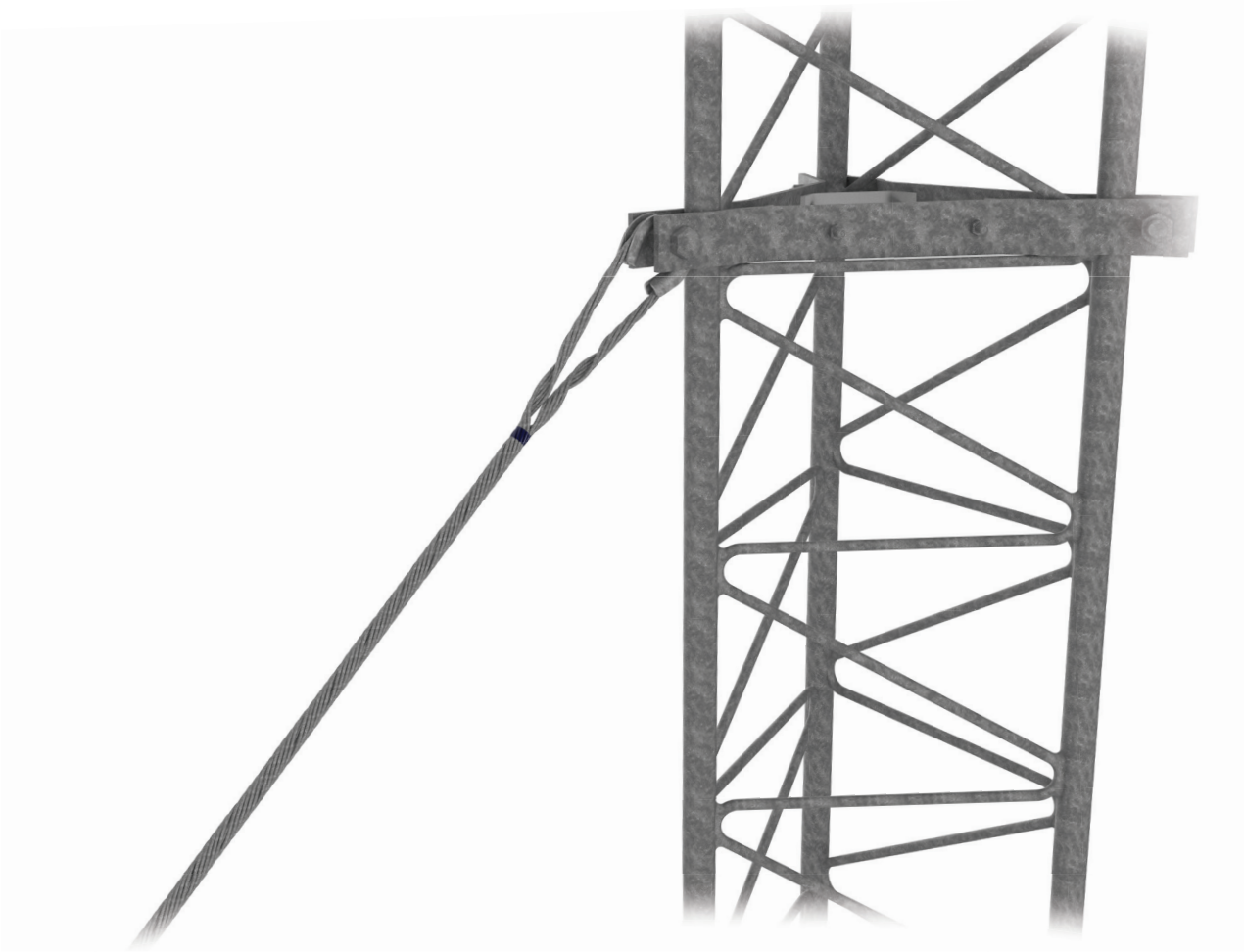
PRODUCT CATALOG



# TOWER & ANTENNA SOLUTIONS

Guying Hardware | Vibration Control | Wildlife Protection | Tools & Accessories

# ABOUT PLP

PLP protects the world's most critical connections by creating stronger and more reliable networks. Our precision-engineered solutions are trusted by energy and communications providers worldwide to perform better and last longer. With offices and manufacturing facilities in over 20 countries, PLP works as a united global corporation, delivering high-quality products and unparalleled service to customers around the world.

## SALES CONTACTS

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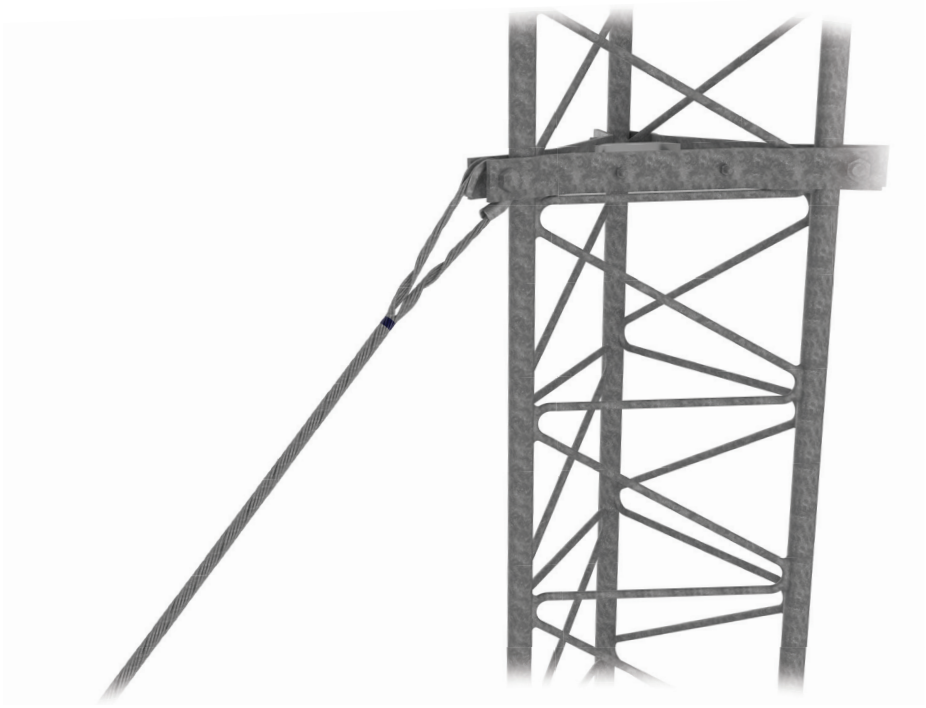
# CONTENTS

## TOWER & ANTENNA SOLUTIONS



# BIG-GRIP DEAD-END

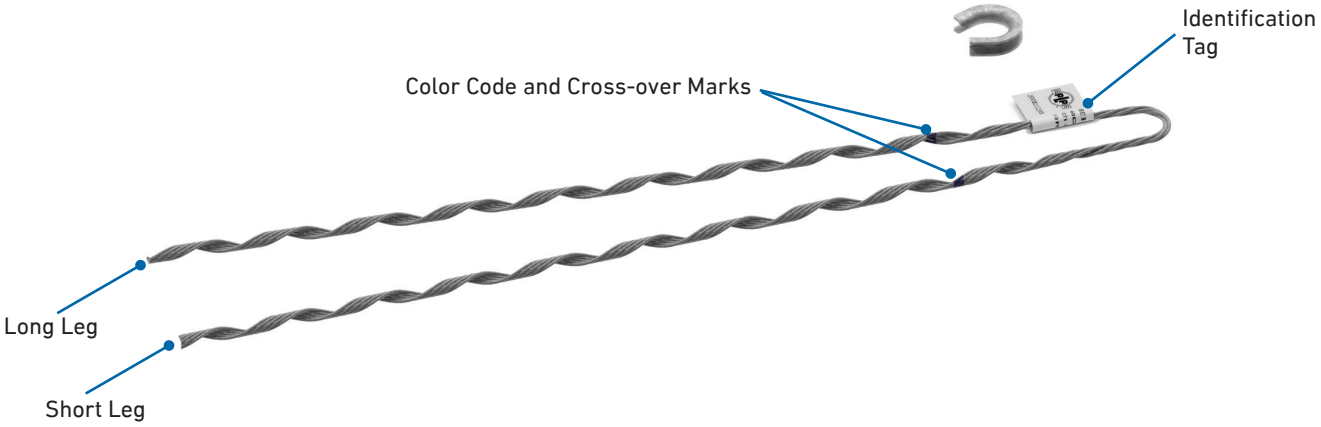
**Big-Grip Dead-Ends** are designed for use on transmission, antenna, communications, and other types of guyed structures that require use of large guy strand.

## FEATURES AND BENEFITS

- Big-Grip Dead-Ends are designed are designed at 100% of the rated breaking strength of the strand unless otherwise specified. (Test data available on request. Reference: TR-634-E)
- Made from material that is compatible with the strand they are designed to be used with except where noted otherwise
- This product is intended for a single (one-time) use and for the specified application, although it may be reapplied twice for retensioning within 90 days of initial installation.

**CAUTION**: DO NOT MODIFY OR REUSE THIS PRODUCT WITHIN 90 DAYS OF INITIAL INSTALLATION.
BIG-GRIP DEAD-ENDS ARE NOT ACCEPTABLE FOR USE ON WIRE ROPE APPLICATIONS.

## COMPONENTS




| Component | Description |
|---|---|
| Cross-over Mark | Indicates starting point for application. |
| Product Identification Tag | Shows catalog number, nominal sizes. |
| Color Code | Assists in identifying strand size, corresponding to tabular information appearing on catalog pages. |
| Short Leg | Identifies rods belonging to each leg, after application. During application, the short leg should be applied first. |
| Long Leg | Identifies rods belonging to each leg, after application. During application, the long leg should be applied second. |

## STRAND COMPATIBILITY

Big-Grip Dead-Ends should be used only on the size and strand for which they are designed. They must have the same lay direction and made from the same material as the strand to which they are applied.

- When ordering Big-Grip Dead-Ends, make sure to specify the strand diameter, lay direction, and material on which it is to be used.
- When using types of strand and/or sizes of strand not mentioned in these catalog pages, consult PLP for compatible Big-Grip Dead-End designs.

# HARDWARE ACCESSORY GUIDELINES

For hardware and hardware dimensions to be used in conjunction with Big-Grip Dead-Ends, refer to Table 1 on the next page.

Big-Grip Dead-ends should not be used on hardware that allows the strand to rotate or spin about its axis uncontrolled. Adjustable hardware, such as a turnbuckle, may be used as long as rotational movement of the strand is restricted. Consult PLP for additional information concerning adjustable hardware that can be used with Big-Grip Dead-ends.

Hardware used in conjunction with Big-Grip Dead-Ends should have smooth contours, ample groove clearances, acceptable diameters, and sufficient strength to minimize abrasion and fatigue of the loop area.

Table 1, Figures 1-6 illustrate some of the possible hardware and the dimensions that may be used with Big-Grip dead-ends:

- Figure 1 and Table 1 illustrate minimum and maximum acceptable seat diameters to which the Big-Grip Dead-end can be applied.
- Figure 2 and Table 1 illustrate seat diameters and minimum groove diameters.
- Figure 3 and Table 1 illustrate minimum hardware hole diameters.
- If not using PLP's Heavy-Duty Thimbles, only heavy-duty type wire rope thimbles or solid Hawser type thimbles are recommended for use with Big-Grip Dead-ends. (Refer to Figures 4, 5, and 6)
- Heavy-duty type wire rope thimbles can collapse when guy tensions are high. In order to support and protect the loop area of the Big-Grip Dead-end, special precautions are necessary.
- To prevent collapse of the thimble, either a Hawser type thimble (Figure 4), a large pin inside the thimble (Figure 5), or a smaller pin (such as a shackle pin) plus double extra strong weight pipe or equivalent (Figure 6) is necessary. Double extra strong weight pipe, which has increased wall thickness and strength over schedule 160 pipe, does not have a schedule number but information can be obtained from a pipe supplier. Thimble strengths and dimensions can be obtained from a thimble supplier.

PLP suggests guy tensions be maintained at a minimum of approximately 10% of the strand's Rated Breaking Strength (RBS).

When in doubt about installations, hardware, or applications, contact a PLP representative.

# HARDWARE ACCESSORY GUIDELINES

## TABLE 1

| Big-Grip Dead-End Hardware Accessories Dimensions (All Dimensions in Inches) | | | | | | | | | Double Extra Strong Weight Pipe Fig. 6 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Dead-End Diameter Range | Nominal Strand Sizes | Fig. 1 & 2 Seat Dimensions | | Fig. 2 Minimum Groove Diameter | Fig. 3 Minimum Hardware Hole Diameter* | Heavy Duty Thimble Size | Fig. 4 & 5 Pin Diameters | | Nominal Size | OD | ID |
| | | Minimum | Maximum | | | | Min | Max | | | |
| .174 -.203 | 3/16 | 1 | (2-1/2) 1-3/4 | 1/4 | 3/8 | 7/16 - 3/8 | 5/8 | 1 | 3/4 | 1.050 | .614 |
| .204 -.230 | 7/32 | 1-1/8 | (2-1/2) 1-3/4 | 5/16 | 3/8 | 7/16 - 3/8 | 5/8 | 1 | 3/4 | 1.050 | .614 |
| .231 -.259 | 1/4 | 1-1/8 | (2-1/2) 1-3/4 | 5/16 | 7/16 | 1/2 | 1 | 1-3/8 | 1 | 1.315 | .815 |
| .260 -.291 | 9/32 | 1-1/8 | (2-1/2) 1-3/4 | 3/8 | 1/2 | 1/2 | 1 | 1-3/8 | 1 | 1.315 | .815 |
| .292-.336 | 5/16 | 1-1/4 | (2-1/2) 1-3/4 | 3/8 | 9/16 | 1/2 | 1 | 1-3/8 | 1 | 1.315 | .815 |
| .337-.394 | 3/8 | 1-3/8 | (2-1/2) 1-3/4 | 7/16 | 5/8 | 1/2 | 1 | 1-3/8 | 1 | 1.315 | .815 |
| .395-.474 | 7/16 | 1-3/8 | (2-1/2) 2-3/8 | 1/2 | 11/16 | 1/2 | 1 | 1-3/8 | 1 | 1.315 | .815 |
| .475-.515 | 1/2 | 1-3/8 | 2-3/8 | 9/16 | 3/4 | 5/8 | 1 | 1-5/8 | 1-1/4 | 1.66 | .896 |
| .516-.570 | 9/16 | 1-1/2 | 2-5/8 | 5/8 | 15/16 | 5/8 | 1-1/8 | 1-5/8 | 1-1/4 | 1.66 | .896 |
| .571-.635 | 5/8 | 2 | 2-5/8 | 3/4 | 1 | 3/4 | 1-1/2 | 1-7/8 | 1-1/4 | 1.66 | .896 |
| .636-.772 | 3/4 | 2-1/2 | 3-1/8 | 7/8 | 1-3/16 | 7/8 | 1-7/8 | 2-1/8 | 1-1/2 | 1.9 | 1.1 |
| .773-.868 | | 2-1/2 | 3-5/8 | 1 | 1-3/8 | 1 | 2 | 2-3/8 | 2 | 2.375 | 1.503 |
| .869-1.024 | 7/8 or 1 | 3 | 4-1/8 | 1 | 1-3/8 | 1-1/8 - 1-1/4 | 2-3/8 | 2-3/4 | 2 | 2.375 | 1.503 |
| 1.025-1.27 | | 3-1/2 | 5-1/8 | 1-3/8 | 1-3/4 | 1-1/4 - 1-3/8 | 2-3/4 | 3-1/4 | 2-1/2 | 2.875 | 1.771 |
| 1.30 | | 4 | 5-1/8 | 1-3/8 | 1-15/16 | 1-3/8 - 1-1/2 | 2-7/8 | 3-3/8 | 2-1/2 | 2.875 | 1.771 |

Figure 1

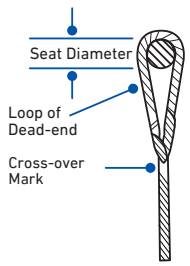



Figure 2

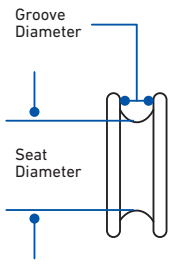



Figure 3

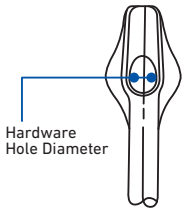



Figure 4

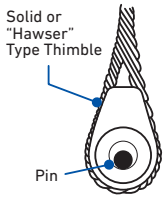



Figure 5

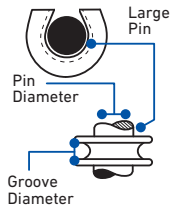
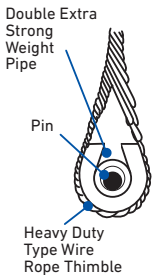



Figure 6




* Depending on geometric shape of the hole, the legs of the Big-Grip Dead-Ends may insert into the hole diameter less than specified.

# ORDERING INFORMATION

## For Use On: Extra High-Strength; Siemens Martin High-Strength Utilities Grade

| Catalog Number | Size | Strand Construction | Actual Diameter | BG per Carton | BG per Carton | Approx. Length | Color Code | Rated Holding Strength | Percent of Strand's Rated Breaking Strength |
|---|---|---|---|---|---|---|---|---|---|
| | in | | in | Units | wt/lb | in | | lb | |
| BG-2140 | 1/8 | 7W | .123 | 100 | 11 | 14 | Blue | 1,830 | 100% |
| BG-2142 | 3/16 | 7W | .186 | 100 | 33 | 23 | Red | 3,990 | 100% |
| BG-2144 | 1/4 | 3W<br>7W | .259<br>.240 | 50 | 25 | 27 | Yellow | 6,650 | 100% |
| BG-2145 | 9/32 | 7W | .279 | 50 | 29 | 30 | Blue | 8,950 | 100% |
| BG-2146 | 5/16 | 3W<br>7W | .312<br>.312 | 50 | 41 | 33 | Black | 11,200 | 100% |
| BG-2147 | 3/8 | 3W<br>7W | .356<br>.360 | 25 | 33 | 37 | Orange | 15,400 | 100% |
| BG-2148 | 7/16 | 7W | .435 | 25 | 47 | 40 | Green | 20,800 | 100% |
| BG-2115 | 1/2 | 7W<br>or<br>19W | .495<br>or<br>.500 | 20 | 63 | 49 | Blue | 26,900 | 100% |
| BG-2116 | 9/16 | 7W<br>or<br>19W | .564<br>or<br>.565 | 10 | 48 | 55 | Yellow | 35,000 | 100% |
| BG-2111 | 5/8 | 7W<br>or<br>19W | .621<br>or .<br>625 | 10 | 65 | 64 | Black | 7W 42,400<br>19W 40,200 | 100%<br>100% |
| BG-1112 | 3/4 | 19W | .750 | 5 | 54 | 76 | Orange | 58,300 | 100% |
| BG-1113 | 7/8 | 19W | .885 | 5 | 76 | 90 | Green | 79,700 | 100% |
| BG-1114 | 1 | 19W<br>or<br>37W | 1.000<br>or<br>1.001 | 3 | 76 | 125 | Blue | 19W 104,500<br>37W 92,430 | 100%<br>90%+ |

Left-hand lay is standard.
+ Down-Rated for 37 stranding (1994)

EXPLANATORY NOTES:

(1) For strand sizes smaller than 1/2", refer to the GUY-GRIP® Dead-End.
(2) Reference Table 1 earlier in this section for acceptable fitting dimensions.
(3) Cabled loop design is furnished as standard for all sizes.
(4) Rated Holding Strengths (RHS) of the Big-Grip Dead-Ends are listed for each strand and are expressed as a percent of the strand's Rated Breaking Strength (RBS).
(5) C-Coat galvanized steel is standard for all Big-Grip Dead-Ends unless otherwise stated.
(6) B-Coat galvanized steel is used for the Big-Grip Dead-Ends used on 3/4", 7/8", and 1" strand.
(7) The Aluminum Clad Steel version of the 7/8" and 1" Big-Grip Dead-End are still available as Catalog Number BGMS7023 (7/8") and Catalog Number BGMS7047 (1").
(8) Consult PLP for sizes and stranding not shown.

# ORDERING INFORMATION

## For use on: Aluminum Clad Steel Strand

| Catalog Number | Strand Diameter Ranges in | | Nominal Strand Size | BG Per Carton | | Approx. Length | Color Code | Rated Holding Strength | Percent of Strand's Rated Breaking Strength |
|---|---|---|---|---|---|---|---|---|---|
| | Min | Max | | Units | Wt/lb | in | | lb | |
| BG-4202 | .174 | .181 | 3 # 12 | 100 | 22 | 19 | Orange | 2,850 | 100% |
| BG-4208 | .219 | .230 | 4M<br>3 # 10 | 50 | 21 | 22 | Green | 4,532 | 100% |
| BG-4210 | .237 | .247 | 7 # 12<br>6M | 50 | 22 | 24 | Yellow | 6,000 | 100% |
| BG-4213 | .270 | .280 | 3 # 8<br>8M | 50 | 24 | 27 | Blue | 8,000 | 100% |
| BG-4216 | .303 | .313 | 3 # 7 10M<br>5/16 7 #10 | 50 | 32 | 29 | Black | 10,000 | 100% |
| BG-4220 | .343 | .355 | 3 # 12.5M<br>11/32 7 # 9 | 50 | 45 | 32 | Yellow | 12,500 | 100% |
| BG-4221 | .350 | .364 | 14M | 50 | 60 | 35 | Blue | 14,000 | 100% |
| BG-4223 | .380 | .394 | 3 # 5 3/8<br>7 # 8 16M | 50 | 62 | 36 | Orange | 16,000 | 100% |
| BG-4225 | .410 | .426 | 18M | 25 | 43 | 39 | Black | 18,000 | 100% |
| BG-4226 | .427 | .442 | 7/16 7# 7 | 25 | 44 | 40 | Green | 19,060 | 100% |
| BG-4227 | .443 | .459 | 20M | 25 | 57 | 41 | Yellow | 20,000 | 100% |
| BG-4168 | .475 | .494 | 7 # 6 | 25 | 60 | 42 | Blue | 22,730 | 100% |
| BG-4169 | .495 | .515 | 19 # 10 | 25 | 62 | 44 | Green | 27,190 | 100% |
| BG-4170 | .516 | .536 | 25M | 20 | 66 | 47 | Red | 25,000 | 100% |
| BG-4171 | .537 | .555 | 7 # 5 | 20 | 67 | 48 | Yellow | 27,030 | 100% |
| BG-4172 | .556 | .570 | - | 15 | 68 | 49 | Blue | 33,330 | |
| BG-4173 | .571 | .591 | 19 # 9 | 20 | 68 | 50 | Orange | 34,290 | 100% |
| BG-4174 | .592 | .612 | - | 16 | 50 | 50 | Green | 34,450 | |
| BG-4175 | .613 | .635 | - | 10 | 49 | 54 | Yellow | 45,000 | |
| BG-4176 | .636 | .661 | 19 # 8 | 10 | 50 | 56 | Black | 43,240 | 100% |
| BG-4177 | .662 | .686 | 19 x .1363" | 10 | 66 | 59 | Blue | 47,400 | 100% |
| BG-4178 | .687 | .712 | - | 10 | 68 | 61 | Red | 54,200 | |
| BG-4179 | .713 | .741 | 19 # 7<br>37 #10 | 10 | 70 | 63 | Black | 51,730<br>50,300 | 100%<br>95%+ |
| BG-4180 | .742 | .772 | 19 x .1499" | 5 | 41 | 71 | Yellow | 54,300 | 100% |
| The Following Products Are For The Specific Cables Listed | | | | | | | | | |
| Catalog Number | Actual Diameters | | | | | | | | |
| BG-4181 | .792 | | 19 x .1584" | 5 | 50 | 80 | Blue | 59,000 | |
| BG-4183 | .801, .810, .827 | | 37 # 9<br>19 # 6<br>19 x .1660" | 5 | 69 | 84 | Green | 63,430<br>61,700<br>63,000 | (95%)+<br>(100%)<br>(100%) |
| BG-4185 | .849, .850, .866 | | 37 x .121"<br>19 x .170"<br>19 x .173"<br>37 x .123" | 5 | 68 | 87 | Black | 71,250<br>66,000<br>68,500<br>74,100 | (95%)+<br>(100%)<br>(100%)<br>(95%)+ |
| BG-4186 | .899 | | 37 # 8 | 5 | 76 | 91 | Yellow | 80,000 | (95%)+ |
| BG-4187 | .910 .934 | | 19 # 5<br>19 x .1868" | 5 | 78 | 93 | Blue | 73,350<br>75,000 | (100%)<br>(100%) |
| BG-4188 | .981 | | 37 x .1404" | 4 | 52 | 95 | Red | 90,250 | (95%)+ |
| BG-4189 | 1.01 | | 37 # 7 | 4 | 85 | 108 | Green | 90,600 | (90%)+ |
| BG-4190 | 1.10 | | 37 x .1571" | 3 | 84 | 117 | Black | 101,700 | (90%)+ |
| BG-4191 | 1.134 | | 37 # 6 | 3 | 86 | 120 | Yellow | 108,200 | (89%) |
| BG-4192 | 1.27 | | 37 # 5 | 2 | 82 | 151 | Red | 127,000 | (89%) |

Left-hand lay is standard.
+ Down-Rated for 37 stranding (1994)

EXPLANATORY NOTES:
(1) For strand sizes smaller than 7#6, refer to the GUY-GRIP® Dead-End.
(2) "Nominal Strand Size" indicates the strand which fits within the "Strand Diameter Range".
(3) Reference Table 1 earlier in this section for acceptable fitting dimensions.
(4) Cabled loop design is furnished as standard for all sizes.
(5) Rated Holding Strengths (RHS) of the Big-Grip Dead-Ends are listed for each strand and are expressed as a percent of the strand's Rated Breaking Strength (RBS).
(6) Consult PLP for sizes and stranding not shown.

# ORDERING INFORMATION

## For use on Galvanized Steel Structural Strand (Bridge)

### Left-hand lay

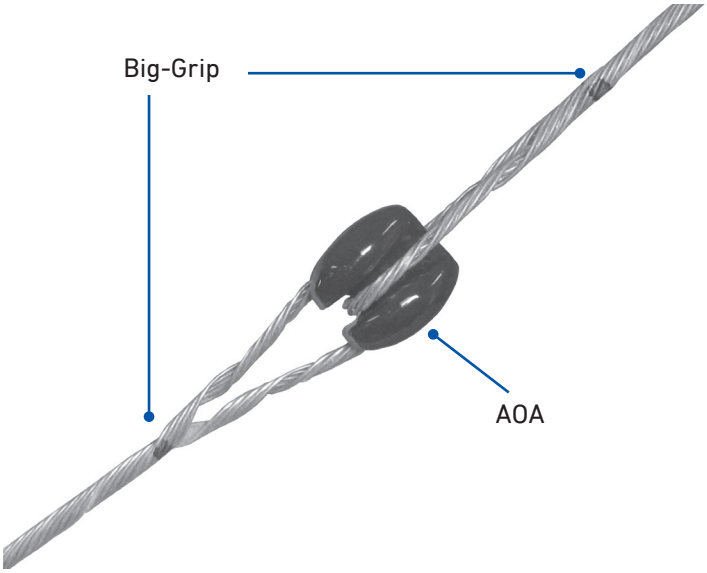
| Catalog Number | Big-Grip Made From: | Strand Construction | Nominal Strand Size | BG Per Carton | BG Per Carton | Approx Length | Number of Individual Rods in Each Big-Grip | Color Code | Cables Published Rated Breaking Strength | Big-Grip Rated Holding Strength |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | in | Units | Wt/lb | in | | | lb | lb |
| BG-MS-6599 | C-Coat Galvanized Steel | 19W | 1/2 | 10 | 39 | 52 | 5 | Orange | 30,000 | 30,000 |
| BG-MS-7648 | C-Coat Galvanized Steel | 19W | 9/16 | 10 | 49 | 55 | 5 | Yellow | 38,000 | 38,000 |
| BG-MS-6446 | B-Coat Galvanized Steel | 19W | 5/8 | 10 | 77 | 67 | 4 | Black | 48,000 | 48,000 |
| BG-MS-1035 | C-Coat Galvanized Steel | 19W | 11/16 | 5 | 54 | 74 | 5 | Blue | 58,000 | 58,000 |
| BG-MS-3690 | Aluminum Clad Steel Strand | 19W | 3/4 | 5 | 69 | 84 | 4 | Orange | 68,000 | 68,000 |
| BG-MS-2759 | Aluminum Clad Steel Strand | 19W | 13/16 | 5 | 73 | 85 | 5 | Red | 80,000 | 80,000 |
| BG-MS-7346 | Aluminum Clad Steel Strand | 19W | 7/8 | 3 | 58 | 94 | 5 | Orange | 92,000 | 92,000 |
| BG-MS-7656 | Aluminum Clad Steel Strand | 19W | 15/16 | 3 | 74 | 121 | 5 | Blue | 108,000 | 101,300 |

### Right-hand lay

| Catalog Number | Big-Grip Made From: | Strand Construction | Nominal Strand Size | BG Per Carton | BG Per Carton | Approx Length | Number of Individual Rods in Each Big-Grip | Color Code | Cables Published Rated Breaking Strength | Big-Grip Rated Holding Strength |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | in | Units | Wt/lb | in | | | lb | lb |
| BG-MS-0717 | C-Coat Galvanized Steel | 19W | 1/2 | 10 | 39 | 52 | 5 | Orange | 30,000 | 30,000 |
| BG-MS-6604 | C-Coat Galvanized Steel | 19W | 9/16 | 10 | 49 | 55 | 5 | Blue | 38,000 | 38,000 |
| BG-MS-2617 | B-Coat Galvanized Steel | 19W | 5/8 | 10 | 77 | 67 | 4 | Black | 48,000 | 48,000 |
| BG-MS-6654 | C-Coat Galvanized Steel | 19W | 11/16 | 5 | 54 | 74 | 5 | Green | 58,000 | 58,000 |
| BG-MS-0704 | Aluminum Clad Steel Strand | 19W | 3/4 | 5 | 69 | 84 | 4 | Black | 68,000 | 68,000 |
| BG-MS-0721 | Aluminum Clad Steel Strand | 19W | 13/16 | 5 | 73 | 85 | 5 | Red | 80,000 | 80,000 |
| BG-MS-5548 | Aluminum Clad Steel Strand | 19W | 7/8 | 3 | 58 | 94 | 5 | Orange | 92,000 | 92,000 |
| BG-MS-7260 | Aluminum Clad Steel Strand | 19W | 15/16 | 3 | 74 | 121 | 5 | Blue | 108,000 | 101,300 |

# ORDERING INFORMATION

## For Use On: Extra High-Strength; Siemens Martin High-Strength Utilities Grade Used with AOA Guy Strain Insulators



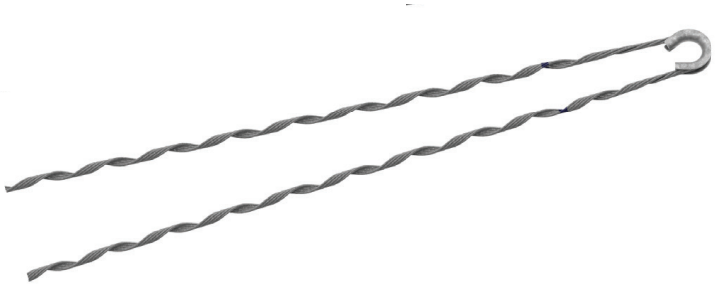

| Catalog Number | Strand RTS (lb) | Strand Size | Loop Diameter | Rated Loop Breaking Strength (lb) |
|---|---|---|---|---|
| **AOA-35** | | | **Seat Diameter = 2-7/16"** | |
| BG-MS-5767 | 20,800 | 7/16" | 2.875" | 22,600 |
| **AOA-50** | | | **Seat Diameter = 2-11/16"** | |
| BG-MS-5767 | 20,800 | 7/16" | 2.875" | 22,600 |
| BG-MS-0751 | 26,900 | 1/2" | 3.0" | 29,900 |
| BG-MS-4825 | 35,000 | 9/16" | 3.5" | 40,100 |
| BG-MS-10417 | 42,400 | 5/8" | 4.0" | 45,300 |
| **AOA-65** | | | **Seat Diameter = 3"** | |
| BG-MS-10754 | 42,400 | 5/8" | 3.0" | 45,300 |
| BG-MS-9935 | 58,300 | 3/4" | 4.25" | 85,300 |
| **AOA-85** | | | **Seat Diameter = 4-3/16"** | |
| BG-MS-9932 | 35,000 | 9/16" | 4.25" | 40,100 |
| BG-MS-9935 | 58,300 | 3/4" | 4.25" | 85,300 |
| BG-MS-7346 | 79,700 | 7/8" | 4.25" | 106,600 |
| **AOA-120** | | | **Seat Diameter = 4-5/8"** | |
| BG-MS-10018 | 58,300 | 3/4" | 4.5" | 85,300 |
| BG-MS-9936 | 79,700 | 7/8" | 4.625" | 106,600 |
| BG-MS-14219 | 104,500 (19w) | 1" | 5" | 106,600 |
| | 92,343 (37w) | | | 95,900 |

Left-hand lay is standard.

# ACCESSORIES

## Heavy-Duty Thimble

**Big-Grip Dead-End Heavy-Duty Thimbles** are designed specifically to fit inside the loop of Big-Grip Dead-Ends. The heavy-duty thimbles have an enlarged opening to assist with installation over mounting hardware. All thimbles are hot-dip galvanized in accordance with ASTM-A153 to ensure a long life in the field.



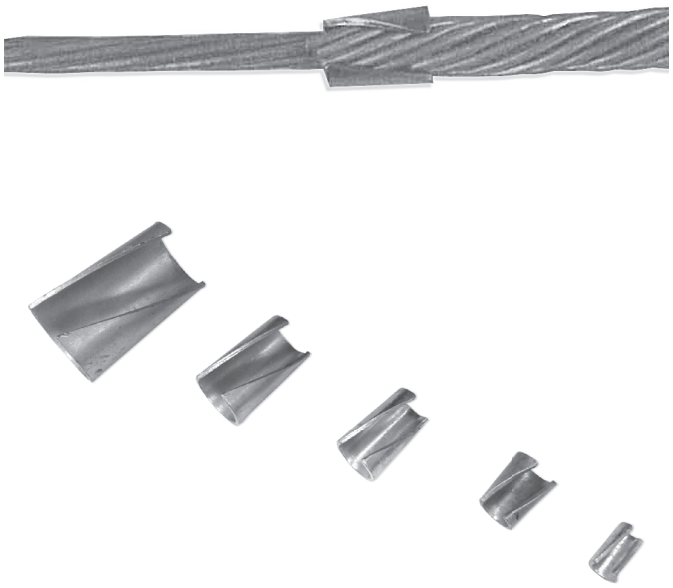
## Thimble Fitment

| Big-Grip Dead-End Catalog Number | Heavy-Duty Thimble Catalog Number | Size | Big-Grip Carton Quantity | Thimble Carton Quantity |
|---|---|---|---|---|
| | | in | | |
| BG-2140 | HDT-9147 | 1/8 | 100 | 50 |
| BG-2142 | HDT-9147 | 3/16 | 100 | 50 |
| BG-2144 | HDT-9147 | 1/4 | 50 | 50 |
| BG-2145 | HDT-9148 | 9/32 | 50 | 25 |
| BG-2146 | HDT-9148 | 5/16 | 50 | 25 |
| BG-2147 | HDT-9148 | 3/8 | 25 | 25 |
| BG-2148 | HDT-9149 | 7/16 | 25 | 20 |
| BG-2115 | HDT-9149 | 1/2 | 20 | 20 |
| BG-2116 | HDT-9150 | 9/16 | 10 | 10 |
| BG-2111 | HDT-9150 | 5/8 | 10 | 10 |
| BG-1112 | HDT-9151 | 3/4 | 5 | 5 |
| BG-1113 | HDT-9152 | 7/8 | 5 | 3 |
| BG-1114 | HDT-9152 | 1 | 3 | 3 |

# ACCESSORIES

## End Sleeves

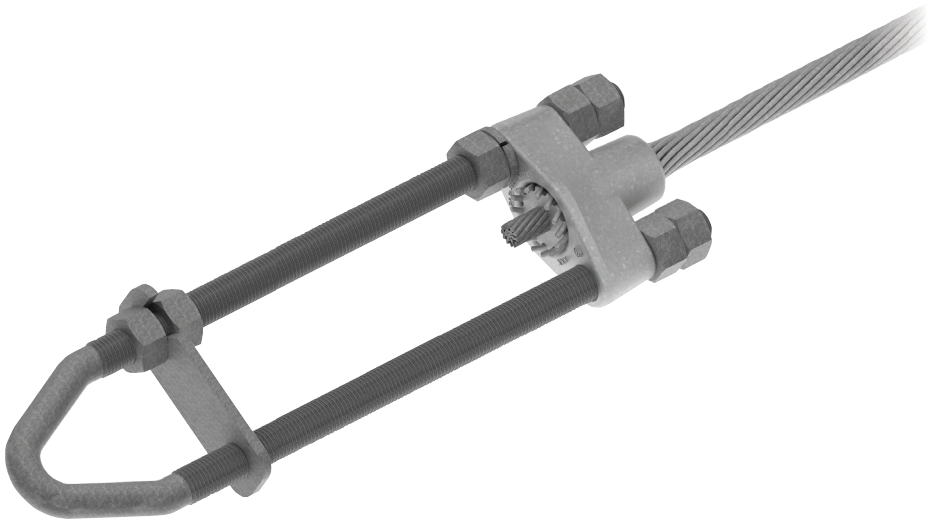
**End Sleeves** are designed to help ensure the proper application of Big-Grip Dead-Ends. They are made from galvanized steel and are compatible with Big-Grip Dead-Ends designed for EHS strand, bridge strand, and aluminum-clad steel cables.



### For Use On: C-Coat Galvanized Steel Big-Grip Dead-Ends

| End Sleeve Catalog Number | C-Coat Catalog Number | Galvanized Strand Size in |
|---|---|---|
| GC-65303 | BG-2142 | 3/16 |
| GC-65136 | BG-2144 | 1/4 |
| GC-65128 | BG-2146 | 5/16 |
| GC-65264 | BG-2147 | 3/8 |
| GC-65265 | BG-2148 | 7/16 |
| GC-65266 | BG-2115 | 1/2 |
| GC-65267 | BG-2116 | 9/16 |
| GC-65268 | BG-2111 | 5/8 |
| GC-65269 | BG-2112 | 11/16 or 3/4 |
| GC-65270 | *BG-MS-7023 | 13/16 or 7/8 |
| GC-65271 | *BG-MS-7047 | 15/16 or 1 |

*Manufactured from aluminum clad steel strand



# VARI-GRIP™ DEAD-END

The **VARI-GRIP Dead-End**, designed for transmission, antenna, and communications guyed structures, features a unique housing, wedge, and rod assembly that is designed to provide a holding strength of 100% of the strand's rated breaking load. The high-strength U-Bolt allows for adjusting the guy strand tension without the need for a turnbuckle.

The **VARI-GRIP Gen2 Dead-End** (available for select applications) allows for proper U-bolt support without the need for conformal castings. The new Gen2 design is also lighter while still maintaining the same holding strength features as the standard design.

## FEATURES AND BENEFITS

### VARI-GRIP Dead-End

- Retaining rods are made from a material that is compatible with the guy strand material (e.g., aluminum-clad steel rods for aluminum-clad steel guy strand)
- Available for strand sizes of .438" - 1.780" (20,800 - 295,500 lb)
- Take-up U-Bolts in sizes 0" and 18" are available for most strand sizes

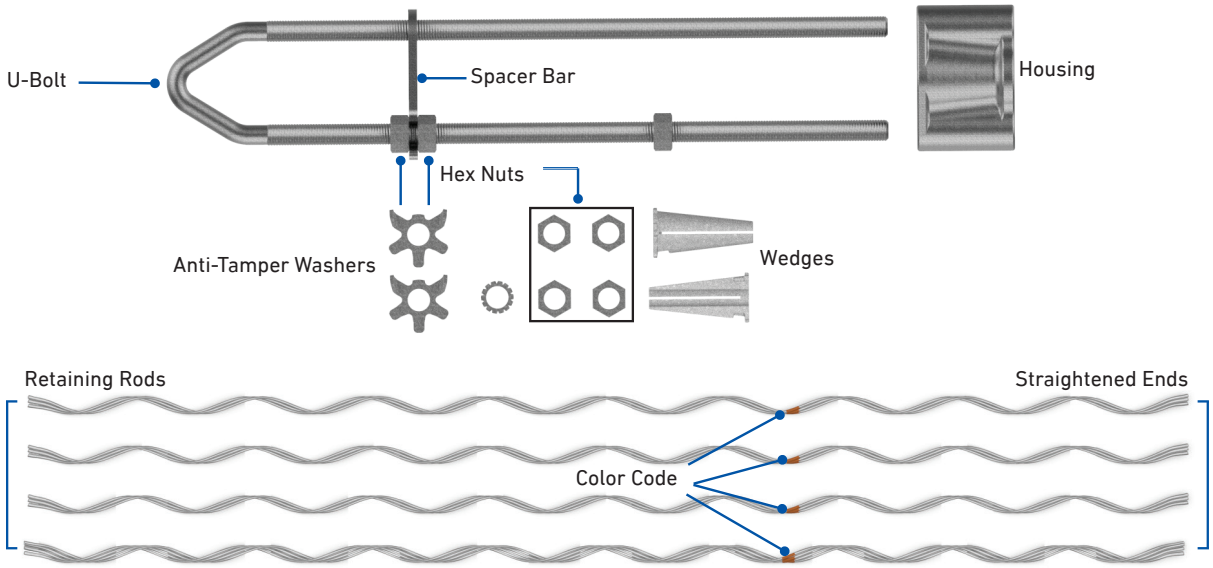
### VARI-GRIP Gen2 Dead-End

- Allows for proper U-bolt support without the need for conformal castings
- Lighter design while still maintaining the same holding strength features as the standard design

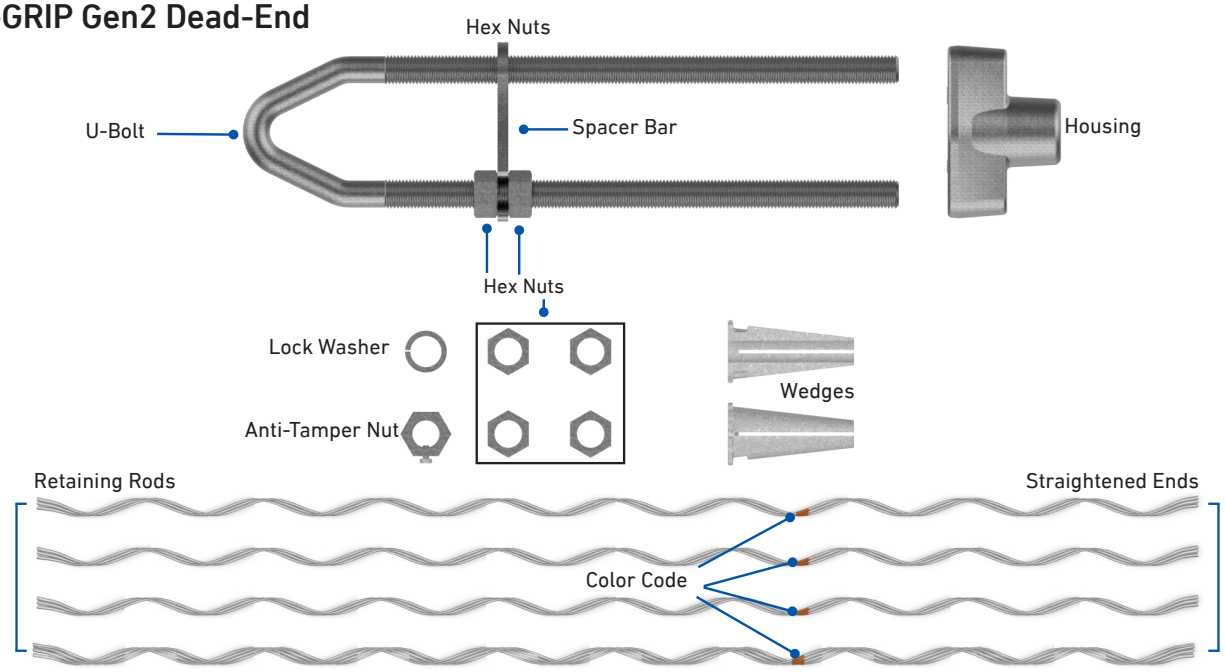
**CAUTION:** VARI-GRIP DEAD-ENDS ARE NOT ACCEPTABLE FOR USE ON WIRE ROPE APPLICATIONS.

# COMPONENTS

## VARI-GRIP Dead-End




## VARI-GRIP Gen2 Dead-End




| Component | Description |
|---|---|
| U-Bolt | Galvanized Steel |
| Housing | VARI-GRIP: Galvanized Ductile Iron, VARI-GRIP Gen2: Galvanized Steel |
| Wedges | Aluminum |
| Spacer Bar | Galvanized Steel (supplied with adjustable models only, except for standard VARI-GRIP models with conformal 1-1/2 and 1-3/4 U-bolts which use castings. Gen2 designs do not use conformal castings) |
| Nuts & Washers | Galvanized Steel |
| Retaining Rods | Galvanized Steel for Galvanized Steel Strand, Aluminum-covered Steel for Aluminum-covered Steel Strand |
| Color Code | Identifies strand size |

# STRAND COMPATIBILITY

The retaining rods are made from a material that is compatible with the guy strand material (i.e., aluminum-clad steel rods for aluminum-clad steel guy strand). Where guying requirements call for strands not shown on the catalog pages, consult PLP.
**CAUTION:** VARI-GRIP Dead-Ends are not acceptable for use on wire rope applications.

VARI-GRIP Dead-Ends should be used only on the size and strand for which they are designed. The VARI-GRIP Dead-End Retaining Rods MUST have the same lay direction as the strand to which they are applied.

# ATTACHMENT FITTINGS

When installing VARI-GRIP Dead-Ends to a pin or other linkage, refer to the table below for minimum and maximum diameters. The minimum dimension indicates the smallest fitting that will ensure support of the U-Bolt, while the maximum dimension indicates the largest fitting that will fit through the U-Bolt.

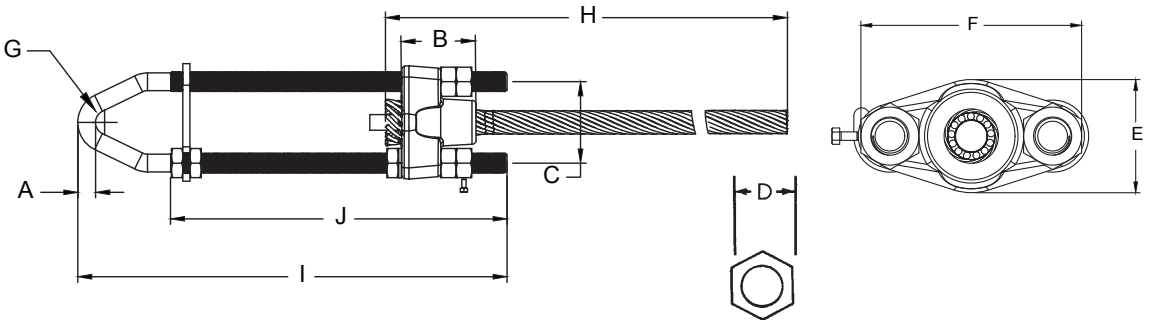
## Acceptable Pin Diameters for VARI-GRIP Dead-End

| Strand Range | U-Bolt Diameter | Minimum | Maximum |
|---|---|---|---|
| in | in | in | in |
| .438 – .500 | 5/8 | 5/8 | 1-1/8 |
| .546 – .661 | 3/4 | 3/4 | 1-1/8 |
| .744 – .914 | 1 | 1 | 1-1/4 |
| .915 – 1.034 | 1-1/8 | 1-1/8 | 1-3/8 |
| 1-1/8 EHS<br>1"BS<br>61#7<br>61#6 | 1-1/2 | 4 | 4 |
| 61#5<br>91#6 | 1-3/4 | 4 | 4-1/2 |

## Acceptable Pin Diameters for VARI-GRIP Gen2 Dead-End

| Strand Range | U-Bolt Diameter | Minimum | Maximum |
|---|---|---|---|
| in | in | in | in |
| .744 – .888 | 1 | 1 | 1-1/4 |
| 1 – 1.125 | 1-1/8 | 1-1/8 | 1-1/2 |

# SPECIFICATIONS

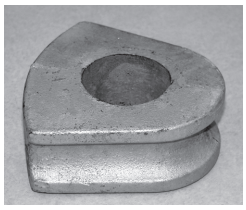


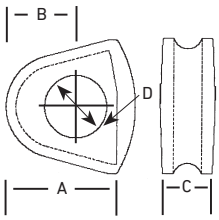

| Strand Range | U-Bolt Diameters | | | | | | | | | | Design |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H | I (0 in) | I (18 in) | |
| | in | | | | | | | | | | |
| .438 – .500 | 5/8 | 3-1/4 | 3-1/4 | 1-1/16 | 3-17/32 | 4-3/4 | 15/16 | See rod length in table on next page | N/A | 29-9/16 | Std. |
| .546 – .661 | 3/4 | 3-1/2 | 3-9/16 | 1-1/8 | 2-3/16 | 5-3/16 | 19/32 | | 11-11/16 | 28-5/16 | Std. |
| 3/4, 7/8 | 1 | 4-1/2 | 4-1/2 | 1-5/8 | 3-1/8 | 6-1/4 | 11/16 | | 18-5/8 | 23-7/8 | **Gen2** |
| .744 – .914 | 1 | 4-1/2 | 4-3/4 | 1-1/2 | 3-5/16 | 6-11/16 | 5/8 | | 12-11/16 | 33-3/16 | Std. |
| .915 – 1.034 | 1-1/8 | 4-15/16 | 5-3/8 | 1-5/8 | 3-5/8 | 7-5/8 | 3/4 | | 14 | 33-1/2 | Std. |
| 1, 1-1/8 | 1-1/8 | 4-1/3 | 5-1/2 | 1-31/32 | 3-3/4 | 7-5/8 | 7/8 | | 26-3/4 | 27-15/16 | **Gen2** |
| 1.25 – 1.460 | 1-1/2 | 7-1/4 | 7-1/8 | 2-5/16 | 5-1/4 | 10-1/8 | 2-1/16 | | 20-3/4 | 39-15/16 | Std. |
| 1.5 – 1.64 | 1-3/4 | 7-1/4 | 8-3/16 | 2-5/8 | 5-9/16 | 11-11/16 | 2-1/2 | | 22-1/2 | 42-3/4 | Std. |
| 1.78 | 1-3/4 | 8-3/4 | 8-3/16 | 2-5/8 | 6-5/8 | 12-3/8 | 2-1/2 | | 22-1/2 | 42-3/4 | Std. |

# ACCESSORIES

## Conformal Casting

| Catalog Number | Strand Sizes | U-Bolt Dia. | A | B | C | D |
|---|---|---|---|---|---|---|
| V1SBG | 1-1/8" EHS,1-1/4" EHS, 37#6, 61#8, 37#5, 61#7,1" BS, 1-1/16" BS, 1-1/8" BS, 1-3/16" BS | 1-1/2" | 5" | 2.75" | 2.875" | 2.875" |
| V1TBG | 61#6, 1-1/4" BS, 1-5/16 BS, 1-3/8" BS, 1-7/16" BS, | 1-1/2" | 5" | 3" | 2.875" | 3.125" |
| V1VBG | 61#5, 1-1/2" BS | 1-3/4" | 5.844" | 3.75" | 3.375" | 3.625" |
| V1WBG | 91#6 | 1-3/4" | 5.844" | 4" | 3.375" | 3.875" |






**NOTE**: To be used with Standard VARI-GRIP Dead-End only. Gen2 VARI-GRIP Dead-Ends do not require this. (Supplied with Dead-Ends using 1-1/2" and 1-3/4" U-Bolts to assure proper support. Be sure that the VARI-GRIP Dead-End selected matches the material, lay direction and strength of the strand being used.

# ORDERING INFORMATION

## Aluminum Clad Steel Strand (Left-Hand Lay)

| Catalog Number 0" Take-Up | Catalog Number 18" Take-Up | Nominal Strand Range | | Nominal Strand Size | Construction | U-Bolt Diameter | Rods Per Set | Rod Length | Subset | Color Code | Rated Holding Strength | Design |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min. | Max | | | | | | | | | |
| N/A | VG-18-3000 | 0.546 | 0.546 | N/A | 7#5 | 3/4" | 12 | 26" | 3-3-3-3 | Yellow | 27,030# | Std. |
| N/A | VG-18-3100 | 0.572 | 0.572 | N/A | 19#9 | 3/4" | 11 | 28" | 3-4-4 | Orange | 34,290# | Std. |
| VG-0-3101 | VG-18-3101 | 0.636 | 0.661 | N/A | 19#8 | 1" | 11 | 32" | 3-4-4 | Black | 42,240# | Std. |
| VG-0-3102 | VG-18-3102 | 0.713 | 0.741 | N/A | 19#7<br>37#10 | 1" | 12 | 35" | 3-3-3-3 | Yellow | 51,730#<br>52,950# | Std. |
| VG-0-3103BR | VG-18-3103BR | 0.800 | 0.810 | N/A | 19#6<br>37#9 | 1" | 12 | 46" | 3-3-3-3 | Green | 61,700#<br>66,770# | **Gen2** |
| VG-0-3104BR | VG-18-3104BR | 0.893 | 0.903 | N/A | 37#8 | 1" | 12 | 54" | 3-3-3-3 | Yellow | 84,200# | **Gen2** |
| VG-0-3105BR | VG-18-3105BR | 0.904 | 0.914 | N/A | 19#5 | 1" | 12 | 54" | 3-3-3-3 | Yellow | 73,350# | **Gen2** |
| VG-0-3106BR | VG-18-3106BR | 0.911 | 0.921 | N/A | 61#10 | 1-1/8" | 13 | 54" | 3-3-3-4 | Yellow | 87,290# | **Gen2** |
| VG-0-3107BR | VG-18-3107BR | 1.000 | 1.010 | N/A | 37#7 | 1-1/8" | 14 | 58" | 3-3-4-4 | Green | 100,700# | **Gen2** |
| VG-0-3108BR | VG-18-3108BR | 1.024 | 1.034 | N/A | 61#9 | 1-1/8" | 14 | 76" | 3-3-4-4 | Purple | 110,100# | **Gen2** |
| VG-0-3109BR | VG-18-3109BR | 1.130 | 1.130 | N/A | 37#6 | 1-1/8" | 14 | 86" | 3-3-4-4 | Yellow | 120,200# | **Gen2** |
| VG-0-3110 | VG-18-3110 | 1.160 | 1.160 | N/A | 61#8 | 1-1/2" | 14 | 98" | 3-3-4-4 | Orange | 138,800# | Std. |
| VG-0-3111 | VG-18-3111 | 1.270 | 1.270 | N/A | 37#5 | 1-1/2" | 16 | 105" | 4-4-4-4 | Red | 142,800# | Std. |
| VG-61#7-0 | VG-61#7-18 | 1.300 | 1.300 | N/A | 61#7 | 1-1/2" | 16 | 106" | 4-4-4-4 | Blue | 166,100# | Std. |
| VG-61#6-0 | VG-61#6-18 | 1.460 | 1.460 | N/A | 61#6 | 1-1/2" | 18 | 116" | 3-3-4-4-4 | Green | 198,100# | Std. |
| VG-61#5-0 | VG-61#5-18 | 1.640 | 1.640 | N/A | 61#5 | 1-3/4" | 20 | 129" | 4-4-4-4-4 | Orange | 235,500# | Std. |
| VG-91#6-0 | VG-91#6-18 | 1.780 | 1.780 | N/A | 91#6 | 1-3/4" | 18 | 165" | 3-3-4-4-4 | Red | 295,500# | Std. |

## Galvanized Steel Extra High-Strength Strand (Left-Hand Lay)

| Catalog Number 0" Take-Up | Catalog Number 18" Take-Up | Nominal Strand Range | | Nominal Strand Size | Construction | U-Bolt Diameter | Rods Per Set | Rod Length | Subset | Color Code | Rated Holding Strength | Design |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min. | Max | | | | | | | | | |
| N/A | VG-18-2100 | 0.438 | 0.438 | 7/16" | 7W | 5/8" | 11 | 27" | 3-4-4 | Red | 20,800# | Std. |
| N/A | VG-18-2101 | 0.459 | 0.500 | 1/2" | 7W or 19W | 5/8" | 12 | 30" | 3-3-3-3 | Blue | 26,900# | Std. |
| VG-0-2108 | VG-18-2108 | 0.559 | 0.563 | 9/16" | 7W or 19W | 3/4" | 11 | 28" | 3-4-4 | Yellow | 35,000# | Std. |
| VG-0-2102 | VG-18-2102 | 0.621 | 0.625 | 5/8" | 7W or 19W | 3/4" | 11 | 31" | 3-4-4 | Black | 42,400# | Std. |
| VG-0-2103BR | VG-18-2103BR | 0.744 | 0.754 | 3/4" | 1x19 | 1" | 12 | 44" | 3-3-3-3 | Orange | 68,000# | **Gen2** |
| VG-0-2104BR | VG-18-2104BR | 0.878 | 0.888 | 7/8" | 1x19 | 1" | 13 | 58" | 3-3-3-4 | Green | 92,000# | **Gen2** |
| VG-0-2105BR | VG-18-2105BR | 1.000 | 1.010 | 1" | 1x31 | 1-1/8" | 14 | 66" | 3-3-4-4 | Blue | 122,000# | **Gen2** |
| VG-0-2106BR | VG-18-2106BR | 1.125 | 1.125 | 1-1/8" | 37W | 1-1/8" | 14 | 95" | 3-3-4-4 | Yellow | 156,000# | **Gen2** |
| VG-0-2107 | VG-18-2107 | 1.250 | 1.250 | 1-1/4" | 37W | 1-1/2" | 16 | 103" | 4-4-4-4 | Red | 162,200# | Std. |

# ORDERING INFORMATION

## Galvanized Steel Bridge Strand

### Left-Hand Lay

| Catalog Number 0" Take-Up | Catalog Number 18" Take-Up | Nominal Strand Range | | Nominal Strand Size | Construction | U-Bolt Diameter | Rods Per Set | Rod Length | Subset | Color Code | Rated Holding Strength | Design |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min. | Max | | | | | | | | | |
| VG-0-2103BR | VG-18-2103BR | 0.750 | 0.750 | 3/4" | 1 X 19 | 1" | 12 | 44" | 3-3-3-3 | Orange | 68,000# | **Gen2** |
| VG-0-4104BR | VG-18-4104BR | 0.813 | 0.813 | 13/16" | 1 X 19 | 1" | 12 | 54" | 3-3-3-3 | Red | 80,000# | **Gen2** |
| VG-0-2104BR | VG-18-2104BR | 0.875 | 0.875 | 7/8" | 1 X 19 | 1" | 12 | 58" | 3-3-3-4 | Green | 92,000 | **Gen2** |
| VG-0-4106BR | VG-18-4106BR | 0.938 | 0.938 | 15/16" | 1 X 31 or 37W | 1-1/8" | 14 | 63" | 3-3-4-4 | Black | 108,000# | **Gen2** |
| VG-0-2105BR | VG-18-2105BR | 1.000 | 1.000 | 1.000" | 1 X 31 | 1-1/8" | 14 | 66" | 3-3-4-4 | Blue | 122,000# | **Gen2** |
| VG-0-4108BR | VG-18-4108BR | 1.063 | 1.063 | 1-1/16" | 1 X 31 | 1-1/8" | 14 | 91" | 3-3-4-4 | Green | 138,000# | **Gen2** |
| VG-0-2106BR | VG-18-2106BR | 1.125 | 1.125 | 1-1/8" | 37W | 1-1/8" | 14 | 95" | 3-3-4-4 | Yellow | 156,000# | **Gen2** |
| VG-0-4109 | VG-18-4109 | 1.187 | 1.187 | 1-3/16" | 1 X 37 | 1-1/2" | 15 | 99" | 3-4-4-4 | Orange | 172,000# | Std. |
| VG-0-2107 | VG-18-2107 | 1.250 | 1.250 | 1-1/4" | 1 X 43 | 1-1/2" | 16 | 103" | 4-4-4-4 | Red | 192,000# | Std. |
| VG-0-4110 | VG-18-4110 | 1.313 | 1.313 | 1-5/16" | 1 X 43 | 1-1/2" | 17 | 107" | 3-3-3-3-3-2 | Black | 212,000# | Std. |
| VG-0-4111 | VG-18-4111 | 1.375 | 1.375 | 1-3/8" | 1 X 43 | 1-1/2" | 17 | 110" | 3-3-3-3-3-2 | Orange | 232,000# | Std. |
| VG-0-4112 | VG-18-4112 | 1.438 | 1.438 | 1-7/16" | 1 X 43 | 1-1/2" | 18 | 114" | 3-3-3-3-3-3 | Green | 252,000# | Std. |
| VG-0-4113 | VG-18-4113 | 1.500 | 1.500 | 1-1/2" | 1 X 43 | 1-3/4" | 16 | 119" | 3-3-3-3-2-2 | Pink | 276,000# | Std. |

### Right-Hand Lay

| Catalog Number 0" Take-Up | Catalog Number 18" Take-Up | Nominal Strand Range | | Nomi-nal Strand Size | Construction | U-Bolt Diameter | Rods Per Set | Rod Length | Subset | Color Code | Rated Holding Strength | Design |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Min | Max | | | | | | | | | |
| VG-0-5103BR | VG-18-5103BR | 0.750 | 0.750 | 3/4" | 1 X 19 | 1" | 12 | 44" | 3-3-3-3 | Orange | 68,000# | **Gen2** |
| VG-0-5104BR | VG-18-5104BR | 0.813 | 0.813 | 13/16" | 1 X 19 | 1" | 12 | 54" | 3-3-3-3 | Red | 80,000# | **Gen2** |
| VG-0-5105BR | VG-18-5105BR | 0.875 | 0.875 | 7/8" | 1 X 19 | 1-1/8" | 13 | 58" | 3-3-3-4 | Green | 92,000# | **Gen2** |
| VG-0-5106BR | VG-18-5106BR | 0.938 | 0.938 | 15/16" | 1 X 31 or 37W | 1-1/8" | 14 | 63" | 3-3-4-4 | Black | 108,000# | **Gen2** |
| VG-0-5107BR | VG-18-5107BR | 1.000 | 1.000 | 1" | 1 X 31 | 1-1/2" | 14 | 66" | 3-3-4-4 | Blue | 122,000# | **Gen2** |
| VG-0-5108BR | VG-18-5108BR | 1.063 | 1.063 | 1-1/16" | 1 X 31 | 1-1/8" | 14 | 91" | 3-3-4-4 | Green | 138,000# | **Gen2** |
| VG-0-5109BR | VG-18-5109BR | 1.125 | 1.125 | 1-1/8" | 1 X 37 | 1-1/8" | 14 | 95" | 3-3-4-4 | Yellow | 156,000# | **Gen2** |
| VG-0-5110 | VG-18-5110 | 1.187 | 1.187 | 1-3/16" | 1 X 37 | 1-1/2" | 15 | 99" | 3-4-4-4 | Orange | 172,000# | Std. |
| VG-0-5111 | VG-18-5111 | 1.250 | 1.250 | 1-1/4" | 1 X 43 | 1-1/2" | 16 | 103" | 4-4-4-4 | Red | 192,000# | Std. |
| VG-0-5112 | VG-18-5112 | 1.313 | 1.313 | 1-5/16" | 1 X 43 | 1-1/2" | 17 | 107" | 3-3-3-3-3-2 | Black | 212,000# | Std. |
| VG-0-5113 | VG-18-5113 | 1.375 | 1.375 | 1-3/8" | 1 X 43 | 1-1/2" | 17 | 110" | 3-3-3-3-3-2 | Orange | 232,000# | Std. |
| VG-0-5114 | VG-18-5114 | 1.438 | 1.438 | 1-7/16" | 1 X 43 | 1-1/2" | 18 | 114" | 3-3-3-3-3-3 | Green | 252,000# | Std. |
| VG-0-5115 | VG-18-5115 | 1.500 | 1.500 | 1-1/2" | 1 X 43 | 1-3/4" | 16 | 119" | 3-3-3-3-2-2 | Pink | 276,000# | Std. |

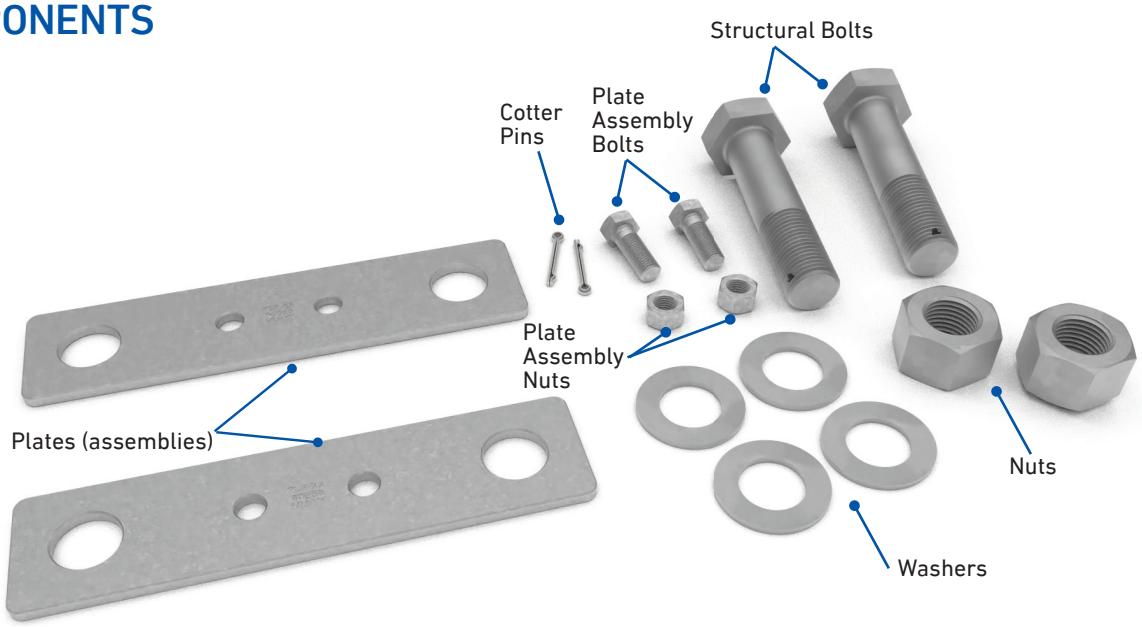
# VARI-GRIP™ DEAD-END LINK PLATES

The **VARI-GRIP Dead-End Link Plates** are intended to be an alternate option to anchor shackles and can be used in transmission, tower and antenna, communications, and other types of guyed structures that require the use of galvanized steel strand. The included structural bolts allow for adjustment to accommodate conformal castings and custom anchor plates. VARI-GRIP Link Plates are designed to work with all types of VARI-GRIP Dead-Ends for multiple guy-strand constructions.

## FEATURES AND BENEFITS

- Parts are constructed of hot-dipped galvanized steel for corrosion resistance
- Available for strand sizes of .438" - 1.780" (20,800 - 295,500 lb)
- Take-up U-Bolts in sizes 0" and 18" are available for most strand sizes

## COMPONENTS




| Component | Description |
|---|---|
| Plates (assemblies) | Galvanized steel plate |
| Structural Bolts | Galvanized steel structural bolt |
| Washers | Galvanized steel washer |
| Nuts | Galvanized steel nuts |
| Cotter Pins | Stainless steel |
| Plate Assembly Bolts | Galvanized steel bolt for mending together assembly plates when more than one plate is necessary |
| Plate Assembly Nuts | Galvanized steel nuts to be used with plate assembly bolts |

**NOTE:** Smaller bolts in the plate assemblies are not to be removed under any circumstances.

## ORDERING INFORMATION

### VARI-GRIP Dead-End Link Plates

| | Catalog Number | | | | | |
|---|---|---|---|---|---|---|
| | VLP-0600 | VLP-0601 | VLP-0603 | VLP-0605 | VLP-0606 | VLP-0607 |
| Maximum Strength Rating (lb) | 42,400 | 80,000 | 108,000 | 156,000 | 192,000 | 252,000 |
| Strand Size (in) | EHS 7/16<br>EHS 1/2<br>EHS 9/16<br>EHS 5/8 | EHS 3/4<br>BS 3/4<br>EHS 7/8<br>BS 13/16 | BS 7/8<br>EHS 1<br>BS 15/16 | BS 1<br>BS 1-1/16<br>EHS 1-1/8<br>BS 1-1/8 | BS 1-3/16<br>EHS 1-1/4<br>BS 1-1/4 | BS 1-5/16<br>BS 1-3/8<br>BS 1-7/16 |
| Conformal Casting | N/A | N/A | N/A | Yes | Yes | Yes |
| U-Bolt Size (in) | 5/8-3/4 | 1 | 1-1/8 | 1-1/2 | 1-1/2 | 1-3/4 |
| Thru hole Diameter (in) | 1 | 1-1/2 | 1-1/2 | 1-7/8 | 2-3/8 | 2-3/8 |
| Structural Bolt Diameter (in) | 7/8 | 1-1/4 | 1-3/8 | 1-3/4 | 2 | 2-1/4 |

# GLAS-GRIP® DEAD-END AND GLAS-SPLICE

The **GLAS-GRIP Dead-End and GLAS-SPLICE** are designed specifically for fiberglass rod. They are intended to be used on transmission, antenna, communications, and other types of guyed structures that require the use of insulated down guys.

## FEATURES AND BENEFITS

- Glas-Grip Dead-Ends are designed to develop the published rated strength of the fiberglass rod that it is applied to
- Use Glas-Grip Dead-Ends and Glas-Splices to make custom-length insulated guy wires
- Glas-Grips are not interchangeable with dead-ends that are designed for fiberglass strand or metal guy strand

# ORDERING INFORMATION

## GLAS-GRIP Dead-End

| Catalog Number | Fiberglass Rod | | Per Carton | | Length | Color Code |
|---|---|---|---|---|---|---|
| | Size Solid | Mean Diameter | | | | |
| | in | in | Units | Wt/lb | in | |
| DER-2168 | 5/16" | .337" | 50 | 64 | 34 | Orange |
| DER-2169 | 3/8" | .400" | 25 | 51 | 40 | Yellow |
| DER-2171 | 1/2" | .525" | 10 | 44 | 53 | Green |
| DER-2173 | 5/8" | .670" | 5 | 40 | 68 | Black |

**NOTES**:
1. Recommended for use with Fiberglass Rod having the diameter as shown in the chart above.
2. Refer to the Application Procedure, picture no. 1 for recommended protection of the Fiberglass Rod when using a come-along.
3. GLAS-GRIP Dead-End is not interchangeable with Dead-Ends that are designed for Fiberglass Strand or metal guy strand.

## GLAS-SPLICE

| Catalog Number | Fiberglass Rod | | Per Carton | | Length | Color Code |
|---|---|---|---|---|---|---|
| | Size Solid | Mean Diameter | | | | |
| | in | in | Units | Wt/lb | in | |
| GSR-2130 | 1/4" | .290" | 50 | 53 | 37 | Red |
| GSR-2131 | 5/16" | .337" | 50 | 54 | 50 | Orange |
| GSR-2132 | 3/8" | .400" | 25 | 68 | 60 | Yellow |
| GSR-2134 | 1/2" | .525" | 10 | 73 | 79 | Green |
| GSR-2136 | 5/8" | .670" | 5 | 66 | 101 | Black |

# INSULIGN® GUY STRAIN INSULATOR

The **INSULIGN Guy Strain Insulator** series is intended for use with down guys or pole-to-pole guys on overhead lines. The insulative fiberglass rod electrically isolates the guy strand and provides electrical clearance for maintenance crews and the public during normal operation. Guy strain insulators provide a greater insulative distance which minimizes potential and severity of dry and wet flashover. They provide a more durable solution compared to conventional porcelain insulators.

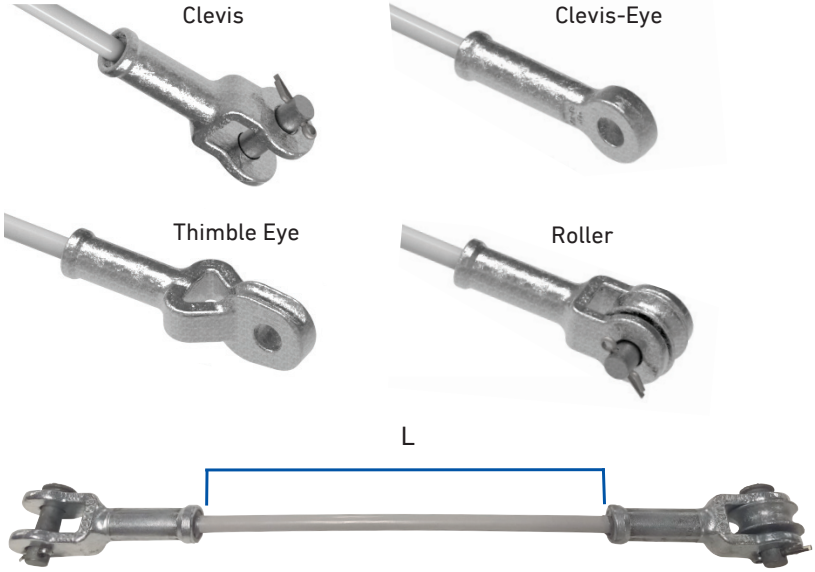
## FEATURES AND BENEFITS

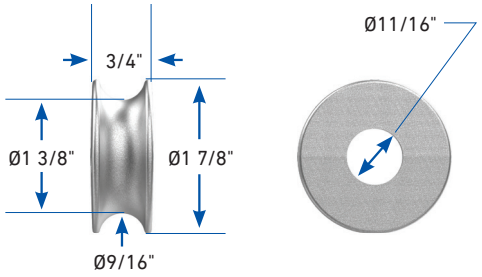
- Fiberglass coating rod that allows for superior performance when exposed to UV conditions
- Crimped end fittings are designed to assure consistent, high-performance holding strength
- Manufactured, tested, and verified to meet PLP's high-quality standards
- Hardware is made of hot-dipped galvanized per ASTM A153 or ASTM A123

# SPECIFICATIONS

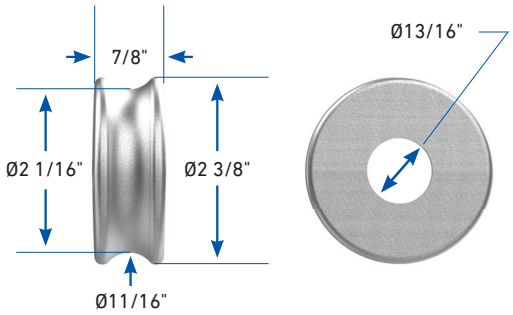
## Rated Strength (lb): 16k, 21k, 30k, and 36k

**INSULIGN® Guy Strain Insulators - Fiberglass** includes two cable storage brackets and two pairs of hanger brackets. Cable straps and cable protection kits are optional.




16K and 21K Roller




30K and 36K Roller

# ORDERING INSTRUCTIONS

## INSULIGN Guy Strain Insulator

| GSF | XX | - | XX | XX |
|---|---|---|---|---|
| (Section 1) | (Section 2) | | (Section 3) | (Section 4) |

### Section 1

| Standard designation for Guy Strains - Fiberglass |
|---|

### Section 2

| Load Rating | |
|---|---|
| 16 | 16K |
| 21 | 21K |
| 30 | 30K |
| 36 | 36K |

### Section 3

| Insulative Length "L" of Fiberglass | |
|---|---|
| 12 | 12" |
| 18 | 18" |
| 24 | 24" |
| 36 | 36" |
| 42 | 42" |
| 54 | 54" |
| 78 | 78" |
| 96 | 96" |
| 120 | 120" |
| 144 | 144" |

Custom lengths available, contact PLP® for more information.

### Section 4

| Fitting Combinations | |
|---|---|
| CC | Clevis/Clevis |
| CCR | CCR Clevis/Clevis with Roller |
| RR | Clevis/Clevis with 2 Rollers |
| CTE | Clevis/ Thimble-Eye |
| CTR | Clevis/ Thimble-Eye with Roller |
| CE | Clevis Eye |

# SPECIFICATIONS – CLEVIS - EYE

## Rated Strength (lb): 16K, 21K minimum

| Minimum Ultimate Strength Rating: 16,000 lb and 21,000 lb | | | |
|---|---|---|---|
| Catalog Number | | Rod Length | Pin to Pin |
| 16,000 lb | 21,000 lb | in | in |
| GSF16-12CE | GSF21-12CE | 12 | 20-5/8 |
| GSF16-18CE | GSF21-18CE | 18 | 26-5/8 |
| GSF16-24CE | GSF21-24CE | 24 | 32-5/8 |
| GSF16-36CE | GSF21-36CE | 36 | 44-5/8 |
| GSF16-42CE | GSF21-42CE | 42 | 50-5/8 |
| GSF16-54CE | GSF21-54CE | 54 | 62-5/8 |
| GSF16-78CE | GSF21-78CE | 78 | 86-5/8 |
| GSF16-96CE | GSF21-96CE | 96 | 104-5/8 |
| GSF16-120CE | GSF21-120CE | 120 | 128-5/8 |
| GSF16-144CE | GSF21-144CCE | 144 | 152-5/8 |

EXPLANATORY NOTES:

(1) Custom lengths available, please contact PLP® for more information.
(2) Minimum Ultimate Strength Rating - 16,000 lb and 21,000 lb
(3) Clevis Pin Diameter - 5/8"

# SPECIFICATIONS – CLEVIS - CLEVIS

## Rated Strength (lb): 16K, 21K minimum

| Minimum Ultimate Strength Rating: 16,000 lb and 21,000 lb | | | |
|---|---|---|---|
| Catalog Number | | Rod Length | Pin to Pin |
| 16,000 lb | 21,000 lb | in | in |
| GSF16-12CC | GSF21-12CC | 12 | 20-3/4 |
| GSF16-18CC | GSF21-18CC | 18 | 26-3/4 |
| GSF16-24CC | GSF21-24CC | 24 | 32-3/4 |
| GSF16-36CC | GSF21-36CC | 36 | 44-3/4 |
| GSF16-42CC | GSF21-42CC | 42 | 50-3/4 |
| GSF16-54CC | GSF21-54CC | 54 | 62-3/4 |
| GSF16-78CC | GSF21-78CC | 78 | 86-3/4 |
| GSF16-96CC | GSF21-96CC | 96 | 104-3/4 |
| GSF16-120CC | GSF21-120CC | 120 | 128-3/4 |
| GSF16-144CC | GSF21-144CC | 144 | 152-3/4 |

EXPLANATORY NOTES:

(1) Custom lengths available, please contact PLP® for more information.
(2) Minimum Ultimate Strength Rating - 16,000 lb and 21,000 lb
(3) Clevis Pin Diameter - 5/8"

## Rated Strength (lb): 30K, 36K minimum

| Minimum Ultimate Strength Rating: 30,000 lb and 36,000 lb | | | |
|---|---|---|---|
| Catalog Number | | Rod Length | Pin to Pin |
| 30,000 lb | 36,000 lb | in | in |
| GSF30-12CC | GSF36-12CC | 12 | 25-3/4 |
| GSF30-18CC | GSF36-18CC | 18 | 31-3/4 |
| GSF30-24CC | GSF36-24CC | 24 | 37-3/4 |
| GSF30-36CC | GSF36-36CC | 36 | 49-3/4 |
| GSF30-42CC | GSF36-42CC | 42 | 55-3/4 |
| GSF30-54CC | GSF36-54CC | 54 | 67-3/4 |
| GSF30-78CC | GSF36-78CC | 78 | 91-3/4 |
| GSF30-96CC | GSF36-96CC | 96 | 109-3/4 |
| GSF30-120CC | GSF36-120CC | 120 | 133-3/4 |
| GSF30-144CC | GSF36-144CC | 144 | 157-3/4 |

EXPLANATORY NOTES:

(1) Custom lengths available, please contact PLP® for more information.
(2) Minimum Ultimate Strength Rating - 30,000 lb and 36,000 lb
(3) Clevis Pin Diameter - 3/4"

# SPECIFICATIONS – CLEVIS - CLEVIS WITH ROLLER

## Rated Strength (lb): 16K, 21K minimum

| Minimum Ultimate Strength Rating: 16,000 lb and 21,000 lb | | | |
|---|---|---|---|
| Catalog Number | | Rod Length | Pin to Pin |
| 16,000 lb | 21,000 lb | in | in |
| GSF16-12CCR | GSF21-12CCR | 12 | 20-3/4 |
| GSF16-18CCR | GSF21-18CCR | 18 | 26-3/4 |
| GSF16-24CCR | GSF21-24CCR | 24 | 32-3/4 |
| GSF16-36CCR | GSF21-36CCR | 36 | 44-3/4 |
| GSF16-42CCR | GSF21-42CCR | 42 | 50-3/4 |
| GSF16-54CCR | GSF21-54CCR | 54 | 62-3/4 |
| GSF16-78CCR | GSF21-78CCR | 78 | 86-3/4 |
| GSF16-96CCR | GSF21-96CCR | 96 | 104-3/4 |
| GSF16-120CCR | GSF21-120CCR | 120 | 128-3/4 |
| GSF16-144CCR | GSF21-144CCR | 144 | 152-3/4 |

EXPLANATORY NOTES:

(1) Custom lengths available, please contact PLP® for more information.
(2) Minimum Ultimate Strength Rating - 16,000 lb and 21,000 lb
(3) Clevis Pin Diameter - 5/8"

## Rated Strength (lb): 30K, 36K minimum

| Minimum Ultimate Strength Rating: 30,000 lb and 36,000 lb | | | |
|---|---|---|---|
| Catalog Number | | Rod Length | Pin to Pin |
| 30,000 lb | 36,000 lb | in | in |
| GSF30-12CCR | GSF36-12CCR | 12 | 25-3/4 |
| GSF30-18CCR | GSF36-18CCR | 18 | 31-3/4 |
| GSF30-24CCR | GSF36-24CCR | 24 | 37-3/4 |
| GSF30-36CCR | GSF36-36CCR | 36 | 49-3/4 |
| GSF30-42CCR | GSF36-42CCR | 42 | 55-3/4 |
| GSF30-54CCR | GSF36-54CCR | 54 | 67-3/4 |
| GSF30-78CCR | GSF36-78CCR | 78 | 91-3/4 |
| GSF30-96CCR | GSF36-96CCR | 96 | 109-3/4 |
| GSF30-120CCR | GSF36-120CCR | 120 | 133-3/4 |
| GSF30-144CCR | GSF36-144CCR | 144 | 157-3/4 |

EXPLANATORY NOTES:

(1) Custom lengths available, please contact PLP® for more information.
(2) Minimum Ultimate Strength Rating - 30,000 lb and 36,000 lb
(3) Clevis Pin Diameter - 3/4"

# SPECIFICATIONS – CLEVIS - CLEVIS WITH TWO ROLLERS

## Rated Strength (lb): 16K, 21K minimum

| Minimum Ultimate Strength Rating: 16,000 lb and 21,000 lb | | | |
|---|---|---|---|
| Catalog Number | | Rod Length | Pin to Pin |
| 16,000 lb | 21,000 lb | in | in |
| GSF16-12RR | GSF21-12RR | 12 | 20-3/4 |
| GSF16-18RR | GSF21-18RR | 18 | 26-3/4 |
| GSF16-24RR | GSF21-24RR | 24 | 32-3/4 |
| GSF16-36RR | GSF21-36RR | 36 | 44-3/4 |
| GSF16-42RR | GSF21-42RR | 42 | 50-3/4 |
| GSF16-54RR | GSF21-54RR | 54 | 62-3/4 |
| GSF16-78RR | GSF21-78RR | 78 | 86-3/4 |
| GSF16-96RR | GSF21-96RR | 96 | 104-3/4 |
| GSF16-120RR | GSF21-120RR | 120 | 128-3/4 |
| GSF16-144RR | GSF21-144RR | 144 | 152-3/4 |

EXPLANATORY NOTES:

(1) Custom lengths available, please contact PLP® for more information.
(2) Minimum Ultimate Strength Rating - 16,000 lb and 21,000 lb
(3) Clevis Pin Diameter - 5/8"

## Rated Strength (lb): 30K, 36K minimum

| Minimum Ultimate Strength Rating: 30,000 lb and 36,000 lb | | | |
|---|---|---|---|
| Catalog Number | | Rod Length | Pin to Pin |
| 30,000 lb | 36,000 lb | in | in |
| GSF30-12RR | GSF36-12RR | 12 | 25-3/4 |
| GSF30-18RR | GSF36-18RR | 18 | 31-3/4 |
| GSF30-24RR | GSF36-24RR | 24 | 37-3/4 |
| GSF30-36RR | GSF36-36RR | 36 | 49-3/4 |
| GSF30-42RR | GSF36-42RR | 42 | 55-3/4 |
| GSF30-54RR | GSF36-54RR | 54 | 67-3/4 |
| GSF30-78RR | GSF36-78RR | 78 | 91-3/4 |
| GSF30-96RR | GSF36-96RR | 96 | 109-3/4 |
| GSF30-120RR | GSF36-120RR | 120 | 133-3/4 |
| GSF30-144RR | GSF36-144RR | 144 | 157-3/4 |

EXPLANATORY NOTES:

(1) Custom lengths available, please contact PLP® for more information.
(2) Minimum Ultimate Strength Rating - 30,000 lb and 36,000 lb
(3) Clevis Pin Diameter - 3/4"

# SPECIFICATIONS – THIMBLE EYE

## Rated Strength (lb): 16K, 21K minimum

| Minimum Ultimate Strength Rating: 16,000 lb and 21,000 lb | | | |
|---|---|---|---|
| Catalog Number | | Rod Length | Pin to Pin |
| 16,000 lb | 21,000 lb | in | in |
| GSF16-12CTE | GSF21-12CTE | 12 | 21-1/2 |
| GSF16-18CTE | GSF21-18CTE | 18 | 27-1/2 |
| GSF16-24CTE | GSF21-24CTE | 24 | 33-1/2 |
| GSF16-36CTE | GSF21-36CTE | 36 | 45-1/2 |
| GSF16-42CTE | GSF21-42CTE | 42 | 51-1/2 |
| GSF16-54CTE | GSF21-54CTE | 54 | 63-1/2 |
| GSF16-78CTE | GSF21-78CTE | 78 | 87-1/2 |
| GSF16-96CTE | GSF21-96CTE | 96 | 105-1/2 |
| GSF16-120CTE | GSF21-120CTE | 120 | 129-1/2 |
| GSF16-144CTE | GSF21-144CTE | 144 | 153-1/2 |

EXPLANATORY NOTES:

(1) Custom lengths available, please contact PLP® for more information.
(2) Minimum Ultimate Strength Rating - 16,000 lb and 21,000 lb
(3) Clevis Pin Diameter - 5/8"

## Rated Strength (lb): 30K, 36K minimum

| Minimum Ultimate Strength Rating: 30,000 lb and 36,000 lb | | | |
|---|---|---|---|
| Catalog Number | | Rod Length | Pin to Pin |
| 30,000 lb | 36,000 lb | in | in |
| GSF30-12CTE | GSF36-12CTE | 12 | 26-3/4 |
| GSF30-18CTE | GSF36-18CTE | 18 | 32-3/4 |
| GSF30-24CTE | GSF36-24CTE | 24 | 38-3/4 |
| GSF30-36CTE | GSF36-36CTE | 36 | 50-3/4 |
| GSF30-42CTE | GSF36-42CTE | 42 | 56-3/4 |
| GSF30-54CTE | GSF36-54CTE | 54 | 68-3/4 |
| GSF30-78CTE | GSF36-78CTE | 78 | 92-3/4 |
| GSF30-96CTE | GSF36-96CTE | 96 | 110-3/4 |
| GSF30-120CTE | GSF36-120CTE | 120 | 134-3/4 |
| GSF30-144CTE | GSF36-144CTE | 144 | 158-3/4 |

EXPLANATORY NOTES:

(1) Custom lengths available, please contact PLP® for more information.
(2) Minimum Ultimate Strength Rating - 30,000 lb and 36,000 lb
(3) Clevis Pin Diameter - 3/4"

# SPECIFICATIONS – THIMBLE EYE WITH ROLLER

## Rated Strength (lb): 16K, 21K minimum

| Minimum Ultimate Strength Rating: 16,000 lb and 21,000 lb | | | |
|---|---|---|---|
| Catalog Number | | Rod Length | Pin to Pin |
| 16,000 lb | 21,000 lb | in | in |
| GSF16-12CTR | GSF21-12CTR | 12 | 21-1/2 |
| GSF16-18CTR | GSF21-18CTR | 18 | 27-1/2 |
| GSF16-24CTR | GSF21-24CTR | 24 | 33-1/2 |
| GSF16-36CTR | GSF21-36CTR | 36 | 45-1/2 |
| GSF16-42CTR | GSF21-42CTR | 42 | 51-1/2 |
| GSF16-54CTR | GSF21-54CTR | 54 | 63-1/2 |
| GSF16-78CTR | GSF21-78CTR | 78 | 87-1/2 |
| GSF16-96CTR | GSF21-96CTR | 96 | 105-1/2 |
| GSF16-120CTR | GSF21-120CTR | 120 | 129-1/2 |
| GSF16-144CTR | GSF21-144CTR | 144 | 153-1/2 |

EXPLANATORY NOTES:

(1) Custom lengths available, please contact PLP® for more information.
(2) Minimum Ultimate Strength Rating - 16,000 lb and 21,000 lb
(3) Clevis Pin Diameter - 5/8"

## Rated Strength (lb): 30K, 36K minimum

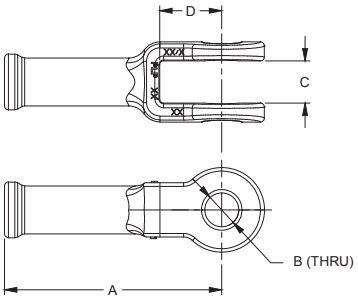
| Minimum Ultimate Strength Rating: 30,000 lb and 36,000 lb | | | |
|---|---|---|---|
| Catalog Number | | Rod Length | Pin to Pin |
| 30,000 lb | 36,000 lb | in | in |
| GSF30-12CTR | GSF36-12CTR | 12 | 25-3/4 |
| GSF30-18CTR | GSF36-18CTR | 18 | 31-3/4 |
| GSF30-24CTR | GSF36-24CTR | 24 | 37-3/4 |
| GSF30-36CTR | GSF36-36CTR | 36 | 49-3/4 |
| GSF30-42CTR | GSF36-42CTR | 42 | 55-3/4 |
| GSF30-54CTR | GSF36-54CTR | 54 | 67-3/4 |
| GSF30-78CTR | GSF36-78CTR | 78 | 91-3/4 |
| GSF30-96CTR | GSF36-96CTR | 96 | 109-3/4 |
| GSF30-120CTR | GSF36-120CTR | 120 | 134-3/4 |
| GSF30-144CTR | GSF36-144CTR | 144 | 157-3/4 |

EXPLANATORY NOTES:

(1) Custom lengths available, please contact PLP® for more information.
(2) Minimum Ultimate Strength Rating - 30,000 lb and 36,000 lb
(3) Clevis Pin Diameter - 3/4"

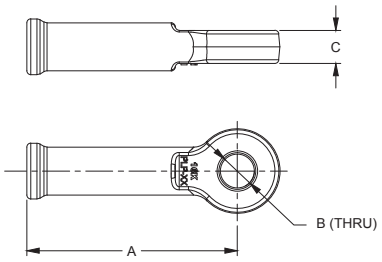
# SPECIFICATIONS – FITTINGS

## Rated Strength (lb): 16K, 21K minimum



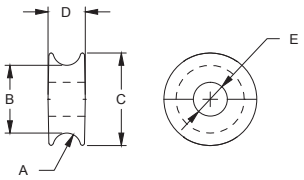

CLEVIS

| | Clevis | | | |
|---|---|---|---|---|
| | A | B | C | D |
| | in | | | |
| 16K | 4.38 | 0.69 | 0.850 | 1.25 |
| 21K | 4.53 | 0.69 | 0.875 | 1.38 |




EYE

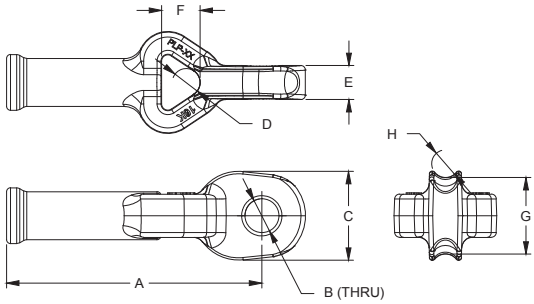
| | Eye | | |
|---|---|---|---|
| | A | B | C |
| | in | | |
| 16K | 4.25 | 0.69 | 0.67 |
| 21K | 4.30 | 0.69 | 0.75 |




ROLLER

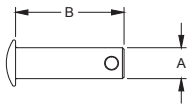
| Catalog # | R1 |
|---|---|

| | Roller | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| | in | | | | |
| 16K | 0.563 | 1.38 | 1.88 | 0.75 | 0.69 |
| 21K | 0.563 | 1.38 | 1.88 | 0.75 | 0.69 |




THIMBLE EYE

| | Thimble-Eye | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| | in | | | | | | | |
| 16K | 5.13 | 0.69 | 1.813 | 0.563 | 0.688 | 0.75 | 1.56 | 0.563 |
| 21K | 5.15 | 0.69 | 1.813 | 0.563 | 0.780 | 0.80 | 1.56 | 0.563 |

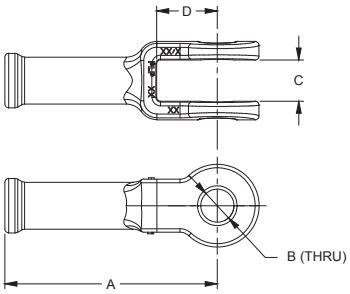



CLEVIS PIN

| | Clevis Pin | |
|---|---|---|
| | A | B |
| | in | |
| 16K | 0.625 | 2.19 |
| 21K | 0.625 | 2.19 |

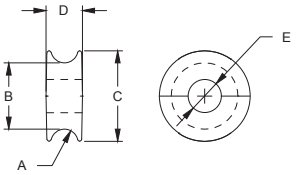
# SPECIFICATIONS – FITTINGS

## Rated Strength (lb): 30K, 36K minimum




CLEVIS

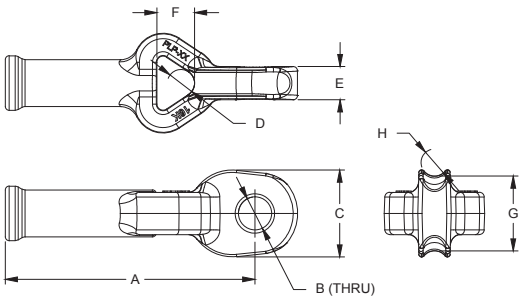
| | Clevis | | | |
|---|---|---|---|---|
| | A | B | C | D |
| | in | | | |
| 30K | 6.9 | 0.820 | 1.00 | 2.00 |
| 36K | 6.9 | 0.820 | 1.00 | 2.00 |




ROLLER

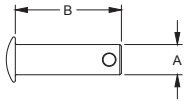
| Catalog # | R2 |
|---|---|

| | Roller | | | | |
|---|---|---|---|---|---|
| | A | B | C | D | E |
| | in | | | | |
| 30K | 0.688 | 2.05 | 2.35 | 0.91 | 0.82 |
| 36K | 0.688 | 2.05 | 2.35 | 0.91 | 0.82 |



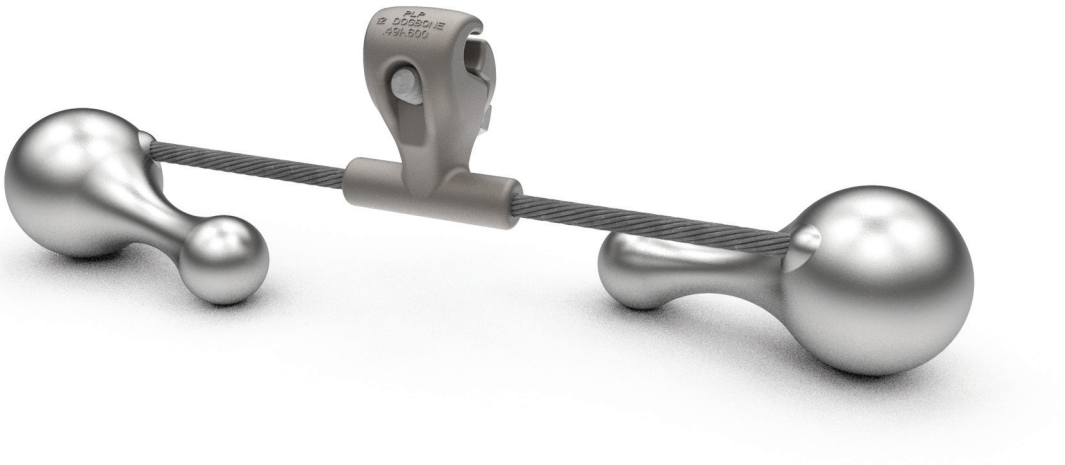

THIMBLE EYE

| | Thimble-Eye | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| | in | | | | | | | |
| 30K | 7.93 | 0.820 | 2.35 | 0.75 | 0.875 | 1.20 | 2.00 | 0.680 |
| 36K | 7.93 | 0.820 | 2.35 | 0.75 | 0.875 | 1.20 | 2.00 | 0.680 |




CLEVIS PIN

| | Clevis Pin | |
|---|---|---|
| | A | B |
| | in | |
| 30K | 0.75 | 2.50 |
| 36K | 0.75 | 2.50 |



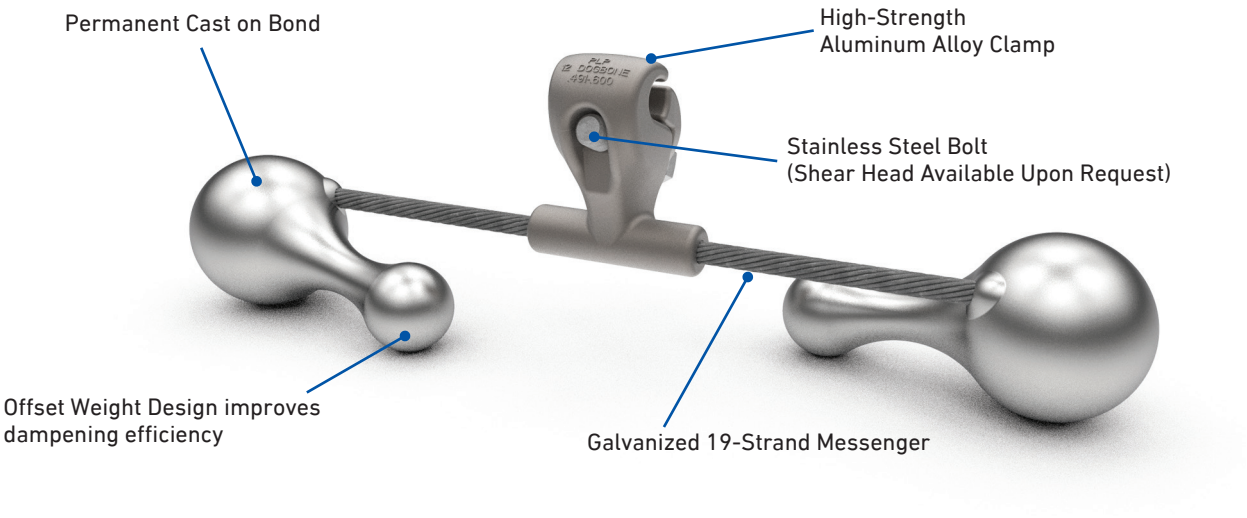
# DOGBONE® VIBRATION DAMPER

**DOGBONE Vibration Dampers** are designed to eliminate guy wire fatigue damage and line maintenance costs by effectively reducing Aeolian vibration. The messenger cable and unique “dog bone” shape of the masses are designed to achieve optimal energy dissipation and minimal clamp movement. The mechanical impedance of the damper is matched to the guy wires to optimize performance. The offset dogbone-shaped masses also introduce a torsional mode of vibration damping not present in conventional Stockbridge type dampers. The range of DOGBONE Vibration Dampers is a development resulting from our extensive experience and research in the field of guy wires vibration control.

## FEATURES AND BENEFITS

- The messenger cable and DOGBONE Vibration Damper weights are sized to give additional resonant modes and wider effective frequency response.
- Concept is based on the known and proven principles of the Stockbridge damper but embodies improvements which increase both power dissipation and range of frequency response beyond those of standard Stockbridge types.

# COMPONENTS



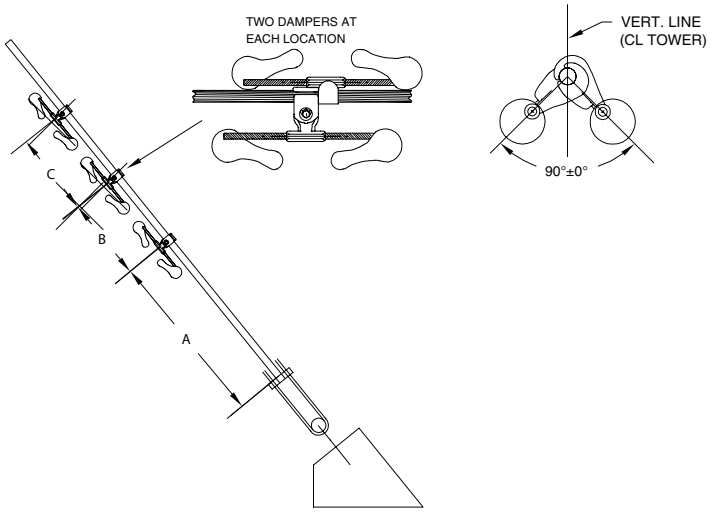

### DOGBONE Vibration Damper

| Component | Description |
|---|---|
| Clamp | Cast of high-strength aluminum alloy |
| Bolt | Galvanized bolt or aluminum shear head break away head bolts available on special request |
| Flat Washer | Galvanized steel |
| Messenger | Exclusive preformed 19 strand EHS galvanized steel |
| Masses | High grade zinc |

**CAUTION**: Due to the many parameters involved, please contact PLP to calculate optimum damper recommendations, placements and quantities.

**NOTE**: A pair of dampers is required at each placement location phased 90 degrees apart; Please refer to the "DOGBONE Tower Placements" Spec Sheet.

# DAMPER PLACEMENT




# ORDERING INFORMATION

Contact PLP's Technical Support at (440) 461-5200 for product selection and product placement.

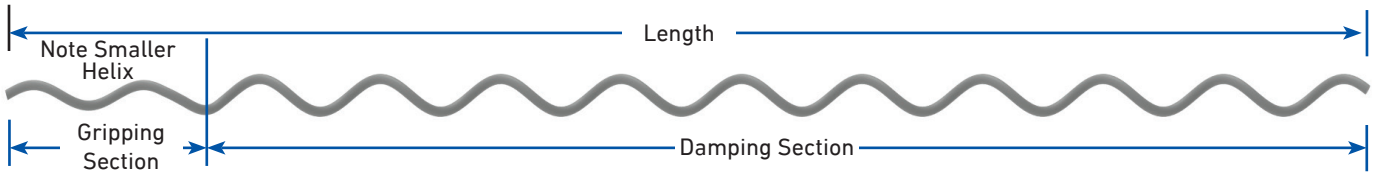
# SPIRAL VIBRATION DAMPER

**Spiral Vibration Damper** reduces Aeolian Vibration (the high frequency, low amplitude vibration caused by horizontal wind passing across the line. It is designed to be used on OPGW, conductors, and strand with an outside diameter less than 0.75". Damping devices are designed for the single purpose of reducing vibration. This single function is entirely different from that of protecting against (1) stress concentrations, (2) fretting or abrasion, and (3) arc-over burning. The degree of protection needed on a specific line depends upon a number of factors such as line design, temperature, tension, exposure to wind flow, and vibration history on similar construction in the same area.

## FEATURES AND BENEFITS

- Made of solid polyvinyl chloride, helical rod material is noncorrosive and has a surface hardness which does not abrade the strand
- For application-inspection, the gripping section should be installed approximately one hand's width from the ends of hardware. Engineering calculations are not required for placement locations.
- Compatible with any down guy strand

# COMPONENTS




| Component | Description |
|---|---|
| Length | Assists in identifying conductor size, corresponding to tabular information appearing on following page. |
| Damping Section | Helically scaled for interplay of damper and strand/conductor, to provide the action/reaction motion that opposes the natural vibration wave |
| Gripping Section | Has a smaller helix designed to the grip strand/conductor. |

# ORDERING INFORMATION

## Spiral Vibration Damper (Standard)

| Catalog Number | Diameter Range (in) | | Units | Wt/Lb | Length (in) |
|---|---|---|---|---|---|
| | Min. | Max. | | | |
| 5050102 | .174 | .249 | 50 | 29 | 46 |
| 5050103 | .250 | .326 | 50 | 31 | 49 |
| 5050104 | .327 | .461 | 50 | 34 | 51 |
| 5050105 | .462 | .563 | 50 | 36 | 53 |
| 5050106 | .564 | .760 | 25 | 50 | 65 |

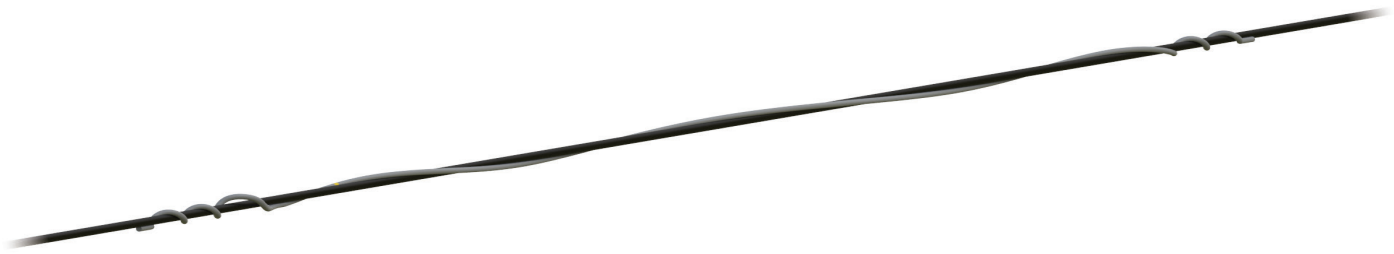
## Spiral Vibration Damper (Hi Mass)

The **Hi Mass Spiral Vibration Damper (HMSVD)** has a damping section close to double that of the standard SVD.
By extending the length of the damping section, one Hi Mass SVD provides the effectiveness of two standard SVDs. This allows for fewer points of installation and less components on the line.

| Catalog Number | Diameter Range (in) | | Units | Wt/Lb | Length (in) |
|---|---|---|---|---|---|
| | Min. | Max. | | | |
| 5050200 | .250 | .326 | 50 | 55 | 87 |
| 5050201 | .327 | .461 | 50 | 60 | 91 |
| 5050202 | .462 | .563 | 50 | 65 | 94 |
| 5050203 | .564 | .760 | 15 | 55 | 97 |

## Number of SVDs per Span

| Span Length | 0 - 800' | 801' - 1600' | 1601' - 2400' |
|---|---|---|---|
| Standard | 2 | 4 | 6 |
| Hi Mass | 1 | 2 | 3 |



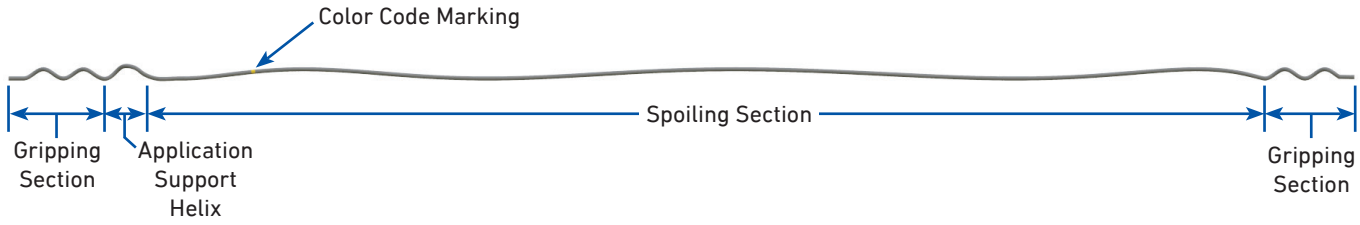
# AIR FLOW SPOILER

The **Air Flow Spoiler** is a motion control product used to suppress galloping of cable spans. Galloping can rapidly cause severe damage to the cable system. Using the recommended number of Air Flow Spoilers can suppress galloping and increase cable longevity.

## FEATURES AND BENEFITS

- Central spoiling section suppresses galloping by providing a constantly changing aerodynamic profile
- Helical gripping sections on both ends hold the cable securely without excess clamping forces
- Number and placement of Air Flow Spoilers in each cable span are determined by an internally-developed program based on the results of ongoing field and laboratory research
- Made of rigid non-metallic, non-corrosive thermal plastic
- Maintains aerodynamic stability by providing a continually changing profile to the wind
- Reduces guy wire motion
- Extends support hardware and guy wire life

# COMPONENTS




| Feature | Description |
|---|---|
| Gripping Section | Gently grips the cable |
| Application Support Helix | Prevents the spoiler from falling off the cable as the gripping section is applied |
| Spoiling Section | Provides a change in the aerodynamic profile of the cable to mitigate galloping |
| Color Code Marking | Identifies the product's cable diameter range |

# ORDERING INFORMATION

PLP uses an internally developed program that utilizes the results of ongoing field and laboratory data to determine the required number and placement of **Air Flow Spoilers** in each cable span.

## Air Flow Spoiler

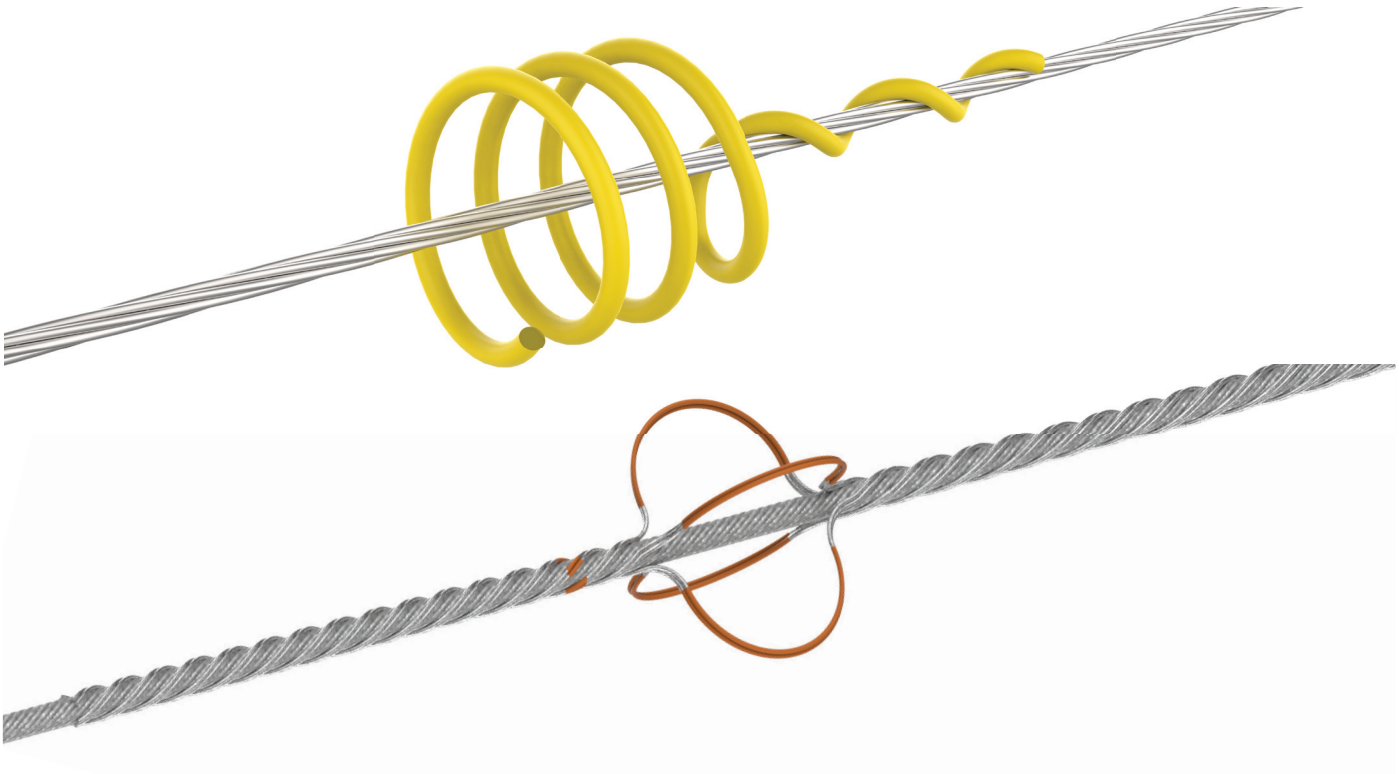
| Catalog Number | Cable Diameter Range | | Length | | Wt/Unit | Color Code |
|---|---|---|---|---|---|---|
| | in | mm | ft | m | lb | |
| 5058100 | 0.250 – 0.326 | 6.4 – 8.2 | 13.50 | 4.11 | 1.00 | Red |
| 5058101 | 0.327 – 0.461 | 8.3 – 11.6 | 13.50 | 4.11 | 1.00 | White |
| 5058102 | 0.462 – 0.563 | 11.7 – 14.2 | 14.00 | 4.27 | 2.25 | Orange |
| 5058103 | 0.564 – 0.760 | 14.3 – 19.2 | 14.50 | 4.42 | 2.40 | Yellow |
| 5058104 | 0.761 – 0.926 | 19.3 – 23.4 | 15.00 | 4.57 | 4.25 | Blue |
| 5058105 | 0.927 – 1.019 | 23.5 – 25.8 | 15.25 | 4.65 | 4.50 | Black |
| 5058106 | 1.020 – 1.165 | 25.9 – 29.6 | 15.75 | 4.80 | 5.50 | Purple |
| 5058107 | 1.166 – 1.469 | 29.6 – 37.3 | 16 | 4.88 | 5.75 | Brown |
| 5058108 | 1.470 – 1.602 | 37.3 – 40.7 | 17 | 5.12 | 9.50 | Green |
| 5058109 | 1.603 – 1.762 | 40.7 – 44.8 | 17.5 | 5.33 | 9.75 | Pink |

## Number of Air Flow Spoilers per Cable Span

| Span Length | | Spoilers per Span |
|---|---|---|
| ft | m | |
| 0 – 120 | 0 – 36.6 | 2 |
| 120 – 180 | 36.6 – 54.9 | 3 |
| 181 – 240 | 55.2 – 73.2 | 4 |
| 241 – 300 | 73.5 – 91.4 | 5 |
| 301 – 350 | 91.7 – 106.7 | 6 |
| 351 – 400 | 106.9 – 121.9 | 7 |
| 401 – 450 | 122.2 – 137.2 | 8 |
| 451 – 500 | 137.5 – 152.4 | 9 |
| 501 – 550 | 152.7 – 167.6 | 10 |

| Span Length | | Spoilers per Span |
|---|---|---|
| ft | m | |
| 551 – 600 | 167.9 – 182.9 | 11 |
| 601 – 650 | 182.9 – 198.1 | 12 |
| 651 – 700 | 198.4 – 213.4 | 13 |
| 701 – 750 | 213.7 – 228.6 | 14 |
| 751 – 800 | 228.9 – 243.8 | 15 |
| 801 – 850 | 244.1 – 259.1 | 16 |
| 851 – 900 | 259.4 – 274.3 | 17 |
| 901 – 950 | 274.6 – 289.6 | 18 |
| 951 – 1000 | 289.9 – 304.8 | 19 |

**NOTE:** Consult PLP for placement details.



# BIRD-FLIGHT™ DIVERTER

The **BIRD-FLIGHT Diverter (BFD)** is designed to make overhead lines and guyed structures visible to birds and provides an economical means of reducing the hazard to both lines and birds.

The **Plastic BFD** is manufactured from rigid, high-impact PVC possessing excellent chemical resistance and tensile strength properties. The BFD will retain good physical characteristics over a range of temperatures.

The **Galvanized BFD** is designed to make guyed structures more visible to birds and provide an economical means of reducing the hazard to both lines and birds. The diverter's positive grip on the cable ensures that it remains in the applied position and will not move along the cable under aeolian vibration or other conditions.

## FEATURES AND BENEFITS

- Lightweight, economical, and easily applied by hand or hot stick
- Positive grip prevents product from moving along the span
- Long service life without deterioration of material properties
- Minimal wind resistance
- Manufactured from gray or yellow high-impact PVC with UV protection or aluminum alloy for high temperature requirements (contact PLP for other color/voltage options)
- Meets **UL 94 V-0** flammability requirements
- For severe icing conditions, the Galvanized BIRD-FLIGHT Diverter is recommended

# SPACING

## Horizontal Line Layout


For optimal results, spacing distances are generally recommended at 15-foot intervals, depending upon local conditions. Since wind resistance is very limited, a sufficient number of BIRD-FLIGHT Diverters can be used to ensure adequate visibility without creating stresses on the line. When marking adjacent spans, overall visibility is improved by staggering the placement between spans.

# ORDERING INFORMATION

Select the appropriate BIRD-FLIGHT Diverter size.

- For use on bare and jacketed conductors, strand, and fiber optic cables
- Contact a PLP representative for more information regarding which product to select for a specific application.

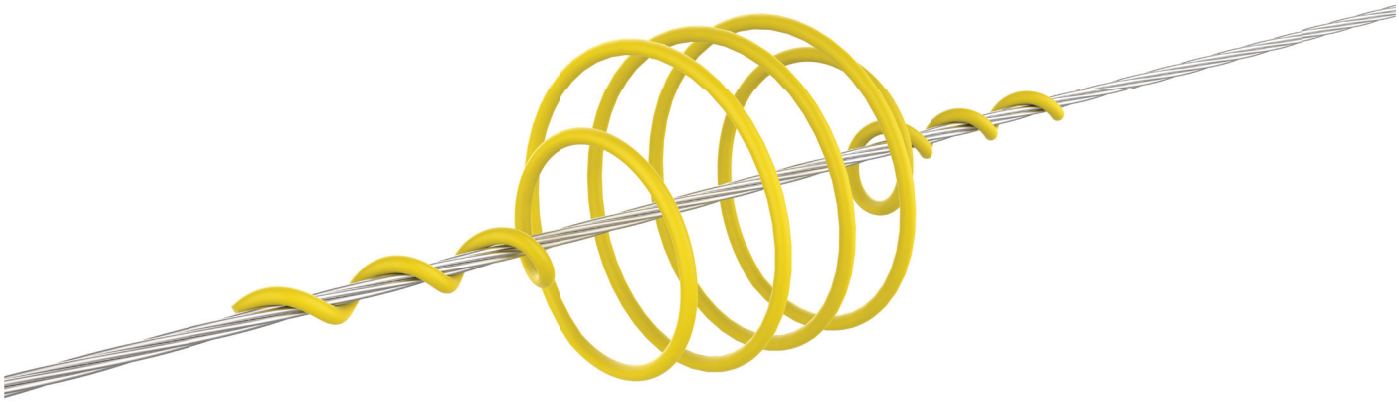
## BIRD-FLIGHT Diverter

| Catalog Number | | Conductor Diameter Range | | Overall Length | Diverter Coil Outer Diameter | Color Code |
|---|---|---|---|---|---|---|
| YELLOW | GRAY | Minimum | Maximum | | | |
| | | in (mm) | in (mm) | in (mm) | in (mm) | |
| BFD-MS-3331 | BFD-MS-3346 | .175 (4.4) | .249 (6.3) | 8.00 (203) | 2.25 (57) | Black |
| BFD-MS-3155 | BFD-MS-2921 | .250 (6.4) | .349 (8.9) | 8.50 (216) | 2.50 (64) | Blue |
| BFD-MS-3164 | BFD-MS-3355 | .350 (8.9) | .449 (11.4) | 9.50 (241) | 2.75 (70) | Brown |
| BFD-MS-11135 | BFD-MS-11060 | | | 12.37 (314) | 4.25 (108) | Brown |
| BFD-MS-3341 | BFD-MS-3366 | .450 (11.4) | .599 (15.2) | 14.50 (368) | 4.25 (108) | Green |
| BFD-MS-3344 | BFD-MS-3371 | .600 (15.2) | .770 (19.6) | 17.00 (432) | 4.25 (108) | Purple |
| BFD-MS-3345 | BFD-MS-3376 | .771 (19.6) | .858 (21.8) | 15.00 (381) | 4.25 (108) | Red |
| BFD-MS-3405 | BFD-MS-11699 | .859 (21.8) | .970 (24.6) | 16.50 (419) | 4.50 (114) | Orange |
| BFD-MS-11111 | BFD-MS-12290 | .971 (24.7) | 1.121 (28.5) | 15.50 (394) | 4.25 (108) | Pink |

## Galvanized BIRD-FLIGHT Diverter

| Catalog Number | Conductor Diameter | Overall Length | Diverter Coil Diameter | Weight per set | Color Code |
|---|---|---|---|---|---|
| | in (mm) | in (mm) | in (mm) | lb | |
| BDG-5738 | 3/8 (9.5) | 28.00 (711) | 3.50 (88.9) | 0.58 | Orange |
| BDG-5739 | 7/16 (11.1) | 30.50 (774) | 3.50 (88.9) | 0.63 | Green |
| BDG-5740 | 1/2 (12.7) | 32.50 (825) | 3.50 (88.9) | 0.90 | Blue |
| BDG-5741 | 9/16 (14.2) | 33.50 (851) | 3.50 (88.9) | 0.95 | Yellow |
| BDG-5742 | 5/8 (15.8) | 36.50 (927) | 3.50 (88.9) | 1.02 | Black |
| BDG-5743 | 3/4 (19.0) | 38.00 (965) | 3.50 (88.9) | 1.07 | Orange |

**WARNING**: The Galvanized BIRD-FLIGHT Diverter is not designed to be conductive and is not for use on energized conductors. Contact a PLP representative for information on alternative products designed for energized situations.



# SWAN-FLIGHT™ DIVERTER

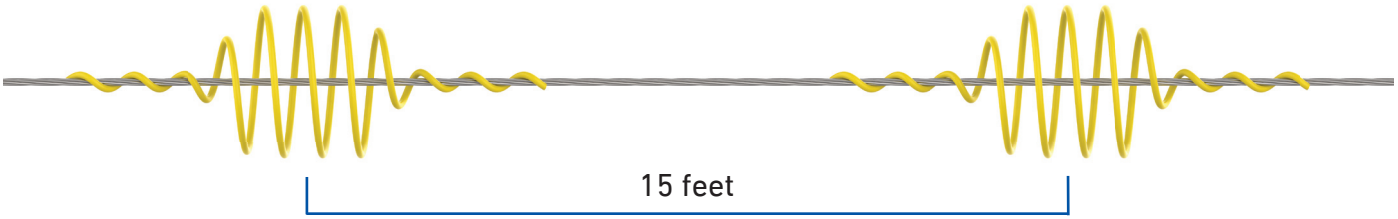
The **SWAN-FLIGHT Diverter (SFD)** is designed for use on guy wire or conductor to create greater visibility for avian flight paths on overhead lines and tower down guys. For construction up to 230 kV, the SFD can be applied to phase conductors (bare or jacketed). For EHV, it is typically installed on the shield wire. The diverter section increases the visible profile of the cable to a degree necessary to alert wildlife, but avoids an undesirably bulky outline and increased loading on the line.

## FEATURES AND BENEFITS

- Increases visibility where large, slow-moving bird flight paths are present
- Lightweight, economical, and easily applied
- Positive grip prevents product from moving along the span
- Long service life without deterioration of material properties
- Minimal wind resistance
- Manufactured from gray or yellow rigid, high-impact PVC with UV protection
- Applicable for voltages below 230 kV
- Semi-conductive version available for 230 kV applications
- Meets **UL 94 V-0** flammability requirements

# SPACING

## Horizontal Line Layout




For optimal results, spacing distances are generally recommended at 15-foot intervals, depending upon local conditions. Since wind resistance is very limited, sufficient SWAN-FLIGHT Diverters can be used to ensure adequate visibility without creating stresses on the line. When marking adjacent spans, overall visibility is improved by staggering the placement between the spans.

# ORDERING INFORMATION

- For use on bare and jacketed conductors, strand, and fiber optic cables
- Gray is the standard color. For yellow, add "-Y" after the catalog number. Add suffix "-B" to the catalog number for black semi-conductive layer for applications at 230 kV. **Example:** SFD-2460-B

## SWAN-FLIGHT Diverter

| Catalog Number | Conductor Range | | Overall Length | Diverter Coil Diameter | PVC Rod Diameter | Approximate Weight | Color Code |
|---|---|---|---|---|---|---|---|
| | Minimum | Maximum | | | | | |
| | in (mm) | in (mm) | in (mm) | in (mm) | in (mm) | lb | |
| SFD-0445 | 0.175 (4.4) | 0.249 (6.3) | 20 (508) | 7.0 (177) | 0.375 (9) | 0.40 | Black |
| SFD-0635 | 0.250 (6.3) | 0.349 (8.8) | 23 (584) | 7.0 (177) | 0.375 (9) | 0.46 | Blue |
| SFD-0890 | 0.350 (8.9) | 0.449 (11.4) | 25 (635) | 7.5 (190) | 0.375 (9) | 0.50 | Brown |
| SFD-1140 | 0.450 (11.4) | 0.599 (15.2) | 35 (889) | 8.0 (203) | 0.375 (9) | 0.70 | Green |
| SFD-1520 | 0.600 (15.2) | 0.770 (19.5) | 38 (1965) | 8.0 (203) | 0.500 (14) | 1.40 | Purple |
| SFD-1960 | 0.771 (19.5) | 0.858 (21.7) | 38 (1965) | 8.0 (203) | 0.500 (14) | 1.40 | Red |
| SFD-2220 | 0.859 (21.8) | 0.970 (24.6) | 40 (1016) | 8.0 (203) | 0.500 (14) | 1.50 | Orange |
| SFD-2460 | 0.971 (24.6) | 1.121 (28.4) | 40 (1016) | 8.0 (203) | 0.500 (14) | 1.50 | Pink |
| SFD-2700 | 1.122 (28.4) | 1.306 (33.1) | 40 (1016) | 8.0 (203) | 0.500 (14) | 2.00 | Gray |
| SFD-3035 | 1.307 (33.2) | 1.530 (38.8) | 46 (1168) | 8.0 (203) | 0.500 (14) | 2.00 | Black |

**WARNING**: The SWAN-FLIGHT Diverter should not be applied on phase conductors energized at voltages of 345 kV and above.

# RAPTOR CLAMP™ DIVERTER

The **RAPTOR CLAMP Diverter** is an alternative to the BIRD-FLIGHT™ Diverter and the SWAN-FLIGHT™ Diverter for making guy wires visible to birds of all sizes. It provides a cost-beneficial means of reducing hazards to both guy wires and birds. PLP also offers the **RAPTOR CLAMP™ LED Diverter**, which includes an exclusive flashing LED module that provides a visible indication of overhead lines in dark and low-light conditions.

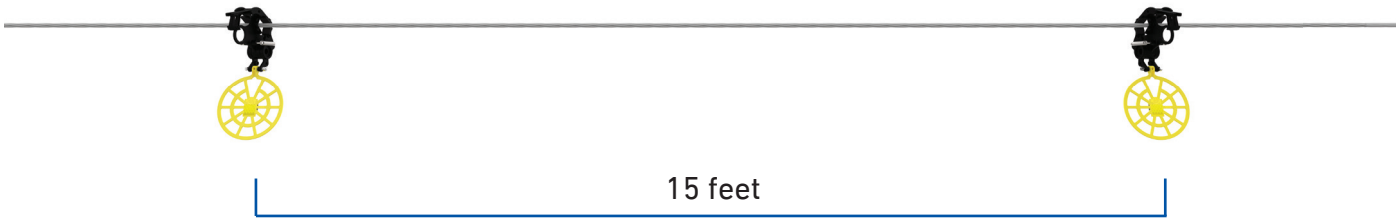
## FEATURES AND BENEFITS

- UAV (drone) installation is available through PLP's UAV Installation Services
- Clamp's trigger mechanism is simple to open and set
- Easy "bump and snap" installation on the cable
- No special tools required
- Manufactured from UV-stabilized polycarbonate and polyethylene materials
- All metal hardware is corrosion-resistant stainless steel
- Operational temperatures up to 125°C continuous
- Applications to 69 kV three phase

UAV (drone) installation is available through PLP's UAV Installation Services.

## SPACING

### Horizontal Line Layout

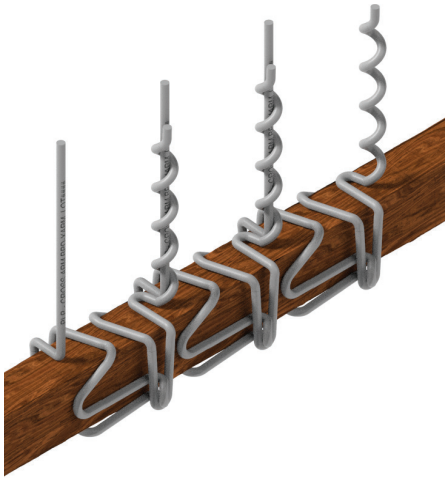


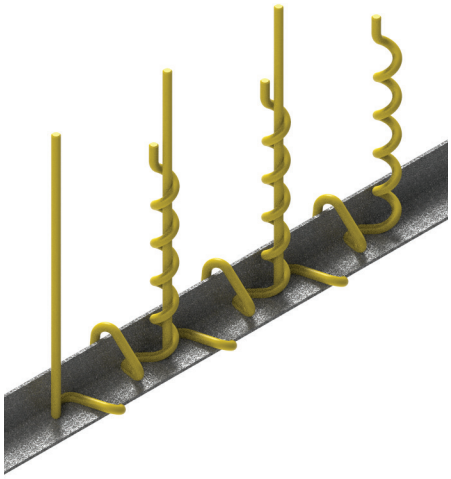

For optimal results, spacing distances are generally recommended at 15-foot intervals, depending upon local conditions. Since wind resistance is very limited, a sufficient number of RAPTOR CLAMP Diverters can be used to ensure adequate visibility without creating stresses on the line. When marking adjacent spans, overall visibility is improved by staggering placement between the spans.

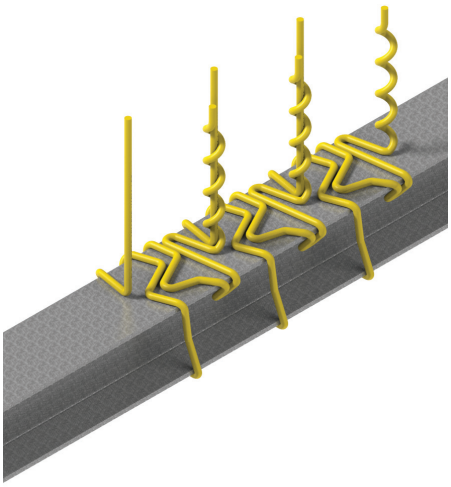
## ORDERING INFORMATION

### RAPTOR CLAMP™ Diverter and RAPTOR CLAMP™ LED Diverter

| Catalog Number | Diameter Range | | Weight |
|---|---|---|---|
| | Minimum | Maximum | |
| | in (mm) | in (mm) | lb |
| RAPTOR-YEL | 0.1 (2.54) | 1.75 (44.45) | 0.40 |
| RAPTOR-LED-W | | | 1.10 |







# BIRD PERCH DETERRENT

The **Bird Perch Deterrent (BPD)** is designed to eliminate roosting areas on structures that are electrocution hazards or over equipment to keep it free from bird contamination. Bird Perch Deterrents provide an economical means of reducing avian fatalities, line outages, and equipment flashovers, and are easily installed over the structural support.

## FEATURES AND BENEFITS

- Eliminate perching to prevent fouling of equipment or incidental contact electrocution
- Economical and easily applied
- Long service life without deterioration
- Interlocking design, no attachment hardware
- 8" (203 mm) spacing between uprights
- Lightweight (no metal parts), minimal wind resistance
- Outdoor-grade PVC performs in extreme temperatures
- Meets **UL 94 V-0** flammability requirements

**APPLICATIONS:**

- Standard Crossarms, Heavy-Duty Crossarms, Angle Iron, Davit Arms, W6 and W10 I-Beams
- Other designs are available upon request. Please provide information about structure, shape, and dimensions.

## ORDERING INFORMATION

- To calculate the number of Bird Perch Deterrents required, measure the distance to be covered and divide by 8.
- A minimum of two Bird Perch Deterrents ARE REQUIRED to ensure proper application.
- Standard color is gray; to order yellow, add suffix code "-Y" to the catalog number.

### Bird Perch Deterrent

| Catalog Number | Application | Crossarm Dimensions | | Carton Quantity |
|---|---|---|---|---|
| | | Width | Height | |
| | | in (mm) | in (mm) | |
| BPD-XARM | Crossarm | 3.25 (83) | 4.25 (108) | 16 |
| BPD-A22 | Angle | 2 (50) | 2 (50) | 24 |
| BPD-IA22 | Inverted Angle | 2 (50) | 2 (50) | 24 |
| BPD-A25 | Angle | 2.5 (63) | 2.5 (63) | 24 |
| BPD-IA25 | Inverted Angle | 2.5 (63) | 2.5 (63) | 24 |
| BPD-A225 | Angle | 2 (50) | 2.5 (63) | 24 |
| BPD-IA225 | Inverted Angle | 2 (50) | 2.5 (63) | 24 |
| BPD-W6I | I-Beam | 6 (152) | 6 (152) | 16 |
| BPD-W10I | I-Beam | 10 (254) | 10 (254) | 16 |
| BPD-HD64 | Heavy-Duty Crossarm | 6 (152) | 4 (102) | 16 |
| BPD-HD55 | Heavy-Duty Crossarm | 5 (127) | 5 (127) | 12 |
| BPD-DAVIT | Davit Arm | Universal | Universal | 30 |
| BPD-HD3585 | Heavy-Duty Crossarm | 3.5 (89) | 8.5 (216) | 16 |
| BPD-HD5777 | Heavy-Duty Crossarm | 5.75 (146) | 7.75 (197) | 16 |

**WARNING**: Bird Perch Deterrents should not be used if nesting of large birds is already present.


# POLE PLUG

The **Pole Plug** is designed to close existing holes in steel and composite utility poles or other equipment. Closing unused holes reduces or eliminates whistling due to the wind. The plug also provides an economical means of drastically reducing the incidence of insect infestations that can result in lineworker injuries and productivity losses.

## FEATURES AND BENEFITS

- Fully UV-stabilized
- Resistant to environmental stress cracking
- Lightweight, one-piece design
- Can be installed with standard hot stick tools if required
- Positive snap-in lock
- Covers a wide range of hole diameters
- Long service life without material deterioration
- See PLP's Distribution Tips & Tricks video for more information
- **UL 94 V-0** compliant versions available

## ORDERING INFORMATION

- Add suffix “B” or “G” to indicate color: “B” - Black, “G” - Gray, **Example:** PP-0625B
- To order **UL 94 V-0**, add “FR” following the color code designation, **Example:** PP-0625BFR
- To order Pole Plug for Heavy Wall Poles, add “H” following the color code designation, **Example:** PP-0625BH

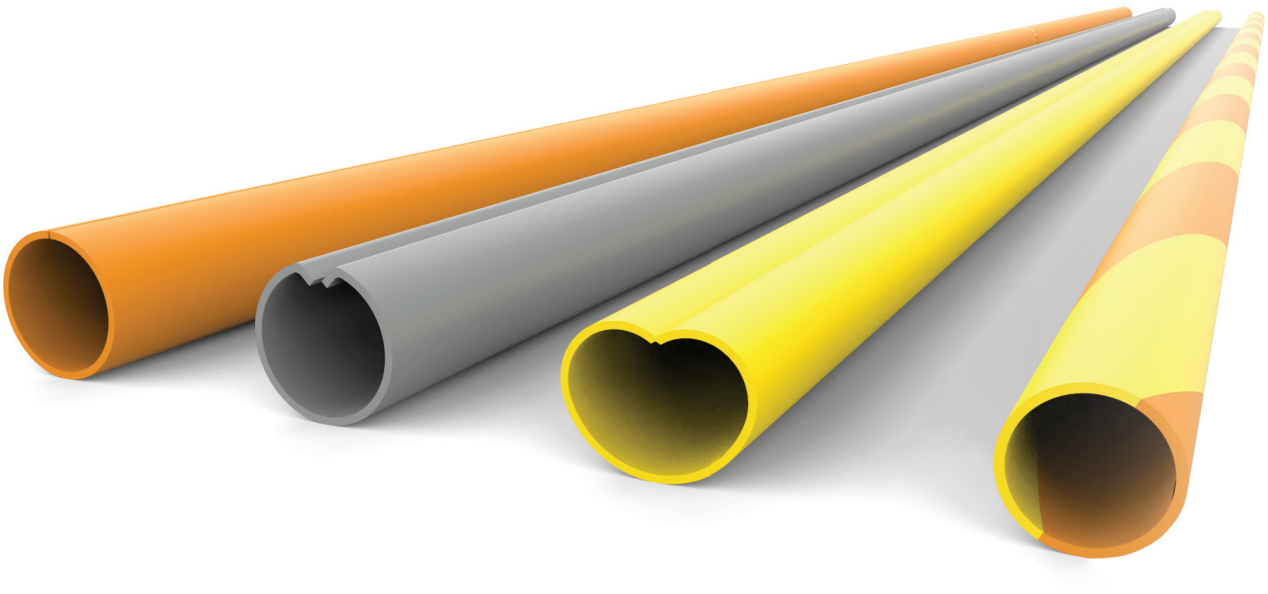
**NOTE**: All Heavy Wall Pole Plugs are made from urethane and are **UL 94 V-0** compliant.

### Pole Plug

| Catalog Number | Hole Size | Maximum Wall Thickness |
|---|---|---|
| | in | in |
| PP-0625xxx | 9/16 and 5/8 | 1/4 Standard or 11/16 Heavy Wall |
| PP-0750xxx | 11/16 and 3/4 | |
| PP-0813xxx | 13/16 | |
| PP-0875xxx | 7/8 and 15/16 | |
| PP-1000xxx | 1 and 1-1/16 | |
| PP-1125xxx | 1-1/8 | |
| PP-1500xxx[2] | 1-1/2 | 3/8 |

**NOTE**: Plugs of the below sizes are urethane and are UL94 V-0 compliant.

| | | |
|---|---|---|
| PP-1250 | 1-1/4 | 1/4 |
| PP-1375x | 1-3/8 | 3/8 |
| PP-3000x | 3 | 3/4 |



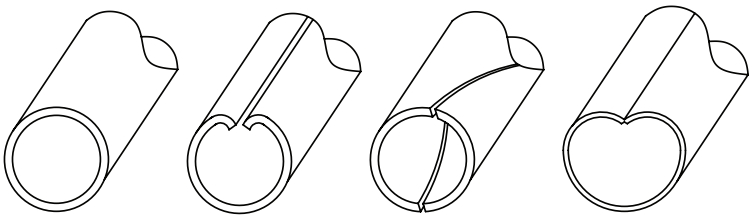
# GUY MARKER

**Guy Markers** are used for identifying Down Guys or other wire and cable installations where anchoring devices are exposed to pedestrian and/or vehicular traffic. The Guy Marker comes in four different profiles with six attachment combinations.

## FEATURES AND BENEFITS

- Manufactured out of Polyethylene or PVC
- Premium UV inhibitors for long life span
- One or two piece designs
- Lightweight
- Installs on down guys in seconds
- Easily installed on strand sizes ranging from 3/16" - 1/2" (4.7 - 12.7 mm)
- Reflective stripe option available
- Deters vandalism
- Ships in boxes, bags, or on bulk pallets

# COMPONENTS



## Profile Options

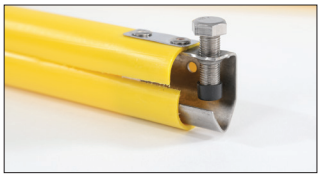
| Type | Description |
|---|---|
| Full Round | 1-1/2" and 1-1/4" OD (Outer Diameter) |
| "B" Profile, "heart shape" | 1-1/2" effective OD |
| Two-Piece Spiral Round | 1-1/4" OD, helically slit to create two halves |
| Round-Overlapping | 1-1/2" OD |

## Attachment Devices

| Type | Abbreviation | Description |
|---|---|---|
| Cable Tie/Universal Cable Tie | CT | A positive locking device to deter vandalism. Recommended on Dead-End hardware that restricts the use of the LOOP LOCK® Pin. |
| LOOP LOCK® Pin (patented) | LLP | A unique, one-way method that applies through the marker's tube and loop of a GUY-GRIP® Dead-End. Once applied, the tube is "locked" onto the Dead-End and cannot be removed easily by vandals. Removal and reinstallation of the marker by authorized personnel is possible with a new pin, which can be supplied separately. |
| Integral Helical Pigtail - Used in conjunction with Short Lock Strap or Cable Tie | PT | Attached to the inside of the marker tube and wraps on to secure to the strand. Generally fits a strand range of 3/16" – 1/2" diameters and provides a unique one-way slip down motion for ease of installation. The installed pigtail resists upward movement. The pigtail is made from specially formulated material designed to provide high strength, tear resistance, and no corrosion. |
| Stainless Steel Clamp | SC | The stainless steel clamp is riveted to one end of the guy marker. The clamp's position gives linemen an option to install the guy marker with the clamp on top or bottom of the tube. The stainless steel clamp quickly and easily secures the guy marker to down-guy wire by tightening the 9/16" bolt, included in the clamp assembly. This guy marker features a collapsible profile that wraps on itself when installed on down-guy wire. |
| Short Lock Strap | SLS | The Short Lock Strap is used with the pigtail device and helps deter vandalism. |
| Cable Tie | CT | The Cable Tie is supplied as an alternative to the Short Lock Strap where hardware restricts its application. |

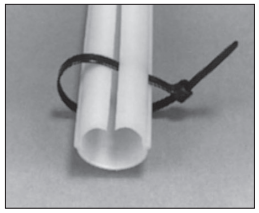
Universal Cable Tie

LOOP LOCK® Pin

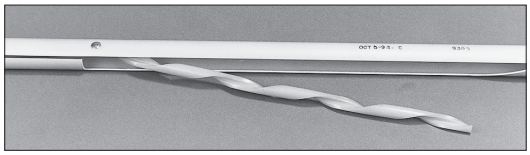


Stainless Steel Clamp

Short Lock Strap



Cable Tie Attachment



Integral Helical Pigtail

# ORDERING INFORMATION

## Guy Marker

| Catalog Number | Color | Material | Tube Profile | Tube OD | | Attachment Type | Carton Information | |
|---|---|---|---|---|---|---|---|---|
| | | | | in | mm | | Units | Wt/lb |
| PG-5718 | Yellow | Polyethylene | Round | 1.5 | 32 | PT/SLS | 25 | 39 |
| PG-5718P | Yellow | Polyethylene | "B" | 1.5 | 32 | PT/CT | 25 | 35 |
| PG-5518 | Yellow | PVC | Round | 1.5 | 32 | PT/SLS | 25 | 33 |
| PGMS3921 | Yellow | Polyethylene | Round | 1.5 | 32 | UCT | 25 | 33 |
| PGMS4072 | Yellow | Polyethylene | "B" | 1.5 | 32 | UCT | 25 | 35 |
| PG-5405 | Yellow | Polyethylene | Round | 1.5 | 32 | LLP | 25 | 36 |
| PG-5423 | Yellow | Polyethylene | "B" | 1.5 | 32 | LLP | 25 | 33 |
| PG-5462 | Yellow | Polyethylene | "B" | 1.5 | 32 | 2 LLP | 25 | 36 |
| RPG-5618 | Yellow/ Reflective Tape | PVC | Round | 1.5 | 32 | PT/SLS | 25 | 33 |
| RPGMS12030 | Yellow/ Reflective Tape | Polyethylene | "B" | 1.5 | 32 | UCT | 25 | 36 |
| RPGMS10469 | Yellow/ Reflective Tape | Polyethylene | "B" | 1.5 | 32 | LLP | 25 | 36 |
| PG-5738 | Orange | Polyethylene | Round | 1.5 | 32 | PT/SLS | 25 | 34 |
| PG-5708 | Gray | Polyethylene | Round | 1.5 | 32 | PT/SLS | 25 | 34 |
| PG-5708P | Gray | Polyethylene | "B" | 1.5 | 32 | PT/CT | 25 | 36 |
| PGMS7578 | Yellow | Polyethylene | Round | 2" | | PT/SLS | 25 | 49 |
| PG-6500 | Yellow | Polyethylene | Round | 2" | | None | 25 | 34 |
| PG-6600 | Orange | Polyethylene | Round | 2" | | None | 25 | 34 |
| PG-6500SC | Yellow | Polyethylene | Round | 2" | | SC | 25 | 42 |
| PG-6600SC | Orange | Polyethylene | Round | 2" | | SC | 25 | 42 |
| PG-6500PIN | Yellow | Polyethylene | Round | 2" | | LLP | 25 | 39 |
| PG-6600PIN | Orange | Polyethylene | Round | 2" | | LLP | 25 | 39 |
| PG-6500TIE | Yellow | Polyethylene | Round | 2" | | UCT | 25 | 38 |
| PG-6600TIE | Orange | Polyethylene | Round | 2" | | UCT | 25 | 38 |

# ORDERING INFORMATION

## Universal Marker

**Two Piece Spiral Round Markers:** Designed to provide increased visibility for many guying or cable applications. It can provide coverage from the ground line, around fittings and above normal reach depending upon installation.

The addition of a third helical section can provide up to 360° coverage for diameters over 1". This method may require special application techniques as outlined in the application procedure.

Limited coverage is possible for diameters over 1-5/8" or over large, non-circular fittings. Consult the application procedure for special techniques.

| Catalog Number | Length | | Color | Material | Tube OD | | Attachment Type | Carton Information | |
|---|---|---|---|---|---|---|---|---|---|
| | ft | m | | | in | mm | | Units | Wt/lb |
| PG-5750 | 8 | 2.4 | Orange/ Yellow | Polyethylene | 1-1/4 | 32 | 2-CT | 30 | 31 |
| PG-5752 | 8 | 2.4 | Orange | Polyethylene | 1-1/4 | 32 | 2-CT | 30 | 31 |

**NOTE:** For different lengths, attachments, and/or the addition of reflective tape, contact your PLP representative.
Package options: Bagged – add suffix code B;
Bulk – add suffix code BULK

# SAFETY GUY-WIRE DISPENSER

The **Safety Guy-Wire Dispenser** is designed to provide a functional and safe way of paying out strand. It can be used with guy wire, wire rope, cable, conductor, etc. The dispenser eliminates the hazards of “runaway” coil ends.

## FEATURES AND BENEFITS

- Installs around strand coils in seconds
- Lightweight
- Pay-out strand with one person
- Simplifies inventory maintenance
- Improves coil handling
- One-time use application
- Eliminates “runaway” coils
- Occupies minimal truck space

# ORDERING INFORMATION

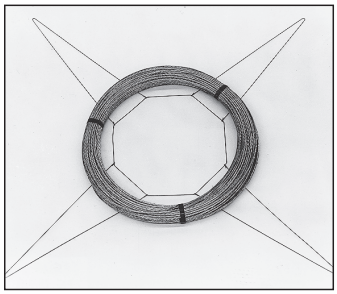
## Safety Guy Wire Dispenser

| Catalog Number | Standard Carton Quantity | Typical Size Coils Accommodated | Leg Length (mm) | Wire Size |
|---|---|---|---|---|
| SGD-0700 (Standard Size) | 50 | 500' 7/16" 250' 1/2" Strand 23" by 9" Triplex Coils | 24" (610) | 14 gauge |
| SGD-0701 (Jumbo Size) | 25 | 500' 1/2" Strand | 30" (762) | 12 gauge |

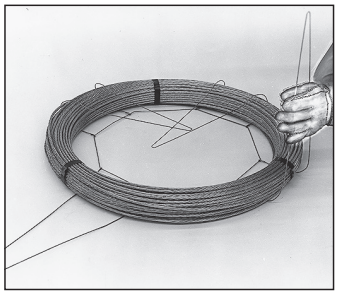
**NOTES**:

(1) Accommodates any size coil, provided about two inches of the end of each leg can be twisted.
(2) The size coil each unit can encompass depends upon the coil's girth, which is the combined diameter and width x 2. The Standard Unit will accommodate a girth up to 63". The Jumbo Unit will accommodate a girth up to 75".
(3) The Standard Unit is designed to withstand 15 ft free-fall impact of a 200 lb coil. The Jumbo Unit will withstand a free-fall impact of a 300 lb coil.

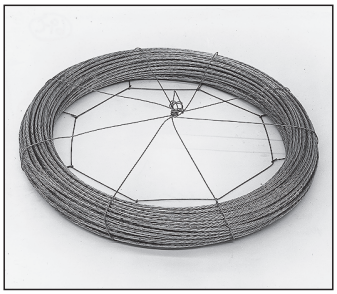
# USAGE



**1.** Fold out the legs.



**2.** Bend the legs over the coil.



**3.** Twist at least two inches of the legs together until the wire cage is tight.

**4.** Turn the wire cage over and pay-out from the open side. Tuck the end back into the cage.

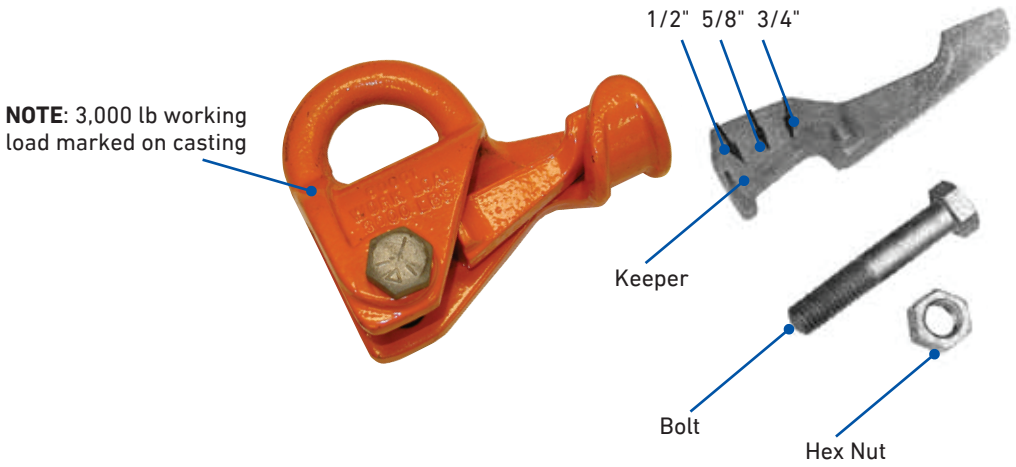

# PULLING EYE

The **Pulling Eye** is designed to facilitate safe, fast installation of Big-Grip Dead-Ends at the anchor rod. Constructed of corrosion-resistant nodular iron, this reusable tool has a large eye which is offset to position the hook of the chain hoist safely to one side, and permit easy, uncrowded application of the dead-end.

## FEATURES AND BENEFITS

- Installs around the anchor hardware in seconds
- Adjustable for rod size
- Engineered to withstand a 3,000 lb working load
- Orange vinyl coating provides weather and handling protection and ready identification
- Facilitates safe, fast installation of all dead-ends by a pulling point at the anchor.

# COMPONENTS




| Component | Description |
|---|---|
| Keeper | Cast of high-strength aluminum alloy, To be used with 1/2", 5/8", and 3/4" anchor rods (see arrows). For 1" and 1-1/4" anchor rods, the Pulling Eye is used without the keeper. |
| Bolt | Made of specially treated extra-high-strength steel, and is identified by the industry mark on its head. |
| Hex Nut | Galvanized steel |

**CAUTION**: The Pulling Eye must be secured with the nut and bolt on every installation.

**NOTES**:

(1) The bolt is made of heat-treated extra-high-strength steel, and is identified by the industry mark on its head. Any replacement should be of the same quality.

(2) 3,000 lb working load is based on a 5 to 1 safety factor.

# ORDERING INFORMATION

## Pulling Eye

| Catalog Number | Descsription | Standard Carton |
|---|---|---|
| PE-0300 | Pulling Eye | 4 Units |

## Replacement Parts

| Catalog Number | Description | Standard Carton |
|---|---|---|
| PE-A-0002 | Pulling Eye Keeper | as required |
| PE-B-2019 | Pulling Eye Bolt | as required |
| PE-C-0607 | Pulling Eye Nut | as required |

# GENERAL INFORMATION

The following pages include general information needed to select PLP products and understand basic design principles. PLP products are precision-engineered devices; care must be taken to ensure that the product selection from this catalog is compatible with the strand being used.

If you have additional questions, please contact PLP at info@plp.com or (440) 461-5200.

## CONTENTS INCLUDE

- Types of Strand
- Helical Terminology
- Basic Design Principles
- Holding Strength
- Lay Direction Guide

# TYPES OF STRAND

| Strand Diameter | Galvanized | | | Utilities Grade | Copperweld® | Aluminum-Clad Steel | Aluminized | Stainless |
|---|---|---|---|---|---|---|---|---|
| in | Siemens Martin | High-Strength | Extra High-Strength | | | | | |
| .123 | 1/8", 7W | 1/8", 7W | 1/8", 7W | | | | | |
| .156 | 5/32", 7W | 5/32", 7W | 5/32", 7W | | | | | |
| .164 | | | | | 2.2M | | | |
| .174 | | | | | 3#12 | 3#12 | | |
| .186 | 3/16", 7W (0.62") | 3/16", 7W (0.62") | 3/16", 7W (0.62") | | | | 3/16", 7W | .062 |
| .195 | | | | 3/16", 7W (0.65") | | | 3/16", 7W | .065 |
| .209 | | | | | 4M | | | |
| .216 | 7/32", 7W | 7/32", 7W | 7/32", 7W | | | | 7/32", 7W | 7/32", 7W |
| .220 | | | | | 3#10 | 3#10, 4M | | |
| .224 | | | | | | | | 7/32", 3W |
| .237 | | | | | 6M | | | |
| .240 | 1/4", 7W | 1/4", 7W | 1/4", 7W | | | | 1/4", 7W | |
| .242 | | | | | | 6M | | |
| .247 | | | | | 3#9 | 3#9 | | |
| .249 | | | | | | | | 1/4", 7W |
| .258 | | | | | 6M3 | | | |
| .259 | | | | 1/4", 3W | | | 1/4", 3W | 1/4", 3W |
| .272 | | | | | | 8M | | |
| .276 | | | | | 8M | | | |
| .277 | | | | | 3#8 | 3#8 | | |
| .279 | 9/32", 7W | 9/32", 7W | 9/32", 7W | 9/32", 7W | | | 9/32", 7W | 9/32", 7W |
| .303 | | | | | 10M | | | |
| .306 | | | | | 7#10 | 10M, 7#10 | | |
| .311 | | | | | 3#7 | 3#7 | | |
| .312 | | | | 5/16", 3W | | | 5/16", 3W | 5/16", 3W |
| .312 | 5/16", 7W (.104") | 5/16", 7W (.104") | 5/16", 7W (.104") | | | | 5/16", 7W (.104") | 5/16", 7W |
| .327 | | | | 5/16", 7W (.109") | | | 5/16", 7W (.109") | |
| .343 | | | | | 11/32", 7#9 | 7#9 | | |
| .343 | | | | | | 12.5M | | |
| .345 | | | | | 12.5M | | | |
| .349 | | | | | 3#6 | 3#6 | | |
| .356 | | | | 3/8", 3W (.355") | | | 3/8", 3W | 3/8", 3W |
| .360 | 3/8", 7W | 3/8", 7W | 3/8", 7W | 3/8", 7W | 14M | | 3/8", 7W | 3/8", 7W |
| .363 | | | | | | 14M | | |
| .375 | | | | | | | | 3/8", 19W |
| .385 | | | | | 3/8", 7#8 | 7#8 | | |
| .386 | | | | | 16M | 16M | | |
| .392 | | | | | 3#5 | 3#5 | | |

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# TYPES OF STRAND (CONTINUED)

| Strand Diameter | Galvanized | | | Utilities Grade | Copperweld® | Aluminum-Clad Steel | Aluminized | Stainless |
|---|---|---|---|---|---|---|---|---|
| in | Siemens Martin | High-Strength | Extra High-Strength | | | | | |
| .414 | | | | | 18M | | | |
| .417 | | | | | | 18M | | |
| .433 | | | | | 7/16", 7#7 | 7#7 | | |
| .435 | 7/16", 7W | 7/16", 7W | 7/16", 7W | 7/16", 7W | | | 7/16", 7W | 7/16", 7W |
| .438 | | | | | 20M | | | |
| .444 | | | | | | 20M | | |
| .486 | | | | | 1/2", 7#6 | 7#6 | | |
| .495 | 1/2", 7W | 1/2", 7W | 1/2", 7W | 1/2", 7W | | | 1/2", 7W | 1/2", 7W |
| .500 | 1/2", 19W | 1/2", 19W | 1/2", 19W | | | | 1/2", 19W | 1/2", 19W |
| .509 | | | | | | 19#10 | | |
| .519 | | | | | | 25M | | |
| .525 | | | | | 25M | | | |
| .546 | | | | | 9/16", 7#5 | 7#5 | | |
| .564 | 9/16", 7W | 9/16", 7W | 9/16", 7W | | | | | |
| .565 | 9/16", 19W | 9/16", 19W | 9/16", 19W | | | | | |
| .572 | | | | | 9/16", 19#9 | 19#9 | | |
| .613 | | | | | 5/8", 7#4 | 7#4 | | |
| .621 | 5/8", 7W | 5/8", 7W | 5/8", 7W | | | | | |
| .625 | 5/8", 19W | 5/8", 19W | 5/8", 19W | | | | | |
| .642 | | | | | 21/32", 19#8 | 19#8 | | |
| .713 | | | | | 37#10 | 37#10 | | |
| .721 | | | | | 23/32", 19#7 | 19#7 | | |
| .750 | 3/4", 19W | 3/4", 19W | 3/4", 19W | | | | | |
| .801 | | | | | 37#9 | 37#9 | | |
| .810 | | | | | 13/16", 19#6 | 19#6 | | |
| .885 | 7/8", 19W | 7/8", 19W | 7/8", 19W | | | | | |
| .899 | | | | | 37#8 | 37#8 | | |
| .910 | | | | | 7/8", 19#5 | 19#5 | | |
| 1.000 | 1", 19W | 1", 19W | 1", 19W | | | | | |
| 1.001 | 1", 37W | 1", 37W | 1", 37W | | | | | |
| 1.010 | | | | | 37#7 | 37#7 | | |
| 1.134 | | | | | 37#6 | 37#6, (1.13") | | |
| 1.273 | | | | | 37#5 | 37#5, (1.27") | | |

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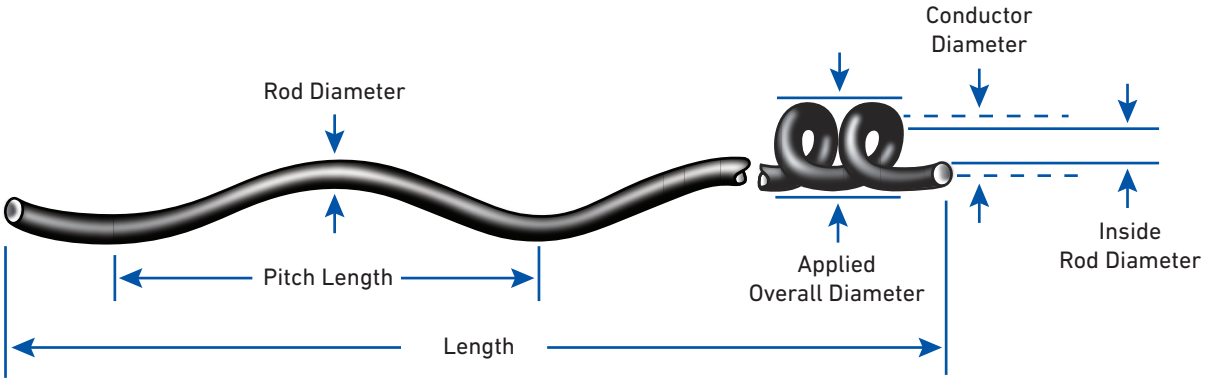
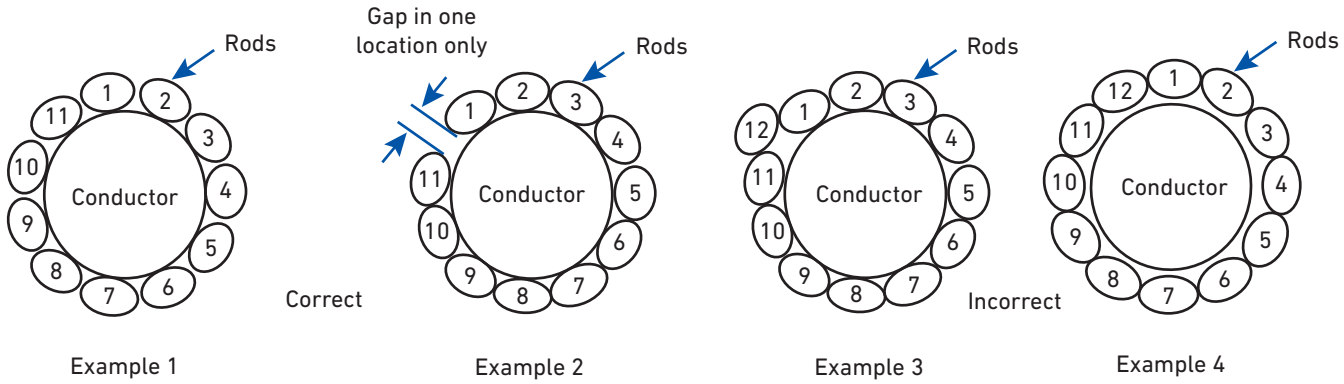
# HELICAL RODS

## Terminology & Basic Design Principles

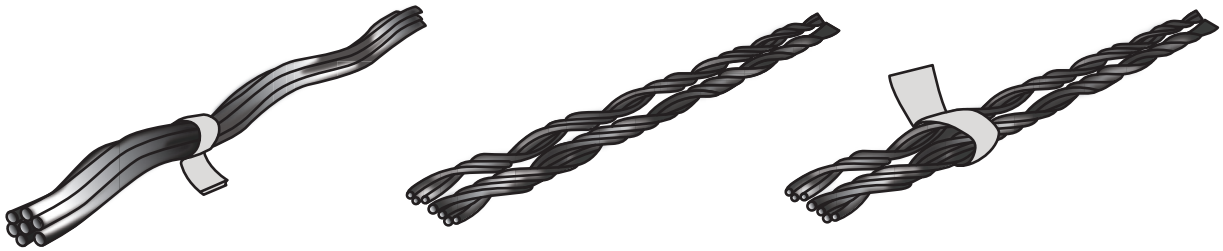



Designs of helical rod products consider the optimum combonation of: conductor diameter, inside diameter, rod diameter, number of rods, pitch length, number of pitch lengths, direction of lay and raw material. Maximum efficency is maintained by each rod exerting a uniform low radical pressure inherent with spring tempered material. Relaxation, and subsequent looseness associated with soft wire wrapped on a mandril is eliminated.




Example 1 Example 2 Example 3 Example 4

After application of the correct number of rods, a slight gap between the rods should be present. Study the above examples. Example 1: Excellent application. Example 2: Satisfactory, but may lead to applying an extra, un-needed rod. Example 3: Extra rod procedures bridging condition, potential rod abrasion. Example 4: Extra rod, expanded tube condition, affords little protection, allows severe abrasion and other conductor damage. If undecided about adding an extra rod, follow this rule: When in doubt, leave it out.

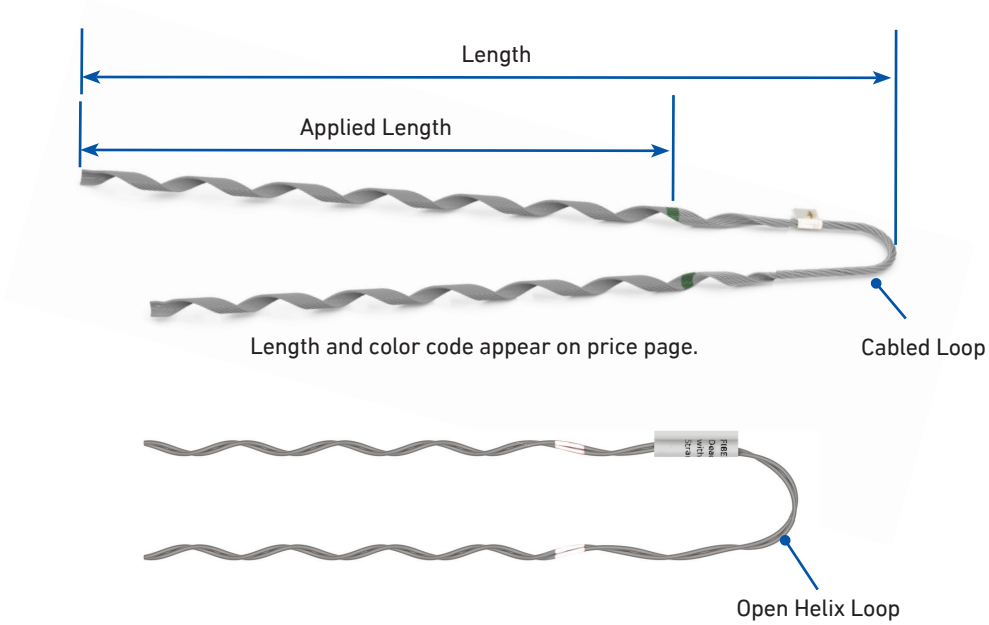


Sets Sub-Set Sub-Set and Gritted

Depending on the intended use, helical rod products are furnished in sets, or sub-setted and gritted.
**Sets:** The specified number of rods per set are taped together as a unit.
**Sub-Set:** Assembled in two or more groups of matched lay.
**Gritted:** Inside surface of each sub-set is coated with grit to enhance holding strength and/or conductivity.

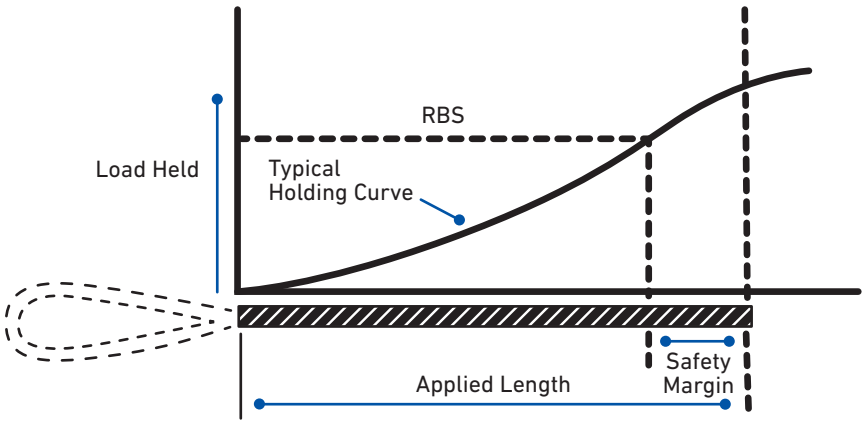
# DEAD-ENDS

## Terminology & Basic Design Principles



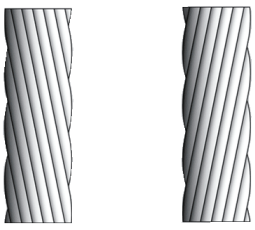

GUY-GRIP® Dead-Ends, Big-Grip Dead-Ends, and larger sized conductor Dead-Ends are furnished with a cabled loop.

# HOLDING STRENGTH




Typical holding strength curve illustrates that the Holding Strength and the Applied Length are not proportional. A safety factor of approximately one pitch length is disigned into PREFORMED™ Dead-Ends.

# LAY DIRECTION GUIDE




Examples of lay directions of strand or cable.

# INSTALLATION INSTRUCTIONS

## FEATURED PRODUCTS:

SP2049 Big-Grip Dead End

SP2134 End Sleeves

SP2037 VARI-GRIP Dead-End

SP2097 GLAS-GRIP® Dead-End

SP2130 Spiral Vibration Damper

SP2697 Air Flow Spoiler

SP2805 BIRD-FLIGHT™Diverter

SP3081 SWAN-FLIGHT™Diverter

SP3053 BIRD-FLIGHT™Aluminum Diverters

SP3143 Bird Perch Deterrent for Structural Steel

SP3189 Bird Perch Deterrent for Distributison Crossarms/Box Arms

SP3196 Bird Perch Deterrent for Inverted Structural Steel

SP3219 Bird Perch Deterrent for I-Beams

SP3143 Bird Perch Deterrent for Structural Steel

SP3093 Pole Plug

SP2948 Guy Marker

SP2086 Safety Guy-Wire Dispenser

SP2013 Pulling Eye

Installation Instructions and Videos are available on PLP.COM.
Easily find products by searching the product name or SP number.

## NOTES:

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