



PREFORMED LINE PRODUCTS
The connection you can count on.

TOWER & ANTENNA Product Catalog



COMMUNICATIONS



ENERGY



SPECIAL INDUSTRIES



SOLAR



Guy Wire and
Anchoring Solutions
for the Tower and
Antenna Industry.

Looking for Reliable Solutions to your Communications Network Needs?



If so, look to Preformed Line Products, which supplies products that are designed to perform better, last longer and are easier to install. You can count on PLP® to provide high quality solutions that meet the rigorous demands of today's modern communications networks. We serve all segments of the communications industry including telecommunications network operators, cable television and broadband service providers, corporations and enterprise networks, government departments and agencies and educational institutions.

For more information, visit us on-line at www.preformed.com or call us at 440.461.5200.



PREFORMED LINE PRODUCTS

Tower & Antenna Product Catalog

General Information

Standard Terms and Condition of Sale	GI-2
Types of Strand	GI-3
Helical Rods	GI-5
Dead-ends	GI-6

Tower & Antenna Solutions

Section 1 - Dead-ends and Dead-end Accessories	Page
Big-Grip Dead-end.....	1-2
End Sleeves	1-9
VARI-GRIP™ Dead-end	1-12
Products for Fiberglass Rod Applications	
GLAS-GRIP® Dead-end.....	1-17
Glas-Splice	1-18
GUY-GRIP® Dead-end	
General Information.....	1-19
Galvanized Steel	1-21
Bezinal®	1-22
Aluminum Clad	1-23
Aluminized	1-24
Copperweld	1-25
Stainless Steel.....	1-26
Coated Dead-end	1-28
Section 2 - Accessories	
Damper Products	
Spiral Vibration Damper	2-2
Spiral Vibration Damper (Standard)	2-3
Spiral Vibration Damper (Hi Mass)	2-4
Air Flow Spoiler	2-5
BIRD-FLIGHT™ Diverter.....	2-7
SWAN-FLIGHT™ Diverter.....	2-10
Guy Markers.....	2-12
Pedestal Markers.....	2-15
Safety Guy Wire Dispensers	2-16

Bezinal is a registered trademark of the Bekaert Company.





General Information

Table of Contents	Page
Standard Terms and Conditions of Sale	GI-2
Types of Strand	GI-3
Helical Rods	GI-5
Dead-ends	GI-6



Standard Terms and Conditions of Sale

Effective May 21, 2008

1. APPLICABILITY OF TERMS AND CONDITIONS. These Terms and Conditions will govern all sales by Preformed Line Products Company ("PLP") of Goods ("Goods"), unless otherwise agreed to in writing, signed by PLP by an authorized agent in Cleveland, Ohio. Terms and conditions contained in Buyer's purchase order or any other documents that are different than or in addition to these Terms and Conditions are objected to and will not be binding on PLP. Buyer will be deemed to have agreed to these Terms and Conditions by Buyer's issuing a purchase order number, PLP's receipt of a written acknowledgement of Buyer's placement of an order, or PLP's commencement of performance, Buyer's acceptance of these Terms and Conditions will be deemed to have occurred on the date such performance commences. PLP reserves the right to change these Terms and Conditions, or issue new terms, at any time, and all subsequent orders shall be bound thereof.

If for any reason PLP's Quotation is deemed an acceptance of an offer made by Buyer, such acceptance is expressly conditioned on Buyer's assent to these Terms and Conditions, which assent will be evidenced by the earlier of Buyer's acceptance of Goods delivered by PLP or any other performance by Buyer. PLP will sell Goods only if Buyer assents to these Terms and Conditions.

2. QUOTATIONS, ORDERS AND PRICES. All prices and specifications contained on the face of PLP's Quotation are subject to change without notice, unless indicated otherwise on the face of the Quotation. All quotations on PLP's standard catalog items are made subject to prior sale of such Goods. The minimum billing charge on any order is \$500.00 plus freight, handling and delivery charges. Any additions to orders already placed by Buyer will be considered as new orders.

3. BROKEN PACKAGE CHARGE. A \$75.00 broken package charge will be applicable to all Goods ordered in quantities other than standard carton increments as published in PLP's catalogs.

4. TAXES. PLP's prices do not include any Federal, state or local taxes or fees or any custom, export, import, wharfage or associated duties or duties, and any such taxes or fees now in effect or hereafter levied will be in addition to such prices and will be paid by the Buyer. Buyer agrees to defend, indemnify and hold PLP harmless from and against any and all such taxes and fees, including, without limitation, any cost, expense, attorneys' fees, interest or penalties assessed against or incurred by PLP as a result of Buyer's failure to pay any such taxes or fees.

5. SHIPMENTS, FREIGHT AND DELIVERY. FORMED WIRE PRODUCTS: All prices are F.O.B. point of shipment with freight allowed via cheapest way to any domestic common carrier points, excluding Alaska, Hawaii and Puerto Rico, on orders or releases of net invoice value of \$3,500 or more, specified for shipment to one location at one time. On all other orders or releases, Buyer is responsible for freight, handling and delivery charges.

SPLICE CASES, CLOSURES AND ACCESSORIES: All prices are F.O.B. point of shipment. Buyer will pay any special packaging, shipping and transportation charges resulting from compliance with its request for use of a method of transportation other than the method that PLP designates. PLP's placement of the purchased Goods at the point of shipment in the possession of a trucking company, railroad company or other common carrier or on Buyer's vehicle will constitute delivery to Buyer, and thereafter Buyer will bear all expenses and risk of loss.

6. SHIPPING ESTIMATES. Shipping estimates made to Buyer will date from PLP's receipt of Buyer's complete written instructions. Shipping date of Goods requiring Buyer's inspection before shipment will be extended by the time consumed by any such inspection.

7. TERMS. Net thirty (30) days from date of PLP's invoice. A service charge of one and one-half percent (1.5%) per month will be added to all past due invoices, not to exceed the maximum permitted by law.

8. FINANCIAL RESPONSIBILITY. Notwithstanding anything herein to the contrary, Buyer's financial responsibility is at all times subject to approval of PLP's Credit Department, and PLP at any time may require payment in advance or satisfactory security or guarantee that invoices will be paid promptly when due. If Buyer fails to comply with any terms of payment, PLP may withhold any further deliveries or terminate this Agreement and may declare any unpaid amount to be due and owing immediately.

9. DEVIATIONS IN AMOUNTS MANUFACTURED. Goods manufactured by PLP to meet Buyer's instructions, specifications or requirements are subject to a plus or minus deviation of five percent (5%).

10. ACCEPTANCE. Buyer shall notify PLP, in writing, of any defect, error or shortage in any Goods it received, within thirty (30) days of delivery, and such written notice must state the applicable PLP Order Number and must be accompanied by any documents that substantiate the alleged defect, error or shortage. If Buyer fails to provide PLP with such written notice, documents and the applicable PLP Order Number, within the required time, Buyer will be deemed to have waived such defect, error or shortage and to have accepted the Goods delivered.

11. BUYER'S AGREEMENT TO DEFEND. If PLP manufactures or sells any Goods to meet Buyer's instructions, specifications or any other requirements, and such Goods are not included among PLP's standard catalog items offered by it to the trade generally in the usual course of its business, Buyer agrees to defend, indemnify and hold PLP harmless from and against any and all loss, cost, damage, liability or expense (including, without limitation, any penalties or punitive damages, attorneys' fees and expenses and costs of suit) arising out of the manufacture, sale or use of such Goods, including, without limitation, claims for actual or alleged infringements of any United States or foreign patent or copyright, or any actual or alleged unfair competition resulting from similarity in design, trademark or appearance.

PLP shall supply Buyer with catalogs, specifications, instructions and recommended installation procedures pertaining to the Goods; however, Buyer alone shall be responsible for the proper training, instruction and supervision of its contractors, employees, agents or purchasers with respect to the safe and correct use and application of such Goods.

If Buyer uses any Goods from PLP not in accordance with PLP's catalogs, specifications, instructions or recommended installation procedures, Buyer agrees to defend, indemnify and hold PLP harmless from and against any and all loss, cost, damage, liability or expense (including, without limitation, costs of suit and attorneys' fees and expenses) arising out of or relating to or resulting in any way from such use by Buyer.

12. NOTICE OF ACCIDENT OR MALFUNCTION. Buyer will notify PLP in writing, no later than thirty (30) days from any accident or malfunction involving the Goods that result in personal injury or damage to property, and will cooperate fully with PLP in investigating and determining the cause of such accident or malfunction. If Buyer fails to give such written notice or fails to so cooperate, Buyer agrees to defend, indemnify and hold PLP harmless from and against any and all loss, cost, damage, liability or expense (including, without limitation, costs of suit and attorneys' fees and expenses) arising out of or relating to or resulting in any way from such accident or malfunction.

13. TOLERANCES AND VARIATIONS. Except as specified by Buyer and agreed to in writing by PLP, the Goods will be produced in accordance with PLP's standard practices. All Goods, however, including those produced to meet an exact specification, will be subject to tolerances and variations consistent with good manufacturing practices in regard to dimension, weight, section, composition, mechanical and electrical properties; to normal variations in surface and internal conditions and in quality; and to deviations from tolerances and variations consistent with practical testing and inspection methods.

14. WARRANTY AND DISCLAIMERS OF WARRANTY. PLP warrants to Buyer that the Goods supplied hereunder will be free from defects in material and workmanship under normal and proper usage for a period of one year from the date of shipment by PLP. The foregoing warranty will not cover and PLP makes no warranties with respect to (i) any Goods subjected to abuse, misuse, misapplication, neglect, alteration or accident; to improper and incorrect installation or maintenance; or to abnormal conditions of use, temperature, moisture, dirt or corrosive matter; and (ii) any materials, parts, goods or other components that are manufactured by an entity other than PLP.

THE FOREGOING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR OTHERWISE ARISING BY OPERATION OF LAW, TRADE, USAGE OR COURSE OF DEALING, INCLUDING, WITHOUT LIMITATION, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

Buyer agrees to provide PLP with written notice of any breach of the above warranty within thirty (30) days after Buyer discovers, or should have discovered, the alleged breach. Time is of the essence herein, and Buyer's failure to provide written notice to PLP within the required time of any alleged breach of the foregoing warranty will release and discharge PLP from any obligation or liability for that breach of warranty. The foregoing warranty extends only to Buyer and to no other person or entity. Buyer agrees to give PLP full access to all Buyer's relevant records and data.

15. REMEDIES AND LIMITATIONS ON REMEDIES. In the event of any material breach of the above warranty, PLP will, at its sole option, credit Buyer's account or repair any defective Goods or furnish a replacement part or Goods, all subject to Buyer providing written notice of the alleged breach within the time required.

THE REMEDIES SET FORTH HEREIN SHALL BE THE SOLE AND EXCLUSIVE REMEDIES AVAILABLE TO BUYER SO THAT PLP'S CREDIT OF BUYER'S ACCOUNT OR REPAIR OR REPLACEMENT IS A FULFILLMENT OF ALL PLP'S OBLIGATIONS. PLP SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL OR INCIDENTAL DAMAGES OF ANY KIND, NOR UNDER ANY CIRCUMSTANCE SHALL PLP BE LIABLE FOR DAMAGES BEYOND THE PRICE OF THE GOODS PURCHASED BY BUYER, WHETHER IN CONTRACT, IN TORT OR UNDER ANY WARRANTY OR OTHER USE, AND WHETHER OR NOT SAID LOSS, COST, PENALTY OR DAMAGE WAS REASONABLY FORESEEABLE.

If PLP requests, the Goods alleged to be defective will be returned to PLP, at its direction and expense, for examination. No Goods are to be returned to PLP without its prior written authorization. If PLP discovers that any Goods so returned are not covered by the foregoing warranty, PLP reserves the right to charge Buyer for all transportation costs and expenses incurred by PLP in examining, processing or handling such Goods. Any controversy or claim arising out of or relating to this contract or the breach hereof, must be commenced within two (2) years after the cause of action has accrued.

16. DEFAULT OR DELAY. PLP will not be liable for any default or delay in the production or delivery of any Goods when such default or delay results either directly or indirectly from: (a) accidents to, or breakdowns or mechanical failure of, PLP's plant machinery or equipment; strikes or other labor troubles or labor shortages; fire; flood; wars; acts of the public enemy; acts of God; delays by any supplier; delays in transportation or lack of transportation facilities; embargoes; shortages of, or reductions in, energy sources; priorities, allocations, limitations, restrictions or other acts required or requested by Federal, state or local governments, or any subdivision, bureau or agency thereof; or (b) any other cause beyond PLP's control.

17. CANCELLATION. Buyer cannot cancel orders for delays in delivery or other cause until PLP has received written notification of such intention. In any event, Buyer shall be obligated to accept and pay for any Goods previously shipped and to pay cancellation charges based on expenses incurred or commitments made by PLP for any Goods which are in the process of manufacture for Buyer. PLP reserves the right to apply a minimum cancellation charge of the greater of \$50.00 or 25% of the purchase price of the unshipped portion of the order, on any orders for standard stock items Buyer cancels.

18. RETURNS. No Goods may be returned without first having secured prior written authorization from PLP's Cleveland, Ohio office. Only non-obsolete standard stock items in original cartons may be returned, freight prepaid. Return requests must be initiated within one year from date of original shipment. Such requests follow the same channels as order placement. Returns will be subject to factory inspection for resalability and for quantity before credit, which will be applicable to replacement or future purchases by Buyer, is issued. PLP reserves the right to apply a minimum restocking charge of the greater of \$100.00 or 30% of the purchase price of the returned materials, plus original freight charges to all returns.

19. NOTICES. Any notice to PLP required or permitted hereunder will be deemed to have been effectively delivered if in writing and served by personal delivery to PLP or sent by registered or certified mail with return receipt requested (or such form of mail as may be substituted therefor by postal authorities), postage prepaid, to PLP at the address specified on the front page hereof and marked ATTN: Marketing Administration.

19. CONFIDENTIALITY. Buyer agrees that all information furnished by or obtained from PLP in connection with the sale of Goods hereunder will be confidential, and Buyer agrees not to (i) disclose any such information to any other person, or (ii) use such information for any purpose, other than performing this contract.

20. SECURITY INTEREST. PLP retains a security interest in all Goods and all proceeds and products thereof until all amounts due or to become due hereunder have been paid. Any repossession and removal of Products shall be without prejudice to any of PLP's other remedies at law or in equity. Buyer agrees, without further consideration, at any time to do or cause to be done, executed and delivered, all such further acts and instruments as PLP may reasonably request in order to perfect PLP's security interest.

21. PATENT. PLP shall defend Buyer against any claim of infringement and shall pay any resulting damages finally awarded, provided that (a) Buyer promptly notifies PLP in writing of any claim, and (b) PLP has sole control of the defense and all related settlement negotiations. This obligation does not apply to claims arising out of combinations of Goods with goods provided by others, or to claims resulting from compliance of the goods with Buyer's design or specifications, or which Buyer assumes and shall hold PLP harmless for any claims thereof.

22. MISCELLANEOUS. The failure of either party to insist upon performance of any term or condition herein or to exercise any right or privilege shall not thereafter waive the future performance of such term, condition, right or privilege or of any other terms, conditions, rights or privileges, whether of the same or similar type. The rights herein and the construction of these Terms and Conditions shall be governed by the laws of the State of Ohio, without giving effect to principles of conflict of laws. These Terms and Conditions shall be binding upon and inure to the benefit of the parties hereto and their respective successors and assigns. Each provision hereof shall be severable, and in the event any provision hereof is held to be contrary to law, invalid or unenforceable, the remaining provisions shall not be affected thereby, but shall remain in full force and effect. The paragraph headings herein are solely for the convenience of and reference by the parties and do not constitute any part of these Terms and Conditions. Buyer may not assign its rights or delegate its obligations hereunder without PLP's prior written consent.

Types of Strand

Strand Chart

STRAND DIAMETER (INCHES)	GALVANIZED				COPPER- WELD®	Aluminum- Clad Steel	ALUMINIZED	STAINLESS
	SIEMENS MARTIN	HIGH STRENGTH	EXTRA HIGH STRENGTH	UTILITIES GRADE				
.123	1/8", 7W	1/8", 7W	1/8", 7W					
.156	3/32", 7W	3/32", 7W	3/32", 7W					
.164					2.2M			
.174					3 #12	3 #12		
.186	3/16", 7W (.062")	3/16", 7W (.062")	3/16", 7W (.062")				3/16", 7W (.062")	
.195				3/16", 7W (.065")			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	3/32", 7W	3/32", 7W	3/32", 7W	3/32", 7W			3/32", 7W	3/32", 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					1 1/32", 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		



Types of Strand

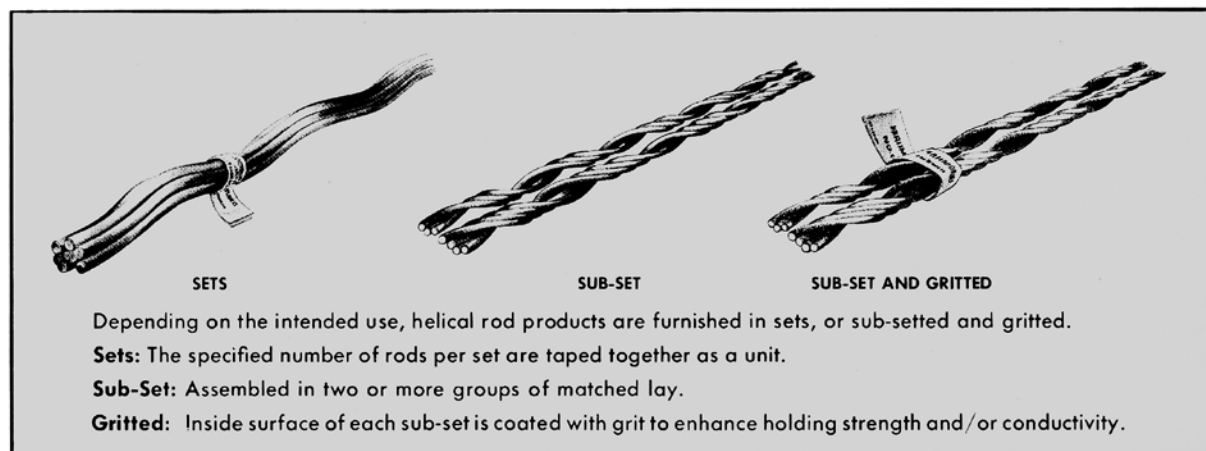
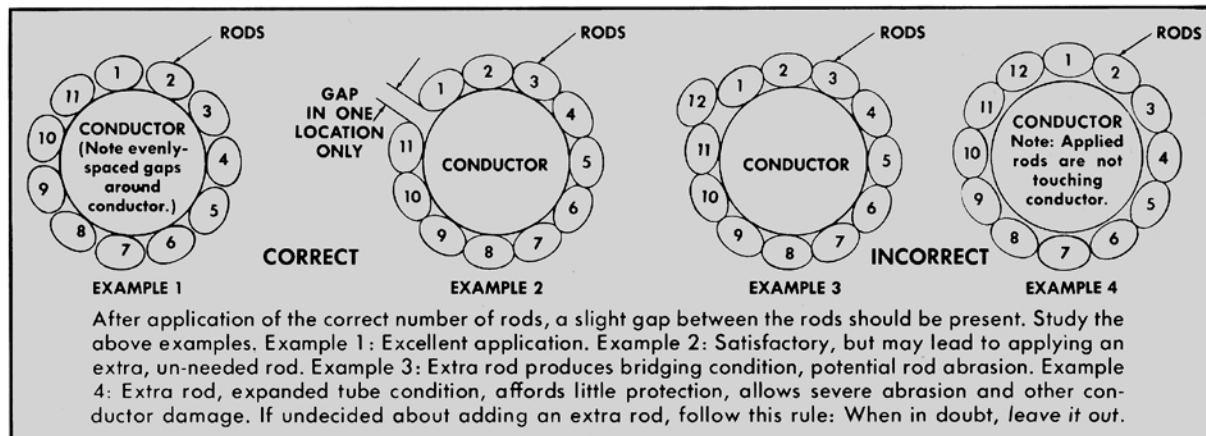
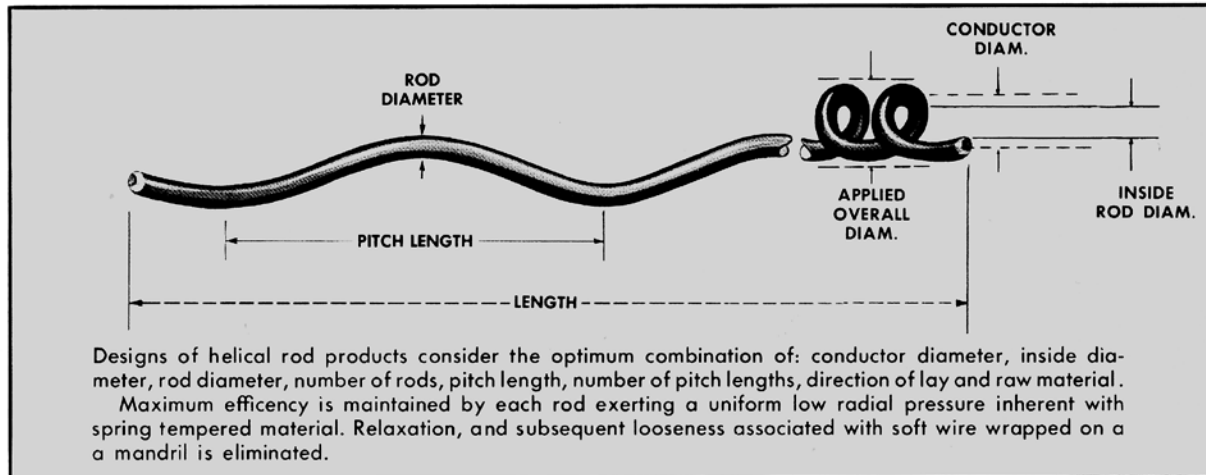
Strand Chart

STRAND DIAMETER (INCHES)	GALVANIZED				COPPER- WELD®	Aluminum- Clad Steel	ALUMINIZED	STAINLESS
	SIEMENS MARTIN	HIGH STRENGTH	EXTRA HIGH STRENGTH	UTILITIES GRADE				
.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					2 1/2", 19 #8	19 #8		
.713					37 #10	37 #10		
.721					2 3/2", 19 #7	19 #7		
.750	3/4", 19W	3/4", 19W	3/4", 19W					
.801					37 #9	37 #9		
.810					1 3/16", 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")		

Copperweld® is a registered trademark of the Copperweld Co.

Helical Rods

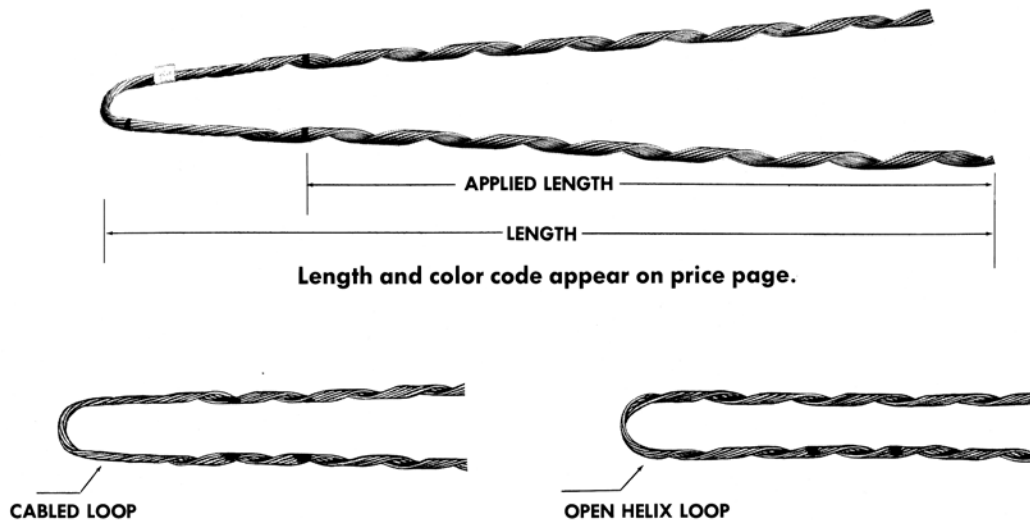
Terminology & Basic Design Principles





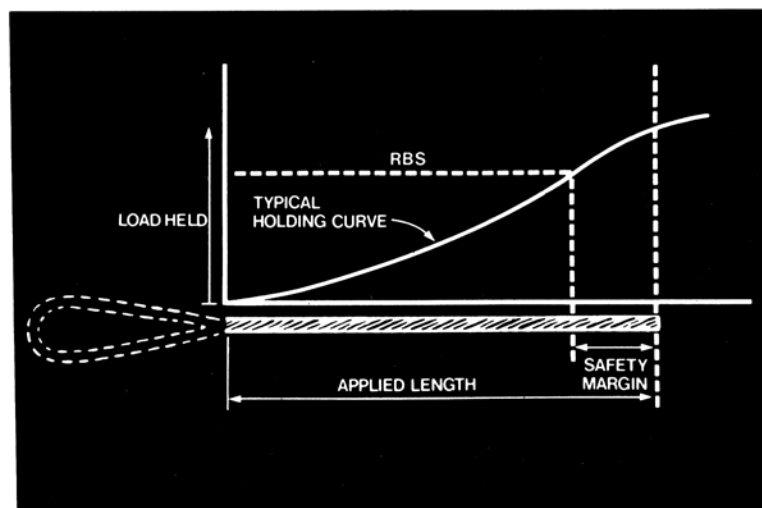
Dead-ends

Terminology & Basic Design Principles



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 designed into PREFORMED dead-ends.



PREFORMED LINE PRODUCTS

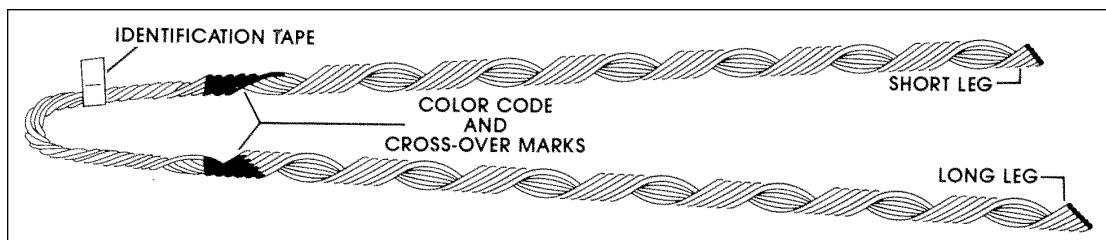
Section 1 - Dead-ends & Dead-end Accessories

Table of Contents	Page
Big-Grip Dead-end.....	1-2
End Sleeves	1-9
VARI-GRIP™ Dead-end.....	1-12
Products for Fiberglass Rod Applications	
GLAS-GRIP® Dead-end.....	1-17
Glas-Splice	1-18
GUY-GRIP® Dead-end	
General Information.....	1-19
Galvanized Steel	1-21
Bezinal®	1-22
Aluminum Clad	1-23
Aluminized.....	1-24
Copperweld	1-25
Stainless Steel	1-26
Coated Dead-end	1-28



Big-Grip Dead-end

NOMENCLATURE



CROSS-OVER MARKS: Indicate starting point for application.

COLOR CODE AND LENGTH: Assist in identifying strand size, corresponding to tabular information appearing on catalog pages.

Identification Tape: Shows catalog number, nominal sizes.

Short Leg-Long Leg: Identifies rods belonging to each leg, after application. During application, the short leg should be applied first.

GENERAL INFORMATION

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.

RATED HOLDING STRENGTH (RHS): Big-Grip Dead-ends are designed to develop the maximum loads published on the catalog pages only for those specific strands listed.

Test data available upon request.
Reference: TR-634-E

MATERIAL SELECTION: Big-Grip Dead-ends are 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 AFTER 90 DAYS UNDER ANY CIRCUMSTANCES.**

INSTALLATION GUIDELINES

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 as the strand to which they are applied.

When ordering Big-Grip Dead-ends, make sure to specify the strand on which it is to be used and the strand lay.

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.

During installation and at all times, care should be taken to avoid gouging or damaging the corrosion preventive material of either the Big-Grip Dead-end or the strand.

Big-Grip Dead-ends must not be used as tools: that is, come-alongs, pulling-in grips, etc.

Normally tools are not required to install Big-Grip Dead-ends, however, a screwdriver may be used to split the legs into subsets. When splitting the legs, do not make more than two subsets per leg.

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.

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

- (A) Figure 1 and Table 1 illustrate minimum and maximum acceptable seat diameters to which the Big-Grip Dead-end can be applied.
- (B) Figure 2 and Table 1 illustrate seat diameters and minimum groove diameters.
- (C) Figure 3 and Table 1 illustrate minimum hardware hole diameters.

Big-Grip Dead-end

THIMBLE RECOMMENDATIONS

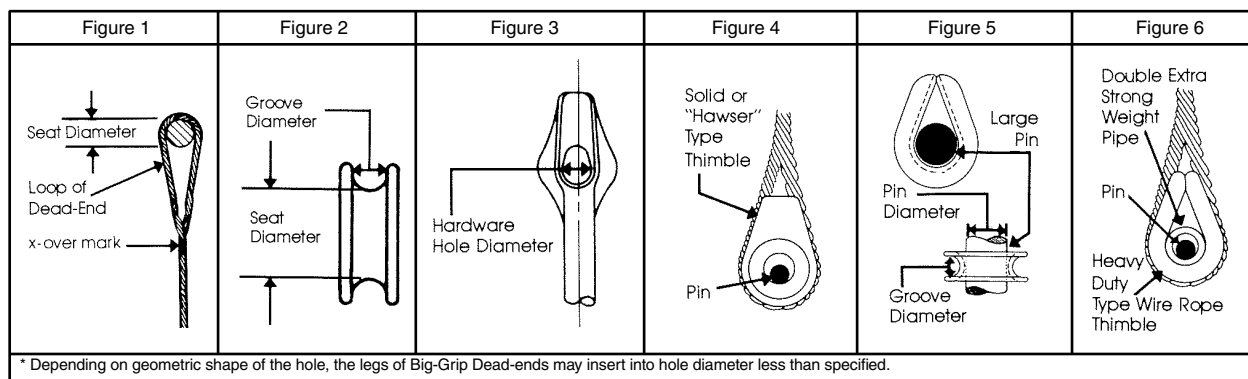
- (A) Only heavy-duty type wire rope thimbles or solid Hawser type thimbles are recommended for use with Big-Grip Dead-ends. (Refer to Figures 4, 5, and 6.)
- (B) Heavy-duty type wire rope thimbles can collapse when guy tensions are high. In order to support and protect the loop area of the Big-Grip Dead-end, special precautions are necessary.
- (C) In order 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 your PLP representative.

Table 1 - BIG-GRIP Dead-end and Hardware Accessories Dimensions (All Dimensions In Inches)									Double Extra Strong Weight Pipe Fig. 6		
(All Dimensions in Inches)											
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	O.D.	I.D.
		Min	Max				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 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

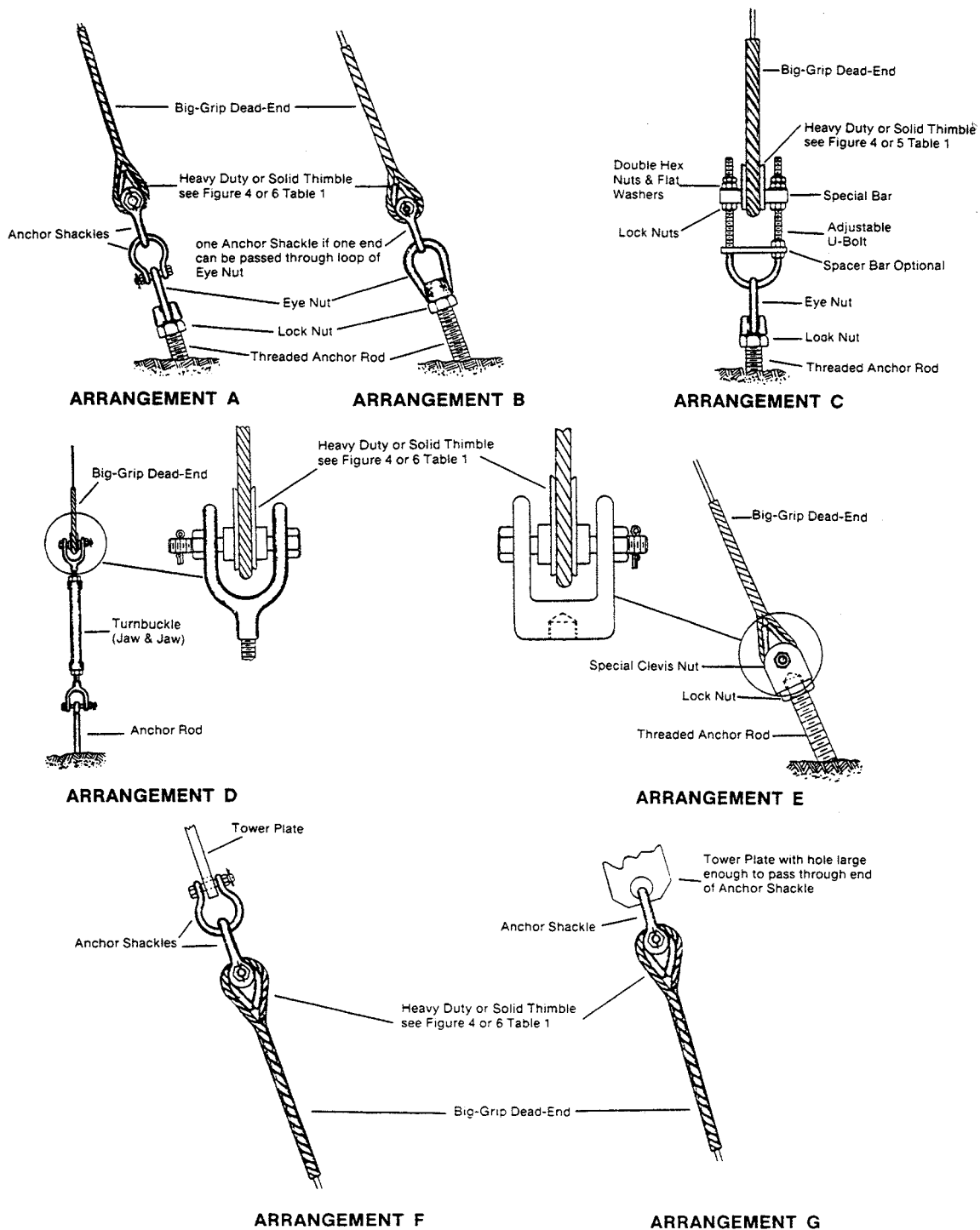




Big-Grip Dead-end

Articulated Hardware

Recommended for Use with Big-Grip Dead-ends



Big-Grip Dead-end

GALVANIZED STRAND

**For use on: Extra High Strength
Siemens Martin High Strength
Utilities Grade**



Catalog Number	Size (in)	Strand Construction	Actual Diameter (in)	BG Per Carton (Units)	BG Per Carton (wt/lbs)	Approx. Length (in)	Color Code	Rated Holding Strength (lbs)	Percent of Strands Rated Breaking Strength
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 7W	.259 .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 7W	.312 .312	50	41	33	Black	11,200	(100%)
BG-2147	3/8	3W 7W	.356 .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 or 19W	.459 or .500	20	63	49	Blue	26,900	(100%)
BG-2116	9/16	7W or 19W	.564 or .565	10	48	55	Yellow	35,000	(100%)
BG-2111	5/8	7W or 19W	.621 or . 625	10	65	64	Black	7W 42,400 19W 40,200	(100%) (100%)
BG-2112	3/4	19W	.750	5	54	76	Orange	58,300	(100%)
BG-MS-7023	7/8	19W	.885	5	76	90	Green	79,700	(100%)
BG-MS-7047	1	19W or 37W	1.000 or 1.001	3	76	125	Blue	19W 104,500 37W 92,430	(100%) (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 the Big-Grip Dead-ends used on 1/2", 9/16", and 5/8" strand.
- (6) B-Coat galvanized steel is used for the Big-Grip Dead-ends used on 3/4" strand. However, use of this material is subject to availability and other materials, such as aluminum-covered steel, may be substituted. Before ordering, consult PLP® as to material availability.
- (7) Big-Grip Dead-ends for 7/8" and 1" strand are made from aluminum-covered steel material. Galvanized steel material is not available. Before using, check to make sure that atmospheric conditions in the area in which they are to be used will not create a problem caused by two dissimilar metals.
- (8) Consult PLP for sizes and stranding not shown.



Big-Grip Dead-end

For use on: Aluminum Clad Steel Strand

Catalog Number	Strand Diameter Ranges (Inches)		Nominal Strand Size	BG Per Carton		Approx. Length (Inches)	Color Code	Rated Holding Strength (lbs)	(Percent of Strand's Rated Breaking Strength)
	Min	Max		Units	Wt/lbs				
BG-4202	.174	.181	3 # 12	100	22	19	Orange	2,850	(100%)
BG-4208	.219	.230	4M 3 # 10	50	21	22	Green	4,532	(100%)
BG-4210	.237	.247	7 # 12 6M	50	22	24	Yellow	6,000	(100%)
BG-4213	.270	.280	3 # 8 8M	50	24	27	Blue	8,000	(100%)
BG-4216	.303	.313	3 # 7 10M 5/16 7 # 10	50	32	29	Black	10,000	(100%)
BG-4220	.343	.355	3 # 12.5M 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 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 37 # 10	10	70	63	Black	51,730 50,300	(100%) (95%)+
BG-4180	.742	.772	19 x .1499"	5	41	71	Yellow	54,300	(100%)
The Following Products Are For The Specific Cables Listed.									
Actual Diameters									
BG-4181	.792		19 x .1584"	5	50	80	Blue	59,000	
BG-4183	.801, .810, .827		37 # 9 19 # 6 19 x .1660"	5	69	84	Green	63,430 61,700 63,000	(95%)+ (100%) (100%)
BG-4185	.849, .850, .866		37 x .121" 19 x .170" 19 x .173" 37 x .123"	5	68	87	Black	71,250 66,000 68,500 74,100	(95%)+ (100%) (100%) (95%)+
BG-4186	.899		37 # 8	5	76	91	Yellow	80,000	(95%)+
BG-4187	.910 .934		19 # 5 19 x .1868"	5	78	93	Blue	73,350 75,000	(100%) (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.

Big-Grip Dead-end

For use on: Galvanized Steel Structural Strand (Bridge)

Left-hand lay

Catalog Number	Big-Grip Made From:	Strand Construction	Nominal Strand Size (Inches)	BG Per Carton (Units)	BG Per Carton (Wt/ Lbs)	Approx Length (Inches)	Number of Individual Rods in Each Big-Grip	Color Code	Cables Published Rated Breaking Strength (Lbs)	Big-Grip Rated Holding Strength (Lbs)
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

Lay Direction Guide
Examples of lay directions of strand or cable



LEFT-HAND LAY



RIGHT-HAND LAY

Right-hand lay

Catalog Number	Big-Grip Made From:	Strand Construction	Nominal Strand Size (Inches)	BG Per Carton (Units)		Approx Length (Inches)	Number of Individual Rods in Each Big-Grip	Color Code	Cables Published Rated Breaking Strength (Lbs)	Big-Grip Rated Holding Strength (Lbs)
				BG Per Carton (Units)	BG Per Carton (Wt/ Lbs)					
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



Big-Grip Dead-end

Please visit our web site at www.preformed.com for additional literature.

Big-Grip Dead-end Application Procedure - SP2049-3

Big-Grip Dead-end Test Report - TR-634-E

Big-Grip Dead-ends are available for *PHILLYSTRAN® (SP2806).

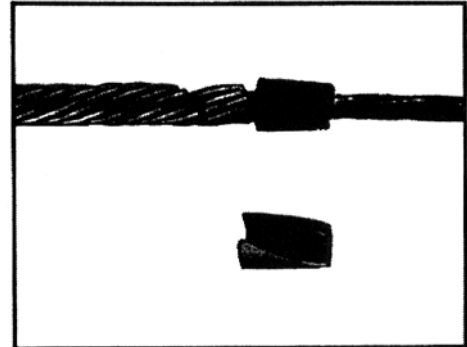
Please consult PHILLYSTRAN for part numbers, availability and pricing.

Big-Grip Dead-end (PHILLYSTRAN) Test Report - TR-725-E.

**PHILLYSTRAN is a registered trademark of the Philadelphia Resins Corporation.*

End Sleeves

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

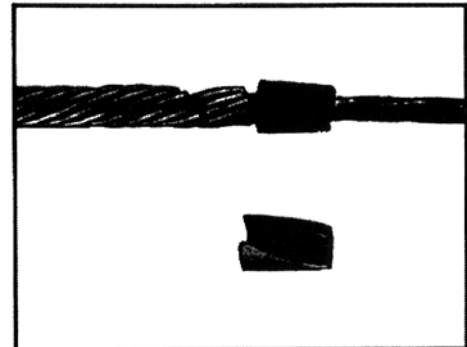


Galvanized Strand Size (inches)	Catalog Number C-Coat	End Sleeve Catalog Number
3/16	BG-2142	GC-65303
1/4	BG-2144	GC-65136
5/16	BG-2146	GC-65128
3/8	BG-2147	GC-65264
7/16	BG-2148	GC-65265
1/2	BG-2115	GC-65266
9/16	BG-2116	GC-65267
5/8	BG-2111	GC-65268
3/4	BG-2112	GC-65269
7/8	*BG-MS-7023	GC-65270
1	*BG-MS-7047	GC-65271
*Manufactured from aluminum clad steel strand		



End Sleeves

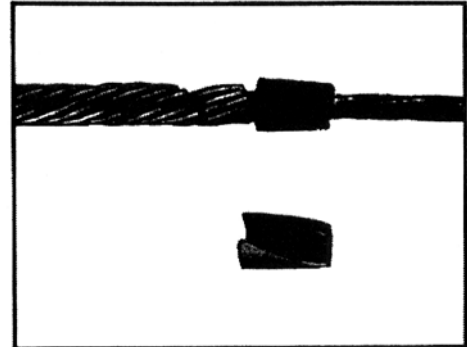
**For Use On:
Aluminum Clad Steel Strand
Dead-ends**



Aluminum Clad Steel Strand Size	Dead-end Catalog Number	End Sleeve Catalog Number
6M, 3 #9	BG-4210	GC-65436
10M, 7 # 10	BG-4216	GC-65128
12.5, 7 # 9	BG-4220	GC-65264
14M 16M, 7 # 8 18M	BG-4221 BG-4223 BG-4225	GC-65265
7 # 7	BG-4226	GC-65265
20M 7 # 6	BG-4227 BG-4168	GC-65266
9 # 10	BG-4169	GC-65266
25M 7 # 5 19 # 9	BG-4170 BG-4171 BG-4173	GC-65267
19 # 8	BG-4176	GC-65272
37 # 10 19 # 7	BG-4179 BG-4179	GC-65269
19x, 1584 37 # 9 19 # 6 19x, 1660	BG-4181 BG-4183 BG-4183 BG-4183	GC-65298
37x, 1213 19x, 1700 19x, 1732 37x, 1237	BG-4185 BG-4185 BG-4185 BG-4185	N/A
37 # 8 19 # 5 19x, 1868	BG-4186 BG-4187 BG-4187	GC-65270
37x, 1401 137 # 7	BG-4188 BG-4189	GC-65271

End Sleeves

For Use On:
Galvanized Steel
GUY-GRIP® Dead-ends



Galvanized Strand Size (inches)	Catalog Number		End Sleeve Catalog Number
	B-Coat	C-Coat	
3/16	GDE-1102	GDE-2102	GC-65303
1/4	GDE-1104	GDE-2104	GC-65136
5/16	GDE-1106	GDE-2106	GC-65128
3/8	GDE-1107	GDE-2107	GC-65264
7/16	GDE-1108	GDE-2108	GC-65265
1/2	-	BG-2115	GC-65266

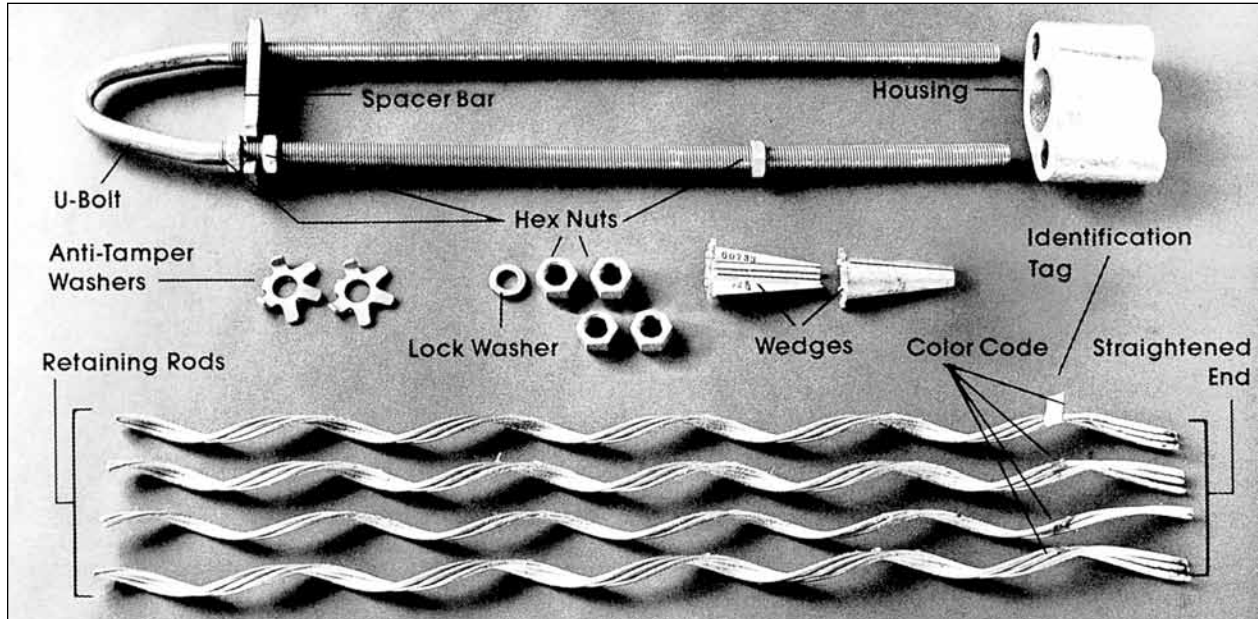
Please visit our web site at www.preformed.com for additional literature.

End Sleeves Application Procedure - SP2134



VARI-GRIP™ Dead-end

NOMENCLATURE



U-Bolt: Galvanized Steel
Housing: Galvanized Iron
Wedges: Aluminum
Spacer Bar: Galvanized Steel (supplied with adjustable models only, except conformal casting supplied with all models with 1-1/2 & 1-3/4 U-Bolts)

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

GENERAL RECOMMENDATIONS

VARI-GRIP Dead-ends are designed for use on Transmission, Tower and Antenna, Communications, and other types of guyed structures that require use of large guy strand. VARI-GRIP dead-end components such as the housing, U-Bolt, and hex nuts allow for adjustment in guy tensions.

Where guying requirements call for strands not shown on the catalog pages, consult PLP. VARI-GRIP Dead-ends are available in 0" and 18" (457 mm) take-up ranges.

RATED HOLDING STRENGTH (RHS): VARI-GRIP Dead-ends are designed to develop the maximum loads published on the catalog pages for only those specific strands listed.

MATERIAL SELECTION: VARI-GRIP Dead-end retaining rods are made from material compatible with the strand for which they are designed.



VARI-GRIP™ Dead-end

INSTALLATION GUIDELINES

STRAND COMPATIBILITY: 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. **WHEN ORDERING VARI-GRIP DEAD-ENDS, SPECIFY THE STRAND AND THE STRAND LAY DIRECTION ON WHICH THEY ARE TO BE USED.**

When installing VARI-GRIP Dead-ends, care should be taken not to damage the protective coatings on the hardware, rods, or fittings

VARI-GRIP Dead-ends should not be used as tools; i.e., come-alongs, pulling-grips, etc.

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

Guy tension may be roughly determined by measuring the torque on the hex nuts (during initial installation with threads well lubricated). If this method is to be used, an anti-seize compound applied liberally on the threads of the U-Bolt and anti-tamper washers will permit more accurate measurements.

The anti-seize compound will also make the nut tightening procedure easier.

Consult Factory for torque/tension information or for any unusual installations.

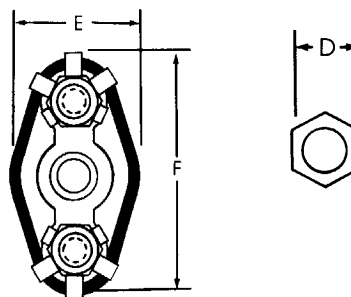
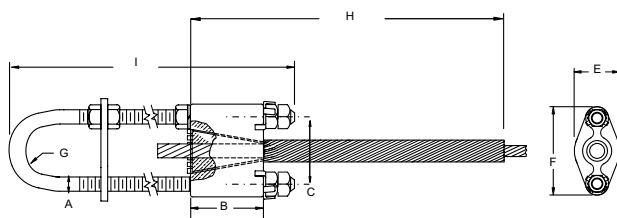
The spacer bar and hex nuts (supplied with the 18" take-up model) should be installed as close to the interior radius of the U-Bolt as possible.

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 insure support of the U-Bolt, while the maximum dimension indicates the largest fitting that will fit through the U-Bolt.

Acceptable Pin Diameters

Strand Range	U-Bolt Dia.	Minimum	Maximum
.744"–.914"	1"	1"	1-1/4"
.915"–1.034"	1-1/8"	1-1/8"	1-3/8"
1-1/8" EHS 1"BS 61#7 61#6	1-1/2"	4"	4"
61#5 91#6	1-3/4"	4"	4-1/2"

DIMENSIONAL DATA



Strand Range	U-Bolt Dia.									
	A	B	C	D	E	F	G	H	I (0")	I (18")
.744"–.914"	1"	4-1/2"	4-3/4"	1-1/2"	3-5/16"	6-11/16"	5/8"	See rod length in table on next page	12-11/16"	33-3/16"
.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"
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"
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"
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"

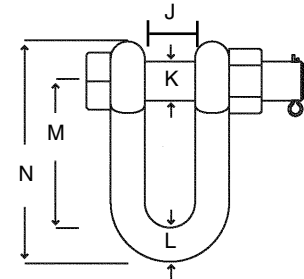


VARI-GRIP™ Dead-end

ACCESSORIES

Anchor Shackle

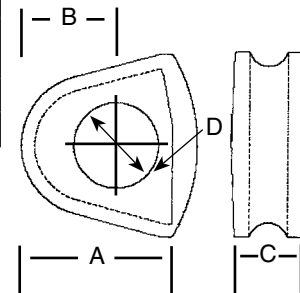
Catalog Number	Description	Max. Load (kN)	J	K	L	M	N
00065490A	3/4"	51,000# (254)	1.25" (32)	.88" (22)	.81" (20)	3.39" (89)	5.1" (131)
00065491A	1"	102,000# (454)	1.69 (43)	1.13 (29)	1.0 (25)	4.68 (119)	6.87 (174)
00065492A	1-1/8"	114,000# (507)	1.81 (46)	1.25 (32)	1.25 (32)	4.88 (124)	7.48 (190)



Conformal Casting

Used to provide proper support to large U-Bolts (1-1/2" & 1-3/4")

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"



ORDERING INFORMATION

Be sure that the VARI-GRIP Dead-end selected matches the material, lay direction and strength of the strand being used.

Aluminum Clad Steel Strand (left-hand lay)

Catalog Number 0" Take-Up	Catalog Number 18" Take-Up	Catalog Number 24" Take-Up	Nominal Strand Range		Nominal Strand Size	Construction	U-Bolt Diameter	Rods Per Set	Rod Length	Subset	Color Code	Rated Holding Strength
			Min.	Max.								
VG-0-3101	VG-18-3101	VG-24-3101	0.636	0.661	N/A	19#8	1"	11	32"	3-4-4	Black	42,240#
VG-0-3102	VG-18-3102	VG-24-3102	0.713	0.741	N/A	19#7 37#10	1"	12	35"	3-3-3-3	Yellow	51,730# 52,950#
VG-0-3103	VG-18-3103	VG-24-3103	0.800	0.810	N/A	19#6 37#9	1"	12	46"	3-3-3-3	Green	61,700# 66,770#
VG-0-3104	VG-18-3104	VG-24-3104	0.893	0.903	N/A	37#8	1-1/8"	13	54"	3-3-3-4	Yellow	84,200#
VG-0-3105	VG-18-3105	VG-24-3105	0.904	0.914	N/A	19#5	1"	13	54"	3-3-3-4	Yellow	73,350#
VG-0-3106	VG-18-3106	VG-24-3106	0.911	0.921	N/A	61#10	1-1/8"	13	54"	3-3-3-4	Yellow	87,290#
VG-0-3107	VG-18-3107	VG-24-3107	1.000	1.010	N/A	37#7	1-1/8"	14	58"	3-3-4-4	Green	100,700#
VG-0-3108	VG-18-3108	VG-24-3108	1.024	1.034	N/A	61#9	1-1/8"	14	76"	3-3-4-4	Purple	110,100#
VG-0-3109	VG-18-3109	VG-24-3109	1.130	1.130	N/A	37#6	1-1/2"	14	86"	3-3-4-4	Yellow	120,200#
VG-0-3110	VG-18-3110	VG-24-3110	1.160	1.160	N/A	61#8	1-1/2"	14	98"	3-3-4-4	Orange	138,800#
VG-0-3111	VG-18-3111	VG-24-3111	1.270	1.270	N/A	37#5	1-1/2"	16	105"	4-4-4-4	Red	142,800#
VG-61#7-0	VG-61#7-18	VG-61#7-24	1.300	1.300	N/A	61#7	1-1/2"	16	106"	4-4-4-4	Blue	166,100#
VG-61#6-0	VG-61#6-18	VG-61#6-24	1.460	1.460	N/A	61#6	1-1/2"	18	116"	3-3-4-4-4	Green	198,100#
VG-61#5-0	VG-61#5-18	VG-61#5-24	1.640	1.640	N/A	61#5	1-3/4"	20	129"	4-4-4-4-4	Orange	235,500#
VG-91#6-0	VG-91#6-18	VG-91#6-24	1.780	1.780	N/A	91#6	1-3/4"	18	165"	3-3-4-4-4	Red	295,500#

VARI-GRIP™ Dead-end

ORDERING INFORMATION

Galvanized Steel Extra High Strength Strand (left hand lay)

Catalog Number 0" Take-Up	Catalog Number 18" Take-Up	Catalog Number 24" Take-Up	Nominal Strand Range		Nominal Strand Size	Construction	U-Bolt Diameter	Rods Per Set	Rod Length	Subset	Color Code	Rated Holding Strength
			Min.	Max								
N/A	VG-18-2100	-	0.438	0.438	7/16"	7W	5/8"	11	27"	3-4-4	Red	20,800#
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#
VG-0-2108	VG-18-2108	VG-24-2108	0.559	0.563	9/16"	7W or 19W	3/4"	11	28"	3-4-4	Yellow	35,000#
VG-0-2102	VG-18-2102	-	0.621	0.625	5/8"	7W or 19W	1"	11	31"	3-4-4	Black	42,400#
VG-0-2103	VG-18-2103	VG-24-2103	0.744	0.754	3/4"	19W	1"	12	44"	3-3-3-3	Orange	58,300#
VG-0-2104	VG-18-2104	VG-24-2104	0.878	0.888	7/8"	19W	1"	13	58"	3-3-3-4	Green	79,700#
VG-0-2105	VG-18-2105	VG-24-2105	1.000	1.010	1"	19W or 37W	1-1/8"	14	66"	3-3-4-4	Blue	104,500#
VG-0-2106	VG-18-2106	VG-24-2106	1.125	1.125	1-1/8"	37W	1-1/2"	14	95"	3-3-4-4	Yellow	130,800#

Galvanized Steel Bridge Strand (left hand lay)

Catalog Number 0" Take-Up	Catalog Number 18" Take-Up	Catalog Number 24" Take-Up	Nominal Strand Range		Nominal Strand Size	Construction	U-Bolt Diameter	Rods Per Set	Rod Length	Subset	Color Code	Rated Holding Strength
			Min.	Max								
VG-0-2103	VG-18-2103	VG-24-2103	0.750	0.750	3/4"	1 X 19	1"	12	44"	3-3-3-3	Orange	68,000#
VG-0-4104	VG-18-4104	VG-24-4104	0.813	0.813	13/16"	1 X 19	1"	12	54"	3-3-3-3	Red	80,000#
VG-0-4105	VG-18-4105	VG-18-4105	0.875	0.875	7/8"	1 X 19	1-1/8"	13	58"	3-3-3-4	Green	92,000#
VG-0-4106	VG-18-4106	VG-24-4106	0.938	0.938	15/16"	1 X 31	1-1/8"	14	63"	3-3-4-4	Black	108,000#
VG-0-4107	VG-18-4107	VG-24-4107	1.000	1.000	1"	1 X 31	1-1/2"	14	66"	3-3-4-4	Blue	122,000#
VG-0-4108	VG-18-4108	VG-24-4108	1.063	1.063	1-1/16"	1 X 31	1-1/2"	14	91"	3-3-4-4	Green	138,000#
VG-0-2106	VG-18-2106	VG-24-2106	1.125	1.125	1-1/8"	1 X 37	1-1/2"	14	95"	3-3-4-4	Yellow	156,000#
VG-0-4109	VG-18-4109	VG-24-4109	1.187	1.187	1-3/16"	1 X 37	1-1/2"	15	99"	3-4-4-4	Orange	172,000#
VG-0-2107	VG-18-2107	VG-24-2107	1.250	1.250	1-1/4"	1 X 43	1-1/2"	16	103"	4-4-4-4	Red	192,000#
VG-0-4110	VG-18-4110	VG-24-4110	1.313	1.313	1-5/16"	1 X 43	1-1/2"	17	107"	3-3-3-3-3-2	Black	212,000#
VG-0-4111	VG-18-4111	VG-24-4111	1.375	1.375	1-3/8"	1 X 43	1-1/2"	17	110"	3-3-3-3-3-2	Orange	232,000#
VG-0-4112	VG-18-4112	VG-24-4112	1.438	1.438	1-7/16"	1 X 43	1-1/2"	18	114"	3-3-3-3-3-3	Green	252,000#
VG-0-4113	VG-18-4113	VG-24-4113	1.500	1.500	1-1/2"	1 X 43	1-3/4"	19	119"	3-3-3-3-3-2-2	Pink	276,000#

Galvanized Steel Bridge Strand (right hand lay)

Catalog Number 0" Take-Up	Catalog Number 18" Take-Up	Catalog Number 24" Take-Up	Nominal Strand Range		Nominal Strand Size	Construction	U-Bolt Diameter	Rods Per Set	Rod Length	Subset	Color Code	Rated Holding Strength
			Min.	Max								
VG-0-5103	VG-18-5103	VG-24-5103	0.750	0.750	3/4"	1 X 19	1"	12	44"	3-3-3-3	Orange	68,000#
VG-0-5104	VG-18-5104	VG-24-5104	0.813	0.813	13/16"	1 X 19	1"	12	54"	3-3-3-3	Red	80,000#
VG-0-5105	VG-18-5105	VG-24-5105	0.875	0.875	7/8"	1 X 19	1-1/8"	13	58"	3-3-3-4	Green	92,000#
VG-0-5106	VG-18-5106	VG-24-5106	0.938	0.938	15/16"	1 X 31	1-1/8"	14	63"	3-3-4-4	Black	108,000#
VG-0-5107	VG-18-5107	VG-24-5107	1.000	1.000	1"	1 X 31	1-1/2"	14	66"	3-3-4-4	Blue	122,000#
VG-0-5108	VG-18-5108	VG-24-5108	1.063	1.063	1-1/16"	1 X 31	1-1/2"	14	91"	3-3-4-4	Green	138,000#
VG-0-5109	VG-18-5109	VG-24-5109	1.125	1.125	1-1/8"	1 X 37	1-1/2"	14	95"	3-3-4-4	Yellow	156,000#
VG-0-5110	VG-18-5110	VG-24-5110	1.187	1.187	1-3/16"	1 X 37	1-1/2"	15	99"	3-4-4-4	Orange	172,000#
VG-0-5111	VG-18-5111	VG-24-5111	1.250	1.250	1-1/4"	1 X 43	1-1/2"	16	103"	4-4-4-4	Red	192,000#
VG-0-5112	VG-18-5112	VG-24-5112	1.313	1.313	1-5/16"	1 X 43	1-1/2"	17	107"	3-3-3-3-3-2	Black	212,000#
VG-0-5113	VG-18-5113	VG-24-5113	1.375	1.375	1-3/8"	1 X 43	1-1/2"	17	110"	3-3-3-3-3-2	Orange	232,000#
VG-0-5114	VG-18-5114	VG-24-5114	1.438	1.438	1-7/16"	1 X 43	1-1/2"	18	114"	3-3-3-3-3-3	Green	252,000#
VG-0-5115	VG-18-5115	VG-24-5115	1.500	1.500	1-1/2"	1 X 43	1-3/4"	19	119"	3-3-3-3-3-2-2	Pink	276,000#



VARI-GRIP™ Dead-end

Please visit our web site at www.preformed.com for additional literature.

VARI-GRIP™ Dead-end Application Procedure - SP2037-6

Glas-Splice for Fiberglass Rod (solid)

GLAS-GRIP® Dead-end



CATALOG NUMBER	FIBERGLAS ROD		UNITS	WT./LBS.	LENGTH (INCHES)	COLOR CODE
	SIZE (SOLID)	MEAN DIAM.	PER CARTON			
DER-2167	1/4"	.290"	50	37	26	Red
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

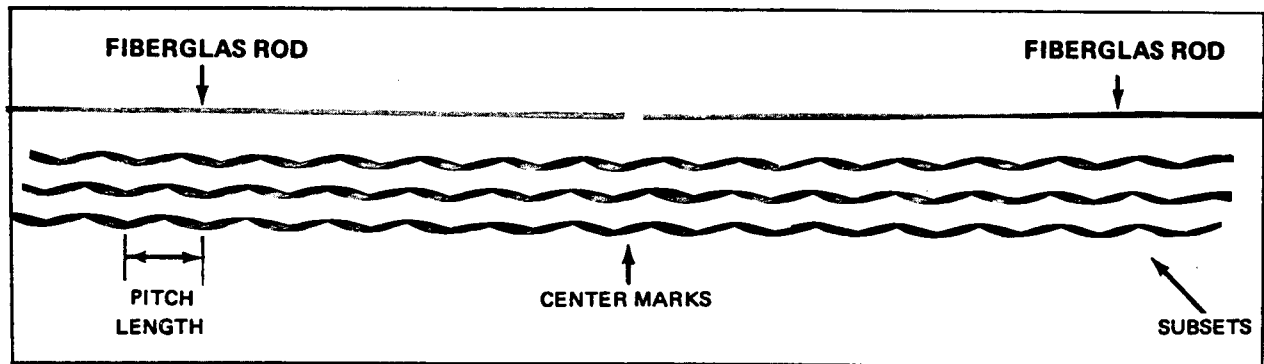
EXPLANATORY NOTES:

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 for Fiberglass Rod (solid)

Glas-Splice



CATALOG NUMBER	FIBERGLAS ROD		UNITS	WT./LBS.	LENGTH (INCHES)	NO. OF SUB-SETS	COLOR CODE
	SIZE (SOLID)	MEAN DIAM.	PER CARTON				
GSR-2130	1/4"	.290"	50	53	37	2	Red
GSR-2131	5/16"	.337"	25	54	50	3	Orange
GSR-2132	3/8"	.400	20	68	60	3	Yellow
GSR-2134	1/2"	.525"	10	73	79	3	Green
GSR-2136	5/8"	.670"	5	66	101	3	Black

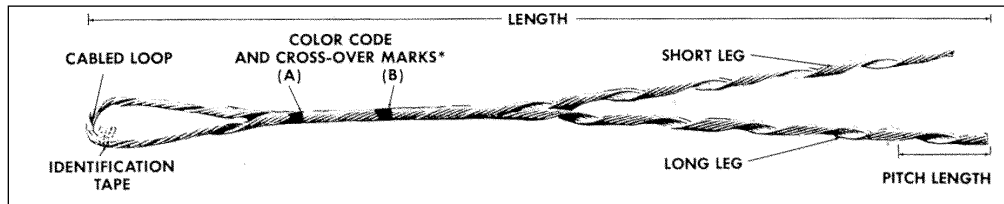
Left Hand Lay Standard.

Please visit our web site at www.preformed.com for additional literature.

GLAS-GRIP Application Procedure - SP2097-1

GUY-GRIP® Dead-end

NOMENCLATURE



Cross-over Marks:

(A) – Indicate starting point for application on smaller diameter fittings.

(B) – Indicates alternate starting point for application on larger diameter fittings.

Cabled Loop: Furnished as standard, all sizes.

Pitch Length: One complete wrap.

Color Code and Length: Assists in identifying the strand size, corresponding to tabular information appearing on catalog pages.

Identification Tape: Shows catalog number, nominal sizes.

Short Leg-Long Leg: Identifies rods belonging to each leg, after application. During application, the short leg should be applied first.

GENERAL INFORMATION

GUY-GRIP Dead-ends are intended for use on single wood poles associated with distribution construction.

GUY-GRIP Dead-ends were not designed or tested for use on overhead shield wires and not intended for that application.

Refer to Big-Grip Dead-end, an alternate product recommended for guying transmission construction, or tower and antenna applications.

Refer to the Installation Tools section for the PREFORMED™ Pulling Eye, designed to assist application at the anchor.

RATED HOLDING STRENGTH: GUY-GRIP Dead-ends are rated at 100% of the strand's published rated breaking strength.

MATERIAL SELECTION: GUY-GRIP Dead-ends are made of the same basic material as the strand to which they are applied. This pertains to galvanized, *Bezinal®, **Copperweld®, Aluminum clad steel, stainless Type 302, and stainless Type 316. Any of these materials can be selected from the catalog tables. The recommended types of strand are also indicated.

TAPPING: GUY-GRIP Dead-ends are mechanical devices not designed as current transfer connectors. Consequently,

tapping is not recommended over or through the GUY-GRIP Dead-end.

APPLICATION-INSPECTION: Within the first 3 months after initial application, GUY-GRIP Dead-ends may be removed and reapplied two times after initial application for the purpose of retensioning the guy. After 3 months, a new dead-end should be used any time removal is required.

GUY-GRIP Dead-ends should be used on hardware that is held in a fixed position; the fitting should not be allowed to rotate or spin about the axis of the strand. **They should not be used as tools, that is, come-alongs, pulling-in grips, etc.**

Lay direction of both the GUY-GRIP Dead-ends and the strand should be the same. Most strand is left-hand lay.

STRAND TAIL: For appearance and safety the strand, tail should be cut as close as convenient to the crossover mark and buried inside the crossover mark if possible. If desired, the strand tail can, instead, extend through the loop for grounding purposes. Any tail over 2" or 3" should be restrained and not permitted to rotate during loading of the guy.

SAFETY CONSIDERATIONS

1. 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 AFTER 90 DAYS UNDER ANY CIRCUMSTANCES.**
2. This product is intended for use by trained craftspeople only. This product **SHOULD NOT BE USED** by anyone who is not familiar with and trained in the use of it.
3. When working in the area of energized lines with this

product, **EXTRA CARE** should be taken to prevent accidental electrical contact.

4. For **PROPER PERFORMANCE AND PERSONAL SAFETY** be sure to select the proper size GUY-GRIP Dead-end before application.
5. GUY-GRIP Dead-ends are precision devices. To insure proper performance, they should be stored in cartons under cover and handled carefully.

*Bezinal is a registered trademark of the Bekaert Corporation.

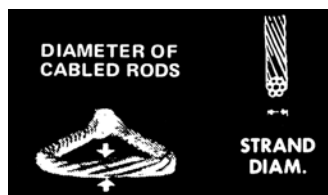
**Copperweld is a registered trademark of the Copperweld Company.



GUY-GRIP® Dead-end

HARDWARE CONSIDERATIONS

CABLED LOOP: Anchor eyes and other fittings need groove diameters only slightly larger than the strand because the diameter of the cabled rods of GUY-GRIP Dead-ends approximates strand diameter. Cabled loops are designed for a variety of fittings with dimensions shown in the table below.



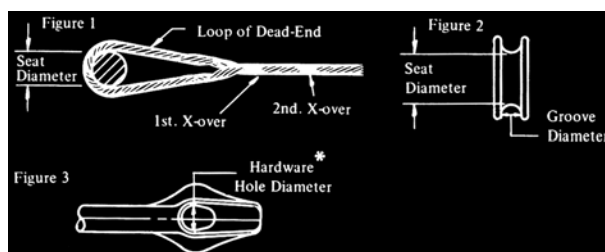
Suggested hardware dimensions for cabled-loop GUY-GRIP Dead-ends

DEAD-END DIAMETER RANGE (INCHES)		NOMINAL STRAND SIZES		SEAT DIMENSIONS (figures 1 & 2) (in.)			MINIMUM GROOVE DIAMETER (in.) (fig. 2)	MINIMUM HOLE DIAMETER* (in.) (fig. 3)
Min.	Max.	GALVANIZED STEEL	ALUMINUM-CLAD STEEL	Min. seat diameter with dead-end at first cross-over mark.	Max. seat diameter with dead-end at first cross-over mark.	Max. seat diameter with dead-end at second cross-over mark.		
.123	.143	1/8	—	3/4	1-3/4	—	3/16	1/4
.144	.173	5/32	—	3/4	1-3/4	2-1/2	1/4	5/16
.174	.203	3/16	—	1-0	1-3/4	2-1/2	1/4	3/8
.204	.230	7/32	3 #10, 4M3	1-1/8	1-3/4	2-1/2	5/16	3/8
.231	.259	1/4	7 #12, 6M	1-1/8	1-3/4	2-1/2	5/16	7/16
.260	.291	9/32	7 #11, 8M	1-1/8	1-3/4	2-1/2	3/8	1/2
.292	.336	5/16	7 #10, 10M	1-1/4	1-3/4	2-1/2	3/8	9/16
.337	.394	3/8	7 #8, 14M, 16M	1-3/8	1-3/4	2-1/2	7/16	5/8
.395	.474	7/16	7 #7, 18M, 20M	1-3/8	2-3/8	2-1/2	1/2	11/16
.475	.515	**	7 #6	1-3/8	2-3/8	—	9/16	3/4
.516	.570	**	7 #5, 25M	1-1/2	2-5/8	—	5/8	15/16

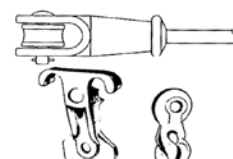
* Depending on geometric shape of the hole, a hole diameter less than specified may be acceptable.

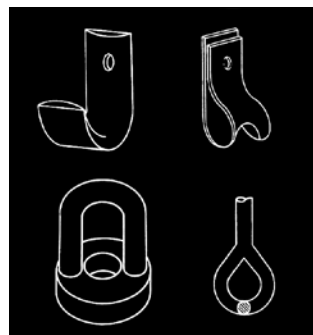
** Use Big-Grip Dead-ends.

Guying of transmission structures and metal towers require Big-Grip Dead-ends, VARI-GRIP™ Dead-ends.



ACCEPTABLE FITTINGS

ANCHOR RODS	THIMBLE EYE-BOLTS, -EYENUTS & EYES	POLE FITTINGS	GUY-STRAIN INSULATORS					
			 <table data-bbox="1222 1514 1310 1610"><tr><td>ANSI</td></tr><tr><td>54-1</td></tr><tr><td>54-2</td></tr><tr><td>54-3</td></tr><tr><td>54-4</td></tr></table>	ANSI	54-1	54-2	54-3	54-4
ANSI								
54-1								
54-2								
54-3								
54-4								



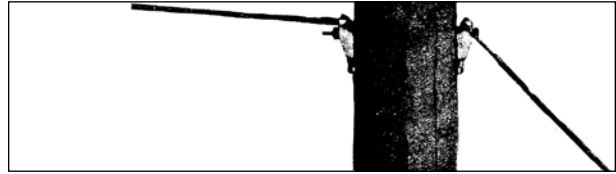
CAUTION:
Hardware of this type is not normally acceptable because fatigue life of GUY-GRIP Dead-ends could be substantially reduced.

Heavy-Duty-Type Cable Thimbles, if used, can collapse when guy tensions are high. If thimbles are used in the loop of the GUY-GRIP Dead-end, a large pin is recommended to fill the loop of the thimble to prevent distortion. The collapsing strength of the thimble and the proper pin size should be obtained from the thimble manufacturer.

GUY-GRIP® Dead-end: Galvanized Steel

For use on:

**Extra High Strength, High Strength,
Siemens Martin, Utilities Grade³**



B-coat							
Catalog Number	Strand		Mean Diameter (Inches)	Units	Wt./Lbs.	Length (Inches)	Color Code
	Size (inches)	Construction		Per Carton			
GDE-1102	3/16	7W 7W	.186 .195	100	30	20	Red
GDE-1103	7/32	7W	.216	50	19	24	Green
GDE-1104	1/4	3W 7W	.259 .240	50	24	25	Yellow
GDE-1105	9/32	7W	.279	50	26	28	Blue
GDE-1106	5/16	3W 7W 7W	.312 .312 .327	50	39	31	Black
GDE-1107	3/8	3W 7W	.356 .360	50	51	35	Orange
GDE-1108	7/16	7W	.435	25	40	38	Green

C-coat							
Catalog Number	Strand		Mean Diameter (Inches)	Units	Wt./Lbs.	Length (Inches)	Color Code
	Size (inches)	Construction		Per Carton			
GDE-2102	3/16	7W 7W	.186 .195	100	30	20	Red
GDE-2103	7/32	7W	.216	50	19	24	Green
GDE-2104	1/4	3W 7W	.259 .240	50	24	25	Yellow
GDE-2105	9/32	7W	.279	50	26	28	Blue
GDE-2106	5/16	3W 7W 7W	.312 .312 .327	50	39	31	Black
GDE-2107	3/8	3W 7W	.356 .360	50	51	35	Orange
GDE-2108	7/16	7W	.435	25	40	38	Green

Left-hand lay is standard.

EXPLANATORY NOTES:

- (1) Big-Grip Dead-end is recommended as an alternative product for guying multiple pole structures or metal towers associated with transmission construction.
- (2) Refer to Hardware Considerations for acceptable fittings. Cabled Loop design furnished as standard, all sizes.
- (3) Rated holding strength is 100% of published rating for all grades of galvanized strand.
- (4) Consult PLP for sizes and stranding not shown.



GUY-GRIP® Dead-end: Bezinal®

For use on:
Bezinal Strand²

Catalog Number	Strand			Units	Wt./Lbs.	Length (Inches)	Color Code
	Size (inches)	Construction	Mean Diameter (Inches)	Per Carton			
BDE-9102	3/16	7W 7W	.186 .195	100	30	20	Red
BDE-9104	1/4	3W 7W	.259 .240	50	24	25	Yellow
BDE-9106	5/16	3W 7W 7W	.312 .312 .327	50	39	31	Black
BDE-9107	3/8	3W 7W	.356 .360	50	51	35	Orange
BDE-9108	7/16	7W	.435	25	41	38	Green

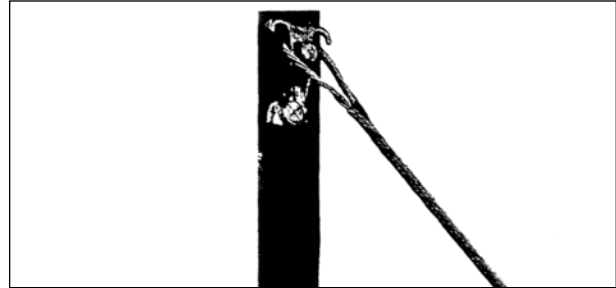
Left-hand lay is standard.

EXPLANATORY NOTES:

- (1) Big-Grip Dead-end is recommended as an alternative product for guying multiple pole structures or metal towers associated with transmission construction.
- (2) Rating holding strength is 100% of the published rating for the strand.
- (3) Bezinal is a registered trademark of the Bekaert Company.

GUY-GRIP® Dead-end: Aluminum Clad

For use on:
Aluminum Clad Steel Strand⁴



Catalog Number	Mean Diameter (Inches)	Nominal Strand Size	Units	Wt./Lbs.	Length (Inches)	Color Code
			Per Carton			
AWDE-4102	.174	3 # 12	100	21	18	Orange
AWDE-4108	.220 .220	4M 3 # 10	50	20	21	Green
AWDE-4110	.247 .242	3 # 9 6M	50	20	24	Yellow
AWDE-4113	.277 .272	3 # 8 8M	50	22	24	Blue
AWDE-4116	.311 .306 .306	3 # 7 10M 5/16" - 7 # 10	50	29	26	Black
AWDE-4118	.330	11.5M	50	30	26	Green
AWDE-4119	.349 .343 .343	3 # 6 12.5M 11/32" - 7 # 9	50	41	29	Yellow
AWDE-4120	.363	14M	50	53	31	Blue
AWDE-4122	.392 .385 .386	3 # 5 3/8" - 7 # 8 16M	50	55	32	Orange
AWDE-4124	.417	18M	25	37	34	Black
AWDE-4125	.433	7/16" - 7 # 7	25	40	36	Green
AWDE-4126	.444	20M	10	22	37	Yellow
AWDE-4128	.486	1/2" - 7 # 6	10	23	39	Blue
AWDE-4130	.519	25M	10	31	43	Red
AWDE-4131	.546	7 # 5	10	32	44	Yellow

Left-Hand Lay is standard.

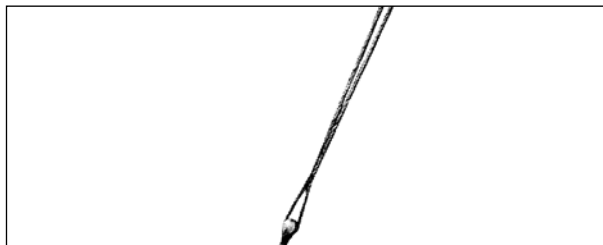
EXPLANATORY NOTES:

- (1) Big-Grip Dead-end is recommended as an alternative product for guying multiple pole structures or metal towers associated with transmission construction.
- (2) Refer to Hardware Considerations for acceptable fittings. Cabled Loop design furnished as standard, all sizes.
- (3) Refer to General Information for material selection.
- (4) Rating holding strength is 100% of the published rating for the strand.
- (5) Consult PLP for sizes and stranding not shown.



GUY-GRIP® Dead-end: Aluminized

For use on:
Aluminized Strand⁴



Catalog Number	Strand			Units	Wt./Lbs.	Length (Inches)	Color Code
	Size (inches)	Construction	Mean Diameter (Inches)	Per Carton			
AZDE-7100	3/16	7W 7W	.186 .195	100	25	18	Red
AZDE-7102	1/4	3W 7W	.259 .240	50	22	23	Yellow
AZDE-7103	9/32	7W	.279	50	27	24	Blue
AZDE-7104	5/16	3W 7W 7W	.312 .312 .327	50	37	27	Black
AZDE-7106	3/8	3W 7W	.356 .360	50	63	32	Orange
AZDE-7107	7/16	7W	.435	25	45	34	Green

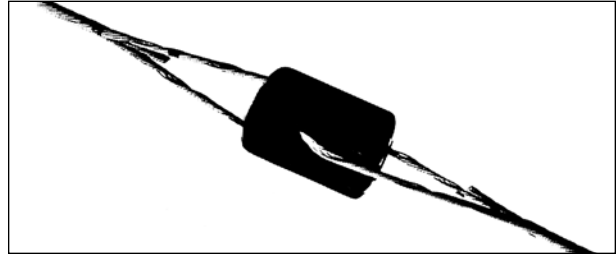
Left-Hand Lay is standard.

EXPLANATORY NOTES:

- (1) Big-Grip Dead-end is recommended as an alternative product for guying multiple pole structures or metal towers associated with transmission construction.
- (2) Refer to Hardware Considerations for acceptable fittings. Cabled Loop design furnished as standard, all sizes.
- (3) Refer to General Information for material selection.
- (4) Rating holding strength is 100% of the published rating for the strand.
- (5) Consult PLP for sizes and stranding not shown.

GUY-GRIP® Dead-end: Copperweld®

**For use on:
Copperweld Strand⁴**



Catalog Number	Mean Diameter (Inches)	Nominal Strand Size	Units	Wt./Lbs.	Length (Inches)	Color Code
			Per Carton			
CDE-8100	.164	2.2M	100	19	17	Orange
CDE-8102	.174	3 # 12	100	24	17	Red
CDE-8106	.209	4M	100	32	18	White
CDE-3101	.220	3 # 10	100	44	20	Green
CDE-3103	.247 .237	3 # 9 6M	50	24	21	Yellow
CDE-3104	.258	6M3	50	25	22	White
CDE-3106	.276 .277	8M 3 # 8	50	26	23	Blue
CDE-3109	.303 .306 .311	10M 7 # 10 - 5/16" 3 # 7"	50	34	25	Red
CDE-3112	.343 .345 .349	7 # 9 - 11/32" 12.5M 3 # 6	50	46	27	Green
CDE-3113	.360	14M	50	64	30	Blue
CDE-3115	.385 .386 .392	7 # 8 - 3/8" 16M 3 # 5	50	65	31	White
CDE-3117	.414	18M	25	46	34	Orange
CDE-3118	.438 .433	20M 7 # 7 - 7/16"	25	47	35	Yellow
CDE-3121	.486	7 # 6 - 1/2"	25	65	39	Blue
CDE-3123	.525	25M	10	37	43	Green
CDE-3124	.546	7 # 5 - 9/16"	10	38	44	Yellow

Left-Hand Lay is standard.

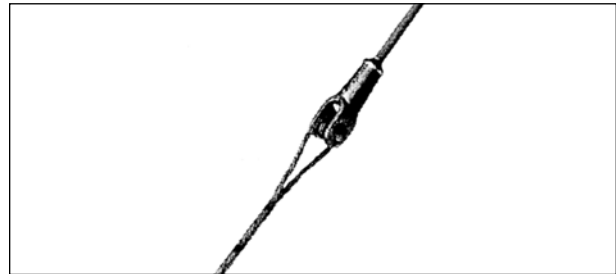
EXPLANATORY NOTES:

- (1) Big-Grip Dead-end is recommended as an alternative product for guying multiple pole structures or metal towers associated with transmission construction.
- (2) Refer to Hardware Considerations for acceptable fittings. Cabled Loop design furnished as standard, all sizes.
- (3) Refer to General Information for material selection.
- (4) Rated holding strength is 100% of the published rating of the strand.
- (5) Consult PLP for sizes and stranding not shown.
- (6) Copperweld is a registered trademark of the Copperweld Co.



GUY-GRIP® Dead-end: Stainless Steel

For use on:
Type 302 and Type 430 Strand



Type 302								
Catalog Number	Strand			Units	Wt./ Lbs.	Length (Inches)	Color Code	Percent of Strands Rated Breaking Strength
	Size (inches)	Construction	Mean Diameter (Inches)	Per Carton				
SDE-5101	7/32	3W 7W	.224 .216	100	30	22	Blue	100%
SDE-5102	1/4	3W 7W	.259 .249	50	25	26	Yellow	100%
SDE-5103	9/32	7W	.279	50	26	27	Black	90%
SDE-5104	5/16	3W 7W	.312 .312	50	41	31	Orange	93%
SDE-5105	3/8	3W 7W	.356 .360	50	66	37	Green	83%

For use on:
Type 316 Strand

Type 316								
Catalog Number	Strand			Units	Wt./ Lbs.	Length (Inches)	Color Code	Percent of Strands Rated Breaking Strength
	Size (inches)	Construction	Mean Diameter (Inches)	Per Carton				
SDE-6101	7/32	3W 7W	.224 .216	100	30	22	Blue	100%
SDE-6102	1/4	3W 7W	.259 .249	50	25	26	Yellow	100%
SDE-6103	9/32	7W	.279	50	26	27	Black	100%
SDE-6504*	5/16	3W 7W	.312 .312	50	41	31	Orange	100%
SDE-6105	3/8	3W 7W	.356 .360	50	66	37	Green	93%
SDE-6107	1/2	7W	.500	10	52	53	Blue	87%

*These dead-ends utilize the open helix design.

Left-Hand Lay is standard.

EXPLANATORY NOTES:

- (1) Big-Grip Dead-end is recommended as an alternative product for guying multiple pole structures or metal towers associated with transmission construction.
- (2) Refer to Hardware Considerations for acceptable fittings. Cabled Loop design furnished as standard, all sizes.
- (3) Refer to General Information for material selection.
- (4) Consult PLP for sizes and stranding not shown.

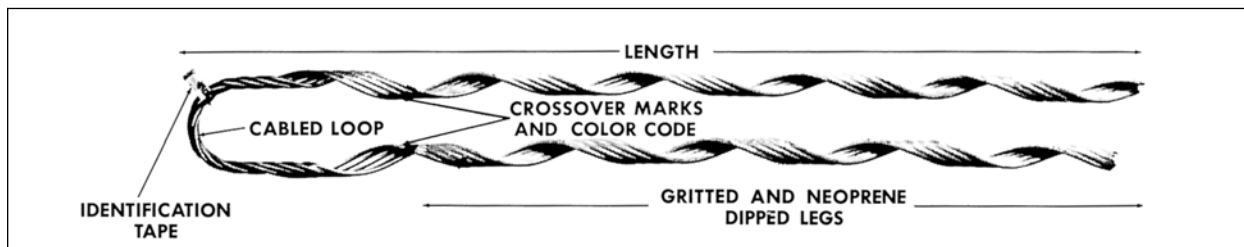
GUY-GRIP® Dead-end

Please visit our web site at www.preformed.com for additional literature.

GUY-GRIP® Dead-end Application Procedure - SP2045-1

Coated Dead-end

NOMENCLATURE



Crossover Marks: Indicate starting point for application.

Gritted and Neoprene Dipped Legs: Grit is permanently embedded in a coating of neoprene.

Color Code and Length: Assist in identification of conductor size, corresponding to tabular information appearing on catalog pages.

Identification Tape: Shows catalog number and range of outside diameters.

GENERAL RECOMMENDATIONS

Coated Dead-ends: are manufactured of aluminum alloy wire, and are designed for direct application over conductors jacketed with neoprene, polyethylene, vinyl, or rubber. The sub-setted rods in each leg, bonded together with neoprene, exert a low radial pressure without damaging the jacket. Because it is not necessary to skin the plastic covering, the same dead-end can be used for either aluminum-base or copper-base conductors.

Coated Dead-ends should not be used over fabric braided conductor. In this case, the fabric should be skinned and a *Distribution-Grip Dead-end* applied.

RATED HOLDING STRENGTH. Holding values of coated dead-ends are dependent on a combination of several factors:

- Conductor size, type, stranding
- Thickness of jacket
- Type of jacket
- Specific density of various polyethylenes

The multiplicity of combinations makes it impractical to publish a table of "Rated Holding Strengths." As a general guide, the following considerations may be adapted for a certain conductor and construction practice.

When tested under static tension (ram speed of two inches per minute), Coated Dead-ends will hold the full rated breaking strength of all-aluminum and copper conductors, jacketed with neoprene or medium density polyethylene. Static tension results on ACSR approximates the full strength of the aluminum strands plus 10% of the steel core strength.

When Coated Dead-ends are tested under sustained (24 hours) loading, generally lower holding strengths are recorded. This is attributed to the cold-flow characteristics and frictional coefficient of various plastics. The graphs

appearing on the back of each catalog page are based on long-term sustained load tests and may be considered representative of the cables described.

This data indicates the highest percentage of rated breaking strength (RBS) is held on medium density polyethylene and vinyl. High density (linear) polyethylene has the lowest percent of RBS.

In addition to the specific densities, the data indicates the percent of RBS will also be reduced by increased jacket thickness.

The test results, expressed in actual pounds of sustained load capacity, make it apparent that values between 500 and 1,000 lbs. should be sufficient to meet field requirements on industrial or commercial service drops and messengers aerial spacer cables. Values exceeding 1,000 lbs. are sufficient for primaries and secondaries in urban distribution.

TAPPING. Coated Dead-ends allow the plastic jacket to remain intact and the conductor continues through the crossover point of the grip. Connectors are applied to the continued tail, with minimum stripping and exposure to corrosion.

RADIO INTERFERENCE. R.I.V. readings and flashover tests indicate Coated Dead-ends, applied over plastic jacketed conductors, have the same satisfactory electrical performance as dead-ends applied over bare conductors. This statement does not apply to fabric covered conductor. Distribution Grip (Slack Span/Overhead) Dead-ends are not recommended for use with high temperature/low sag conductors such as ACSS, ACSS/AW, ACSS/TW ACCR or other types of conductors with loose, and/or annealed outer layer strands. Typically THERMOLIGN® Dead-ends are suggested for these applications. Consult PLP for further information.

Coated Dead-end

GENERAL RECOMMENDATIONS CONTD.

ACCEPTABLE FITTINGS					SIZE
CAST	SPOOL INSULATOR	DROP-FORGED	THIMBLES		CONDUCTOR OUTSIDE DIAMETERS
					
			DIAMETERS	GROOVE WIDTH	
	NEMA 53-1 NEMA 53-2 NEMA 53-3 Diameters 1 1/2" to 2 3/4"	3/4" Groove Width	Diameters 1 1/4" to 2 3/8"	Groove Width 5/16" Min.	Sizes up to .310" O.D.
			Diameters 1 1/4" to 2 3/8"	Groove Width 3/8" Min.	Sizes up to .374" O.D.
			Diameters 1 1/4" to 2 3/8"	Groove Width 7/16" Min.	Sizes up to .428" O.D.
			Diameters 1 1/4" to 2 3/8"	Groove Width 1/2" Min.	Sizes up to .507" O.D.
			Diameters 1 1/4" to 2 3/8"	Groove Width 5/8" Min.	Sizes up to .608" O.D.
3/4" Groove Width		Diameters 1 1/4" to 2 3/8"	Groove Width 3/4" Min.	Sizes up to .783" O.D.	
7/8" Groove Width		Diameters 1 1/2" to 2 3/8"	Groove Width 7/8" Min.	Sizes up to .888" O.D.	
1 1/2" Groove Width		Diameters 1 1/2" to 2 3/8"	Groove Width 1" Min.	Sizes up to 1.005" O.D.	
		Diameters 1 1/2" to 2 3/8"	Groove Width 1 1/8" Min.	Sizes up to 1.138" O.D.	
		Diameters 1 1/2" to 2 3/8"	Groove Width 1 1/2" Min.	Sizes up to 1.550" O.D.	

Loops are designed for use with a variety of thimble-clevises, insulators, and thimbles. The fittings appearing in this table have smoothly contoured diameters and adequate groove widths.

Consult Factory for spool insulators ANSI Class 53-4 and 53-5.

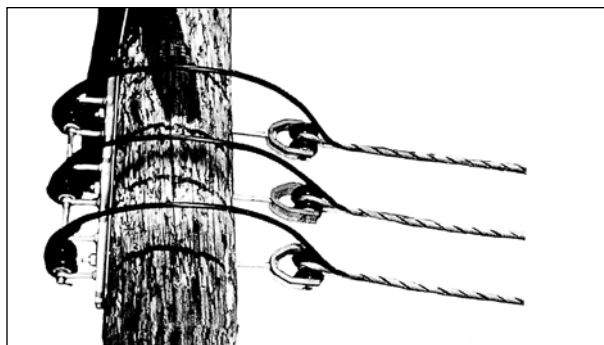
SAFETY CONSIDERATIONS

1. This product is intended for a single (one-time) use and for the specified application, although it may be reapplied twice for re-tensioning within 90 days of initial installation. **CAUTION: DO NOT MODIFY OR REUSE THIS PRODUCT AFTER 90 DAYS UNDER ANY CIRCUMSTANCES.**
2. This product is intended for use by trained craftspeople only. This product **SHOULD NOT BE USED** by anyone who is not familiar with and trained in the use of it.
3. When working in the area of energized lines with this product, **EXTRACARE** should be taken to prevent accidental electrical contact.
4. For **PROPER PERFORMANCE AND PERSONAL SAFETY** be sure to select the proper size PLP product before application.
5. PLP products are precision devices. To insure proper performance, they should be stored in cartons under cover and handled carefully.



Coated Dead-end

For use on:
Plastic Jacketed Conductors
Polyethylene, Neoprene
Vinyl, Rubber



Catalog Number	Diameter Range (inches)		Nominal Conductor Size AWG or MCM	Units	Wt.Lbs.	Length (inches)	Color Code
	Min.	Max.		Per Carton			
ND-0500	.243	.253	#6, 7W, 2/64s	100	13	16	Green
ND-0501	.254	.264	#6, Solid, 3/64s #6, 6/1, 2/64s	100	14	17	Red
ND-0502	.265	.272	#4, Solid, 2/64s	100	14	17	Blue
ND-0503	.273	.284	#6, 7W, 3/64s	100	14	18	Orange
ND-0100	.285	.297	#6, 6/1, 3/64s #4, 7W, 2/64s	100	15	19	Black
ND-0101	.298	.310	#4, Solid, 3/64s #6, 7W, 4/64s	100	17	19	Yellow
ND-0102	.311	.323	#4, 7W, 2/64s Al. Alloy #4, 6/1, 2/64s	100	18	20	Blue
ND-0103	.324	.338	#6, 7W, 4/64s, Al. Alloy #4, 7W, 3/64s	100	18	20	Orange
ND-0104	.339	.354	#4, 7W, 3/64s, Al. Alloy #4, 6/1, 3/64s	100	20	21	Black
ND-0105	.355	.374	#4, 7W, 4/64s	100	20	22	Yellow
ND-0106	.375	.397	#4, 7W, 4/64s #4, 7W, 5/64s	100	25	23	Red
ND-0107	.398	.420	#2, 6/1, 3/64s #2, 7/1, 3/64s	100	26	24	Green
ND-0108	.421	.445	#2, 7W, 4/64s, Al. Alloy #1, 7W, 3/64s	50	20	27	Black
ND-0109	.446	.475	#1, 7W, 4/64s #4, 7W, 8/64s	50	22	28	Orange

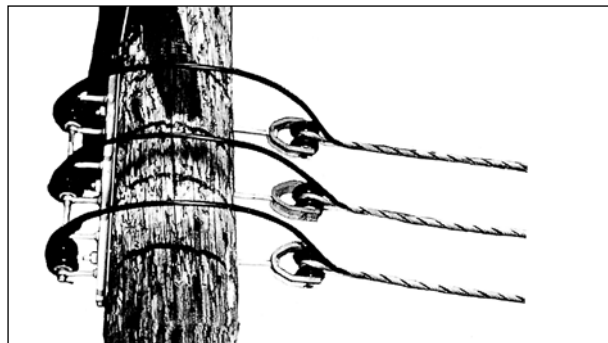
Conductor may be right-hand lay or left-hand lay.

EXPLANATORY NOTES:

(1) Nominal conductor size indicates one of various combinations of conductor sizes and jacket thickness within each range.

Coated Dead-end

For use on:
Plastic Jacketed Conductors
Polyethylene, Neoprene
Vinyl, Rubber



Catalog Number	Size	Jacketing	Outside Diameter (inches)	Sustained Load Test Results (lbs.)	Percent of Breaking Strength
ND-0500	#6, 7W, 2/64s	Poly.*	.246	450	89%
ND-0100	#4, 7W, 2/64s	Poly.*	.294	750	95%
ND-0102	#4, 6/1, 2/64s	Poly.*	.313	800	46%
	#4, 7/1, 2/64s	Poly. (.929)	.320	850	39%
ND-0103	#4, 7W, 3/64s	Neoprene	.326	800	108%
ND-0104	#4, 6/1, 3/64s	Neoprene	.344	750	43%
ND-0106	#2, 7W, 3/64s	Neoprene	.386	600	52%
	#2, 7W, 3/64s	Poly.*	.386	750	62%
ND-0107	#2, 6/1, 3/64s	Poly.*	.410	900	34%
	#2, 6/1, 3/64s	Neoprene	.410	900	34%
	#2, 7/1, 3/64s	Poly.*	.419	1,200	35%
	#2, 7/1, 3/64s	Neoprene	.419	1,000	30%
	#2, 7/1, 3/64s	Neoprene	.419	1,000	30%

* Low density or medium density polyethylene per ASTM D-1243-58T.

This table is based on actual results of long term sustained load tests and may be considered representative of the cables described. Refer earlier in this section for an explanation of the multiple factors affecting holding strength of Coated Dead-ends.



Coated Dead-end

For use on:
Plastic Jacketed Conductors
Polyethylene, Neoprene
Vinyl, Rubber

Catalog Number	Diameter Range (inches)		Nominal Conductor Size	Units	Wt. Lbs.	Length (inches)	Color Code
	Min.	Max.					
ND-0110	.476	.507	#1, 19W, 5/64s 1/0, 7W, 4/64s	50	30	30	Blue
ND-0111	.508	.536	1/0, 19W, 6/64s 1/0, 19W, 5/64s	50	29	30	Red
ND-0112	.537	.571	2/0, 7W, 4/64s 2/0, 19W, 6/64s, Comp.	50	34	31	Black
ND-0113	.572	.608	3/0, 19W, 4/64s 2/0, 19W, 5/64s	50	36	33	Yellow
ND-0114	.609	.648	1/0, 7W, 8/64s 4/0, 7W, 4/64s	25	24	33	Red
ND-0115	.649	.690	1/0, 7W, 10/64s 4/0, 19W, 4/64s	25	26	34	Green
ND-0116	.691	.735	250, 19W, 4/64s 266.8, 18/1, 4/64s	25	30	35	Black
ND-0117	.736	.783	3/0, 7W, 10/64s	25	32	36	Orange
ND-0118	.784	.834	300, 19W, 5/64s 336.4, 19W, 5/64s	25	34	38	Blue
ND-0119	.835	.888	350, 19W, 5/64s 300, 19W, 10/64s Comp.	25	40	40	Black
ND-0120	.889	.945	250, 19W, 10/64s 300, 19W, 10/64s	25	44	42	Yellow
ND-0121	.946	1.005	450, 37W, 6/64s 500, 37W, 6/64s	25	52	44	Green
ND-0122	1.006	1.070	450, 37W, 8/64s 336.4, 19W, 12/64s	10	24	45	Red
ND-0123	1.071	1.138	350, 19W, 12/64s 500, 37W, 10/64s	10	24	47	Blue
ND-0124	1.139	1.212	636, 37W, 10/64s Comp. 500, 37W, 12/64s	10	30	48	Orange
ND-0125	1.213	1.288	795, 61W, 6/64s 795, 37W, 10/64s Comp.	10	30	49	Black
ND-0126	1.289	1.372	1033.5, 61W, 6/64s	10	32	51	Yellow
ND-0127	1.373	1.458	715, 37W, 14/64s	10	38	53	Green
ND-0128	1.459	1.550	795, 37W, 14/64s	10	40	56	Red

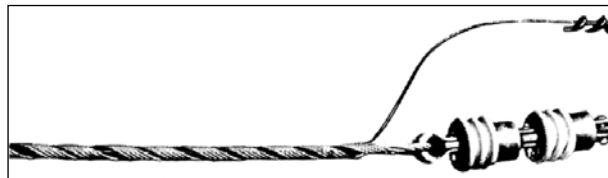
Right-hand or Left-hand lay is standard.

EXPLANATORY NOTES:

- (1) Nominal conductor size indicates one of various combinations of conductor sizes and jacket thickness within each range.
- (2) Cabled loop design furnished for all sizes on this page. See reference chart in this section for acceptable fittings.

Coated Dead-end

For use on:
Plastic Jacketed Conductors
Polyethylene, Neoprene
Vinyl, Rubber



Size	Jacketing (Specific Gravity)	Outside Diameter (inches)	Sustained Load Test Results (Lbs.)	Percent of Breaking Strength
2/0, 7W, 4/64s	Poly. (.928)	.539	1,800	104%
1/0, 7W, 4/64s	Poly. (.931)	.493	2,200	101%
1/0, 7W, 4/64s	Neoprene	.493	1,650	98%
2/0, 7W, 4/64s	Neoprene	.539	2,100	99%
366.4, 19W, 4/64s	Poly. (.933)	.791	4,500	79%
400, 19W, 6/64s	Neoprene	.913	5,000	80%
250, 19W, 5/64s	Neoprene	.732	3,200	79%
397.5, 19W, 6/64s	Poly. (.928)	.912	4,700	72%
3/0, 7W, 8/64s	Poly. (.927)	.706	1,900	70%
336.4, 19W, 5/64s	Neoprene	.824	3,600	67%
500, 37W, 6/64s	Poly. (.926)	1.001	5,600	65%
336.4, 19W, 4/64s	Poly. (.920)	.791	3,600	63%
1/0, 7W, 4/64s	Poly. (.918)	.493	1,100	62%
#4, 6/1, 8/64s	Poly. (.929)	.502	950	54%
4/0, 7W, 10/64s	Poly. (.920)	.830	3,000	49%
4/0, 7W, .078	Vinyl	.695	1,600	47%
336.4, 19W, .150" Compacted	Poly. (.943)	.910	2,600	46%
266.8, 19W, 10/64s	Poly. (.966)	.885	1,800	40%
4/0, 6/1, 4/64s	Neoprene	.688	2,900	36%
1/0, 7W, 10/64s	Poly. (.982)	.678	600	33%
1/0, 7W, 10/64s	Poly. (.949)	.692	500	28%

This table is based on actual results of long term sustained load tests and may be considered representative of the cables described.

Refer to reference charts in this section for additional information on Holding Strengths.

Specific gravity of various polyethylenes:
ASTM Designation D-1248-58T

Low Density (g/cu. cm.) 0.910-0.925
Medium Density (g/cu. cm.) 0.926-0.940
High Density (g/cu. cm.) 0.941-0.965



Coated Dead-end

Please visit our web site at www.preformed.com for additional literature.

Coated Dead-end Application Procedure - SP2014-1



PREFORMED LINE PRODUCTS

Section 2 - Accessories

Table of Contents

Page

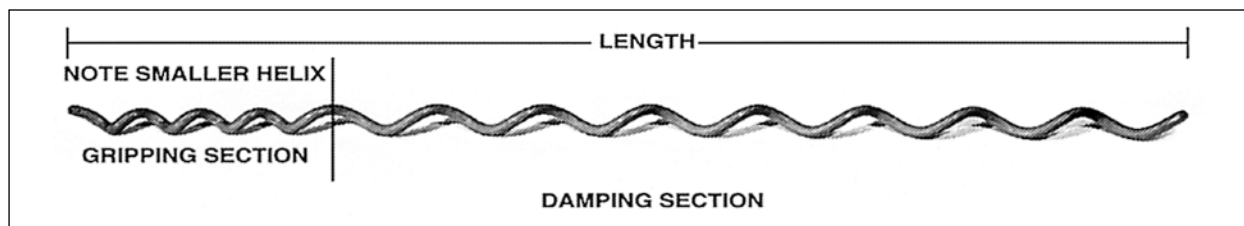
Damper Products

Spiral Vibration Damper	2-2
Spiral Vibration Damper (Standard)	2-3
Spiral Vibration Damper (Hi Mass)	2-4
Air Flow Spoiler	2-5
BIRD-FLIGHT™ Diverter	2-7
SWAN-FLIGHT™ Diverter	2-10
Guy Markers	2-12
Pedestal Markers	2-15
Safety Guy Wire Dispenser	2-16



Spiral Vibration Damper

Spiral Vibration Damper



NOMENCLATURE

LENGTH: Assists in identifying conductor size, corresponding to tabular information appearing on following page.

DAMPING SECTION: Helically scaled for interplay of damper and conductor, to provide the action/reaction motion that opposes the natural vibration wave.

GRIPPING SECTION: Has a smaller helix designed to the grip conductor.

Thermal Rating (Continuous)
125°C

GENERAL RECOMMENDATIONS

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. Because of this, damping devices should be considered only as supplemental to *WRAPLOCK Tie, Armor Rod, Side Tie, Spool Tie*, or other hardware at tangent supports. Dampers are also used as supplemental protection at dead-ends.

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.

Spiral Vibration Dampers are also effective on certain size overhead shield wires and OPGW. Consult PLP® for specifics.

For damper applications on ADSS cable, refer to the FIBERLIGN® Fiber Optic Products section under motion control.

Consult your PLP Sales Representative for placement and installation guidelines.

MATERIAL. The solid polyvinyl chloride helical rod material is noncorrosive and has a surface hardness which does not abrade the conductor.

APPLICATION-INSPECTION. The Gripping Section should be installed approximately one hand's width from the ends of *Armor Rod* or other hardware. It is not necessary to make engineering calculations as to placement.

Usage Recommendations for Spiral Vibration Dampers on Bare Conductor, Shield Wire and OPGW.

Number of SVDs Per Span

Span Length	0.800'	801'-1600'	1601'-2400'
Standard	2	4	6
Hi Mass	1	2	3

Note: Water/Canyon Crossings - due to the increased potential of laminar wind flow, an additional 50% more dampers per span should be added to the standard recommendations above for adequate protection.

In areas that are prone to high levels of vibration or conductor tension is in excess of 18% RBS, consult PLP for specific recommendations.

SAFETY CONSIDERATIONS

1. This product may be reused if in good condition.
2. This product is intended for use by trained craftspeople only. This product **SHOULD NOT BE USED** by anyone who is not familiar with and trained in the use of it.
3. When working in the area of energized lines with this product, **EXTRA CARE** should be taken to prevent accidental electrical contact.
4. For **PROPER PERFORMANCE AND PERSONAL SAFETY** be sure to select the proper size PLP Spiral Vibration Damper before application.
5. PLP Spiral Vibration Dampers are precision devices. To insure proper performance, they should be stored in cartons under cover and handled carefully.

Spiral Vibration Damper (Standard)

Spiral Vibration Damper



For use on:
Bare Conductors, Shield Wires and OPGW

Catalog Number	Diameter Range (inches)		Units	Wt./Lbs.	Length (inches)
	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

EXPLANATORY NOTES:

(1) Nominal Conductor size indicates one of various conductors within each range.



Spiral Vibration Damper (Hi Mass)

For use on:

Bare Conductors, Shield Wires and OPGW

CONSTRUCTION

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.

BENEFITS

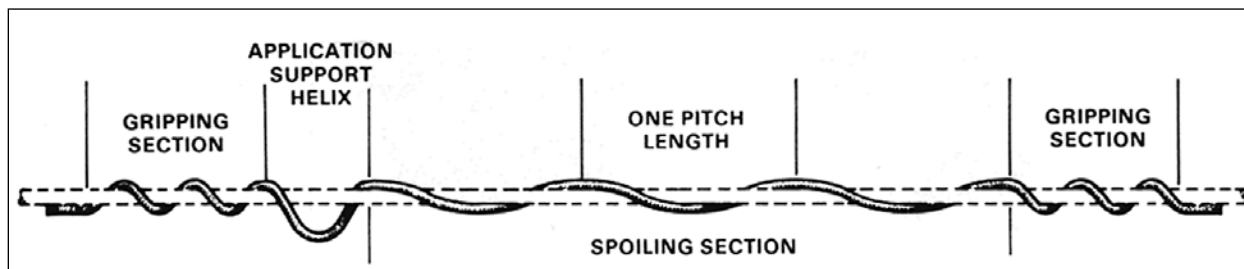
- Fewer points of installation.
- Fewer components on the line.

Catalog Number	Diameter Range (inches)		Units	Wt./Lbs.	Length (inches)
	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

EXPLANATORY NOTES:

- (1) Nominal Conductor size indicates one of various conductors within each range.

Air Flow Spoiler



Thermal Rating (Continuous) 125°C

NOMENCLATURE

Gripping Section: Grips cable. Consists of several pitches (360° wraps around the cable) and holds the Air Flow Spoiler firmly in position.

Spoiling Section: Disrupts aerodynamic lift. The spoiling section is wrapped around the cable in a manner which presents a constantly changing profile to wind flow and cancels lift forces which cause galloping. The spoiling section is wrapped around the cable either two or three times, depending on cable diameter.

Application Support Helix: Supports Spoiler. Air Flow Spoilers range in length from 14 to 16 feet. The Application Support Helix on one end keeps the Air Flow Spoiler from hanging down, while the gripping section on the opposite end is applied.

Air Flow Spoilers for EHV applications have a co-extended semi-conductive outer layer of material which resists the surface effects of high electrical gradients and minimizes the possible generation of radio interference (RI).

GENERAL RECOMMENDATIONS

Several Air Flow Spoilers are required in each span to offset the aerodynamic lift forces which cause galloping. Each cable, conductor or phase, and neutral need to be treated in each span.

The number and placement of Air Flow Spoilers in each span can be determined by using the General Placement guidelines that are on the next page or by submitting the Air Flow Spoiler Placement Request form. The information submitted on this form is inputted into a computer program for the determination of the exact placement of the Air Flow Spoilers in each span. The program also supplies the increased wind loading on each span as a percentage increase.

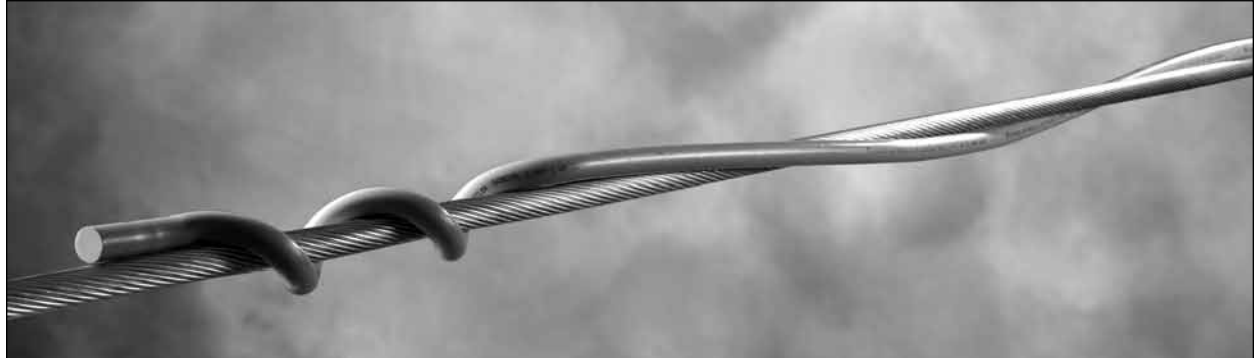
When using the Air Flow Spoiler Placement Request form, the information should be completed and returned to PLP prior to installation of Air Flow Spoilers. The placement scheme will be returned giving the placement of Air Flow Spoilers in each span.

Please advise whether the cables contain optical fibers or if the Air Flow Spoilers are to be installed on Figure 8/Lashed Messenger cables. This may influence the Air Flow Spoiler selection and/or quantity.

GENERAL PLACEMENT GUIDELINES

Extensive laboratory and field research has shown that Air Flow Spoilers are most effective when they are placed on 25% of the span length (based on the 12' spoiling section). For example, a 600' span would require 13 Air Flow Spoilers ($.25 \times 600 / 12$). The Air Flow Spoilers are grouped in the middle 50% of the span by leaving a blank space equal to an Air Flow Spoiler length between adjacent units.

Air Flow Spoiler



Catalog Number	Diameter Range (Inches)		Length (Ft.)	Wt./Unit Lbs.	Color Code
	Min.	Max.			
5058100	0.250	0.326	13-1/2	1.00	Red
5058101	0.327	0.461	13-1/2	1.00	White
5058102	0.462	0.563	14	2.25	Orange
5058103	0.564	0.76	14-1/2	2.40	Yellow
5058104	0.761	0.926	15	4.25	Blue
5058105	0.927	1.019	15-1/4	4.50	Black
5058106	1.020	1.165	15-3/4	5.50	Purple
5058107	1.166	1.469	16	5.75	Brown
5058108	1.470	1.602	17	9.50	Green
5058109	1.603	1.762	17-1/2	9.75	Pink

EXPLANATORY NOTES:

- (1) For installation on Figure 8 and Lashed Messenger cables, consult PLP.
- (2) Obtain the Air Flow Spoiler Placement Request form from your local PLP representative or directly from PLP.

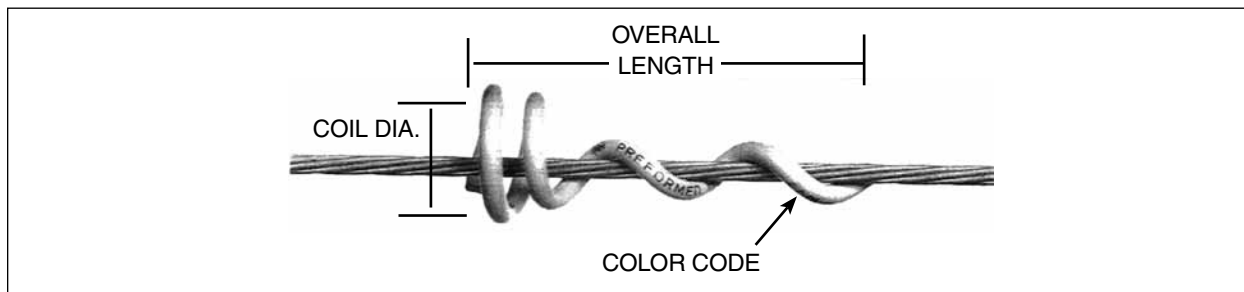
Please visit our web site at www.preformed.com for additional literature.

Spiral Vibration Damper Application Procedure - SP2130-2

Air Flow Spoiler Application Procedure - SP2697-1

BIRD-FLIGHT™ Diverter

NOMENCLATURE



Length: Distance product covers the conductor.

Color Code: Identifies conductor range, corresponding to tabular information on the following page.

Color: Yellow or Gray

Material: Outdoor grade PVC

Coil Diameter: Internal diameter of diverter coil

GENERAL RECOMMENDATIONS

The BIRD-FLIGHT Diverter 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. For low and medium voltage construction, the BIRD-FLIGHT Diverter is applied to the phase conductors (bare or jacketed). For high voltages, it is used on the shield wire.

The BIRD-FLIGHT Diverter is lightweight, offers little wind resistance and is easily and quickly applied by hand or by hot stick. The positive grip on the conductor ensures that the BIRD-FLIGHT Diverter remains in the applied position and cannot move along the span under aeolian vibration or other conditions.

Visibility: The diverter section increases the visible profile of the cable or conductor to a degree necessary to ensure safety, but avoids an undesirably bulky outline.

Material: Manufactured from rigid .375" and .500" high impact polyvinyl chloride (PVC) possessing excellent chemical resistance and tensile strength properties, the BIRD-FLIGHT Diverter is designed to retain good physical characteristics within a range of extreme temperatures. Aging tests confirm the material does not deteriorate in function or appearance from the effects of severe weather conditions. Industrial fumes and salt water cannot seriously degrade the properties of rigid PVC.

APPLICATIONS

Ensure the correct size BIRD-FLIGHT Diverter is used. For a detailed installation description, refer to the application instructions. Hot stick application is fast and simple with standard equipment.

Spacing: For optimum results, spacing distances are recommended at 15' intervals. Since wind resistance is very limited, sufficient 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 application.



BIRD-FLIGHT™ Diverter



Catalog Number	Material Color	Conductor Range (Inches)		Overall Length (Inches)	Diameter of Diverter Coil (Inches)	Diameter of PVC Rod (Inches)	Color Code
		Min	Max				
BFD-MS-3331	Yellow	0.175	0.249	7.00	2.25	0.375	Black
BFD-MS-3346	Gray						
BFD-MS-3155	Yellow	0.250	0.349	8.50	2.50	0.375	Blue
BFD-MS-2921	Gray						
BFD-MS-3164	Yellow	0.350	0.449	9.50	2.75	0.375	Brown
BFD-MS-3355	Gray						
BFD-MS-10022	Black						
BFD-MS-11135	Yellow			12.375	4.40	0.500	
BFD-MS-11060	Gray						
BFD-MS-11134	Black						
BFD-MS-3341	Yellow	0.450	0.599	11.00	3.00	0.375	Green
BFD-MS-3366	Gray						
BFD-MS-10023	Black						
BFD-MS-3344	Yellow	0.600	0.770	13.00	3.75	0.500	Purple
BFD-MS-3371	Gray						
BFD-MS-3345	Yellow	0.771	0.858	15.00	4.25	0.500	Red
BFD-MS-3376	Gray						
BFD-MS-3405	Yellow	0.859	0.942	16.50	4.75	0.500	Orange
BFD-MS-11699	Gray						
BFD-MS-11111	Yellow	0.971	1.121	15.50	4.25	0.438	Pink
BFD-MS-12290	Gray						
BFD-MS-10277	Black						
BFD-MS-11430	Yellow	1.122	1.306	16.25	4.38	0.438	Gray
BFD-MS-11110	Yellow	1.307	1.530	17.00	4.70	0.438	Black
BFD-MS-11566	Yellow	1.787	2.100	23.00	5.25	0.438	Purple
BFD-MS-12603	Yellow	2.101	2.500	26.00	5.25	0.438	Orange
BFD-MS-11543	Aluminum	0.800	0.850	26.00	4.00	0.250	Pink
BFD-MS-12679	Aluminum	1.100	1.150	37.00	4.00	0.250	Purple
BFD-MS-12645	Aluminum	1.300	1.350	43.00	4.00	0.250	Red
BFD-MS-12687	Aluminum	1.565	1.635	54.00	4.00	0.250	Black

Explanatory Notes:

BIRD-FLIGHT™ Diverter

Please visit our web site at www.preformed.com for additional literature.

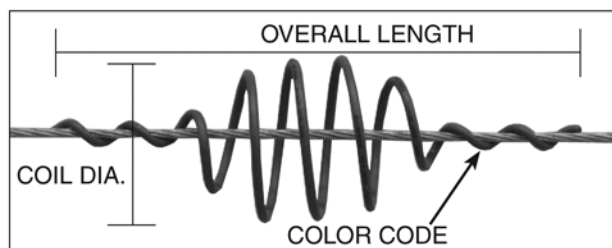
Bird Flight Diverter Application Procedure - SP2805-3



SWAN-FLIGHT™ Diverter

NOMENCLATURE

PLASTIC SWAN-FLIGHT DIVERTER



GENERAL RECOMMENDATIONS

The PLP SWAN-FLIGHT Diverter is designed for use on conductor/strand to create greater visibility for avian flight paths on overhead lines and tower down guys. Offering little wind resistance, it reduces hazards to both lines and birds. For construction up to 230kV, the SWAN-FLIGHT Diverter can be applied to phase conductors (bare or jacketed). For EHV voltages, it is typically installed on the shield wire.

The SWAN-FLIGHT Diverter is lightweight, offers little wind resistance and is easily and quickly applied by hand or hot stick. The positive grip on the conductor ensures that the SWAN-FLIGHT Diverter remains in the applied location and cannot move along the span under Aeolian vibration or other conditions.

Visibility: The diverter section increases the visible profile of the cable or conductor to a degree necessary to ensure safety, but avoids an undesirably bulky outline.

Material: The SWAN-FLIGHT Diverter is manufactured from rigid .375" and .500" high impact polyvinyl chloride (PVC) possessing excellent chemical resistance and tensile strength properties, the BIRD-FLIGHT Diverter is designed to retain good physical characteristics within a range of extreme temperatures. Aging tests confirm the material does not deteriorate in function or appearance from the effects

Length: Distance product covers the conductor.

Color Code: Identifies conductor range, corresponding to tabular information on the following page.

Color: Yellow or Gray

Material: Outdoor grade High Impact PVC

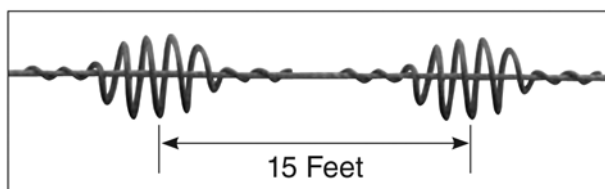
Coil Diameter: Outside diameter of diverter coil

of severe weather conditions. Industrial fumes and salt water cannot seriously degrade the properties of rigid PVC.

APPLICATIONS

Ensure the correct size of BIRD-FLIGHT Diverter is used. For detailed installation description, refer to the application procedure. Hot stick application is fast and simple with standard equipment.

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



Catalog Number	Conductor Range (inches)		Overall Length (inches)	Diameter of Diverter Coil (inches)	Diameter of PVC Rod (inches)	Color Code
	Min.	Max.				
SFD-0445	0.175	0.249	20	7.0	0.375	Black
SFD-0635	0.250	0.349	23	7.0	0.375	Blue
SFD-0890	0.350	0.449	25	7.5	0.375	Brown
SFD-1140	0.450	0.599	35	8.0	0.375	Green
SFD-1520	0.600	0.770	38	8.0	0.500	Purple
SFD-1960	0.771	0.858	38	8.0	0.500	Red
SFD-2220	0.859	0.942	40	8.0	0.500	Orange
SFD-2460	0.943	1.121	40	8.0	0.500	Pink
SFD-2700	1.122	1.306	40	8.0	0.500	Gray
SFD-3035	1.307	1.530	46	8.0	0.500	Black

Note: Add suffix – Y to the catalog number for yellow color (i.e.: SFD-1140-Y).

SWAN-FLIGHT™ Diverter

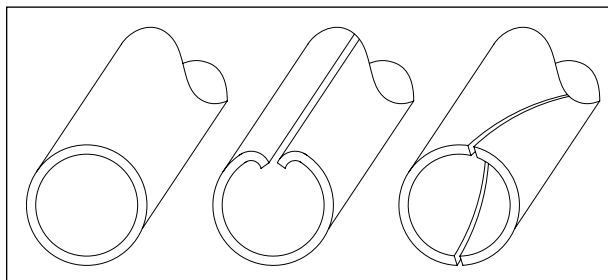
Please visit our web site at www.preformed.com for additional literature.

SWAN-FLIGHT Diverter Application Procedure - SP3081



Guy Markers

PLP® 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.



Profile Options

PLP Guy Markers are available in three basic profiles:

- 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 – 1-1/2" OD, helically slit to create two halves

Material

Guy Markers are available in PVC and Polyethylene materials as shown in tables. All materials employ UV inhibitors to enhance life span performance.

Color

Guy Markers are available in yellow, gray, and orange. For other available colors and combinations of colors, consult PLP for availability.

Reflective tape is available as an option. If desired configuration is not shown in catalog tables, contact PLP for availability.

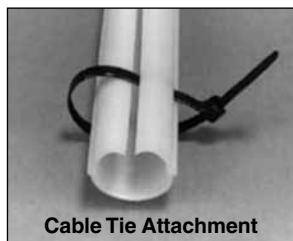
Attachment Devices

PLP Guy Markers utilize five basic attachment devices. These are:

- Cable Tie
- LOOP-LOCK® Pin
- Integral Helical Pigtail
(used in conjunction with Short Lock Strap)
- Mounted Cable Tie
- Plastic Clamp
(see next page)

Cable Tie:

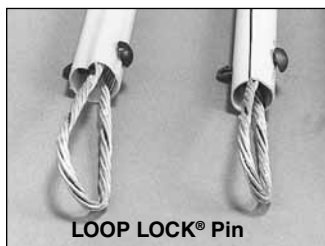
Supplied as an alternate to the LOOP-LOCK Pin. Helps deter vandalism.



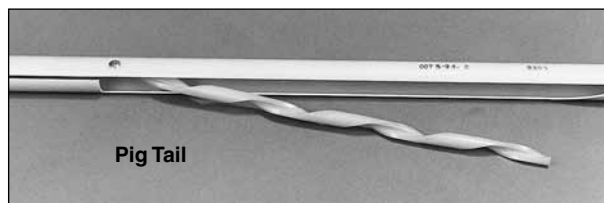
Cable Tie Attachment

LOOP-LOCK® Pin:

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.



LOOP LOCK® Pin



Pig Tail

Integral Pigtail:

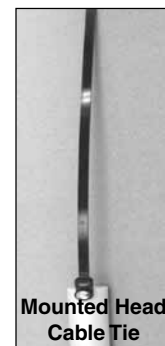
Attached to the inside of the marker tube and wraps on to secure it to the strand. Generally fits a strand range of 3/16" – 1/2" diameters and provides a unique one-way slip down motion for ease of installation. The installed pigtail resists upward movement. The pigtail is made from specially formulated plastic designed to provide high strength, tear resistance, and no corrosion.

Lock Strap and Mounted Cable Tie:

The short lock strap is primarily used with the pigtail device and helps deter vandalism. The long lock strap is used on dead-end devices that restrict the use of the LOOP-LOCK® Pin.



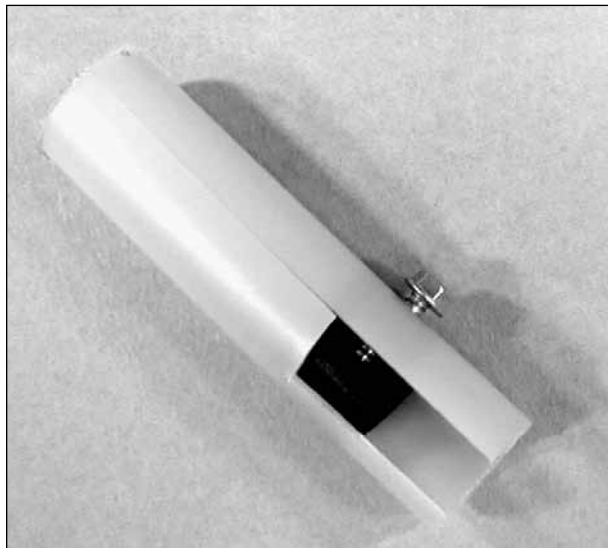
Short Lock Strap



Mounted Head Cable Tie

Guy Markers

Attachment Devices Continued



Note: Photo shows marker cut away to show clamp

Plastic Clamp:

An addition to PLP's traditional attachment devices, the innovative plastic clamp is completely internal to the marker tube. The clamp is held in place and tightened by the same bolt which is roughly 32" from the top of the Guy Marker. The clamp provides a positive locking attachment to the strand without strand damage, making it difficult for vandals to remove.

Currently supplied on the PG-5800 and PG-5810.

For alternate attachment devices on any profile, availability of different tube sizes, or tube lengths other than eight (8) feet, contact PLP.



Two Piece Spiral Round Markers:

Designed to provide increased visibility for many guying or cable applications. 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	Units Per Carton	Wt./Lbs.
	Ft.	Meters			Inches	mm			
PG-5750	8	2.4	Orange/Yellow	Poly	1-1/4	32	2-CT	25	30
PG-5752	8	2.4	Orange	Poly	1-1/4	32	2-CT	25	30



Guy Markers

Standard Guy Markers



Attachment Devices

PT	Helical Pigtail
SLS	Short Lock Strap - used in conjunction with the Helical Pigtail
MCT	Mounted Cable Tie
LLP	LOOP-LOCK™ Pin
CT	Cable Tie
CMP	Plastic Clamp

Catalog Number	Length (m)	Color	Material	Tube Profile	Tube OD (mm)	Attachment Type	Units	Wt./Lbs.
							Per Carton	
PG-5414	8' (2.4)	Yellow	Poly	Round	1-1/4" (32)	LLP	25	32
PG-5411	8' (2.4)	Gray	Poly	Round	1-1/4" (32)	LLP	25	32
PG-MS-4988	8' (2.4)	Yellow	Poly	Round	1-1/4" (32)	None	25	32
PG-MS-3830	8' (2.4)	Orange	Poly	Round	1-1/4" (32)	None	25	32
PG-MS-9838	8' (2.4)	Yellow	Poly	Round	1-1/4" (32)	MCT	25	32
PG-5800	8' (2.4)	Yellow	Poly	Round	1-1/2" (38)	CMP	25	34
PG-5810	8' (2.4)	Orange	Poly	Round	1-1/2" (38)	CMP	25	34
PG-5718	8' (2.4)	Yellow	Poly	Round	1-1/2" (38)	PT/SLS	25	39
PG-5718-P	8' (2.4)	Yellow	Poly	"B"	1-1/2" (38)	PT/CT	25	35
PG-5518	8' (2.4)	Yellow	PVC	Round	1-1/2" (38)	PT/SLS	25	33
PG-MS-3921	8' (2.4)	Yellow	Poly	Round	1-1/2" (38)	MCT	25	33
PG-MS-4072	8' (2.4)	Yellow	Poly	"B"	1-1/2" (38)	MCT	25	35
PG-5405	8' (2.4)	Yellow	Poly	Round	1-1/2" (38)	LLP	25	36
PG-5423	8' (2.4)	Yellow	Poly	"B"	1-1/2" (38)	LLP	25	36
PG-5462	8' (2.4)	Yellow	Poly	"B"	1-1/2" (38)	2 LLP	25	33
RPG-5618	8' (2.4)	Yellow/Reflective Tape	PVC	Round	1-1/2" (38)	PT/SLS	25	33
RPG-MS-12030	8' (2.4)	Yellow/Reflective Tape	Poly	"B"	1-1/2" (38)	MCT	25	36
RPG-MS-10469	8' (2.4)	Yellow/Reflective Tape	Poly	"B"	1-1/2" (38)	LLP	25	36
PG-5738	8' (2.4)	Orange	Poly	Round	1-1/2" (38)	PT/SLS	25	34
PG-5708	8' (2.4)	Gray	Poly	Round	1-1/2" (38)	PT/SLS	25	34
PG-5708-P	8' (2.4)	Gray	Poly	"B"	1-1/2" (38)	PT/CT	25	36
PG-MS-7578	8' (2.4)	Yellow	Poly	Round	2" (51)	PT/SLS	25	49

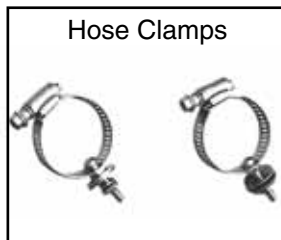
Note: For different lengths, attachments, and/or the addition of reflective tape, contact your PLP representative or PLP.

Pedestal Markers

Pedestal Markers

Pedestal Markers are designed to identify and protect pedestals in deep snow by alerting highway snow removal crews of pedestal position.

Made from high impact polyethylene, Pedestal Markers are available in various lengths and in a highly visible yellow color. Each Pedestal Marker comes with two hose clamps and can be applied to the pedestal quickly, easily, and with standard tools.



Catalog Number	Length	Color	Per Carton	
			Units	Wt./Lbs.
PM-6114	4' (1.22)	Yellow	20	13
PM-6115	5' (1.52)	Yellow	20	16
PM-6116	6' (1.83)	Yellow	20	19
PM-6117	7' (2.13)	Yellow	20	22
PM-6118	8' (2.44)	Yellow	20	25

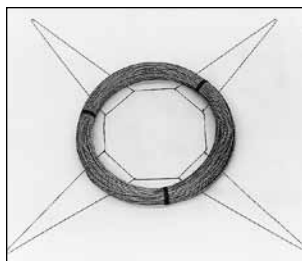


Please visit our web site at www.preformed.com for additional literature.

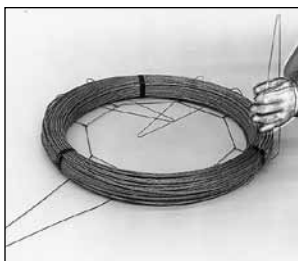
Guy Marker Application Procedure - SP2948-1



Safety Guy Wire Dispenser



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.

Safety Guy Wire Dispenser

NO MORE RUNAWAYS. The Safety Guy Wire Dispenser is designed to provide safe, easy, completely controlled handling and paying-out of strand coils up to 500 ft. in length, including EHS strand. It also can be used with wire, wire rope, cable, conductor, etc. The dispenser eliminates weight lifting, handling struggle, and the hazards of "runaway" coil ends. Small and light in weight (a carton of 50 weighs only 22 pounds), the Safety Guy Wire Dispenser occupies minimal truck space. No banding or taping of coils is

necessary. Saves personnel cost (only one person to pay out a loaded coil) and reduces inventory (just one universal size).

The Safety Guy Wire Dispenser accommodates any size coil, provided at least two inches of the end of each leg can be twisted. Designed to withstand the free-fall impact of a 200 pound coil from 15 ft.

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

EXPLANATORY 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.

Safety Guy Wire Dispenser

Please visit our web site at www.preformed.com for additional literature.

Safety Guy Wire Dispenser Application Procedure - SP2086-1



World Headquarters
660 Beta Drive
Cleveland, Ohio 44143

Mailing Address:
P.O. Box 91129
Cleveland, Ohio 44101

Telephone: 440.461.5200
Fax: 440.442.8816
Web Site: www.preformed.com
E-mail: inquiries@preformed.com

© 2010 Preformed Line Products
Printed in U.S.A.
NU-CA-1002-1
11.10.00