric Dead-ends can be banded to concrete or steel structures using the 12Klb Banding Bracket Kit (Cat. #710010745, code B1). The kit includes a ⅝"-11x2" long bolt, lockwasher, hex nut and banding bracket. This connects to the Extension Link with ⅝" eye nut referenced above (Cat #71002366). The bracket is rated for 12,000# (53 kN) and should be used with two high strength 1¼" steel bands (not supplied).

TC-5F Thimble Clevis
(Code C1)

ATC-20M Thimble Clevis
(Code C2)

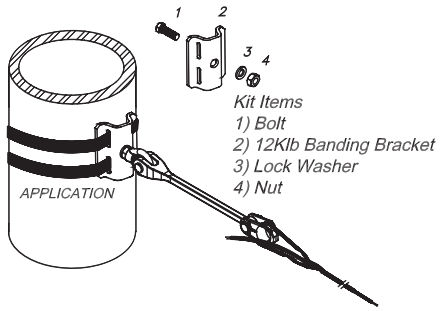


TC-6F Thimble Clevis
(Code C4)



(A) 14" Extension Link with Eye Nut, 15K
(Cat. No. 71002366, code E1)

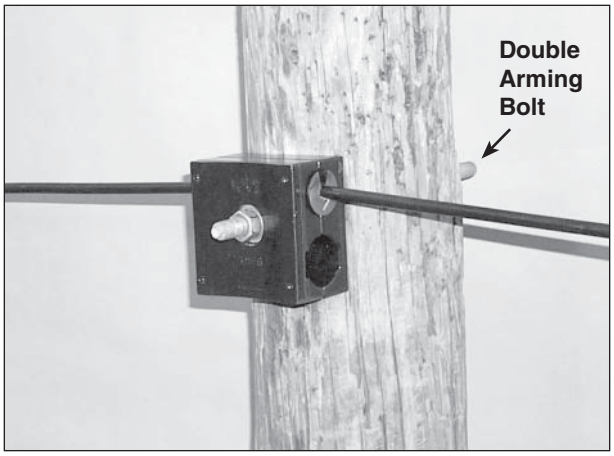
(B) 25K EXTENSION LINK
(Cat. No. LCE-66-14, code E2)



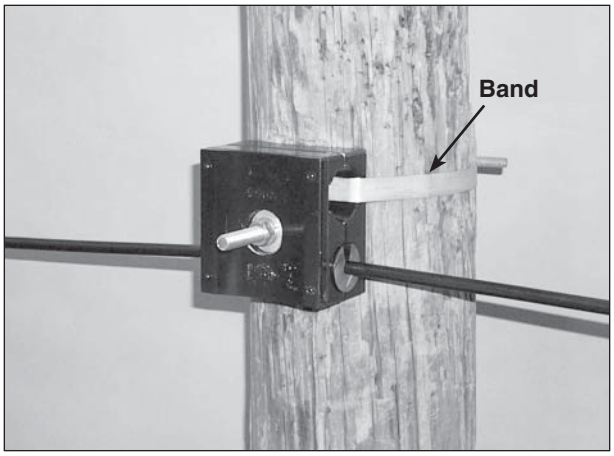
12Klb Banding Bracket Kit
(Cat. No. 710010745, code B1)

FIBERLIGN® Lite Support for ADSS

FIBERLIGN Lite Support for All Dielectric Self-Supporting (ADSS) Fiber Optic Cable—Bolt Mounted



FIBERLIGN Lite Support for All Dielectric Self-Supporting (ADSS) Fiber Optic Cable—Band Mounted



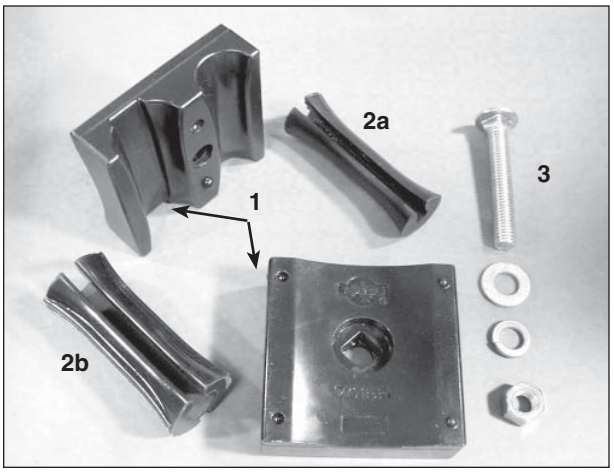
NOMENCLATURE

1. Housing Halves:
Urethane housings have molded cavities to accept cushion inserts. The small cavity accepts a small insert (Item 2a). The large cavity is designed for stringing in cable, capable of handling up to a 1¼" (32 mm) diameter mechanical swivel with pulling in grip. The large cavity will accept a large insert (Item 2b) for larger cables or if a dual cable application is desired.

2. Insert:
Softer material than the housing (item 1), one piece inserts are slotted to accept the cable as well as cushion the cable under load. The cable diameter range is molded along the hinge opposite the open slot for identification. The small insert (Item 2a) will accept cable sizes up to .700" (17.8 mm) diameter. The large insert (Item 2b) will accept cable sizes up to 1.03" (26 mm) diameter.

3. Hardware Kit (optional) for Banded Mount:
A ⅝"-11 UNC by 4" long carriage bolt, ⅝" round washer, Lock Washer, and ⅝"-11 UNC nut can be provided for banding applications. (Cat. No. 4800500)

FLS



FIBERLIGN® Lite Support for ADSS

APPLICATION

The FIBERLIGN Lite Support (FLS) system is designed to gently but firmly support All Dielectric Self-Supporting (ADSS) cable. It is intended for tangent support installations (see "LINE ANGLES") on lines that feature low voltages, very short spans and low mechanical loads. For products with higher capabilities see the subsequent pages under FIBERLIGN® Dielectric Support, FIBERLIGN Aluminum Support, FIBERLIGN Aluminum Suspension, with and without rods and FIBERLIGN Dielectric Suspension. The two latter products can be used in higher voltage environments where track resistant ADSS cables are required.

Dual Insert Application:
The FLS with small and large inserts can support two cables. Existing FIBERLIGN Dielectric Support (FDS) installations (up to 300' spans) can be replaced or "retrofitted" using the FLS. This option increases capability from one to two cables within minimal pole space.

FTTP:
Fiber to the Premisis drop cables can have round, flat and figure 8 construction. Specially designed Lite Support inserts are available to accept all of these configurations. The catalog table includes these new sizes and detailed information can be found in Section 8.

Stacking:
LITE Support Housings are stackable to add more cables within the same pole space. This can offer a neat alternative to busy "J-Hook" clutter for FTTP drop cable distribution.

Maximum Span Lengths – 300 feet (91 m):
The maximum recommended span length for the FLS is dependent upon the specific cable OD, initial cable tension, ice and wind loading district (NESC), and other factors. It is intended for application on short spans where vertical loading does not exceed 1000# (4.4 kN) under the extreme case.

In general, the approximate recommended maximum span length for the FLS is 300 feet (91 m) under extreme loads (NESC Heavy). Consult PLP for specific span limitations.

Material:
The housing halves are made from a high-strength, dielectric urethane material. The cushioned inserts are made from a softer, pliable dielectric material that gently grips and cushions the ADSS cable within the clamped housing. The hardware (optional) for banded applications is zinc plated.

Mounting:
The housing halves are molded with smooth finish holes to accept a standard ⅝" thru-bolt.

Bolt Mount:
For wood pole or bolt mounting to any structure, a thru bolt can be fed through a hole in the structure leaving 4" to 5" (102-127 mm) of the bolt exposed to accept the FLS and allow for temporary housing separation during installation. At four (4) inches (102 mm), the nut and washers can be left on the end of the bolt while manipulating the housing halves to remove the cable after stringing or accept the insert during final installation.

Band Mount:
For concrete pole or band mounting to any structure, the housing halves have a molded groove that accepts ¾" wide high-strength banding material. PLP provides the hardware kit (item 3 of the nomenclature) that is used to clamp the housing halves together after the unit is banded to the structure. The housings have a special recessed hole that keeps the carriage bolt from turning during assembly. To include the mounting hardware with the product add the suffix code H2 to the standard FLS catalog number. Banding material is not provided – Consult PLP for further information.

Line Angles:
For most applications, the maximum line angle recommended is 20°; consult PLP for exceptions.

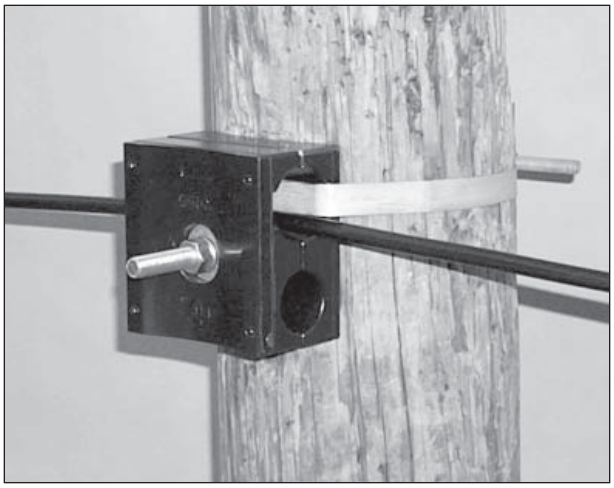
Slip Loads:
The hourglass shape of the insert creates wedge-action holding on the cable when unbalanced loads exist. The wedge works in either direction. Holding capability is enhanced with a special knurled finish on the inserts inner diameter surface. Specific performance will depend upon the specific cable OD and design.

FIBERLIGN® Lite Support for ADSS

STRINGING OPERATIONS

The dielectric material of the body provides a highly abrasive-resistant surface that allows the FLS housing assembly to be used as a stringing traveler at the structure. The smooth surfaces of the housing are designed with gentle contours and large radii that allow up to 10° line angles (20° in certain cases – consult PLP). This ability saves installation time and costs by eliminating the use of conventional stringing travelers.

For stringing operations the large molded cavity will accept up to 1¼" diameter for pulling in hardware. If you are using cable greater than .699" (18 mm) diameter, you may have a large insert designed for the large molded cavity. If so, remove the large insert from its cavity and temporarily tighten the FLS housing halves against the pole. The small insert can remain in the small cavity of the FLS during stringing.



ORDERING INSTRUCTIONS

Refer to the catalog table and select the proper FLS for the cable's outside diameter. To include the carriage bolt hardware kit for Cat. no. 4800500 band mount, add suffix code H2 (banding material not included). EX: #4800110H2 will include hardware.

Catalog Number	Insert Size	Cable Diameter Range			
		Min (in)	Max (in)	Min (mm)	Max (mm)
4800107	SMALL	.250	.280	6.3	7.0
4800108		.281	.304	7.1	7.7
4800109		.305	.375	7.8	9.5
4800110		.400	.429	10.2	10.8
4800111		.430	.459	10.9	11.6
4800112		.460	.489	11.7	12.4
4800113		.490	.519	12.5	13.1
4800114		.520	.549	13.2	13.9
4800115		.550	.579	14.0	14.7
4800116		.580	.609	14.8	15.4
4800117		.610	.639	15.5	16.2
4800118		.640	.669	16.3	16.9
4800119		.670	.699	17.0	17.8
4800120	LARGE	.700	.723	17.9	18.3
4800122		.724	.779	18.4	19.7
4800124		.780	.834	19.8	21.1
4800126		.835	.889	21.2	22.5
4800128		.890	.944	22.6	23.9
4800130		.945	.999	24.0	25.4
4800132		1.000	1.054	25.5	26.8
DUAL INSERT APPLICATION: Catalog Numbers are available for Small & Large Insert Combinations - Contact PLP					

FIBERLIGN® Dielectric Support for ADSS

APPLICATION

The FIBERLIGN Dielectric Support (FDS) system is designed to gently, but firmly, support All-Dielectric Self-Supporting (ADSS) cable. It is intended for tangent support installations (see "LINE ANGLES") on lines that feature relatively low voltages, short spans and modest mechanical loads. For higher voltages (where "track resistant" ADSS cables are required), longer spans and/or higher loads, use either the FIBERLIGN Aluminum Suspension with Rods or the FIBERLIGN Dielectric Suspension — both products appear later in this section.

Maximum Span Lengths:
The maximum recommended span length for the FDS is dependent upon the specific cable OD, initial cable tension, ice and wind loading district (NESC), and other factors. It is intended for application on relatively short spans where vertical cable loading does not exceed approximately 1,000# (worst case). In general, the approximate recommended maximum span lengths for the FDS are:

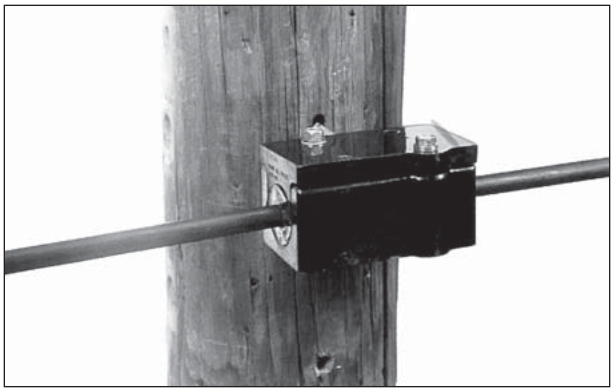
- 600' for < 1.00" OD cable (NESC – heavy).
- 300' for ≥ 1.00" OD cable (NESC – heavy).

When in doubt, consult PLP for specific span limitations.

Material:
The body and top are made from a high-strength, engineered dielectric material. The cushioned inserts are made from a soft, pliable dielectric material that gently grips the ADSS cable. Two captured zinc plated bolts with washers secure the top to the body.

Mounting:
The body threads onto standard 5/8" 11-UNC hot dipped galvanized thru-bolt and may be mounted either horizontally or vertically. For horizontal mounting to a wood pole (or other structures with thru-holes) a double arming bolt (completely threaded–no head) is suggested instead of a fixed length machine bolt. This allows approximately 1 5/8" of bolt length to thread into the body regardless of pole diameter.

FIBERLIGN Dielectric Support installed



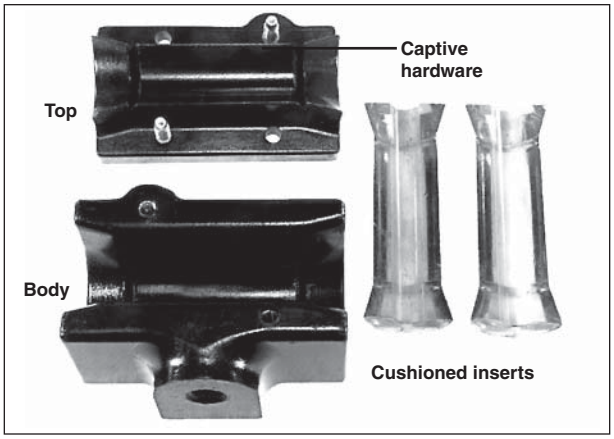
For mounting to concrete or steel structures without thru-holes, use a 5/8" threaded stud of appropriate length or banding system with a mounting bracket. See accessories in this section for details about the Limited Tension Banding Bracket.

Line Angles:
For most applications, the maximum line angle recommended is 20˚; consult PLP® for exceptions that allow 30˚ angles. When angles exceed 20˚ (or 30˚) a double dead-end arrangement is usually preferred. A special double FDS unit can be designed for certain applications; consult PLP for details.

Slip Loads:
The cushioned inserts are designed to gently grip the cable while providing significant slip strength without causing cable jacket damage. Specific performance will depend upon the specific cable O.D. and design.

NOMENCLATURE

FDS



PATENTED

FIBERLIGN® Dielectric Support for ADSS

Stringing Operations:
The dielectric material of the body provides a highly abrasive-resistant surface that allows the FDS body to be used as a stringing traveler at the structure on up to 10˚ line angles (20˚ in certain cases–consult PLP®). This ability saves installation time and costs by eliminating the use of conventional stringing travelers.

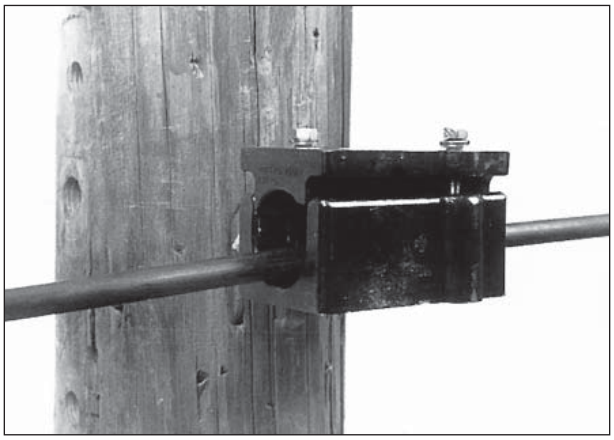
For stringing operations, thread the FDS onto the appropriate bolt, remove the inserts and elevate the top as far away from the bottom as the bolts will allow, to provide as large an opening as possible. Then thread pulling-in cable through the opening.

Component Reuse:
All components of FDS may be reused as desired if in good condition. Do not modify any component.

Ordering Instructions:
For concentric ADSS cable, refer to the catalog table and select the proper FDS for the cable's outside diameter. For non-concentric profiles, such as Figure 8 or other cable sizes and profiles, consult PLP for custom designs. To include accessories with the FIBERLIGN Dielectric Support, add code number to catalog number (example: 44002144B1).

ACCESSORIES

The FIBERLIGN Dielectric Support may be banded to concrete or steel structures using the appropriate Limited Tension Banding Bracket Kit (Cat. #710010577, code B1). The kit includes a ⅝"-11 x 2½" long bolt, lockwasher, hex nut and banding bracket. The bracket is rated for 1,200# vertical load and should be used with a high strength 1¼" steel band (band purchased separately).



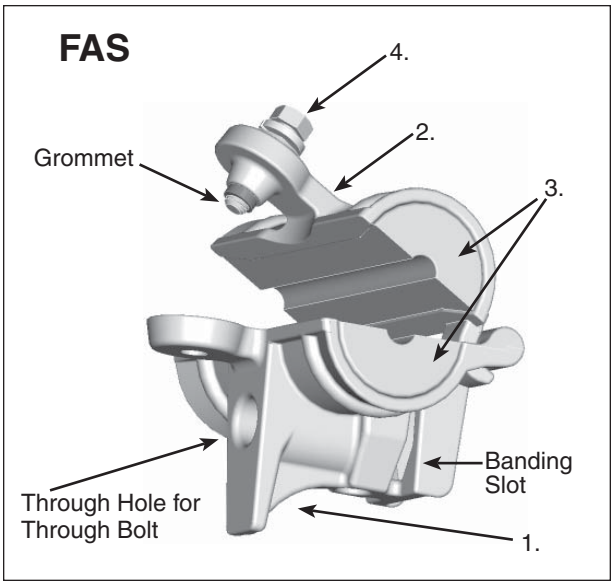
Cable OD Range inches (mm)	Catalog Number
.275-.325 (7.0-8.3)	44002144
.326-.375 (8.4-9.5)	44000691
.376-.425 (9.6-10.8)	44009998
.426-.475 (10.9-12.1)	44009949
.476-.525 (12.2-13.3)	44009952
.526-.575 (13.4-14.6)	44009823
.576-.625 (14.7-15.9)	44009798
.626-.675 (16.0-17.1)	44009776
.676-.750 (17.2-19.1)	44009799
.751-.825 (19.2-21.0)	44009878
.826-.900 (21.1-22.9)	44009963
.901-.950 (23.0-24.1)	44002213
.951-1.000 (24.2-25.4)	44003915
1.001-1.050 (25.5-26.6)	440010296

FIBERLIGN® Aluminum Support for ADSS

Through-Bolt Mounted

Band Mounted

Multi-Cable Stacking



PATENT PENDING

NOMENCLATURE

1. Base
2. Keeper
3. Cushion Inserts
4. Captured Bolt, Lock Washer & Flat Washer (Captured with grommet)

Base and Keeper: The aluminum alloy base and keeper have an **interlocking hinge** allowing easy access for pulling-in rope and ADSS cable. Closing the keeper captures the cable during stringing and subsequently secures the cable and cushion inserts for permanent installation. The base is designed to accept a 1¼" wide x .040" thick (32 mm x 1 mm) band or a ⅝" through bolt (M16) for mounting to the structure. **In multi-cable installations,** modular base surfaces at the mounting bolt and band entry areas provide stable engagement and stacking.

Captured Bolt and Bevel Washer: Galvanized steel bolt, lock washer and washer captured with an elastomer grommet.

Cushion Inserts: A soft pliable dielectric material that gently grips the ADSS cable. FAS is the acronym for FIBERLIGN Aluminum Support.

APPLICATION

The FIBERLIGN Aluminum Support (FAS) is designed to gently, but firmly support All-Dielectric Self-Supporting (ADSS) cable. The FAS features the following: Integrated bolt or band mount design, Hinged keeper and base, Single-bolt clamping, and Stackability for multi-cable installations. For higher voltages (where track resistant ADSS cables are required), longer spans and/or higher loads, use either the FIBERLIGN Aluminum Suspension w/rods or the FIBERLIGN Dielectric Suspension – both products appear later in this section.

Maximum Span Lengths:
The FAS was designed for short span applications where vertical loading does not exceed 1000# (4.4 kN). The maximum vertical load typically factors-in span length, cable OD, initial cable tension, ice and wind loading district (NESC), multi-cable stacking, etc. As a general idea, the following recommendations are approximate maximum span lengths for the FDS under NESC Heavy conditions:

- 600' (183 m) for < 1.00" (25 mm) OD cable (NESC Heavy)
- 300' (91 m) for > 1.00" (25 mm) OD cable (NESC Heavy)

Mounting:
The FAS can be bolted or banded to a structure. For mounting to wood poles (or other structures with through holes) a ⅝"-11 (M16) through-bolt or double-arming bolt may be used to capture the FAS against the structure. The width of the FAS accounts for about 3.2" (81 mm) of bolt length.

FIBERLIGN® Aluminum Support for ADSS

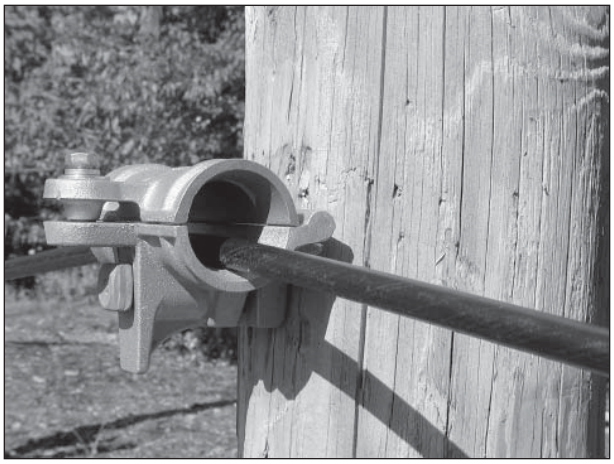
For mounting to concrete or steel structures without through holes, the FAS may be banded via the band slot cast in the base of the FAS. The band slot is designed to accept a 1¼" wide x 0.040" thick (32 mm x 1 mm) high strength band. Banding materials with 45,000 psi (310 MPa) yield strength and 95,000 psi (655 MPa) ultimate strength are recommended to achieve rated vertical load.

Line Angles:
For most applications, the maximum line angle recommended is 20˚ – consult PLP® for exceptions that allow 30˚ angles. When angles exceed 20˚ (or 30˚) the FIBERLIGN Aluminum Suspension (found later in this section) as a single or double attachment may be considered as an alternative.

Longitudinal Holding Capability:
The cushioned inserts are designed to gently grip the cable – providing modest longitudinal holding strength without causing cable damage. Specific performance will depend upon the cable brand, internal construction, and outer diameter.

Stringing Operations:
The cable cavity of the FAS is contoured and smooth to allow the product to be used as a stringing traveler during stringing and sagging operations. The line angles during stringing may go up to 10˚ (20˚ in certain cases – consult PLP).

For stringing, the inserts are removed and the keeper should be fully closed with the bolt fully engaged.



Stringing

Torque Level:
The keeper is fastened to the base with the ⅝"- 16 captured bolt and should be tightened until the lock washer is flat for proper torque level. This will require 10 foot pounds (120 inch-pounds or 13.5 Newton-meters) of force. DO NOT OVER-TORQUE.

Stacking – Multi Cable Installation:
Multi-cable installations with the FAS save pole space as the first unit mounts against the pole and added units extend horizontally – captured with a common ⅝" (M16) bolt. The length of the bolt must accommodate the stacked FAS units – each width approximately 3.2" (81 mm). For installations of more than two cables, a brace should be used to help support the cantilever load on the through-bolt or band.

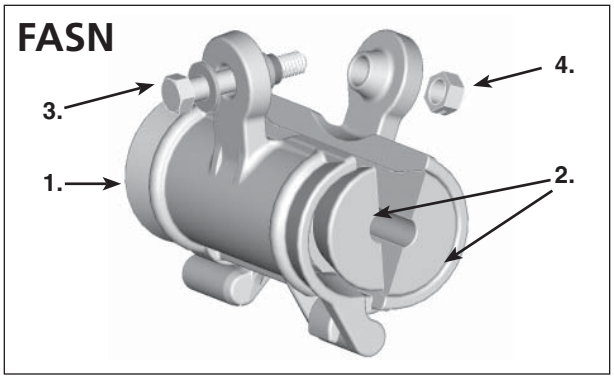
The FAS units stack in such a way that keep adjacent cables in staggered formation, thus reducing the possibility of cable collision due to wind induced cable sway.

ORDERING INSTRUCTIONS

Refer to the catalog table and select the appropriate FAS for the ADSS cableís outside diameter.

FIBERLIGN® Aluminum Support				
	ADSS Cable Range			
Catalog Number	Min (in)	Max (in)	Min (mm)	Max (mm)
4450095	0.226	0.275	5.7	6.9
4450096	0.276	0.325	7.0	8.2
4450097	0.326	0.375	8.3	9.4
4450098	0.376	0.425	9.5	10.7
4450099	0.426	0.475	10.8	12.0
4450100	.476	.525	12.1	13.3
4450101	.526	.575	13.4	14.6
4450102	.576	.625	14.7	15.9
4450103	.626	.675	16.0	17.1
4450104	.676	.750	17.2	19.1
4450105	.751	.825	19.2	21.0
4450106	.826	.900	21.1	22.9
4450107	.901	.975	23.0	24.8
4450108	.976	1.05	24.9	26.7
4450109	1.051	1.25	26.8	28.6
4450110	1.126	1.20	28.7	30.5
4450111	1.201	1.275	30.6	32.4
4450112	1.276	1.35	32.5	34.3
4450113	1.351	1.425	34.4	36.2

FIBERLIGN® Aluminum Suspension for ADSS



NOMENCLATURE

1. Keeper
2. Cushion Inserts (With or Without Grit)
3. Captured Bolt and Washer (Captured with Grommet)
4. Lock Nut
5. Anchor Shackle with Eye-nut (Optional not shown)
6. Structural Reinforcing Rods (optional, not shown)

Keeper:
The aluminum alloy keepers have an interlocking hinge for simple access and cable installation. Closing the keeper captures and secures the cushion inserts and ADSS cable. The keepers join together to form a clevis for attachment to the structure via Cat. No. AS-5L anchor shackle fitting or equivalent.

Cushion Inserts:
A soft pliable dielectric material that gently grips the ADSS cable – supplied either with or without grit on the inner diameter bore. Gritted inserts are applied over optional Structural Reinforcing Rods for medium span applications. The gritted inserts have a conductive aluminum strip located near the center for higher voltage environments.

Captured Bolt, Washer, and Lock Nut:
Galvanized steel bolt and washer captured with an elastomer o-ring. The galvanized steel Lock Nut has a stiff wire locking mechanism designed to engage with the thread of the mating bolt.

Structural Reinforcing Rods (SRR)
are preformed galvanized steel rods – subsetted and gritted. They are intended to provide additional protection to the cable jacket and increase longitudinal holding abilities of the unit.

FASN is the acronym for FIBERLIGN ALUMINUM SUSPENSION.

APPLICATION

The FIBERLIGN Aluminum Suspension (FASN) is designed to gently, but firmly support All-Dielectric Self-Supporting (ADSS) cable. The FASN features the following: Interlocking Hinge, Single-bolt clamping, Short to Medium Span Option, Low to High Voltage Environment acceptance. The addition of SRR allows the versatile FASN to go from a distribution environment to a transmission environment. Fittings and brackets are available for wood pole and concrete or metal structure applications.

Span Length Capability
1. For short spans without SRR:
   <600' (183 m) maximum recommended span lengths.
2. For Intermediate spans with SRR:
   <1200' (366 m) maximum recommended span lengths.

For additional cable jacket protection, longer spans and higher longitudinal holdling requirements, the dual rod layer FIBERLIGN Dielectric Suspension (found later in this section) is recommended.

Anchor Shackle w/Eye Nut Option

FASN with Rods

Vertical Load Limit
The FASN has an ultimate vertical load capability of 7000 (31 kN) pounds.

Longitudinal Cable Holding Capabilities
Without SRR, modest longitudinal holding capabilities are provided via compresson of the non-gritted inserts on the cable. Specific values are dependent upon cable brand, internal construction and diameter. Consult PLP for specifics.

With SRR, substantial longitudinal holding capabilities are provided via insert compression and are enhanced by the grit on both the inserts and SRR. Contact PLP for specifics.

Rod End Treatment
In order to avoid scratching, gouging or nicking of the plastic jacket during installation, unbalanced loading, or cable motion, the ends of eh SRR's are factory formed to flare away from the cable surface.

FIBERLIGN® Aluminum Suspension for ADSS

Grounding and Corona Protection:
If positive grounding of the cable and metalic components of the FASN is desired, a grounding wire can be attached to the ⅜" captured bolt. PLP can supply a 4' (1.2m) long #4 copper or 4/0 aluminum grounding wire assembly (Cat. No. 710010016 or 710010294 respectively).

For the FASN, the SRRs have been designed to accept the ADSS-CORONA™ Coil. The ADSS CORONA Coil reduces electrical stress at the ends of the metal rods.
Further catalog information about this product can be found later in this section.

Mounting

- Bolted (Wood Poles): Adding suffix code "S" provides an anchor shackle with ⅝"-11 eye nut accessory (Cat. No. 710010357) for attachment to double arm bolts. The anchor shackle (Cat. No. AS-5L) may be purchased separately to attach to eyebolts.
- Banded (Steel, Concrete Poles): Banding Bracket (Cat. No. 710010577) is offered for low tension/short span support application only. The kit includes a ⅝"-11x 2½" long bolt, lockwasher, hex nut and banding bracket. The bracket is rated for 1,200# (5.3 kN) vertical load and should be used with a high strength 1¼" (32 mm) steel band (band purchased separately).

Line Angles
The FASN maximum recommended line angle for a single suspension unit is 30˚ depending on cable brand. Two units can be combined to turn larger angles up to 60˚, although double dead-ending is another option for large angles. Contact PLP for details.

Torque Level
The ⅜" captured bolt should be tightened UNTIL THE LOCK WASHER IS FLAT and the clevis halves are joined flush. This will require about 10 foot-pounds (120 inch-pounds or 13.5 Newton-meters) of force. DO NOT OVER-TORQUE.

ORDERING INSTRUCTIONS

FASN Kit with Structural Reinforcing Rods

Catalog Number*	ADSS Cable Range		Rod Length (mm)	Rod Dia. (mm)	Color Code
	Min (mm)	Max (mm)			
4470200	0.476" (12.1)	0.500" (12.7)	33" (838)	.100" (2.5)	Red
4470201	0.501" (12.8)	0.550" (14.0)	34" (864)	.100" (2.5)	Blue
4470202	0.551" (14.1)	0.625" (15.9)	34" (864)	.100" (2.5)	Black
4470203	0.626" (16.0)	0.700" (17.8)	35" (889)	.100" (2.5)	Orange
4470204	0.701" (17.9)	0.737" (18.7)	36" (914)	.119" (3)	Green
4470205	0.738" (18.9)	0.812" (20.6)	36" (914)	.119" (3)	Pink
4470206	0.813" (20.7)	0.887" (22.5)	37" (940)	.119" (3)	Purple
4470207	0.888" (22.6)	0.962" (24.4)	37" (940)	.119" (3)	White
4470208	0.963" (24.5)	1.037" (26.3)	37" (940)	.119" (3)	Yellow
4470209	1.038" (26.4)	1.112" (28.2)	38" (965)	.119"" (3)	Brown
4470210	1.113" (28.3)	1.187" (30.1)	39" (991)	.119" (3)	Red

*Add Suffix "S" to Catalog No. to include one #AS-5L Anchor Shackle

FASN Kit Without Structural Reinforcing Rods

Catalog Number*	ADSS Cable Range			
	Min (in)	Max (in)	Min (mm)	Max (mm)
4450195	0.226	0.275	5.7	6.9
4450196	0.276	0.325	7.0	8.2
4450197	0.326	0.375	8.3	9.4
4450198	0.376	0.425	9.5	10.7
4450199	0.426	0.475	10.8	12.0
4450200	0.476"	0.525"	12.1	13.3
4450201	0.526"	0.575"	13.4	14.6
4450202	0.576"	0.625"	14.7	15.9
4450203	0.626"	0.675"	16.0	17.1
4450204	0.676"	0.750"	17.2	19.1
4450205	0.751"	0.825"	19.2	21.0
4450206	0.826"	0.900"	21.1	22.9
4450207	0.901"	0.975"	23.0	24.8
4450208	0.976"	1.050"	24.9	26.7
4450209	1.051"	1.125"	26.8	28.6
4450210	1.126"	1.200"	28.7	30.5
4450211	1.201"	1.275"	30.6	32.4
4450212	1.276"	1.350"	32.5	34.3
4450213	1.351"	1.425"	34.4	36.2

*Add Suffix "S" to Catalog No. to include one #AS-5L Anchor Shackle and 5/8" Eye-Nut

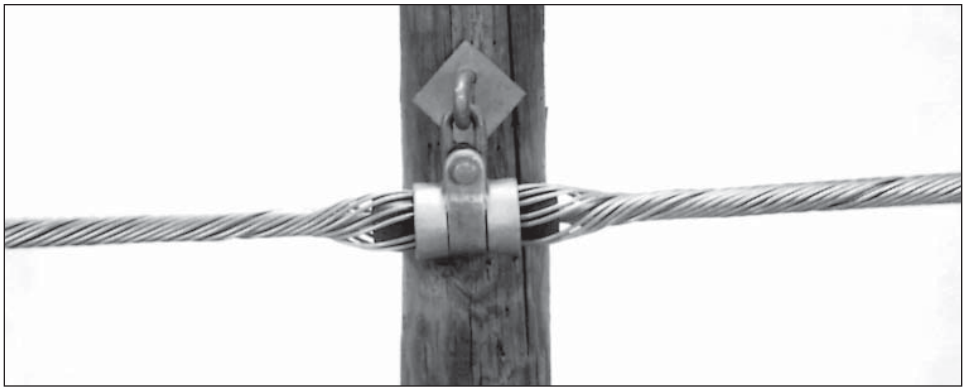
Refer to the catalog tables (with or without rods) and select the appropriate FASN for the ADSS cables outside diameter.

Add suffix code "S" to include anchor shackle with 5/8" eye-nut (Cat. No. 710010357) option.

Order Cat. No. 710010577 to receive the Limited Tension Banding Bracket – see "Mounting" paragraph earlier in this section for details.

Order Cat. No. 710010016 to receive a 4' (1.3 m) long #4 (7W) copper with terminal on one end. Order Catalog No. 710010294 to receive a 4' (1.2 m) long 4/0 (7W) aluminum conductor with terminal on one end.

FIBERLIGN® Dielectric Suspension for ADSS



Fiberlign Dielectric Suspension for All-Dielectric Self-Supporting (ADSS) Cable

APPLICATION

The FIBERLIGN® Dielectric Suspension is specifically designed for installation on ADSS cables and is different than FIBERLIGN® Suspension for OPGW. Due to the relatively fragile nature of the plastic jackets and nonmetallic strength members of ADSS, special care and features are incorporated into the design of the FIBERLIGN Dielectric Suspension.

The unit does use a combination of Structural Reinforcing Rods, Outer Rods, boltless housing and resilient cable inserts to reduce compression clamping and bending stresses on the cable and glass fibers. Negative effects of wind induced cable motions such as aeolian vibration, galloping and wind sway are also minimized.

The double layer of rods also offers critical protection against tearing of the plastic jacket during unbalanced longitudinal loading of the cable while providing substantial holding strength. This holding strength can vary according to cable brand, jacket type, operating temperatures and other factors.

For further details about the product and its components, refer to FIBERLIGN Suspension for OPGW earlier in this section.

Rod End Treatment
In order to avoid scratching, gouging or nicking of the plastic jacket during installation, unbalanced loading, or cable motion, the Structural Reinforcing Rods are slightly flared away from the cable surface. Unflared rod ends can cause damage to the jacket which should be avoided.

Product Selection
As a general guideline, the FIBERLIGN Dielectric Suspension for ADSS is intended for long spans where suspension is desired regardless of span, where very high unbalanced longitudinal holding strengths are desired, or where very high vertical loads are expected.

PLP offers two other products for lighter load/shorter span applications in suspension and support modes. Refer to the FIBERLIGN Dielectric Support (FDS), FIBERLIGN Aluminum Support (FAS) and FIBERLIGN Aluminum Suspension (FASN) products that appear earlier in this section.

ULTIMATE VERTICAL STRENGTH & HOUSING & FITTING DIMENSIONS: Refer to dimensional tables in the FIBERLIGN Suspension for OPGW section of this catalog.

Line Angles
The maximum recommended line angle for a single suspension unit is 40˚. A custom designed FIBERLIGN Dielectric Suspension Double for angles up to 80˚ is available. Double dead-ending for angles over 40˚ is another option.

Fittings
Fittings such as a Y-Clevis, Clevis Eye, Chain Link or Anchor Shackle may be required to attach the Suspension unit to the structure or other hardware. These fittings must match the dimensions of the suspension housing; refer to the dimensional tables and fittings pages in the FIBERLIGN Suspension for OPGW section of this catalog.

Component Reuse
Once installed, do not reuse the rod components. The hardware components may be reused as long as they are in good condition. Do not modify any components.

FIBERLIGN® Dielectric Suspension for ADSS

ORDERING INSTRUCTIONS

Select the appropriate FIBERLIGN Dielectric Suspension for ADSS by cable diameter from the table below. For FIBERLIGN Suspension for OPGW, refer to page section 5-19 of this catalog. For trunnion or bracket-type mounting for ADSS or OPGW, consult PLP®.

Catalog Number	Diameter Range				Structural Reinforcement Rods						Outer Rods					
	Min.-Max. (in)		Min.-Max. (mm)		Length		Rod Diameter		Rods per set	Color Code	Length		Rod Diameter		Rods per set	Color Code
					(in)	(meters)	(in)	(mm)			(in)	(meters)	(in)	(mm)		
430010267	.354	.381	8.9	9.6	80	2.03	.146	3.7	9	Blue	42	1.07	.204	5.2	11	Blue
43003195	.399	.418	10.1	10.6	80	2.03	.146	3.7	10	Yellow	42	1.07	.204	5.2	11	Yellow
43001929	.419	.439	10.7	11.1	80	2.03	.146	3.7	10	Black	42	1.07	.204	5.2	11	Black
43009490	.440	.458	11.2	11.6	81	2.06	.146	3.7	11	White	43	1.09	.204	6.4	11	White
43003233	.459	.461	11.7	11.7	84	2.13	.167	4.2	10	Purple	46	1.17	.250	6.4	10	Orange
43003234	.462	.476	11.8	12.0	84	2.13	.167	4.2	10	Purple	46	1.17	.250	6.4	10	Purple
43004061	.477	.503	12.1	12.7	84	2.13	.146	3.7	12	Orange	46	1.17	.250	6.4	10	Orange
43004164	.504	.511	12.8	12.9	84	2.13	.146	3.7	12	Red	46	1.17	.250	6.4	10	Purple
43009922	.512	.536	13.0	13.6	87	2.21	.167	4.2	11	Blue	49	1.24	.250	6.4	11	Blue
43002246	.537	.559	13.7	14.1	87	2.21	.167	4.2	11	Green	49	1.24	.250	6.4	11	Green
43004100	.560	.565	14.2	14.3	87	2.21	.167	4.2	11	Green	49	1.24	.250	6.4	11	Green
43003235	.566	.573	14.4	14.5	92	2.34	.182	4.6	11	Black	54	1.37	.250	6.4	12	Black
43009945	.574	.598	14.6	15.1	92	2.34	.182	4.6	11	Black	54	1.37	.250	6.4	12	White
43009965	.599	.625	15.2	15.8	92	2.34	.182	4.6	12	Brown	54	1.37	.250	6.4	12	Brown
43003239	.626	.632	15.9	16.0	102	2.59	.204	5.2	11	Red	63	1.6	.310	7.9	11	Red
43009760	.633	.666	16.1	16.9	102	2.59	.204	5.2	11	Red	63	1.6	.310	7.9	11	Blue
43004965	.667	.682	17.0	17.3	102	2.59	.204	5.2	12	Yellow	63	1.6	.310	7.9	11	Green
43009947	.683	.710	17.4	18.0	102	2.59	.204	5.2	12	Yellow	63	1.6	.310	7.9	11	Yellow
43004991	.711	.728	18.1	18.4	102	2.59	.204	5.2	12	White	63	1.6	.310	7.9	12	Black
43009868	.729	.744	18.5	18.8	102	2.59	.204	5.2	12	White	63	1.6	.310	7.9	12	White
43006274	.745	.750	18.9	18.9	102	2.59	.204	5.2	12	White	63	1.6	.310	7.9	12	White
43009842	.751	.786	19.0	19.9	102	2.59	.204	5.2	13	White	63	1.6	.310	7.9	12	Brown
43003240	.787	.814	20.0	20.6	111	2.82	.250	6.4	11	Green	72	1.83	.365	9.3	11	Green
43003058	.815	.845	20.7	21.4	111	2.82	.250	6.4	12	Yellow	72	1.83	.365	9.3	11	Yellow
43003028	.846	.855	21.5	21.6	111	2.82	.250	6.4	12	Green	72	1.83	.365	9.3	12	Blue
43003230	.856	.894	21.7	22.6	119	3.02	.250	6.4	12	Black	80	2.03	.365	9.3	12	Black
43003079	.895	.907	22.7	22.9	119	3.02	.250	6.4	12	White	80	2.03	.365	9.3	12	White
43003241	.908	.916	23.0	23.2	119	3.02	.250	6.4	13	Purple	80	2.03	.365	9.3	12	Purple
43003242	.917	.929	23.3	23.5	119	3.02	.250	6.4	13	Brown	80	2.03	.365	9.3	12	Brown
43003243	.930	.942	23.6	23.9	119	3.02	.250	6.4	13	Red	80	2.03	.365	9.3	12	Red
43003244	.943	.977	24.0	24.7	119	3.02	.250	6.4	13	Orange	80	2.03	.365	9.3	13	Orange
430010305	.978	1.016	24.8	25.7	118	3.00	.250	6.4	13	Purple	80	2.03	.365	9.3	12	Purple
430010306	1.017	1.057	25.8	26.8	118	3.00	.250	6.4	14	Red	80	2.03	.365	9.3	12	Red
430010307	1.058	1.079	26.9	27.3	133	3.38	.250	6.4	14	Blue	95	2.41	.365	9.3	13	Blue
430010308	1.080	1.112	27.4	28.1	133	3.38	.250	6.4	14	Green	95	2.41	.365	9.3	13	Green
430010309	1.113	1.149	28.2	29.1	133	3.38	.250	6.4	15	Yellow	95	2.41	.365	9.3	13	Yellow
43003778	1.150	1.190	29.2	30.1	131	3.33	.250	6.4	15	Red	92	2.34	.365	9.3	15	Red