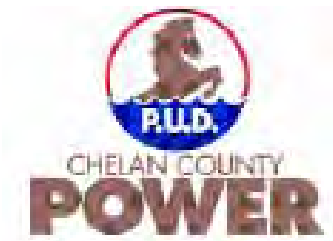


# Chelan County PUD



## Transmission & Distribution Material Stock Catalog





## New Material Evaluation Procedures

Originator: DSmith      Date: 5/10/2007

Approval: R Phillips      Date: 4/25/2012

Page 1 of 4

Revision: Updated contact info

STD Committee: 4/25/2012

### 1. New Material Evaluation

1.1. Recognizing that new materials may provide improvement in design, construction, and maintenance for more cost effective construction, the District will evaluate such materials so that their use can be properly implemented and determined if they meet District Standards.

### 2. Scope

2.1. The Material Evaluation procedures outlined herein are applicable to all new materials submitted for consideration to the District for use in T&D construction and maintenance projects.

2.2. New materials are those, which have never been used or have been used on a limited basis without sufficient documentation or performance evaluation, except those specified on special contract documents.

### 3. Standards Committee

3.1. The Standards Engineer is responsible for administering this policy through the T&D Standards Committee. The Standards Committee is comprised of representative of the following areas.

- Engineering Standards
- Customer Service Engineering
- T&D Warehousing
- Purchasing District
- Electric Shop
- T&D Operations Supervisors
- T&D Journeyman Linemen
- Transmission, Substation or Distribution Engineers

### 4. Procedure

4.1. The Standards Department has been charged with the responsibility of coordinating the evaluations of new materials. The request for evaluation may be made by contractors, manufacturers, suppliers, consultants or District personnel, hereinafter referred to as the vendor.

4.2. The vendor is required to supply requisite information demonstrating the properties and performance of the material. At a minimum, the submission shall include the following:



## New Material Evaluation Procedures

Originator: DSmith      Date: 5/10/2007

Approval: R Phillips      Date: 4/25/2012

Page 2 of 4

Revision: Updated contact info

STD Committee: 4/25/2012

4.2.1. One copy of the completed form "T & D Material Evaluation" located on the last page of this document.

4.2.2. Pertinent technical data and test results which support use of the material and a statement identifying the uses and the cost benefit versus alternate materials.

4.2.3. If there are safety considerations or other restrictions or limitations on the use of the material, they should be stated and supplied also.

4.2.4. Additionally, if the material is a material developed through engineering design, the engineering calculations should be submitted.

4.2.5. Any additional information, material brochures, testing reports, etc., that you feel is pertinent to the evaluation of your material/procedure

4.2.6. Please do not submit any samples at this time. Should field or laboratory testing be needed you will be contacted and the samples requested.

### 4.3. Initial Evaluation

4.3.1. The submission will be reviewed by the T & D Standards Engineer. Materials not considered acceptable for further evaluation will be rejected at this point without further evaluation and the vendor so notified. Materials with questionable benefit or limited application by the District will be put on hold and the vendor so notified. Some materials require field-testing to fully understand their benefits. Should this be the case, the material/procedure will be moved to a "Long Range Evaluation Process" and its progress monitored.

4.3.2. All chemical products must be accompanied by a MSDS.

4.3.3. Our evaluation may include a review of technical and test data, visual inspection of the item, discussion in Standards Committee(s), field evaluation by electrical workers, inquiries to other utilities, and laboratory testing.

4.3.4. Some items require approval by our Environmental or Safety departments. The process may take several months.

4.3.5. Vendors will be informed of our decision at the end of the process.



## New Material Evaluation Procedures

Originator: DSmith Date: 5/10/2007

Approval: R Phillips Date: 4/25/2012

Page 3 of 4

Revision: Updated contact info

STD Committee: 4/25/2012

4.3.6. Materials with potential benefit and application will have the findings and recommendations presented to the T & D Standards Committee for action.

#### 4.4. Standards Committee Evaluation

4.4.1. The Committee shall further evaluate the information furnished and determine if any additional information, reference, sample material or material, testing or clarification is needed.

4.4.2. With complete information, the Committee shall evaluate and make recommendations as follows:

- APPROVED
- NOT APPROVED
- MATERIAL MEETS CURRENT SPECIFICATIONS
- NON - INTEREST or LIMITED USE ITEM

4.5. The vendor will be notified of the recommendation.

4.6. Acceptance of a material is in no way to be construed as a commitment to purchase, recommend, or specify a particular material.

### 5. Implementation

5.1. Upon request of the design personnel, the Standards Engineer will add the appropriate mfg part numbers to the existing Material Catalog Sheet or develop a new Material Catalog Sheet.

5.2. If appropriate, the Districts estimating system will be modified to allow inclusion of this material into T & D projects.

5.3. The use of the material is the responsibility of the project engineers.

### 6. Updating / Re-evaluating

6.1. As do several other area electric utilities, we generally do not re-evaluate items that have failed testing or have otherwise been rejected or removed from approval until a period of three (3) years has elapsed. Any exceptions to this policy are at our sole discretion.

6.2. The most current copies of all material specifications or catalog sheets are available on our web site.

6.3. You may always phone or e-mail to ask questions. The Standards Department tries to be helpful and fair, and we endeavor to approve as many qualified suppliers of products as is practical.





## New Material Evaluation Procedures

Originator: DSmith Date: 5/10/2007

Approval: R Phillips Date: 4/25/2012

Page 4 of 4

Revision: Updated contact info

STD Committee: 4/25/2012

### T & D Material Evaluation Form

Manufacturer \_\_\_\_\_ Mfr's. Cat. No. \_\_\_\_\_

Chelan County PUD Stock Number (if known) \_\_\_\_\_

Material Specification / Catalog Number (if known) \_\_\_\_\_

Applicable Industry Standards (ANSI, IEEE, NEMA, etc) \_\_\_\_\_

Description of item/application: \_\_\_\_\_

Current Users: (Attach additional sheets if necessary)

1. Contact Name \_\_\_\_\_ Phone Number: \_\_\_\_\_ Utility: \_\_\_\_\_

2. Contact Name \_\_\_\_\_ Phone Number: \_\_\_\_\_ Utility: \_\_\_\_\_

Material Safety Data Sheet Required and Attached \_\_\_\_\_

Estimated price \$ \_\_\_\_\_ per \_\_\_\_\_ Usual delivery time \_\_\_\_\_

Manufacturer's Representative:

(You may attach business card)

Name \_\_\_\_\_

Firm \_\_\_\_\_

Address: \_\_\_\_\_

Tel \_\_\_\_\_

Fax \_\_\_\_\_

e-mail \_\_\_\_\_

*This portion for Chelan County PUD use only*

Date Received \_\_\_\_\_ Date to field reviewer \_\_\_\_\_

Comments \_\_\_\_\_

Date review completed \_\_\_\_\_ Reviewer Initials: \_\_\_\_\_

Approved? Yes \_\_\_ No \_\_\_ by Standards.

Additional comments/reason if not approved \_\_\_\_\_

\_\_\_\_\_ Date mfr's. rep. notified: \_\_\_\_\_

**Standards Office:**  
 327 N Wenatchee Ave  
 Wenatchee, WA 98801

**Standards Mailing Address:**  
 PO Box 1231  
 Wenatchee, WA 98807

**E-mail:**  
<mailto:Randall.Phillips@chelanpud.org>  
**Telephone:** (509) 661-4257

**Fax:** 509-661-8148

**“OR EQUAL” DEFINITION**

Originator:  
**DSmith**

Date: **5/30/2007**

Approval:  
**DSmith**

Date: **5/30/2007**

Page **1** of **1**

Revision: **NEW**

STD Committee: **5/30/2007**

Application: This document defines the Approved Manufactures Part Numbers and “OR EQUAL” relationship.

**Definition of "Or Equal":**

1. **OR EQUAL** - Contractor-proposed substitution of specific materials or processes that are deemed by the District, in its sole discretion, to be equal in every material respect.
2. Offers of substitution for items described in the Contract Documents as "Or Equal" will be considered only upon the written request of the Contractor, and no requests for substitutions will be acknowledged or considered from suppliers, distributors, manufacturers, or Subcontractors or any other source. Requests for approval of substitution shall be made by following District Standards #0000.01 “New Material Evaluation Procedure”.
3. NO PURCHASE SHALL BE MADE OR INSTALLATION PERFORMED BY CONTRACTOR WITHOUT APPROVAL OF THE DISTRICTS STANDARDS DEPARTMENT.



## INSTRUCTIONS How to Use The Material Catalog

Originator: **DSmith**      Date: **7/6/2007**

Approval: **DSmith**      Date: **7/6/2007**

Page 1 of 1

Revision: **NEW**

Approved

### 1. Introduction

- 1.1. The *Material Catalog* lists all items that District regularly stocks in warehouses and includes product descriptions organized by product categories and approved manufactures catalog numbers.
- 1.2. This information is updated on a daily basis and is used for Purchase Requisitions.

### 2. Adobe Portable Document Format (PDF)

The web site documents are published in the Adobe® Portable Document Format (PDF). You will need to download and install a free copy of Adobe Acrobat Reader to view the documents. Go to <http://www.adobe.com/products/acrobat/readstep2.html> if you have not already installed Acrobat Reader.

### 3. Document Features:

#### 3.1. Bookmark

On the left side of the page is a section entitled “Bookmarks”. These bookmarks allow you to jump to a particular section or page easily.



#### 3.2. Search

You can access the search function by mouse clicking on the binocular icon. Using this function, you can search for:

- Maximo Stock Number
- Manufactures Name
- Manufactures Catalog Number
- Any text or number

3.3. Printing: You can print all two hundred pages or any single page. The default is printing all pages so be careful.



# CONNECTORS

Originator: DSmith

Date: 7/9/2007

Approval: DSmith

Date: 7/9/2007

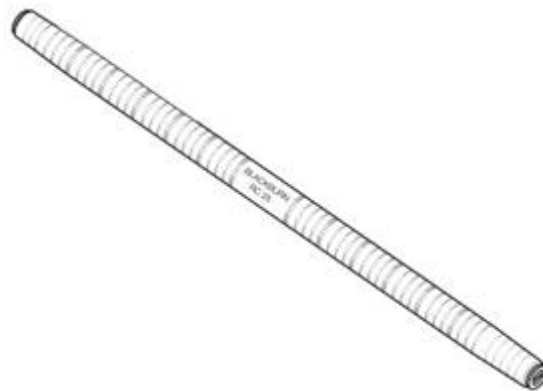
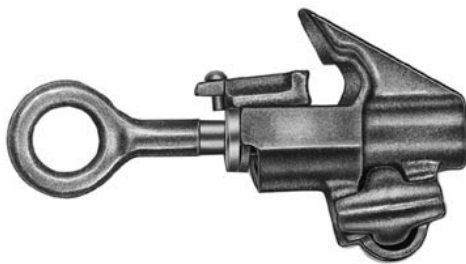
Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



# CONNECTORS

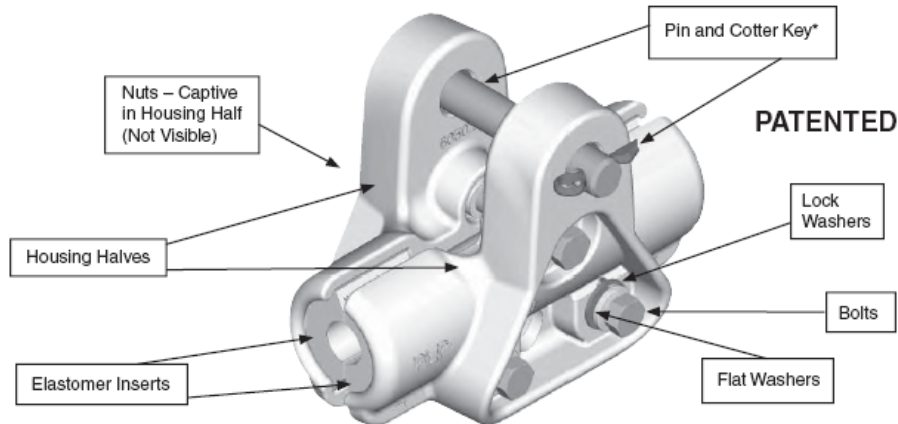


**Clamp, Cushion Grip, Suspension Shoe**

Originator: Randy Kono Date: 10/13/11

Approval: J. Flader Date: 5/14/13

Page 1 of 1

Revision: **Revised manufacturer Catalog #**Std's Committee Approval:  
**Approved**

**Application:** CUSHION-GRIP Suspensions are intended for use on all aluminum based (AAC, ACSR) conductors, and are designed to reduce the static and dynamic stresses at the support point so that the conductor is protected against the effects of oscillations. The conductor is cushioned by field proven, integral elastomer inserts, which guard against abrasion, wear, and fatigue.

**Common Name:** CUSHION-GRIP Suspension Shoe

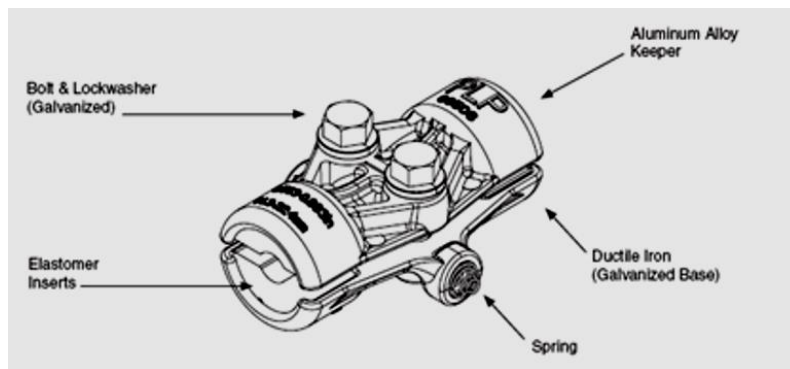
**Approved Manufacturers:** Preformed Line Products

| PUD IDENTIFICATION                                             |           | MANUFACTURER<br>CATALOG NUMBER |
|----------------------------------------------------------------|-----------|--------------------------------|
| Stock Description                                              | Stock No. | Preformed Line<br>Products     |
| Clamp, Cushion Grip, Suspension, 336 ACSR 26/7, "Linnet"       | 014493    | CGS-1096                       |
| Clamp, Cushion Grip, Suspension, 477 ACSR 26/7, "Hawk"         | 014493    | CGS-1096                       |
| Clamp, Cushion Grip, Suspension, 636 AAC 37 Strand, "Orchid"   | 014492    | CGS-1097                       |
| Clamp, Cushion Grip, Suspension, 636 ACSR 26/7, "Grosbeak"     | 014492    | CGS-1097                       |
| Clamp, Cushion Grip, Suspension, 795 ACSR 26/7, "Drake"        | 014492    | CGS-1097                       |
| Clamp, Cushion Grip, Suspension, 954 AAC 37 Strand, "Magnolia" | 014492    | CGS-1097                       |
| Clamp, Cushion Grip, Suspension, 1272 ACSR 45/7, "Bittern"     | 014487    | CGS-1098                       |
| Clamp, Cushion Grip, Suspension, 1780 ACSR 84/19, "Chukar"     | 014488    | CGS-1121                       |

**Notes:**

- The maximum line angle for a Cushion-Grip Suspension clamp is 30°
- The maximum vertical load on a Cushion-Grip Suspension clamp is 25,000#
- Rated for 125° C continuous operation

|                                                                                        |               |                                                                                                                           |                                             |
|----------------------------------------------------------------------------------------|---------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| <b>- Material Catalog -</b>                                                            |               | <b>CONNECTORS</b>                                                                                                         | <b>1010.04</b>                              |
| CHELAN COUNTY<br><b>PUBLIC UTILITY DISTRICT</b><br><i>Owned By The People We Serve</i> |               | <br><b>CLAMP, CUSHION GRIP, TRUNNION</b> |                                             |
| Originator: J. FLADER                                                                  | Date: 2/15/18 |                                                                                                                           |                                             |
| Approval: J. FLADER                                                                    | Date: 2/15/18 | Page 1 of 1                                                                                                               |                                             |
| Revision: <b>Updated Part Numbers</b>                                                  |               |                                                                                                                           | Stds Committee Approval:<br><b>Approved</b> |



**Application:** The CUSHION-GRIP Support is intended for use on all aluminum based (AAC, ACSR) conductors, and is designed to reduce the static and dynamic stresses at the support point so that the conductor is protected against the effects of oscillations. The conductor is cushioned by field proven, integral elastomer inserts, which guard against abrasion, wear, and fatigue.

**Common Name:** CUSHION-GRIP Trunnion Clamp

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                       | Stock No. | Set    | MANUFACTURER CATALOG NUMBER |
|----------------------------------------------------------|-----------|--------|-----------------------------|
| Clamp, Cushion, Grip, Support<br>336 AAC, 336 & 477 ACSR | 014489    | CATPSM | Preformed – CGS2101         |
| Clamp, Cushion, Grip, Support<br>636 AAC, 636 & 795 ACSR | 014491    | CATPMD | Preformed – CGS2102         |
| Clamp, Cushion, Grip, Support<br>954 AAC                 | 014496    | CATPLG | Preformed – CGS2103         |

**Notes:**

- 1) The maximum line angle for a Cushion Grip Suspension clamp is 30°.
- 2) The maximum load on a Cushion Grip Suspension clamp is 5,000 LBS.
- 3) Rated for 125° C continuous operation.

**Clamp, Ground Rod**

Originator: DSmith

Date: 7/7/2006

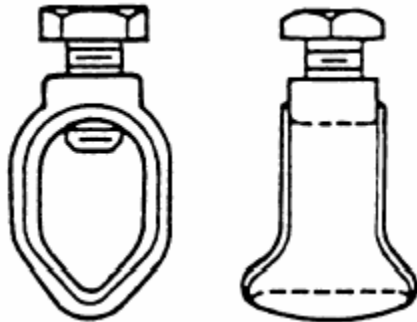
Approval: DSmith

Date: 6/20/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Ground rod clamp is used to connect the pole ground wire to either copper jacketed or galvanized ground rod. Unit shall be capable of being torqued to 75 foot-lbs without breaking.

**Specification:** The ground rod clamp shall be suitable for connecting wire ranging from #6 to #2 AWG solid Copper to a ground rod.

**Material:** Ground rod clamp shall be manufactured from a cast bronze alloy.  
Ground rod clamp shall be supplied with a bolt manufactured from a non-ferrous metal.

**Bolt:** Shall have 9/16 inch hexagonal head

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION   |           | MANUFACTURER CATALOG NUMBER |              |
|----------------------|-----------|-----------------------------|--------------|
| Stock Description    | Stock No. | Eritech (ESP)               | Wilcor       |
| CLAMP GRND ROD - 5/8 | 014000    | HDC58                       | WAG 5/8 HGR  |
| CLAMP GRND ROD - 3/4 | 014040    | HDC34                       | (T&B JAB34H) |
|                      |           |                             |              |
|                      |           |                             |              |



**STIRRUPS, COMPRESSION HOTLINE**

Originator: DSmith

Date: 7/7/06

Approval: JMitchell

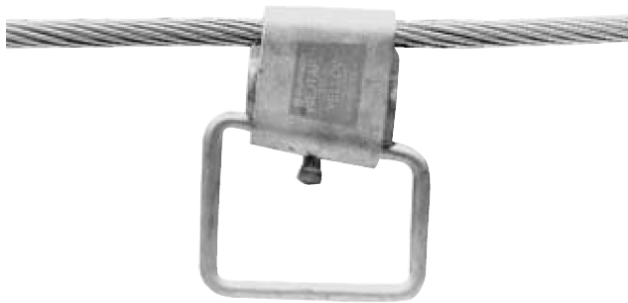
Date: 11/18/2020

Page 1 of 1

Revision: **Rev1**

Stds Committee Approval:

**Approved**



**Application:** WEJTAP Stirrups use an aluminum alloy wedge that is power-driven between the conductor and a "C" shaped tempered aluminum alloy spring-body. The stirrup is a smaller size conductor for connecting OH hotline taps and provide a quick, easy, and reliable method to protect overhead aluminum lines from arcing damage.

| PUD IDENTIFICATION |                                                                                        | MANUFACTURER CATALOG |
|--------------------|----------------------------------------------------------------------------------------|----------------------|
| Stock No.          | Stock Description                                                                      | Burndy               |
| 032005             | STIRRUP, WEJTAP, #5, #4, #2 ACSR, AAC AND CU BAIL SIZE: #2 (RED) WITH POWER BOOSTER    | WSS2PB               |
| 032010             | STIRRUP, WEJTAP, #1, 1/0, 2/0 ACSR, AAC AND CU BAIL SIZE: #2 (BLUE) WITH POWER BOOSTER | WSM1PB               |
| 032015             | STIRRUP, WEJTAP, #3/0-4/0 ACSR, AAC AND CU BAIL SIZE: #2 (BLUE) WITH POWER BOOSTER     | WSM3PB               |
| 032020             | STIRRUP, WEJTAP, #336 ACSR, AAC AND CU BAIL SIZE: #1/0 (YELLOW) WITH POWER BOOSTER     | WSL1PB               |
| 032025             | STIRRUP, WEJTAP, #556 ACSR, AAC AND CU BAIL SIZE: #2/0 (YELLOW) WITH POWER BOOSTER     | WSL8PB               |
| 032030             | STIRRUP, WEJTAP, #636 ACSR, AAC AND CU BAIL SIZE: #2/0 (YELLOW) WITH POWER BOOSTER     | WSL11PB              |
| 032035             | STIRRUP, WEJTAP, #795 ACSR, AAC AND CU BAIL SIZE: #2/0 (YELLOW) WITH POWER BOOSTER     | WSL12PB              |





**CLAMPS, HOT LINE  
TAPS & STIRRUPS, BRONZE**

Originator: DSmith

Date: 7/7/06

Approval: J. Mitchell

Date: 2/27/2020

Page 1 of 1

Revision:

Revised catalog number & added CU to CU stirrup clamp

Stds Committee Approval:

Approved



**Application:** Used to connect equipment to small diameter copper primary conductor or copper jumper to a copper bail on a stirrup clamp with a shotgun.

**Material:**

Material: Body and Keeper – Brass alloy

Eyebolt – Bronze alloy

Eyestem – Bronze alloy, forged

Spring (on eye stem) - Stainless Steel

Each item shall be individually packaged.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

| PUD IDENTIFICATION |                                                                         | MANUFACTURER<br>CATALOG<br>NUMBER |
|--------------------|-------------------------------------------------------------------------|-----------------------------------|
| Stock<br>No.       | Stock Description                                                       | Hubbell                           |
| 014100             | CLAMP, HOT LINE, BRONZE, MAIN #8-2/0 CU, TAP #8-2/0 CU                  | BC20XB                            |
| 014140             | CLAMP, HOT LINE, BRONZE, MAIN #6-400 CU, TAP #6-4/0 CU                  | BH4XB                             |
| 014254             | CLAMP, HOT LINE, BRONZE, STIRRUP, SNGL CLAMP, #6-2/0 CU, TAP #4 CU LOOP | BHLS022016E                       |

**CLAMPS, STIRRUPS, HOTLINE, ALUMINUM**

Originator: DSmith

Date: 2/27/2020

Approval: J. Mitchell

Date: 02/07/2020

Page 1 of 1

Revision: **Revised catalog numbers & descriptions**

Stds Committee Approval:

**Approved**

Aluminum overhead  
primary stirrup clamp



**Application:** For connecting overhead taps to primary energized conductor with a lineman shotgun. Suitable for use on Aluminum, ACSR, and armor rod covered aluminum or ACSR conductor.

**Specification:**

Material: Body and Keeper – Aluminum Alloy – Tin Plated

Eyebolt – Bronze – Tin Plated

Eye stem – Bronze alloy, forged

Spring (on eye stem) - Stainless Steel

The tap nut for the medium & large sizes shall be 3/4".

Each item shall be individually packaged.

**Packaging and Marking:** Each Item shall be individually packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

| PUD IDENTIFICATION |                                                                                                      | MANUFACTURER<br>CATALOG NO. |
|--------------------|------------------------------------------------------------------------------------------------------|-----------------------------|
| Stock No.          | Stock Description                                                                                    | Hubbell                     |
| 014252             | Clamp, Stirrup, Al, Hotline Connector, Dbl Clamp, #4-4/0 ACSR, #2-4/0AAC<br>Tap #1/0 CU Loop         | AHLS024021E                 |
| 014257             | Clamp, Stirrup, Al, Hotline Connector, Dbl Clamp, #336-954 ACSR, #336-1033.5 AAC<br>Tap #2/0 CU Loop | AHLS954022E                 |
|                    |                                                                                                      |                             |

**SPLIT BOLT**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/20/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**

**Application:** Used .to mechanically join two copper conductors together.

**Specifications:**

Material: Highly conductive copper alloy

Finish: Plain copper finish

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                         | MANUFACTURER CATALOG NUMBER |       |
|--------------------|-----------------------------------------|-----------------------------|-------|
| Stock No.          | Stock Description                       | Burndy                      | ILSCO |
| 015790             | SPLIT BOLT, CU, MAIN/TAP #6SOL-#8SOL CU | KS-17                       | IK-8  |



Originator: D. Smith

Date: 8/29/06

Reviewed: D. Scott

Date: 4/26/2023

Page 1 of 1

Revisions: Added Stock No. 013860 small size

Stds Committee Approval:

25 April 2023

## DEADEND CLAMPS, Bolted Straight-Line Spring-Loaded Side Opening

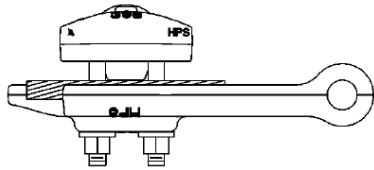


Figure 1 - Straight Line – Small / Medium

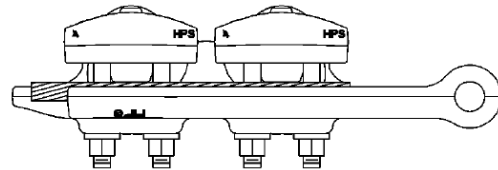
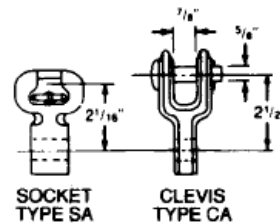


Figure 2 – Straight Line - Large



**Application:** Used for dead ending overhead AAC, AAAC, and ACSR conductor onto 15kV Insulators. May be used in conjunction with socket or clevis connection to the insulator (Must be ordered separate).

**Not For Copper Conductor**

Recommended torque on 1/2" U-Bolts is 45 ft-lb.

**Specification:**

Body & Keeper – 356-T6 Aluminum Alloy

Hardware – Galvanized Steel

Sockets & Clevises – Ductile iron, Galvanized (Ordered Separate)

Spring and Cotter Pin – Stainless Steel

Keeper is Spring Loaded

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                                                               |     |           |                | MANUFACTURER CATALOG NUMBER |            |
|----------------------------------------------------------------------------------------------------------------------------------|-----|-----------|----------------|-----------------------------|------------|
| Stock Description                                                                                                                | Fig | Stock No. | Ult. Str (lbs) | MacLean                     | Hubbell    |
| Clamp, Deadend, Straight Line, Spring Loaded, Side Opening, <b>Small</b> #4(7STR)AL / #6(6/1)ACSR To 2/0(19STR)AI / 2/0(6/1)ACSR | 1   | 013860    | 6,000          | ASO-398-1-N                 | ASOD3981N  |
| Clamp, Dead End, Straight Line, Spring Loaded Side Opening, <b>Medium</b> #4ACSR/#2AAC To 336AAC/350AAC                          | 1   | 013810    | 8,000          | ASO-684-1-N                 | ASOD6841N  |
| Clamp, Dead End, Straight Line, Spring Loaded Side Opening, <b>Large</b> 336ACSR/350AAC To 900ACSR/954AAC                        | 2   | 013880    | 12,000         | ASO-1160-2-N                | ASOD11602N |

**DEADEND CLAMPS,  
Bolted Quadrant Style - Iron**

Originator: DSmith

Date: 6/20/2007

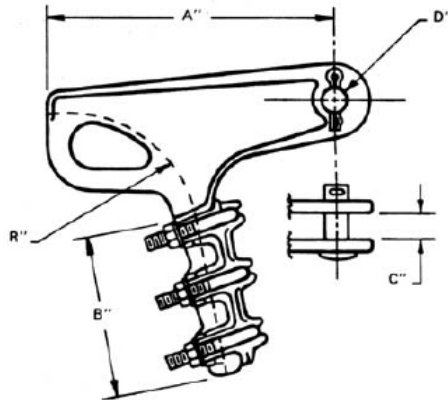
Approval: DSmith

Date: 6/20/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Used for dead ending overhead ACSR conductor onto insulators.

**Specification:**

Body & Keeper – 356-T6 Aluminum Alloy

Hardware – Galvanized Steel

Sockets & Clevises – Ductile iron, Galvanized

Spring and Cotter Pin – Stainless Steel

Keeper is Spring Loaded

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                          |              | MANUFACTURER<br>CATALOG NUMBER |         |
|-------------------------------------------------------------|--------------|--------------------------------|---------|
| Stock Description                                           | Stock<br>No. | MacLean                        | Hubbell |
| CLAMP, DE, STRAIGHT LINE, IRON, #6-2/0ACSR, #6STR-4/0SOL CU | 013820       | SDE-46-F                       | MDE-46N |
| CLAMP, DE, STRAIGHT LINE, IRON, #2-336ACSR, #1-350AL        | 013830       | ASO-684-2N                     | -----   |
| CLAMP, DE, QUAD, IRON, .30"-.68"                            | 013855       | FQD-68-3-S                     | -----   |

**OVERHEAD SECONDARY SETSCREW BAR  
WITH STUD.**

Originator: DSmith

Date: 5/24/2018

Approval: J. Mitchell

Date: 11/04/16

Page 1 of 1

Revision: **Removed CMC due to studs being too short**

Stds Committee Approval:

**9/22/06**

**Application:** Used to provide multiple taps from an overhead transformers eyebolt secondary terminal.

**Specification:**

**Material:** 6061-T6 aluminum alloy

**Finish:** Clear plated for low contact resistance

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                                                               | MANUFACTURER CATALOG NUMBER |  |           |
|--------------------|-------------------------------------------------------------------------------|-----------------------------|--|-----------|
| Stock No.          | Stock Description                                                             | HOMAC                       |  | UTILCO    |
| 040100             | Overhead Secondary Setscrew Bar With Stud, 2 Pos, #6-250aac/Cu, 1/2"X4" Stud  | ABP 240                     |  | PTT 2-250 |
| 040101             | Overhead Secondary Setscrew Bar With Stud, 4 Pos, #6-250aac/Cu, 1/2"X4" Stud  | ABP 440                     |  | PTT 4-250 |
| 040102             | Overhead Secondary Setscrew Bar With Stud, 2 Pos, #12-350aac/Cu, 5/8"X4" Stud | ABP 2350                    |  | PTT 2-350 |
| 040104             | Overhead Secondary Setscrew Bar With Stud, 4 Pos, #12-350aac/Cu, 5/8"X4" Stud | ABP 4350                    |  | PTT 4-350 |
| 040106             | Overhead Secondary Setscrew Bar With Stud, 4 Pos, #6-500aac/Cu, 3/4"X4" Stud  | ABP 4500                    |  | PTT 4-500 |
| 040110             | Overhead Secondary Setscrew Bar With Stud, 6 Pos, #12-350aac/Cu, 5/8"X4" Stud | ABP 6350                    |  | -----     |

**SET SCREW AL BAR, ABOVE GRADE,  
FOR CU OR AL SECONDARY CABLE**

Originator: DSmith

Date: 1/4/2008

Approval: DSmith

Date: 1/4/2008

Page 1 of 1

Revision: Moved slip fit connectors to 1019.08

Stds Committee Approval:

**Approved**

**Application:** Used for providing multiple set screw terminations for Pole Mounted Transformers and other above grade Use.

**Specification:**

- Dual-rated connectors for aluminum or copper conductors
- Clear plated for low-contact resistance.
- Fully tested to ANSI C119.4 for Class 'A' connectors.
- Supplied with radial-tipped set-screws.
- Connector fabricated from 6061-T6 aluminum alloy for conductivity and strength.
- Includes Oxide Inhibitor grease in all conductor holes.

**Packaging and Marking:** Each unit individually wrapped and labeled for ease of identification and cleanliness. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                                                        | MANUFACTURER CATALOG NUMBER |              |           |
|--------------------|------------------------------------------------------------------------|-----------------------------|--------------|-----------|
| Item No.           | Item Description                                                       | CMC                         | UTILCO       | HOMAC     |
| 015322             | CONNECTOR, SET SCREW AL BAR, ABOVE GRADE, 4 POSITION, #6-250 CU OR AL  | UP4-250XB                   | PED-4-250 RH | ABC440    |
| 015223             | CONNECTOR, SET SCREW AL BAR, ABOVE GRADE, 6 POSITION, #6-250 CU OR AL  | UP6-250XB                   | PED-6-250 RH | ABC640    |
| 015324             | CONNECTOR, SET SCREW AL BAR, ABOVE GRADE, 4 POSITION, #12-350 CU OR AL | UP4-350XB                   | PED-4-350 RH | ABC-4-350 |
| 015328             | CONNECTOR, SET SCREW AL BAR, ABOVE GRADE, 6 POSITION, #12-350 CU OR AL | UP6-350XB                   | PED-6-350 RH | ABC6350   |





CONNECTOR, SUBMERSIBLE SECONDARY

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 11/20/2007

Page 1 of 1

Revision: Increased conductor size for #050170 from 350 to 500kcm

Stds Committee Approval:

Approved



SSBC



**Application:** Used for connecting multiple secondary conductors in a hand hole or secondary vault using twin set screws.

**Specification:**

- Dual-rated connectors for aluminum or copper conductors
- Clear plated for low-contact resistance.
- Fully tested to ANSI C119.4 for Class 'A' connectors.
- Supplied with twin radial-tipped set-screws.
- Connector fabricated from 6061-T6 aluminum alloy for conductivity and strength.
- Watertight – Outlets sealed with EPDM rubber insulating sleeves
- Includes oxide inhibitor.
- 350Kcm size must come supplied with EZ Torque Limiting Screws

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                |           | MANUFACTURER CATALOG NUMBER |            |  |
|-------------------------------------------------------------------|-----------|-----------------------------|------------|--|
| Stock Description                                                 | Stock No. | HOMAC                       | CMC        |  |
| Connector, Submersible Twin Set Screw, 4 Pos., #6 - 350kcm AAC/CU | 050150    | UH 4 RTS                    | NA         |  |
| Connector, Submersible Twin Set Screw, 6 Pos., #6 - 350kcm AAC/CU | 050160    | UH 6 RTS                    | NA         |  |
| Connector, Submersible Twin Set Screw, 8 Pos., #6 - 500kcm AAC/CU | 050170    | UH 500-8 R                  | NA         |  |
| Connector, Submersible Twin Set Screw, 6 Pos., #2 - 750kcm AAC/CU | 050165    | UH 1000-6 R                 | SSBC750-6I |  |
| Screws, Homac 5/8" EZ Torque Limiting                             | 050453    | HA-508-300                  |            |  |



**TWO BOLT CONNECTOR**

Originator: DSmith

Date: 7/20/2006

Approval: DSmith

Date: 6/20/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Used to mechanically fasten two copper conductors together. Can be used on AAC or ACSR also.

**Specifications:**

**Material:** Utility Grade TIN Plated Bronze

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                                     | MANUFACTURER<br>CATALOG NUMBER |
|--------------------|-----------------------------------------------------|--------------------------------|
| Stock No.          | Stock Description                                   | Blackburn                      |
| 015740             | CONNECTOR, TWO BOLT, MAIN 800-600CU, TAP 800-#2CU   | 2B800PW                        |
| 015750             | CONNECTOR, TWO BOLT, MAIN 1000-750CU, TAP 1000-#2CU | 2B1000PW                       |



## Bolted Vise Type Tap Connector for Copper Conductor

Originator: DSmith

Date: 7/7/2006

Approval: J Mitchell

Date: 8/23/2011

Page 1 of 1

Revision: Removed Richards from #1 sol and #2 str

Stds Committee Approval: Approved



**Application:** Vise type connectors are used to tap copper conductors. For copper to copper connections-Splice, Loop dead-end or service entrance tap or grounding connections. This type of connector can be installed or removed "hot" with use of a special hot stick.

**Specification:**

Material: Body—Copper Alloy

Hardware—Stainless Steel or Silicon Bronze al

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                              |           | MANUFACTURER CATALOG NUMBER |          |         |
|-------------------------------------------------|-----------|-----------------------------|----------|---------|
| Stock Description                               | Stock No. | Fargo                       | Richards | MacLean |
| Connector, Bronze Vise Type, Cu #6sol #8 Str    | 015600    | GC-5006                     |          |         |
| Connector, Bronze Vise Type Cu #4sol #4 Str     | 015610    | GC-5004                     | VC5      | BVC-4   |
| Connector, Bronze Vise Type Cu #2sol            | 015630    | GC-5002                     |          |         |
| Connector, Bronze Vise Type Cu #1sol #2 Str     | 015640    | GC-5002S                    |          | BVC-2S  |
| Connector, Bronze Vise Type Cu #3/0sol #2/0     | 015660    | GC-5020S                    | VC10S    | BVC-20S |
| Connector, Bronze Vise Type Cu #4/0sol #4/0 Str | 015670    | GC-5040                     | VC12     | BVC-040 |
| Connector, Bronze Vise Type, 750kcm Cu          | 015730    | GC-5075                     |          |         |



**CONNECTORS, BOLTED, ALUMINUM VISE TYPE**

Originator: DSmith

Date: 7/13/2006

Approval: DSmith

Date: 6/20/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

9/22/06



**Application:** Recommended for aluminum or aluminum to copper distribution, service or tap connections. Units are supplied with a neoprene grommets for "hot" work. Grommet holds spacer bar in place during installation.

**Specification:**

Material: Body—Aluminum alloy

Spacer—Aluminum

Hardware—Stainless steel "SS" or Aluminum Alloy (std.)

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers**

|           | PUD IDENTIFICATION                                                                                     | MANUFACTURER CATALOG NUMBER |           |
|-----------|--------------------------------------------------------------------------------------------------------|-----------------------------|-----------|
| Stock No. | Stock Description                                                                                      | Hubbell                     | Blackburn |
| 015700    | CONNECTOR, AL, VISE W/GROMMETS MAIN #6-336ACSR, TAP #6SOL 397AL OR CU                                  | GA9401GL                    |           |
| 015702    | CONNECTOR, AL, VISE MAIN AND TAP, #4-#6                                                                | GA9003GL                    |           |
| 015704    | CONNECTOR, AL, VISE W/GROMMETS MAIN #6 1/0ACSR, TAP #6 #2/0STR OR CU                                   | GA9020GLSS                  |           |
| 015710    | CONNECTOR, TWO BOLT, AL, VISE W/GROMMETS MAIN #4/0-477ACSR, TAP 250-600 STR AL OR CUw/grommets, 2-bolt | GA-9520-GL                  | 2B500PW   |



**BRAIDED JUMPER, TINNED COPPER**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

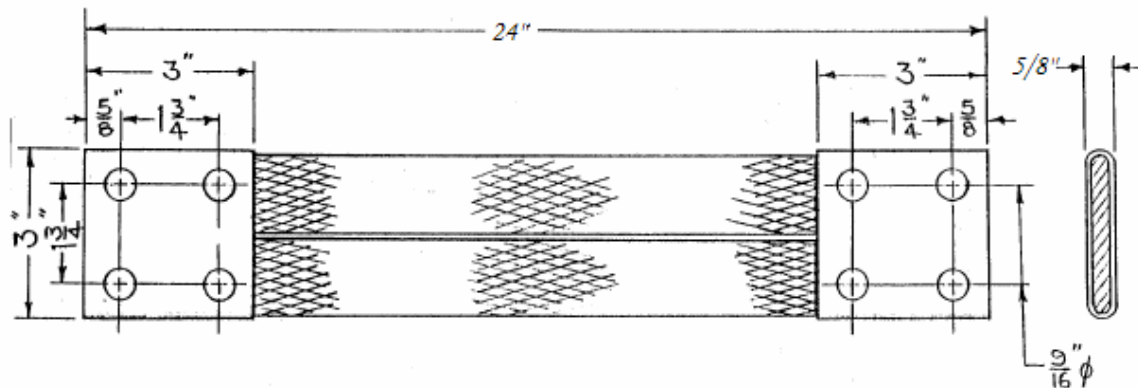
Date: 6/20/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**



**Application:** Used to jumper between secondary nema connectors of overhead transformers for banking purposes. .

**Specifications:**

Material: Tinned Copper

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION              |           | MANUFACTURER CATALOG NUMBER |
|---------------------------------|-----------|-----------------------------|
| Stock Description               | Stock No. | SEFCOR                      |
| CONNECTOR, JUMPER, BRAIDED 24"L | 022350    | XB4N-1168-24                |



## BUSHING, OVERHEAD POLE-MOUNT TRANSFORMER

Originator: DSmith

Date: 7/7/06

Approval: DSmith

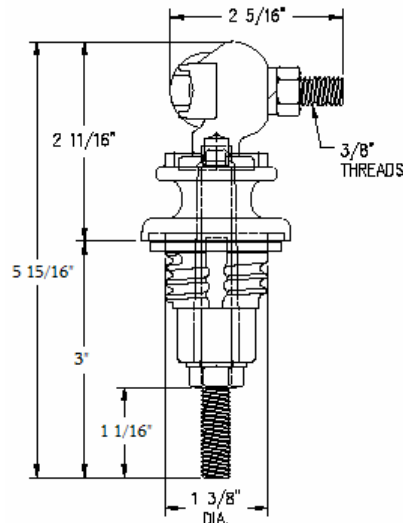
Date: 7/7/06

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**



**Application:** Replacement single bolt clamp type bushing for overhead transformers. .

### Specifications:

Material: Polymer insulator, polyester bushing

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

### Approved Manufacturers:

| PUD IDENTIFICATION                                                    |           | MANUFACTURER CATALOG NUMBER |
|-----------------------------------------------------------------------|-----------|-----------------------------|
| Stock Description                                                     | Stock No. | H-J Enterprises             |
| INSULATOR, BUSHING, XFMR<br>SECONDARY POLE MOUNT 25KVA<br>REPLACEMENT | 100461    | AS1001-007                  |

**SLEEVES, NICOPRESS**

Originator: DSmith

Date: 7/21/2006

Approval: DSmith

Date: 6/20/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Nicopress Splicing Sleeves are used to splice a wide range of conductors which include copper, copper covered steel, Copperweld copper, galvanized steel and Amerductor. Each sleeve is marked with catalog number, conductor size and installation tool groove.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

|           | PUD IDENTIFICATION                                            | MANUFACTURER CATALOG NUMBER |
|-----------|---------------------------------------------------------------|-----------------------------|
| Stock No. | Stock Description                                             | Joslyn Mfg                  |
| 029560    | SLEEVE, COMP, TENSION, #6 SOLID CU (NICO), LENGTH-2 1/4"      | 1-162J                      |
| 029630    | SLEEVE, COMP, TENSION, #8 SOLID CU (NICO), 2"                 | 1-128J                      |
| 029650    | SLEEVE, COMP, TENSION, #4 SOL CU, (NICO), 2 1/2"              | 1-204P                      |
| 029710    | SLEEVE, COMP, TENSION, #2 SOL, #4 STR CU (NICO), 2 3/4"       | 1-258-X                     |
| 029820    | SLEEVE, COMP, TENSION, #2 STR, CU (NICO), 3", #2 STR CU       | 1-6A-P                      |
| 030730    | SLEEVE, COMP, #8A CU WELD, SPLIT                              | R1-8AP                      |
| 030820    | SLEEVE, COMP, TENSION, #6A CU WELD, (NICO), 5 1/2"            | 1-16A-P                     |
| 030850    | SLEEVE, COMP, #6A CU WELD, SPLIT, 4"                          | R1-6A-P                     |
| 030890    | SLEEVE, COMP, TENSION, 4A CU WELD, (NICO), 5 3/4", 4A CU WELD | 1-4A-X                      |
| 030910    | SLEEVE, COMP, TENSION, #6 CRAPO, (NICO), 6 3/4", #6 CRAPO     | 5-203/3-S                   |

**SLEEVES, COMPRESSION  
FULL TENSION**

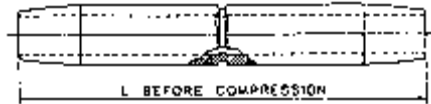
Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 7/7/06

Page 1 of 1

Revision: NEW  
Spelling errorStds Committee Approval:  
**Approved****Application:** Used to splice Overhead conductor under full tension.**Ordering Description:** List requirements as needed to describe the properties of the item. If necessary, use blanks ( ) in description and add any of the following.Dimensions:Strength: Shall be capable of holding 90% of Conductor StrengthMaterial: Aluminum Alloy**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.**Approved Manufacturers:**

| PUD IDENTIFICATION                   |           | MANUFACTURER CATALOG NUMBER |
|--------------------------------------|-----------|-----------------------------|
| Stock Description                    | Stock No. | Alcoa                       |
| SLEEVE, COMP, JUMPER, 336KCM ACSR    | 022200    | 5020.781                    |
| SLEEVE, COMP, JUMPER, 636KCM ACSR    | 022300    | 5027.106                    |
| SLEEVE, COMP, JUMPER, 336KCM AAC     | 029320    | 5076.688                    |
| SLEEVE, COMP, JUMPER, 350KCM AAC     | 029340    | 5076.719                    |
| SLEEVE, COMP, JUMPER, 477KCM AAC     | 029360    | 5020.812                    |
| SLEEVE, COMP, JUMPER, 4/0 ACSR       | 032980    | 5075.609                    |
| SLEEVE, COMP, JUMPER, 4/0 ACSR ANGLE | 033000    | 975.2                       |
| SLEEVE, COMP, JUMPER, 795 ACSR       | 087400    | 5030.116                    |

**SLEEVES, ACSR  
FULL TENSION COMPRESSION  
One Piece**

Originator: DSmith

Date: 11/13/06

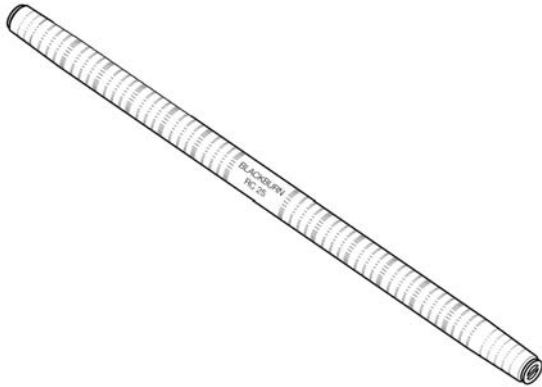
Approval: DSmith

Date: **11/17/2010**

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** One Piece Unit used to splice ACSR overhead conductor in full tension.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Specification:**

- o Have a positive center stop and tapered ends.
- o Installed with compression dies from Burndy or Kerney.
- o Prefilled with tension joint compound
- o Meets industry requirements for full tension splicing per EEI TDJ-162 (ANSI C119.4) All compression joints shall be designed for full tension use, achieving a minimum of 95% of the ASTM rated strength of the conductor on which they are used
- o Material: Aluminum

**Approved Manufacturers:**

| PUD IDENTIFICATION                   |           | MANUFACTURER CATALOG NUMBER |         |           |
|--------------------------------------|-----------|-----------------------------|---------|-----------|
| Stock Description                    | Stock No. | Burndy                      | Hubbell | Blackburn |
| SLEEVE, COMP, TENSION, AL, #6 ACSR   | 047842    | YSS6RG2                     |         |           |
| SLEEVE, COMP, TENSION, AL, #4 ACSR   | 029080    | YDS4RL                      | FTR4    | RC4BB     |
| SLEEVE, COMP, TENSION, AL, #1/0 ACSR | 030190    | YDS25RL                     | FTR10   | RC10      |
| SLEEVE, COMP, TENSION, AL, #2/0 ACSR | 030250    | YDS26RL                     | FTR205  | RC20      |
| SLEEVE, COMP, TENSION, AL, #4/0 ACSR | 030311    | YDS28RLY                    | FTR40   | RC40      |





**SLEEVES, SERVICE WIRE NEUTRAL SPLICE  
PARTIAL TENSION COMPRESSION  
ONE PIECE**

Originator: DSmith

Date: 11/13/06

Approval: J Mitchell

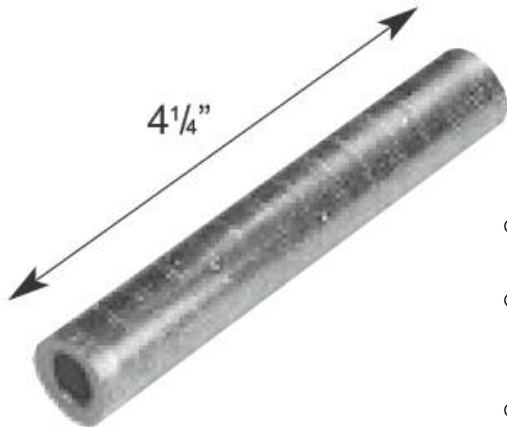
Date: 01/20/2016

Page 1 of 1

Revision: **Updated catalog numbers; added 029092**

Stds Committee Approval:

**Approved**



**Application:** One piece unit used to splice Service Wire Neutral overhead conductor at partial tension. Not For Copper to Copper connections.

**Specification:**

- Has a positive center stop to facilitate equal crimping and is installed with compression dies from Burndy or Kearney.
- Prefilled with electrical joint compound. Marked with catalog number, conductor size and die reference. Meets performance requirements of ANSI C119.4.
- **Material:** Aluminum
- 

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or/and its packaging.

|               | PUD IDENTIFICATION                                                                | MANUFACTURER CATALOG NUMBER |           |        |        |         |
|---------------|-----------------------------------------------------------------------------------|-----------------------------|-----------|--------|--------|---------|
| Stock No.     | Stock Description                                                                 | Hubbell                     | Burndy    | HOMAC  | CMC    | Kearney |
| <b>029090</b> | Sleeve, Comp, Partial Tension, Al, #4 ACSR Neutral Messenger, Orange - Orange     | VANS44                      |           | SNG44  | NCL4   | 30009   |
| <b>029140</b> | Sleeve, Comp, Tension, Al, #2 ACSR Neutral Messenger, Red - Red                   | VANS11                      |           | SNG22  | NCL2   | 30010   |
| <b>030190</b> | Sleeve, Comp, Partial Tension, Al, #1/0 ACSR Neutral Messenger, Yellow - Yellow   | VANS1010                    | YSD25R25R | SNG 00 | NCL1/0 | 30715   |
| <b>030250</b> | Sleeve, Comp, Partial Tension, Al, #2/0 ACSR Neutral Messenger, Gray - Gray       | VAUS2020                    | YSD26R26R | -      | -      | 36060   |
| <b>029280</b> | Sleeve, Comp, Partial Tension, Al, #4/0 ACSR Neutral Messenger, Pink - Pink       | VAUS4040                    | YCS28A    | -      | -      | 49528   |
| <b>029092</b> | Sleeve, Comp, Partial Tension, Al #2 ACSR to #4 ACSR Neutral Messenger Orange-Red | VAUS14                      |           | SNG24  | NCL4   | 30007-K |



# Sleeve, Insulated Nontension Service "Firecrackers"

Originator: dsmith

Date: 7/17/2006

Approval: dsmith

Date: 7/25/2007

Page 1 of 1

Revision: **Revised – Added new items.**

Stds Committee Approval:

**Approved**



## Application

Service entrance sleeves are for any combination of copper, aluminum, ACSR, compressed and compact conductors, in non-tension use. Pre-filled with PENETROX joint compound and capped. Sleeves shall have a center divider to prevent migration of moisture from the service to the service entrance conductors.

**Common Name:** Firecrackers

## Details:

| Stk #  | Color Code A-B | Conductor Range A            | Conductor Range B            | Die |
|--------|----------------|------------------------------|------------------------------|-----|
| 047840 | Blue - Blue    | 6 ACSR, 6 STR, 4 Solid       | 6 ACSR, 6 STR, 4 Solid       | 5/8 |
| 047850 | Orange-Orange  | 4 ACSR, 4 STR., 2 Sol.       | 4 ACSR, 4 STR., 2 Sol.       | 5/8 |
| 047860 | Red-Red        | 2 ACSR, 1-2 STR.             | 2 ACSR, 1-2 STR.             | 5/8 |
| 047880 | Red-Orange     | 2 ACSR, 1-2 STR.             | 4 ACSR, 3-4 STR., 2 SOL.     | 5/8 |
| 047885 | Red-Yellow     | 2 ACSR, 1-2 STR.             | 1/0 ACSR, 2/0 STR., 1/0 STR. | 5/8 |
| 047875 | Yellow-Yellow  | 1/0 ACSR, 2/0 STR., 1/0 STR. | 1/0 ACSR, 2/0 STR., 1/0 STR. | 840 |
| 047870 | Grey-Grey      | 2/0 ACSR, 2/0 STR., 3/0 STR. | 2/0 ACSR, 2/0 STR., 3/0 STR. | 840 |
| 047890 | Pink-Gray      | 4/0 ACSR, 4/0 STR.           | 2/0 ACSR, 2/0 STR., 3/0 STR. | 840 |
| 047895 | Pink-Pink      | 4/0 ACSR, 4/0 STR.           | 4/0 ACSR, 4/0 STR.           | 840 |

## Approved Manufacturers:

| Stock No. | Maximo Description                                                                      | Manufacturer Catalog Number |          |         |
|-----------|-----------------------------------------------------------------------------------------|-----------------------------|----------|---------|
|           |                                                                                         | Blackburn                   | Burndy   | Homac   |
| 047840    | Sleeve, Insulated Nontension Service, #6ACSR, #6STR, #4Sol<br><b>Blue – Blue</b>        | ICS64-1                     | ES4W4W   | UBB66   |
| 047850    | Sleeve, Insulated Nontension Service, #4ACSR, #4STR,<br>#2Solid, <b>Orange - Orange</b> | ICS68-1                     | ES2W2W   | UOO44   |
| 047860    | Sleeve, Insulated Nontension Service, #2ACSR, #2STR<br><b>Red – Red</b>                 | ICS73-1                     | ES2R2R   | URR22   |
| 047880    | Sleeve, Insulated Nontension Service, #2ACSR To #4ACSR,<br><b>Red-Orange</b>            | ICS72-1                     | ES2R2W   | U1N24   |
| 047885    | Sleeve, Insulated Nontension Service, #2ACSR To 1/0ACSR,<br><b>Red-Yellow</b>           | ICS77-1                     | ES25R2R  | U1N102  |
| 047875    | Sleeve, Insulated Nontension Service, 1/0ACSR, 1/0STR<br><b>Yellow - Yellow</b>         | IKL36                       | ES25R25R | U1N1010 |
| 047870    | Sleeve, Insulated Nontension Service, #2/0ACSR, #2/0 STR<br><b>Grey – Gray</b>          | IKL54                       | NONE     | X1N2020 |
| 047890    | Sleeve, Insulated Nontension Service, #4/0ACSR To<br>#2/0ACSR, <b>Pink-Grey</b>         | IKL67                       | NONE     | X1N4020 |
| 047895    | Sleeve, Insulated Nontension Service, #4/0ACSR, #4/0STR<br><b>Pink-Pink</b>             | IKL69                       | NONE     | X1N4040 |



**Conductors, Compression,  
Tap, H-Type Wide Range  
for AL/AL or AL/CU**

Originator: DSmith

Date: 5/24/2018

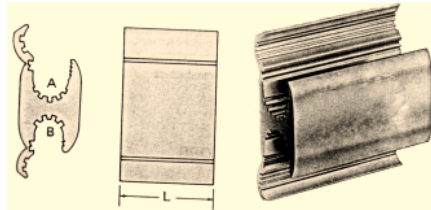
Approval: J. Mitchell

Date: 5/24/2018

Page 1 of 1

Revision: Updated catalog numbers; added 015598

Stds Committee: **Approved**



**Application:** The "H" type wide range compression connectors are used to make tap connections at secondary voltages. The connector can be used for joining aluminum or copper using "O" or "D" dies in standard tools.

**Ordering Description:** Compression tap connector, wide range for aluminum and/or copper conductor. Stranded wire range (A groove) to (B groove).

**Strength:** Connectors shall meet Class 2 Requirements of ANSI Standard C119.4, latest revision.

**Material:** Connectors shall be made of E.C. grade aluminum and pre-filled with approved inhibitor. Interior surfaces of conductor grooves shall be serrated to grip conductors.

**Compression Dies:** Connectors shall be suitable for installation using 5/8 BG (or) "O" or "D" dies.

**Packaging and Marking:** Connectors shall be individually packaged in a container suitable for easy handling and storage. Each container shall be marked with manufacturer's name, catalog number, wire ranges and die codes. The universal code number shall appear in "Shadow Form" on the face of the box or on the box flap.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                     |          | MANUFACTURERS CATALOG NUMBER |        |        |        |           |
|--------------------------------------------------------|----------|------------------------------|--------|--------|--------|-----------|
| Stock Description                                      | Stock No | Burndy                       | Cooper | Utilco | Homac  | Blackburn |
| HTAP, COMP #1-#6 ACSR/AL/CU                            | 015400   | YHO100                       | 506-82 | HT1    | OB 44  |           |
| HTAP, COMP #2 ACSR/AL/CU                               | 015405   | YHO150                       | 508-82 | HT2    | OB 101 |           |
| HTAP, COMP #3 ACSR/AL/CU                               | 015410   | YHD200                       | 502-82 |        | DB202  |           |
| HTAP, COMP #4 ACSR/AL/CU                               | 015420   | YHD300                       | 504-82 | HT4    | DB2020 |           |
| HTAP, COMP #5 ACSR/AL/CU                               | 015500   | YHD250                       | 503-82 | HT5    | DB404  |           |
| HTAP, COMP #6 ACSR/AL/CU                               | 015440   | YP28U26                      | -----  |        |        |           |
| HTAP, COMP #7 ACSR/AL/CU                               | 015510   | YHD400                       | 507-82 | HT7    | DB4040 |           |
| HTAP, COMP #4/0-#400 MAIN, #4/0-#2/0 TAP               | 015520   | YHN450                       | -----  | -----  | -----  |           |
| HTAP, COMP #4/0-#500 MAIN, #6-#2/0 TAP                 | 015530   | YHN500                       | -----  | -----  | -----  |           |
| HTAP, COMP #250-#500 MAIN, #3/0-#4/0 TAP               | 015540   | YHN550                       | -----  | -----  | -----  |           |
| HTAP, COMP #266-#500 MAIN, #266-#350 TAP               | 015550   | YHN600                       | -----  | -----  | -----  |           |
| HTAP, COMP #3/0-#4/0 MAIN, #2/0 SOL/STR TAP            | 015505   | YHD350                       | 505-82 | HT6    | DB4020 |           |
| HTAP, COMP #556-#795 ACSR MAIN, #1/0-#336 ACSR TAP     | 015560   | YHR800                       | -----  | -----  | -----  |           |
| HTAP, COMP #4/0-#2/0 CU MAIN, #1/0-#2 TAP (GROUND MAT) | 015598   |                              |        |        |        | CF4010-1  |



**CRIMPIT, COMPRESSION  
COPPER "C-TAPS"  
FOR COPPER**

Originator: DSmith

Date: 5/24/2018

Approval: J. Mitchell

Date: 05/04/2018

Page 1 of 1

Revision:

Stds Committee: **Approved**



**Application:** The "C" Type copper CRIMPIT™ connector is a range-taking C shape compression connector for making tap or parallel copper connections from #12 sol. to #4/0 stranded conductor. Its primary usage is for connecting copper neutral busses.

**Packaging and Marking:** Connectors shall be individually packaged in a container suitable for easy handling and storage. Each container shall be marked with manufacturer's name, catalog number, wire ranges and die codes. The universal code number shall appear in "Shadow Form" on the face of the box or on the box flap.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                   |          | MANUFACTURERS CATALOG NUMBER |        |        |       |
|--------------------------------------------------------------------------------------|----------|------------------------------|--------|--------|-------|
| Stock Description                                                                    | Stock No | Burndy                       | Cooper | Utilco | Homac |
| CONNECTOR, CRIMPIT, COPPER "C-TAPS", #2 SOL/STR CU MAIN, #2 SOL/STR CU TAP           | 015580   | YC2C2                        | -----  | -----  | ----- |
| CONNECTOR, CRIMPIT, COPPER "C-TAPS", #6 SOL-#4 STR CU MAIN, #6 SOL/STR CU TAP        | 015590   | YC4C6                        | -----  | -----  | ----- |
| CONNECTOR, CRIMPIT, COPPER "C-TAPS", #6 SOL-#4 STR CU MAIN, #4 SOL/STR CU TAP        | 015595   | YC4C4                        | -----  | -----  | ----- |
| CONNECTOR, CRIMPIT, COPPER "C-TAPS", #4/0 SOL/STR CU MAIN, #3/0-#4/0 SOL/STR CU, TAP | 015597   | YC28C28                      |        |        |       |



**TAP, TEE, CABLE TO 4 HOLE PAD  
Transmission**

Originator: DSmith

Date: 7/7/2006

Approval: DSmith

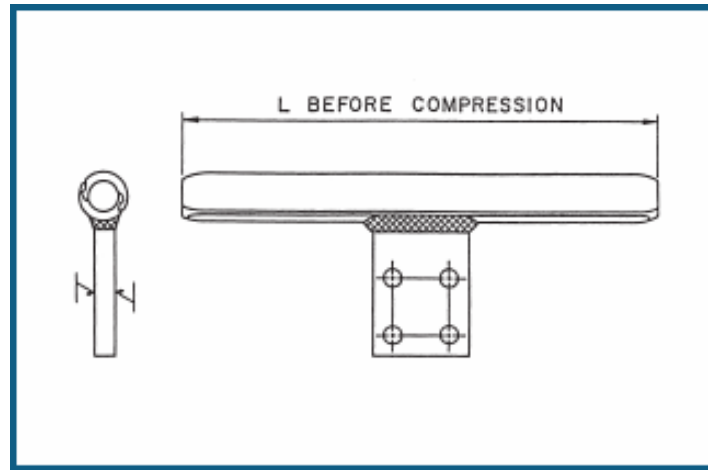
Date: 6/22/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**



**Application:** Tee Tap is a permanent or temporary drop specifically designed for ACSR and ACSS/TW conductors. It is fabricated from a specially tempered aluminum that will transfer elevated current and dissipate increased heat more efficiently.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                           | MANUFACTURER CATALOG NUMBER |
|--------------------|-------------------------------------------|-----------------------------|
| Stock No.          | Stock Description                         | ALCOA                       |
| 087650             | Tap, Tee, Cable To 4 Hole Pad, 4/0 ACSR   | #5375                       |
| 087660             | Tap, Tee, Cable To 4 Hole Pad, 336.4 ACSR | #5320.3                     |
| 087665             | Tap, Tee, Cable To 4 Hole Pad, 336.4 AAC  | #5376                       |
| 087670             | Tap, Tee, Cable To 4 Hole Pad, 636 ACSR   | #5327.3                     |
| 087675             | Tap, Tee, Cable To 4 Hole Pad, 636 AAC    | #5324.3                     |
| 087680             | Tap, Tee, Cable To 4 Hole Pad, 795 ACSR   | #5330.3                     |

**SPLICE OH, ACSR  
FULL TENSION PREFORMED**

Originator: DSmith

Date: 11/13/06

Approval: DSmith

Date: 8/29/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** This is a three piece component system designed to splice ACSR overhead conductor in full tension. Rated holding strengths are 100% of the conductor rated breaking strength.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                                                                        | MANUFACTURER CATALOG NUMBER |  |
|--------------------|----------------------------------------------------------------------------------------|-----------------------------|--|
| Stock No.          | Stock Description                                                                      | PREFORMED                   |  |
| 031420             | SPLICE, FULL TENSION PREFORMED, #4ACSR 6/1, (CORE BLACK, OUTER ORANGE)                 | FTS-5100                    |  |
| 031580             | SPLICE, FULL TENSION PREFORMED, 795ACSR 26/7, (CORE BLACK, FILLER BLACK, OUTER ORANGE) | FTS-5122                    |  |

**SLEEVES, SPLIT REPAIR, ACSR  
Transmission**

Originator: DSmith

Date: 7/21/2006

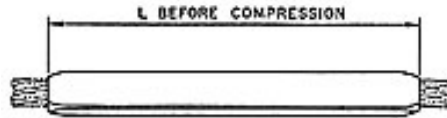
Approval: DSmith

Date: 6/22/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** The ALCOA 5200 Series Repair Sleeve is designed for ACSR conductors. The repair sleeve incorporates an improved design of interlocking extrusions, providing a permanent grip on the conductor when compressed. The repair sleeve will restore 95% of the rated strength of the conductor with up to one-third of the outer aluminum strands damaged.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                                                 | MANUFACTURER<br>CATALOG NUMBER |
|--------------------|-----------------------------------------------------------------|--------------------------------|
| Stock No.          | Stock Description                                               | ALCOA                          |
| 029390             | SLEEVE, COMP, SPLIT REPAIR, 477KCM ACSR TO 636KCM ACSR 24AH DIE | 5224.3                         |
| 030400             | SLEEVE, COMP, SPLIT REPAIR, #4/0, 74AH DIE                      | 5274.1                         |
| 030490             | SLEEVE, COMP, SPLIT REPAIR, 266KCM, 20AH DIE                    | 5276                           |
| 030510             | SLEEVE, COMP, SPLIT REPAIR, 336KCM, 20AH DIE                    | 5220.3                         |
| 030580             | SLEEVE, COMP, SPLIT REPAIR, 636KCM, 30AH DIE                    | 5337.3                         |
| 087410             | SLEEVE, COMP, SPLIT REPAIR, 477-795KCM, 30AH DIE                | 5230.3                         |
| 087460             | SLEEVE, COMP, SPLIT REPAIR, 1272KCM (45/7), 36AH DIE            | 5236.3                         |



**SLEEVE, COMPRESSION/TENSION, AAC  
Transmission**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/22/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** The 7000 Series Compression Joint is specifically designed for AAC conductors. The aluminum joint is fabricated from Alcoa seamless drawn aluminum. All compression joints are designed for full tension use, achieving a minimum of 95% of the ASTM rated strength of the conductor on which they are used.

For die size sections 30AH and above, the end tapers of the compression portions of all compression accessories are supplied with a high voltage finish.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                               |              | MANUFACTURER<br>CATALOG<br>NUMBER |
|--------------------------------------------------|--------------|-----------------------------------|
| Stock Description                                | Stock<br>No. | ALCOA                             |
| SLEEVE, COMP, TENSION 336KCM AAC19STR, 76AH DIE  | 029310       | 7076.688                          |
| SLEEVE, COMP, TENSION 477KCM AAC19STR, 20AH DIE  | 029380       | 7020.812                          |
| SLEEVE, COMP, TENSION 636KCM AAC 37STR, 24AH DIE | 029400       | 7024.969                          |
| SLEEVE, COMP, TENSION 954KCM AAC 37STR, 30AH DIE | 029460       | 7030.122                          |





**SLEEVES, ACSR  
ALCOA FULL TENSION  
Transmission**

Originator: DSmith

Date: 3/13/2007

Approval: DSmith

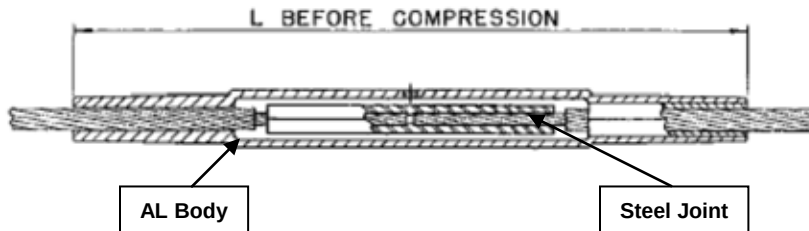
Date: 10/22/2014

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**



**Application:** Used to splice ACSR overhead conductor in full tension.

**Specification:** These compression joint assembly are two piece units consisting of an aluminum body with a separate steel core and shall be specifically designed for ACSR conductors. The aluminum body shall be fabricated from seamless drawn aluminum. All compression joints shall be designed for full tension use, achieving a minimum of 95% of the ASTM rated strength of the conductor on which they are used.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                                          | MANUF CATALOG NUMBER |       |
|--------------------|----------------------------------------------------------|----------------------|-------|
| Stock No.          | Stock Description                                        | ALCOA                | T & B |
| 030340             | Sleeve, Comp, Tension, AL BODY, 4/0 (6/1) ACSR, 75AH DIE | 8075.609             |       |
| 030370             | Sleeve, Comp, Tension, STL JOINT, 4/0 (6/1), 75SH DIE    | 4075.228             |       |
| 030430             | Sleeve, Comp, Tension, AL BODY, 266(26/7), 76AH DIE      | 8076.688             |       |
| 030460             | Sleeve, Comp, Tension, STL JOINT, 266(26/7), 76SH DIE    | 4076.246             |       |
| 030520             | Sleeve, Comp, Tension, AL BODY, 336(26/7), 20AH DIE      | 8020.781             |       |
| 030530             | Sleeve, Comp, Tension, STL JOINT, 336(26/7), 10SH DIE    | 4010.277             |       |
| 030540             | Sleeve, Comp, Tension, STL JOINT, 336(30/7), 10SH DIE    | 4010.332             |       |
| 030550             | Sleeve, Comp, Tension, AL BODY, 636(26/7), 27AH DIE      | 8027.106             |       |
| 030640             | Sleeve, Comp, Tension, STL JOINT, 636(26/7), 12SH DIE    | 4012.386             |       |
| 087180             | Sleeve, Comp, Tension, AL BODY, 397(26/7), 20AH DIE      | 8029.844             |       |
| 087200             | Sleeve, Comp, Tension, STL JOINT, 397(26/7), 10SH DIE    | 4010.301             |       |
| 087240             | Sleeve, Comp, Tension, AL BODY, 477(26/7), 24AH DIE      | 8024.938             |       |
| 087260             | Sleeve, Comp, Tension, STL JOINT, 477(26/7), 12SH DIE    | 4012.332             |       |
| 087360             | Sleeve, Comp, Tension, AL BODY, 795(26/7), 30AH DIE      | 8030.116             |       |
| 087420             | Sleeve, Comp, Tension, AL BODY, 1272(45/7), 36AH DIE     | 8036.147             |       |
| 087440             | Sleeve, Comp, Tension, STL JOINT, 1272(45/7), 16SH DIE   | 4012.351             |       |

**TERMINAL PAD, COMPRESSION**

Originator: DSmith

Date: 5/3/2016

Approval: J. Mitchell

03/29/2016

Page 1 of 2

Revision: Updated description for 050460r

Std's Committee Approval:

**Approved**

**Application:** Used to transition between conductor and NEMA 1, 2 or 4 hole pads. Due to Compression tooling restrictions only use Hubbell/Anderson lugs for the larger sizes. Suitable for AAC, ACSR, or Copper Conductor as shown.

**Specification:** Material: Aluminum, tinned aluminum or Bronze

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

| Stock No. | Maximo Stock Description                                                            | MANUFACTURER CATALOG NUMBER |
|-----------|-------------------------------------------------------------------------------------|-----------------------------|
| 033224    | Terminal Lug, Comp, #4/0 2-Hole 1/2", Bronze                                        | AMP, #276762-1              |
| 050360    | Terminal Lug, Comp, #2, Tin Plated Al, 1-Hole, 3/8" Bolt Size, With Oxide Inhibitor | Homac AL 2-38               |
| 050370    | Terminal Lug, Comp, #2 Tin Plated Al, 2-Hole, 1/2" Bolt, With Oxide Inhibitor       | Hubbell VAUL-1-12BN-TP      |
| 050380    | Terminal Lug, Comp, #1/0, Tin Plated Al, 2-Hole, 1/2" Bolt, With Oxide Inhibitor    | Hubbell VAUL-1/0-12BN-TP    |
| 050390    | Terminal Lug, Comp, #2/0, Tin Plated Al, 2-Hole, 1/2" Bolt, With Oxide Inhibitor    | Hubbell VAUL-2/0-12BN-TP    |
| 050420    | Terminal Lug, Comp, #4/0, Tin Plated Al, 2-Hole, 1/2" Bolt, With Oxide Inhibitor    | Hubbell VAUL-4/0-12BN-TP    |
| 050422    | Terminal Lug, #4/0 Cu, Two Hole NEMA, Copper                                        | Burndy YGHA28-2N            |
| 050424    | Terminal Lug, #4/0 Cu, Two Hole NEMA, Tin Plated Aluminum                           | Burndy YAV282NFXB           |

**- Material Catalog -****CONNECTORS****1011.18**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*

**TERMINAL PAD, COMPRESSION**

Originator: DSmith

Date:5/3/2016

Approval: J. Mitchell

03/29/2016

Page 2 of 2

Revision: Updated description for 050460r

Std's Committee Approval:

**Approved**

| Stock No. | Maximo Stock Description                                                                                    | MANUFACTURER CATALOG NUMBER |
|-----------|-------------------------------------------------------------------------------------------------------------|-----------------------------|
| 050440    | Terminal Lug, Comp, 336kcm, Tin Plated Al, 2-Hole, 1/2" Bolt, With Oxide Inhibitor                          | Hubbell VAUL-350-12BN-TP    |
| 050445    | Terminal Lug, Comp, 336.4 ACSR, Tin Plated Al, 2-Hole, All Purpose                                          | PENN-UNION #KVL-RO33D1      |
| 050450    | Terminal Lug, Comp, 500kcm, Tin Plated Al, 2-Hole, 1/2" Bolt, With Oxide Inhibitor                          | Hubbell VAUL-500-12BN-TP    |
| 050451    | Terminal Lug, Comp, 500kcm, Tin Plated Al, 2-Hole                                                           | Burndy #YAK34A2G2           |
| 050452    | Terminal Lug, Comp, 500kcm, Tin Plated Al, 2-Hole                                                           | Burndy #YAK34A2G1           |
| 050460    | Terminal Lug, Comp, 750kcm, Tin Plated Al, 2-Hole                                                           | Hubbell VAUL-750-12BN-TP    |
| 050480    | Terminal Lug, Comp, 750, Tin Plated Al, 2-Hole                                                              | Homac 750 NTN               |
| 050485    | Terminal Lug, Comp, 750, Tin Plated Al, 2-Hole                                                              | Hubbell ALCF-800B           |
| 050490    | Terminal Lug, Comp, 750kcm To 1000kcm, Tin Plated Al, 2-Hole, 1/2" Bolt, With Oxide Inhibitor               | Hubbell VAUL-1000-12BN-TP   |
| 050495    | Terminal Lug, Comp, 750kcm to 1000kcm, Tin Plated Al, 4-Hole, Short Barrel, 1/2" Bolt, With Oxide Inhibitor | CCLS-1216C                  |
| 050493    | Terminal Lug, Comp, #4/0 AAC, ACSR, 4 hole, Short Barrel, 1/2" Bolt, with Oxide Inhibitor                   | CCLS-563C                   |



**Deadend, Compression, Jumper Terminals,  
15°, ACSR & AAC Transmission Conductors**

Originator: Jeff Flader

Date: 4/25/17

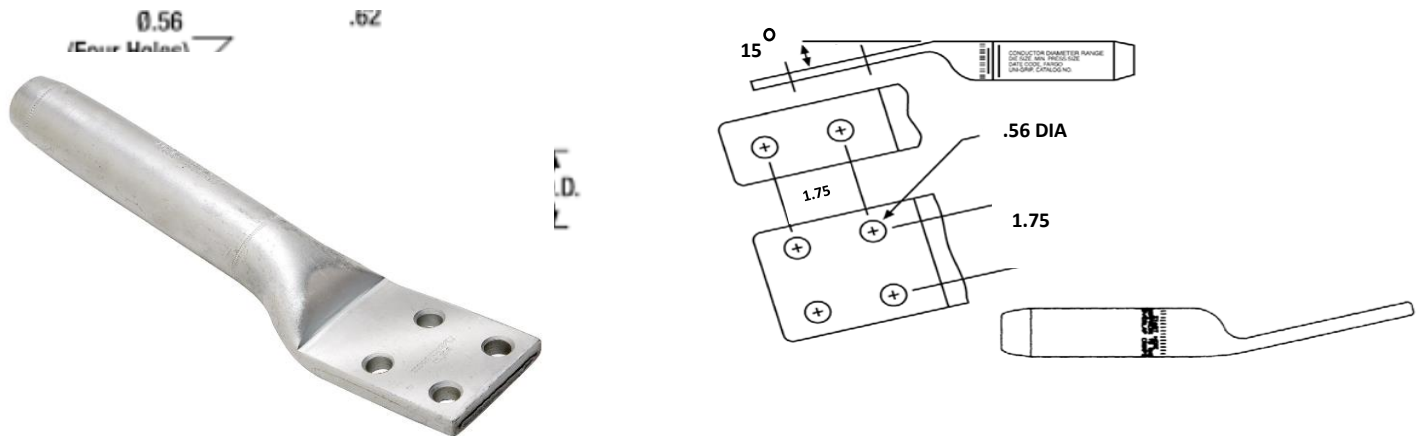
Approval: Jeff Flader

Date: 4/25/17

Page 1 of 1

Revision: **1**

Std's Committee Approval:  
**Approved**



**Application:** Jumper terminals are to be used to connect jumpers to Deadend bodies. Jumper terminals are prefilled with inhibitor. Tongue holes have NEMA spacing.

**Common Name:** Jumper Terminals.

**Approved Manufacturers:** Anderson, Alcoa

| PUD IDENTIFICATION                                                                                                            |           | MANUFACTURER CATALOG NUMBER |          |
|-------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------|----------|
| Stock Description                                                                                                             | Stock No. | Alcoa                       | Anderson |
| Deadend, Compression, Jumper Terminal, 15°, 336 AAC 19 Strand, "Tulip"                                                        | 030285    | TF07                        | JTF07    |
| Deadend, Compression, Jumper Terminal, 15°, 336 ACSR 26/7, "Linnet"                                                           | 030286    | TF08                        | JTF08    |
| Deadend, Compression, Jumper Terminal, 15°, 397 ACSR 26/7, "Ibis"                                                             | 030287    | TF09                        | JTF09    |
| Deadend, Compression, Jumper Terminal, 15°, 477 ACSR 26/7, "Hawk" or 636 AAC 37 Strand, "Orchid"                              | 030288    | TF10                        | JTF10    |
| Deadend, Compression, Jumper Terminal, 15°, 636 ACSR 26/7, "Grosbeak"                                                         | 030289    | TF11                        | JTF11    |
| Deadend, Compression, Jumper Terminal, 15°, 795 ACSR 26/7, "Drake", 795 ACSR 54/7, "Condor" or 954 AAC 37 Strand, "Magnolia". | 030290    | TF12                        | JTF12    |
| Deadend, Compression, Jumper Terminal, 15°, 1272 ACSR 45/7, "Bittern"                                                         | 030291    | TF15                        | JTF15    |
| Deadend, Compression, Jumper Terminal, 15°, 1780 ACSR 84/19, "Chukar"                                                         | 030292    | TF17                        | JTF17    |

**TERMINAL PADS, BOLT-ON, BRONZE**

Originator: DSmith

Date: 6/21/2007

Approval: J Mitchell

Date: 1/11/2013

Page 1 of 1

Revision: Revised verbage.

Std's Committee Approval: Approved



**Application:** Used to connect conductor to a transformer stud terminal or a NEMA 4 hole paddle.

**Specifications:**

Material: Bronze

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                    |           | MANUFACTURER CATALOG NUMBER |
|---------------------------------------|-----------|-----------------------------|
| Stock Description                     | Stock No. | Anderson                    |
| TERMINAL, BOLT ON, BRONZE, STRAIGHT T | 032940    | SF-1-B-2-3                  |

**TERMINAL PADS, WEJTAP, 2-HOLE PADDLE**

Originator: DSmith

Date: 6/21/2007

Approval: DSmith

Date: 10/8/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Used to connector conductor to a NEMA four paddle such as a overhead switch. Brundy Ampact tool is used to install each unit.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** Special Shipping Instructions

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                                              | MANUFACTURER<br>CATALOG<br>NUMBER |
|--------------------|--------------------------------------------------------------|-----------------------------------|
| Stock No.          | Stock Description                                            | Burndy                            |
| 033228             | TERMINAL, WEJTAP, 2-HOLE PADDLE, #6STR-266 ACSR, #6STR 300AL | WCAB30R-2N                        |
| 033232             | TERMINAL, WEJTAP, 2-HOLE PADDLE, 266-556 ACSR                | WCAY39R-2N                        |
| 033236             | TERMINAL, WEJTAP, 2-HOLE PADDLE, 605-1033 ACSR               | WCAY49R-2N                        |



**TAPS, COMPRESSION, WEJTAP AND POWER BOOSTER**

Originator: DSmith

Date: 2/13/2015

Approval: J. Mitchell

Date: 2/17/2015

Page 1 of 2

Revision:  
Removed STK# 032635

Stds Committee Approval:  
**9/22/06**



**Application:** WEJTAP connectors use an aluminum alloy wedge that is power-driven between the run and the tap cables locking them into a "C" shaped tempered aluminum alloy spring-body. The spring-body maintains pressure throughout the life of the connection to ensure reliability during severe electrical and climatic conditions.

Specification: The District has standardized on Burndy as a sole source for this product due to tooling issues.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers: Burndy Only**

| Stock # | DESCRIPTION                                                                          | Burndy     |
|---------|--------------------------------------------------------------------------------------|------------|
| 032604  | WEJTAP, YELLOW RUN (ACSR, AAC) 795, TAP (ACSR, AAC, CU) 266.8, 250                   | WCY78 PB   |
| 032622  | WEJTAP, YELLOW RUN 1033.5, 954 ACSR, 1033 AAC, TAP 795KCM ACSR, 795/954 AAC, 1000 CU | WCY87 PB   |
| 032639  | WEJTAP, 250-450KCM STR CU TO 5/8" GROUND ROD                                         | 2-276337-3 |
| 032561  | WEJTAP, BLUE, RUN (ACSR, AAC) #2, 1/0, #2/0, TAP (ACSR, AAC, CU) #2, 1/0             | WCB10 PB   |
| 032574  | WEJTAP, BLUE, RUN (ACSR, AAC) #2/0, 3/0, 4/0, TAP (ACSR, AAC, CU) #2, 1/0, #2/0      | WCB11 PB   |
| 032571  | WEJTAP, BLUE, RUN #4/0 ACSR/AAC, TAP #4ACSR/ AAC/CU                                  | WCB16 PB   |
| 032577  | WEJTAP, BLUE, RUN 3/0/4/0 ACSR/AAC, TAP #2/0/3/0 ACSR/ AAC/CU                        | WCB18 PB   |
| 032580  | WEJTAP, BLUE, RUN #4/0 ACSR/AAC, TAP #4/0 ACSR/ AAC/CU                               | WCB20 PB   |
| 032640  | WEJTAP, BLUE, RUN 336.4KCM ACSR/AAC, TAP 266.8/336.4KCM ACSR/AAC/CU                  | WCB47 PB   |
| 032568  | WEJTAP, RED, RUN #2 ACSR/AAC, TAP #2AAC/CU                                           | WCR30 PB   |
| 032565  | WEJTAP, RED, RUN #2ACSR/AAC, TAP #4 ACSR/AAC/CU                                      | WCR31 PB   |



**- Material Catalog -****CONNECTORS****1011.22**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*

**TAPS, COMPRESSION, WEJTAP AND POWER BOOSTER**

Originator: DSmith

Date: 2/13/2015

Approval: J. Mitchell

Date: 2/13/2015

Page 2 of 2

Revision:  
Removed STK# 032635

Stds Committee Approval:  
**9/22/06**

|        |                                                                                      |            |
|--------|--------------------------------------------------------------------------------------|------------|
| 032562 | WEJTAP, RED, RUN, #6, #4 ACSR/AAC, TAP #6 ACSR/AAC/CU                                | WCR33 PB   |
| 032619 | WEJTAP, YELLOW, RUN 954/1033.5KCM ACSR/AAC, TAP #2 ACSR/AAC/CU                       | WCY100 PB  |
| 032625 | WEJTAP, YELLOW, RUN 397.5KCM AAC, TAP #2AAC/CU                                       | WCY50 PB   |
| 032583 | WEJTAP, YELLOW, RUN 397.5KCM AAC, TAP 1/0AAC/CU                                      | WCY51 PB   |
| 032586 | WEJTAP, YELLOW, RUN 397.5KCM AAC, TAP #4/0AAC/CU                                     | WCY54 PB   |
| 032584 | WEJTAP, YELLOW, RUN 397.5KCM AAC, TAP 336.4/397.5KCM AAC, 350 CU                     | WCY56 PB   |
| 032598 | WEJTAP, YELLOW, RUN 556.5KCM ACSR/AAC, TAP 556.5KCM ACSR/AAC                         | WCY60 PB   |
| 032592 | WEJTAP, YELLOW, RUN 397.5/556.5KCM ACSR/AAC, TAP 266.8/336.4/397.5KCM ACSR/AAC/CU    | WCY62 PB   |
| 032587 | WEJTAP, YELLOW, RUN 397.5KCM/477KCM/556.5KCM ACSR/AAC, TAP #4/0/266.8KCM ACSR/AAC/CU | WCY63 PB   |
| 032616 | WEJTAP, YELLOW, DIAMTERS: RUN: 1.133-0.907, TAP 1.142-0.907                          | WCY73 PB   |
| 032607 | WEJTAP, YELLOW, RUN 795KCM ACSR, TAP 556.5KCM ACSR                                   | WCY74 PB   |
| 032613 | WEJTAP, YELLOW, RUN 795KCM ACSR/AAC, TAP 477KCM ACSR, 556.5KCM AAC, 500CU            | WCY75 PB   |
| 032610 | WEJTAP, YELLOW, RUN 795KCM ACSR/AAC, TAP 336.4/397.5KCM ACSR/AAC/CU                  | WCY77 PB   |
| 032601 | WEJTAP, YELLOW, RUN 795KCM ACSR/CU, TAP 3/0/4/0 ACSR, #4/0 AAC/CU                    | WCY79 PB   |
| 032589 | WEJTAP, YELLOW, RUN 795KCM ACSR/AAC, TAP 1/0/2/0 ACSR/AAC/CU                         | WCY81 PB   |
| 028620 | SHELL,WEJTAP POWER BOOSTER, RED                                                      | WPBR-BOX25 |
| 028615 | SHELL,WEJTAP POWER BOOSTER, BLUE                                                     | WPBB-BOX25 |
| 028630 | SHELL,WEJTAP POWER BOOSTER, WHITE                                                    | WPBW-BOX25 |
| 028625 | SHELL,WEJTAP POWER BOOSTER, YELLOW                                                   | WPBY-BOX25 |





## Sleeves, Automatic Tension, Copper

Originator: DSmith

Date: 7/7/2006

Approval: J.Mitchell

Date: 8/13/2014

Page 1 of 1

Revision: CORRECTED ITEM #

Stds Committee Approval:

**Approved****Application**

Automatic splicing sleeve shall be full tension, straight-line, for splicing copper conductors.

**Salvage Instructions**

Automatic sleeves for copper shall not be reused except to readjust during initial installation.

**Specifications:**

**Construction:** Connectors shall be flare mouth design.

**Strength:** Connector shall be capable of holding conductor to 95% of the conductor breaking strength.

**Material:** Connector shall be constructed of copper tubing with bronze jaws that are inhibitor loaded.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's catalog number shall be on each part and its packaging.

**Approved Manufacturers**

| <b>PUD IDENTIFICATION</b>                                      |                      | <b>MANUFACTURERS<br/>CATALOG #</b> |                |
|----------------------------------------------------------------|----------------------|------------------------------------|----------------|
| <b>Stock Description</b>                                       | <b>Stock<br/>No.</b> | <b>Fargo</b>                       | <b>MacLean</b> |
| SLEEVE, AUTO, FULL TENSION, #6 SOLID AND #8 STR CU             | 029530               | GL-111                             | 61             |
| SLEEVE, AUTO, FULL TENSION, #4 SOL CU AND 8A CUWELD            | 029620               | GL-112                             | 41             |
| SLEEVE, AUTO, FULL TENSION, #6A CU WELD, #3 SOL CU, #4 STR, CU | 030790               | GL-113                             | 47             |
| SLEEVE, AUTO, FULL TENSION, #2 SOL CU                          | 029680               | GL-114                             | 21             |
| SLEEVE, AUTO, FULL TENSION, 1/0 SOL, CU #1 STR CU, 3A CU WELD  | 029740               | GL-116                             | 101            |
| SLEEVE, AUTO, FULL TENSION, #2/0 SOL CU, 1/0 STR CU            | 029770               | GL-117                             | 107            |
| SLEEVE, AUTO, FULL TENSION, 3/0 SOL CU, #2/0 STR CU            | 029850               | GL-118                             | 207            |
| SLEEVE, AUTO, FULL TENSION, #4/0 SOL CU, 3/0 STR CU            | 029790               | GL-119                             | 307            |
| SLEEVE, AUTO, FULL TENSION, 4/0 STR CU                         | 029880               | GL-120                             | 407            |
| SLEEVE, AUTO, FULL TENSION, 250 STR CU                         | 029910               | GL-121                             | 250            |
| SLEEVE, AUTO, FULL TENSION, #1 SOL CU, #2 STR CU, #4A CUWELD   | 030880               |                                    | 27             |
| SLEEVE, AUTO, FULL TENSION, REDUCER, #4CU TO #2CU              | 030911               | GL-150                             |                |



**SLEEVE, AUTOMATIC**  
**For ACSR/AAC/AAAC Conductor**

Originator: DSmith

Date: 10/31/2022

Approval: J. Mitchell

Date: 10/25/2022

Page 1 of 1

Revision: **Added #2 ACSR/AAC/AAAC**

Std's Committee Approval:  
**Approved**



**Application:** Used to splice two overhead conductors together. Conductor may be same or different sizes. Initial tension representing 15% of the Conductor Rating is required to assure a permanent low resistance electrical connection. Used on ACSR, AAC and AAAC Conductor.

**Common Name:** Automatic Sleeves

**Specifications:** Each unit shall be rated to hold a minimum of 95% of the rated breaking strength of the conductor. Each unit shall be made of high strength aluminum alloy and contain inhibitor compound.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                 |           | Manufacturer Catalog Number |           |         |         |        |           |
|----------------------------------------------------|-----------|-----------------------------|-----------|---------|---------|--------|-----------|
| Stock Description                                  | Stock No. | Color Code                  | T&B       | Hubbell | MacLean | Fargo  | Alum Form |
| Sleeve, Auto, Tension, #4 ACSR/AAC/AAAC            | 030100    | Orange                      | ATS4      | GL402A  | 7651    |        | ASC4      |
| Sleeve, Auto, Tension, #4-#2 ACSR/AAC/AAAC         | 030913    | Red/Orange                  | ATS42     | GL4042A | 7652AP  |        | ASC42     |
| Sleeve, Auto, Tension, #2 ACSR/AAC/AAAC            | 030915    | Red                         |           | GL404A  |         |        |           |
| Sleeve, Auto, Tension, #1/0 - #2/0 ACSR/AAC/AAAC   | 030220    | Gray/Yellow                 | ATS1020   | GL4076A | 7654AP  |        | ASC1020   |
| Sleeve, Auto, Tension, #3/0-#4/0 ACSR/AAC/AAAC     | 030310    | Pink/Black                  | ATS3040   | GL4098  | 7656AP  | GL-409 | ASC3040   |
| Sleeve, Auto, Tension, #266- #336kcm ACSR/AAC/AAAC | 029300    | Green/Brown                 | ATS266336 | GL411   | 7658AP  |        | ASC266366 |
| Sleeve, Auto, Tension, #636kcm AAC                 | 029420    | Natural                     | -----     | GL1333A | -----   |        | ASC636    |

**STRANDVISE**

Originator: Jeff Flader

Date: 1/25/2012

Approval: Jeff Mitchell

Date: 1/25/2012

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:



**Application:** For deadend applications with overhead or down guy wire.

**Common Name:** Strandvise

**Specification:** Shall be designed to hold a minimum of 90% of rated breaking strength of the strand used.

**Ordering Description:**

- Strandvise, 6m Guy, Automatic W/Solid Bail, 13.87" W/Bail, Wire Range .215-.270, 1/4"
- Strandvise, 12.5m Guy, Automatic W/Solid Bail, 18" W/Bail, Wire Range .325-.392, 3/8"
- Strandvise, 25m Guy, Automatic W/Solid Bail, 16.3" or 20.5" W/Bail, Wire Range .455"-.520", 1/2"

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                  |           | MANUFACTURER CATALOG NUMBER |         |
|-----------------------------------------------------|-----------|-----------------------------|---------|
| Stock Description                                   | Stock No. | MACLEAN                     | HUBBELL |
| STRANDVISE, 6M GUY, AUTOMATIC W/SOLID BAIL, 13.87"  | 032210    | 5200                        | GDE5200 |
| STRANDVISE, 12.5M GUY, AUTOMATIC W/SOLID BAIL, 18"  | 032230    | 5202                        | GDE5202 |
| STRANDVISE, 25M GUY, AUTOMATIC W/SOLID BAIL, 16.31" | 034444    | 5204                        |         |
| STRANDVISE, 25M GUY, AUTOMATIC W/SOLID BAIL, 20.5"  | 032250    | 5204-L                      |         |

**STRANDLINK**

Originator: DSmith

Date: 7/7/06

Approval: J Mitchell

Date: 1/25/2012

Page 1 of 1

Revision: **Updated Description**Std's Committee Approval:  
**Approved**

**Application:** An automatic full-tension splice for steel guy wire may be used to repair guy wire that is broken or moved. Do not salvage.

**Common Name:** Pickle

**Specification:** Automatic full tension splice for (size) steel guy wire. Splice shall be designed to hold a minimum of 90 percent of the rated breaking strength of the guy wire.

| Breaking Strength of Steel Guy Wire |            |
|-------------------------------------|------------|
| 1/4 inch                            | 5,000 lbs  |
| 3/8 inch                            | 16,000 lbs |
| 1/2 inch                            | 25,000 lbs |

**Material:** Body: 6061-T6 aluminum alloy; Jaws: 1010 steel, case hardened; Spring: Hard drawn tinned steel.

**Packaging and Marking:** Each guy splice shall be filled with corrosion inhibiting compound and individually packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol, catalog number and guy wire size shall be permanently marked on each item.

**Approved Manufacturers:**

| PUD IDENTIFICATION          |          | Manufacturer Catalog Number |         |
|-----------------------------|----------|-----------------------------|---------|
| Stock Description           | Stock No | MacLean                     | Hubbell |
| Strandlink, 6m guy, 1/4"    | 032050   | 5040                        | GLS5040 |
| Strandlink, 12.5m guy, 3/8" | 032070   | 5042                        | GLS5042 |
| Strandlink, 25m guy, 1/2"   | 032090   | 5044                        |         |

**CONNECTOR, BOLTED STATION BUS, STUD  
NEMA 4 HOLE PAD**

Originator: DSmith

Date: 7/7/06

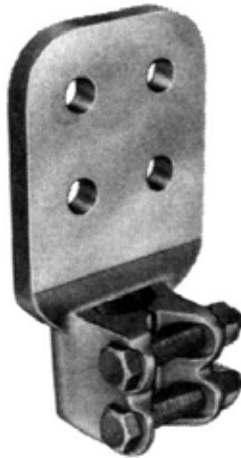
Approval: DSmith

Date: 6/27/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**

**Application:** Used to connect equipment stud terminals/Station Bus to NEMA four hole paddle.

**Specification:** Material: Bronze alloy

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                 |           | MANUFACTURER CATALOG NUMBER |         |            |
|------------------------------------|-----------|-----------------------------|---------|------------|
| Stock Description                  | Stock No. | Anderson                    | Gibbons | Joslyn     |
| Connector, Stud To NEMA 4 Hole Pad | 046270    | HDSF10-1-3-3/8-14           | GB1386  | 80-110/87D |



Connections, Ground - Exothermic

Originator: DSmith

Date: 5/10/2005

Approval: DSmith

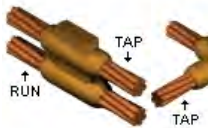
Date: 7/9/2007

Page 1 of 1

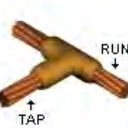
Revision: Added Figure Identifier

Stds Committee Approval:

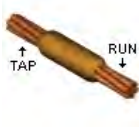
5/14/05



PT



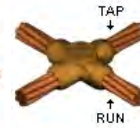
TA



SS



XA



GT



VS



Weld Material

**Application:**

Consists of a mold filled with weld material and then ignited to produce a permanent, low resistance connection in substations. Connections shall suitable for exposure to the elements or direct burial without degradation over the lifetime of the grounding system.

**General and Safety Instructions:**

1. Welding material is an exothermic mixture and reacts to produce hot molten material with temperatures in excess of 1400°C (2500°F) and a localized release of smoke. These materials are not explosive. Ignition temperatures are in excess of 900°C (1650°F) for welding material.
2. Make connections in conformance with Manufactures instructions and all governing codes.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Current Approved Manufacturers:**

| Maximo Description |                                                             |     | MFG CATALOG NUMBER |                 |           |
|--------------------|-------------------------------------------------------------|-----|--------------------|-----------------|-----------|
| Stock No.          | Stock Description                                           | Fig | CADWELD            | Weld Metal Type | Unit      |
| 11329              | Connector Mold, Exothermic, Tee, 350 Run - 4/0 Tap          | TA  | TAC3D2Q            | 150             | Each      |
| 11330              | Connector Mold, Exothermic, Splice, 350 Run - 350 Tap       | SS  | SSC3D,             | 150             | Each      |
| 11449              | Connector Mold, Exothermic, 4/0 Cable-Flat Steel Surface    | VS  | VSC3D              | 200             | Each      |
| 11450              | Connector Mold, Exothermic, 4/0 Cable-2" Pipe Surface       | VS  | VSC2QV2            | 115             | Each      |
| 080006             | Connector Mold, Exothermic, 4/0 Cable To 3/4" Ground Rod    | GT  | GTC182Q            | 115             | Each      |
| 080004             | Connector Mold, Exothermic, Cross, 4/0 Run - 4/0 Tap        | XA  | XAC2Q2Q            | 200             | Each      |
| 080000             | Connector Mold, Exothermic, Parallel, 4/0 Run - 4/0 Tap     | PT  | PTC2Q2Q            | 200             | Each      |
| 080008             | Connector Mold, Exothermic, Splice, 4/0 Run - 4/0 Tap       | SS  | SSC2Q              | 90              | Each      |
| 080002             | Connector Mold, Exothermic, Tee, 4/0 Run - 4/0 Tap          | TA  | TAC2Q2Q            | 150             | Each      |
| 080009             | Connector, Mold, Exothermic, 4/0 Cable To 2-3/8" Steel Pipe | VS  | VSC2QV2.5          | 115             | Each      |
| 165246             | Connector, Exothermic, Weld Metal #90                       |     | 90                 | n/a             | Box of 20 |
| 100401             | Connector, Exothermic, Weld Metal #115                      |     | 115                | n/a             | Box of 20 |
| 147235             | Connector, Exothermic, Weld Metal #150                      |     | 150                | n/a             | Box of 20 |
| 147236             | Connector, Exothermic, Weld Metal #200                      |     | 200                | n/a             | Box of 20 |
| 100402             | Connector, Exothermic, Weld Metal #250                      |     | 250                | n/a             | Box of 20 |



# CONNECTORS Underground

Originator: DSmith

Date: 7/11/2007

Approval: DSmith

Date: 7/11/2007

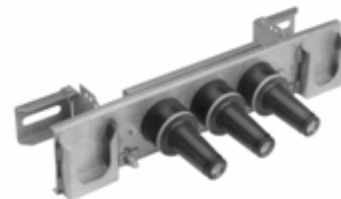
Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



# CONNECTORS Underground





**Terminations, UG 15kV Cable,  
COLD SHRINK**

Originator: DSmith

Date: 7/2/2007

Approval: DSmith

Date: 10/8/2008

Page 1 of 1

Revision: Changed 9" to 6" stinger

Stds Committee Approval:

**Approved****#2 – 4/0 Concentric Neutral  
Jacketed Cable**

**Application:** This primary cable terminator shall provide a weather tight seal to connect 15 kV jacketed concentric neutral cables or tape shield neutral cables to overhead distribution facilities. It shall be suitable for Indoor & outdoor installations.

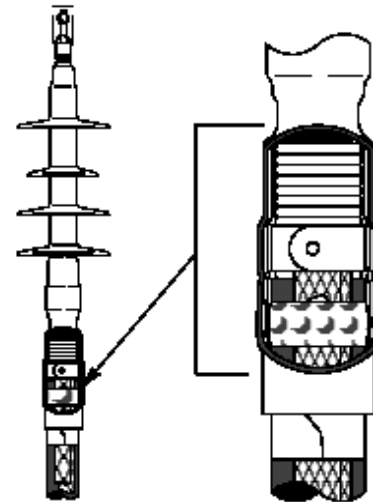
**Specification:** This skirted termination kit shall be designed for jacketed UG cable, and contain all necessary components for cable termination including silicone molded rubber termination, connectors (if specified), rubber tape, clips, springs, ground braids (if required), silicone grease and 1 instruction sheet.

The insulators shall be pre-stretched around a spiral -wound, plastic core. When the terminator is slipped over a properly prepared cable and the core is removed, the terminator immediately shrinks to the cable's dimensions. The result is a void-free, flexible seal without special tools or torches.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                                                                                    | MANUFACTURER CATALOG NUMBER |       |
|--------------------|----------------------------------------------------------------------------------------------------|-----------------------------|-------|
| Stock No.          | Stock Description                                                                                  | 3M                          | MFG 2 |
| 049050             | TERM, CABLE, 15KV #2 AL JKT CU CN, COLD SHRINK SILICONE RUBBER KIT, 110kV BIL W/ 6" STINGER        | 7642-S-2-2                  |       |
| 049280             | TERM KIT, CABLE, 15KV #4/0 AL JKT CU CN, COLD SHRINK SILICONE RUBBER KIT, 110kV BIL W/ 6" STINGER  | 7642-S-2-4/0                |       |
| 049290             | TERM, 15KV CABLE, 750-1000 KCM AL, CU TAPE SHIELD, COLD SHRINK, 150KV BIL, NO CONNECTOR, 3 PER KIT | 7655-S-HSG-4                |       |

**1000kcm Tape Shield Jacketed Cable**



**SLEEVES/SPLICES, UG 15Kv CABLE**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 8/7/2008

Page 1 of 1

Revision: Moved 600V splices to 1019.11

Stds Committee Approval:

**Approved****UG 15kV Cable Splice, Cold Shrink****UG 15kV Splice, one piece**

**Application:** Used to splice underground secondary or primary cable.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                     |           | MANUFACTURER CATALOG NUMBER |                                       |
|------------------------------------------------------------------------|-----------|-----------------------------|---------------------------------------|
| Stock Description                                                      | Stock No. | 3M                          | Other                                 |
| SPLICE, ONE-PC. W/ COMP INSERT, 9.5"L, #2AL 15kV UG                    | 048500    | 5411-CI-21                  | COOPER<br>SP15A002                    |
| SPLICE, ONE-PC. W/ COMP INSERT, 11.1"L, 1/0 15kV UG                    | 048600    | 5411-CI-1/0                 |                                       |
| SPLICE, ONE-PC. W/ COMP INSERT, 11.1"L, #1 15kV UG                     | 048610    | 5411-CI-21                  |                                       |
| SPLICE, ONE-PC. W/ COMP INSERT, 11.1"L, 4/0 15kV UG                    | 048620    | 5412-CI-4/0                 |                                       |
| SPLICE, 1000KCM, 19"L, 15Kv UG, 600amp                                 | 048680    | 5516-1000-AL                |                                       |
| SPLICE, STRAIGHT LINE, COND. SHLD., .625"-.735"                        | 048700    |                             | ELASTIMOLD:<br>25SFAB1AX              |
| SPLICE, RED IN LINE, TYPE A KIT, 15kV, 600AMP, 11"L                    | 048850    |                             | ELASTIMOLD:<br>25SFB1AX               |
| SPLICE, IN LINE KIT, 15KV, 3PH SOLID, ARMORED CABLE, 63"L, #2-4/0      | 048900    |                             | RAYCHEM:<br>SMO-AE1024 HVA-<br>3-1521 |
| SPLICE, IN LINE CABLE REPAIR, 15KV, 16"L, #1STR W/ CN, #1-1/0SOL W/ CN | 048505    | 5411R-CIR-21                |                                       |

**CABLE SEALING KITS & CAPS**

Originator: DSmith

Date: 7/25/2006

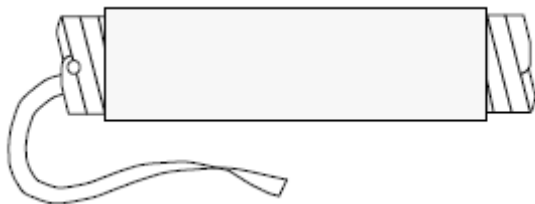
Approval: DSmith

Date: 6/27/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved****Cold Shrink Cable Sealing Kit****Cap, Cable End Seal**

**Application:** Used to seal jacketed primary cable when installing elbows or to seal the end of the primary cable still remaining on the reel.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** Special Shipping Instructions

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                           |           | MANUFACTURER CATALOG NUMBER |        |         |
|------------------------------------------------------------------------------|-----------|-----------------------------|--------|---------|
| Stock Description                                                            | Stock No. | 3M                          | T&B    | Homac   |
| CONNECTOR, CABLE SEALING KIT, COLD SHRINK, 15KV, 5"L, #2-4/0 JACKETED        | 048200    | 8452                        | 200ECS | -       |
| CONNECTOR, CABLE SEALING KIT, COLD SHRINK, 15KV, 6.5"L, 2/0-1000KCM JACKETED | 048300    | 8453                        | 600ECS | -       |
| CAP, CABLE END SEAL, 1000MCM, 3"L, 1.86"-2.23", RUBBER                       | 047050    | -                           | -      | CAP-150 |

**Elbow, 15kv 200 Amp Loadbreak  
With Test Point and  
Integrated Jacket Seal**

Originator: D. Smith

Date: 9/14/2010

Approval: J. Mitchell

Date: 11/30/11

Page 1 of 1

Revision: Removed Elastimold from approved standards due to operational problems.  
Updated Cooper Catalog Number. Removed Hubbell. Changed title.

Std's Committee Approval:

**Approved**

**Application:** The 200 amp loadbreak separable elbow-bushing connector is suitable for connecting URD underground cable to URD transformers and switchgear. It provides a grounded, deadfront, submersible cable connection. Loadbreak and load make operations require the aid of a live-line tool (shotgun stick with elbow puller).

**Specification:** The loadbreak elbow will be supplied with voltage test point and pulling eye. The elbow male contact rod and the threaded cable compression connector shall be designed to assure a secure, low resistance connection. Bi-metallic construction is required for the connector, with aluminum crimp tube and copper threaded to accept copper contact rod. The connector shall be prefilled with inhibitor. The loadbreak elbow shall meet all the requirements of ANSI/IEEE 386 - latest revision. A method of sealing the elbow to the URD cable shall be provided by a built in jacket seal.

**Voltage Rating:** The elbow and bushing shall be capable of closing on or opening full phase-to-phase voltage.

**Current Rating:** The elbow and bushing shall be capable of conducting 200 amps continuously and 10,000 amps for 10 cycles momentary or during fault closure at maximum phase-to-phase voltage.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage in separate polyethylene bags. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                            |           | MANUFACTURER CATALOG NUMBER |           |
|-----------------------------------------------------------------------------------------------|-----------|-----------------------------|-----------|
| Stock Description                                                                             | Stock No. | Cooper                      | Hubbell   |
| Elbow, #2 str 15kv, 200amp, Loadbreak W/Test Point and Integrated Jacket Seal.                | 044950    | LEJ215AB04T                 | 215LEJ43T |
| Elbow, #1/0 str - #2/0 Solid, 15kv, 200amp, Loadbreak W/Test Point and Integrated Jacket Seal | 045110    | LEJ215AB06T                 | 215LEJ45T |
| Elbow, #4/0 str, 15kv, 200amp, Loadbreak W/Test Point And Integrated Jacket Seal              | 045250    | LEJ215DD09T                 | 215LEJ58T |



**ELBOW, 600AMP, 15Kv,  
NON-LOAD BREAK  
UG CABLE TERMINATION SYSTEM**

Originator: DSmith

Date: 4/10/2007

Approval: J Mitchell

Date: 11/30/2011

Page 1 of 3

Revision: **Updated Cooper Catalog #'s**

Std's Committee Approval:

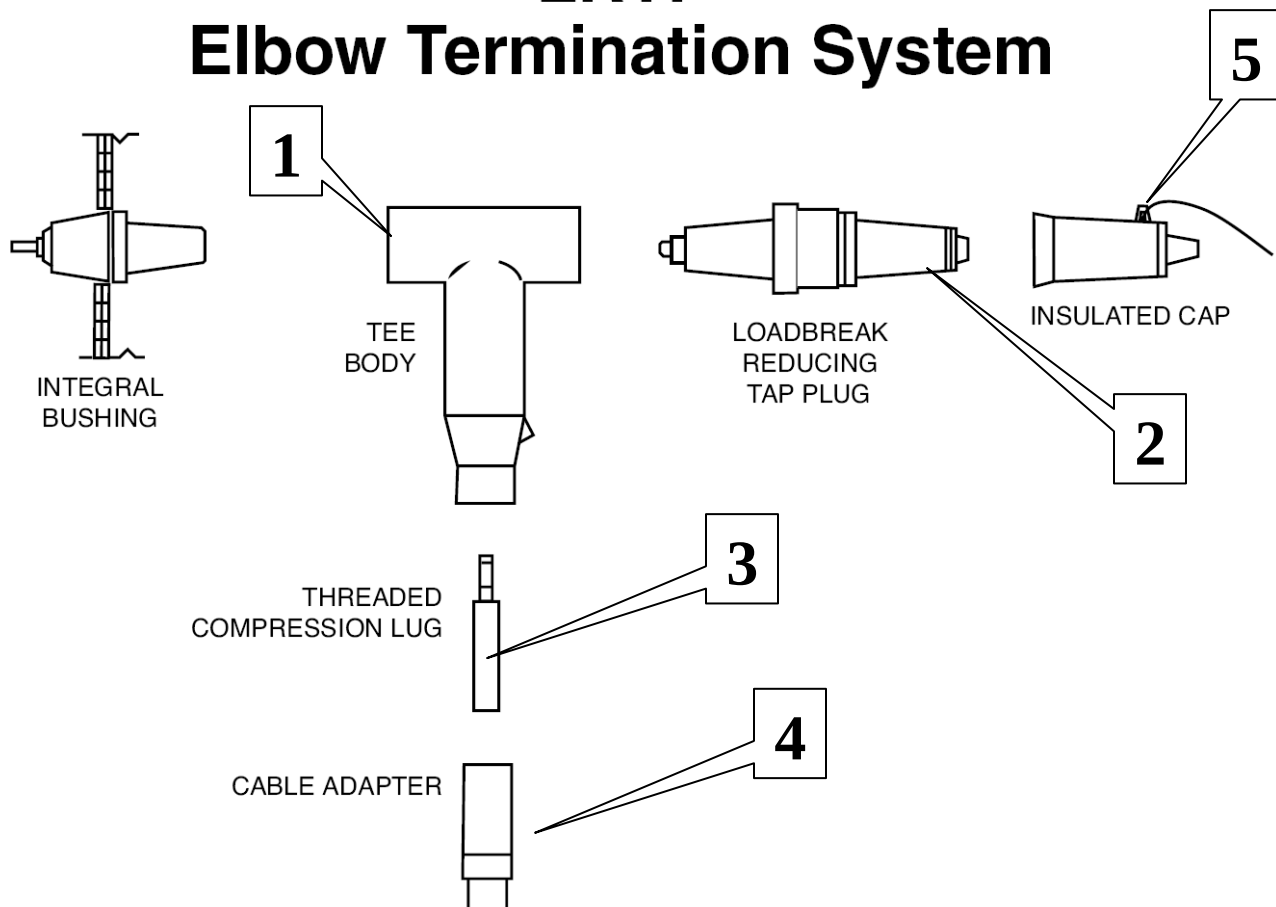
**Approved**

**Application:** The 600Amp 15kV rated LRTP Deadbreak Termination System is designed to connect medium voltage UD cable to switchgear, transformers, sectionalizing cabinets and UD vault applications. It is fully compliant with IEEE-386 Standard and mates with bushing components that also comply with the IEEE-386 Standard.

The LRTP system uses a threaded compression lug allowing the LRTP to be threaded into the T-body forming an integral termination system. The LRTP system is ideal for applications where the termination will be moved to achieve a visible break and ground. The integral termination system, T-body and LRTP as one unit, makes it easier to install and remove from the mating bushing interface. This interface allows for live test, phasing and visible ground. In addition, it can be used to add a tap, or install an Arrester Elbow to protect the system from voltage surges.

**Common Name:** Hammer Heads

## LRTP Elbow Termination System





**ELBOW, 600AMP, 15Kv,  
NON-LOAD BREAK  
UG CABLE TERMINATION SYSTEM**

Originator: DSmith

Date: 4/10/2007

Approval: DSmith

Date: 4/10/2009

Page 2 of 3

Revision: **NEW**

Stds Committee Approval:

**Approved**

| Item # | Application                                                                                                                                                                                                                                                                                                                                      |                                                                                       |
|--------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
| 1      | <b>T-Body</b> - The Deadbreak Elbow is designed to terminate power cables with copper or aluminum conductors ranging in sizes from #2 AWG to 1250MCM. It may be installed on any 600 amp rated (aluminum) or 900 amp rated (copper) deadbreak apparatus bushing that meets IEEE Standard 386 latest revision for Separable Insulated Connectors. |    |
| 2      | <b>LRTP</b> - The 600/900 amp LRTP is designed to tap a 200 amp loadbreak interface device to an existing 600/900 amp deadbreak using a bolted connection. A common application is for grounding and isolating 600/900 amp systems. The LRTP is fault-close rated to 10,000 amps and complies with IEEE 386.                                     |    |
| 3      | <b>Connector Compression</b> , Copper Top Threaded This is a bimetal compression connector that is thread with a 15/16 hole.                                                                                                                                                                                                                     |    |
| 4      | <b>Cable Adapters</b> accommodate power cable insulation diameters from 0.530 to 1.935 inches                                                                                                                                                                                                                                                    |   |
| 5      | <b>Insulating Protective Cap</b> - The insulating cap isolates unused 600 amp interfaces.                                                                                                                                                                                                                                                        |  |
| 6      | <b>Connecting Plug</b> is required exclusively for applications involving the joining or connecting of two or more molded 600 elbows. Wrench holes are provided to tighten the Connecting Plug into a 600 or 900 amp Deadbreak Elbow by using a standard spanner wrench.                                                                         |  |
| 7      | <b>Basic Insulating Plug with Cap</b> - The Basic Insulating Plug is required to secure the molded rubber 600 amp elbow in place.                                                                                                                                                                                                                |  |
| 8      | The <b>Torque Tool</b> is required to check the torque of a 15 kV Class T-OP II deadbreak connector or bushing adapter when it is installed on a 600 A bushing interface. It is precision calibrated and shotgun stick operable.                                                                                                                 |  |
| 9      | <b>T-WRENCH</b> , The T-Wrench is used to install the Loadbreak Reducing Tap Plug into the Bushing Extender.                                                                                                                                                                                                                                     |  |
| 10     | <b>SHIELD ADAPTERS/SEALING AND GROUNDING KIT</b><br>Used for cold shrink sealing and grounding tape shielded cables.                                                                                                                                                                                                                             |  |

**- Material Catalog -****CONNECTORS - UG****1019.05**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



**ELBOW, 600AMP, 15Kv,  
 NON-LOAD BREAK  
 UG CABLE TERMINATION SYSTEM**

Originator: DSmith

Date: 4/10/2007

Approval: J Mitchell

Date: 11/30/2011

Page 3 of 3

Revision: **Updated Cooper Catalog #'s**

Std's Committee Approval:

**Approved****Approved Manufacturers:**

| PUD IDENTIFICATION |                                                                                                |           | MANUFACTURER CATALOG NUMBER |            |          |
|--------------------|------------------------------------------------------------------------------------------------|-----------|-----------------------------|------------|----------|
| Item               | Stock Description                                                                              | Stock No. | Hubbel                      | Elastimold | Cooper   |
| 1                  | Elbow, Tee Body W/Test Point, 15kv/25kv, 600amp, (Hammerhead)                                  | 045350    | 625TBT                      |            | DT625T   |
| 2                  | Plug, Load Reducing Tap, Load Break W/Extended Stud, 15kv, 200amp (LRTP For Hammerhead)        | 047020    | 615LRTP                     |            | LRTP615  |
| 3                  | Connector, Compression, Copper Top #1000 Al With 15/16" Threaded Hole For Hammerhead           | 044530    | 625LUGB41T                  | 04601-410  | CC6C27T  |
| 3                  | Connector, Compression, Copper Top 750kcm Al & Copper With 15/16" Threaded Hole For Hammerhead | 044520    | 625LUGB38T                  | #04601-380 | CC6C25T  |
| 3                  | Connector, Compression, Copper Top #4/0 Al With 15/16" Threaded Hole For Hammerhead            | 044460    | 625LUGB27T                  |            | CC6C16T  |
| 4                  | Cable Adapter, 1000 kcm, For Hammerhead Elbow, 1.58"                                           | 040530    | 625CAM                      | 655C-A-N   | CA625GG  |
| 4                  | Cable Adapter, 750 kCM, For Hammerhead Elbow 1.37 – 1.43                                       | 040500    | 625CAM                      |            | CA625FF  |
| 4                  | Cable Adapter, 15kV, 175mil #4/0 CN (0.93"), For Hammerhead Elbow                              | 040400    | 625CAH                      | 655 CA-GB  | CA625CC  |
| 5                  | Insulating Protective Cap                                                                      | 041850    | 625IC                       |            | DPC625UT |
| 6                  | Connecting Plug                                                                                | 046900    | 625CP                       |            | DCP625A  |
| 7                  | Basic Insulating Plug with Cap (w/o Stud)                                                      | 047000    | 625BIP                      |            | DIP625A  |
| 8                  | Wrench Torque Tool For 600 Amp 15kV Hammerhead Interfaces                                      | 041655    |                             |            | TQHD625  |
| 9                  | T-Wrench for Hammerheads                                                                       | Tool Rm   |                             |            | TWRENCH  |
| 10                 | Grounding Adapter for Drain Wire Tape shield Cable - 1000kcm Al Or Cu                          | 041900    |                             | 30MAKA     |          |
| 11                 | Grounding Adapter for Drain Wire Tape shield Cable - 750kcm Al Or Cu                           | 041870    | 2637326B17M                 | 21 MA-JB   |          |
| 12                 | Basic Insulating Plug w/cap and stud                                                           | 046950    |                             | 600DP      | DIP625AS |
| 13                 | Cold Shrink Adapter Kit for 350-1000MCM w/copper braid and spring                              | 048250    |                             |            | SA3      |

**Packing and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.



**JUNCTION BARS, 15KV FOR  
600A AND 200A SEPARABLE CONNECTORS**

Originator: DSmith

Date: 7/20/2006

Approval: DSmith

Date: 7/9/2007

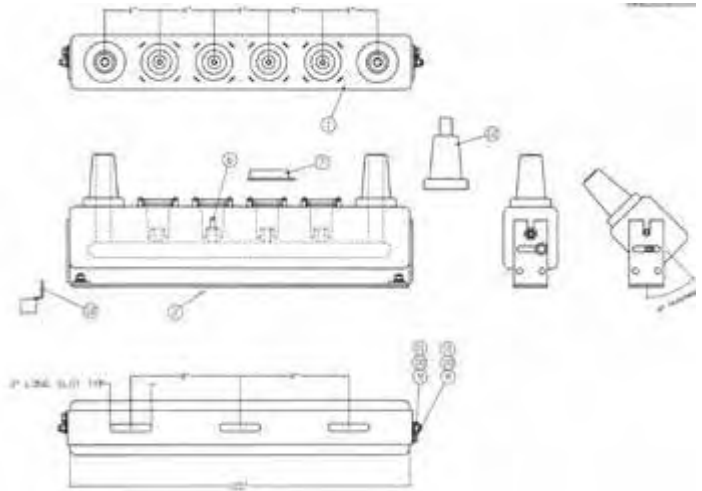
Page 1 of 3

Revision: **NEW**

Stds Committee Approval:

**Approved**

| PUD IDENTIFICATION |                                                                                                                                  |           | MANUFACTURER CATALOG NUMBER |                |                                               |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------|----------------|-----------------------------------------------|
| Item #             | Stock Description                                                                                                                | Stock No. | Thomas & Betts              | Cooper Power   | Patton & Cooke                                |
| 1                  | Junction Bar, 15kV, Four 200A Load Break junctions with stainless steel mounting bracket and two parking stands.                 | 041440    | 164J4CS842                  | LJ215C4B       |                                               |
| 2                  | Junction Bar, 15kV, two 600A and four 200A positions with stainless steel mounting multiposition bracket and two parking stands. | 041441    | J662222615 TMA              | JB125C1B4W1BPS | JB-1B/4A/1B-11 with multiposition mtg bracket |

**Item 1. 600A Deadbreak /200A Loadbreak**

**Application:** Installed in UG sectionalizing vaults and provides transition from 600 amp connections to 200 amp.

**Specification:** Provided with protective covers and universal stainless steel mounting brackets that can provide mounting angles from 0 to 90 degrees. Two single stainless steel parking stands shall be provided per junction bar for mounting on each end. All current carrying components shall be copper. The universal 200Amp bushing wells shall have replaceable electroplated high strength chromium copper studs.

**NOTES:**

These junction bars do not come with 200Amp bushing inserts (Stock #045870), each unit requires four inserts.



JUNCTION BARS, 15KV FOR  
600A AND 200A SEPARABLE CONNECTORS

Originator: DSmith

Date: 7/20/2006

Approval: DSmith

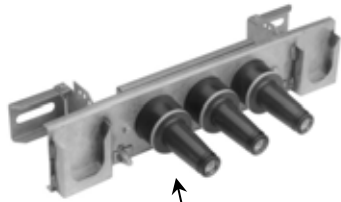
Date: 7/9/2007

Page 2 of 3

Revision: NEW

Stds Committee Approval:  
**Approved**

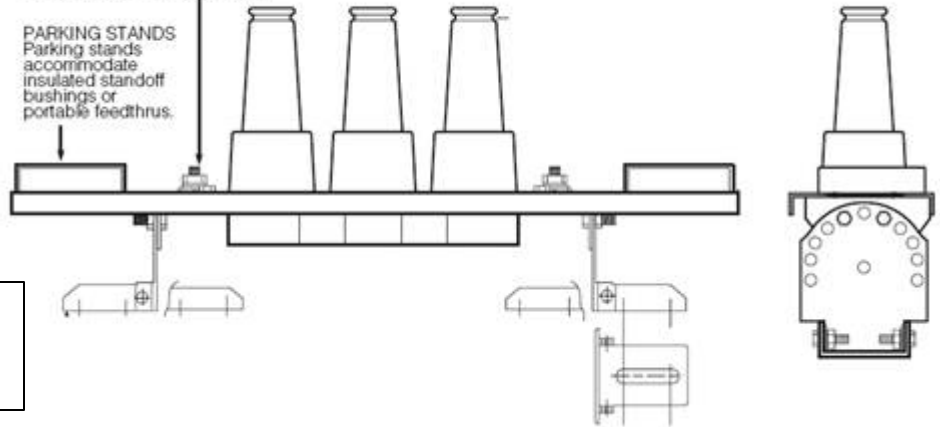
**Item 2. 200A Load Break**



**Note: District  
requires four  
junctions:**

DRAIN WIRE CLAMPS  
Drain wire clamps each  
accommodate two wires up to  
1/0 stranded (3/8" in diameter).

PARKING STANDS  
Parking stands  
accommodate  
insulated standoff  
bushings or  
portable feedthrus.



**Application:** Installed in sectionalizing vaults and cabinets to terminate 200 Amp 15kV UG cable.

**Specification:** Multiposition junction bar with 200A bushings. Each unit is provided with protective covers and universal stainless steel mounting brackets that can provide mounting angles from 0 to 90 degrees. All current carrying components shall be copper. Two single stainless steel parking stands shall be provided per junction bar and are mounting on each end. Two drain wire clamps shall be provided. Each shall accommodate two wires up to 1/0 stranded (3/8" diameter).

Each bushing shall include a bright yellow latch indicator ring, located on the circumference of the interface collar for determining if the elbow is properly installed.

**3. GENERAL:**

| Class                                                                     | 200 Amp             | 600 Amp             |
|---------------------------------------------------------------------------|---------------------|---------------------|
| Operating Voltage (Max continuous line-to ground, 100% insulation system) | 8.3kv               | 8.3kv               |
| BIL                                                                       | 95 BIL              | 125 BIL             |
| Current @ 90°C Continuous Operating Temperature                           | 200 Amp             | 600 Amp             |
| Current – Short-Time                                                      | 10kA sym. 10 cycles | 25kA sym. 10 cycles |

**Applicable Standards:** All separable connectors shall be designed and manufactured to ANSI/IEEE Standard 386 and tested in accordance with IEEE #48.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.



**- Material Catalog -**

**Connectors, Cable**

**1019.06**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



**JUNCTION BARS, 15KV FOR  
600A AND 200A SEPARABLE CONNECTORS**

Originator: DSmith

Date: 7/20/2006

Approval: DSmith

Date: 7/9/2007

Page 3 of 3

Revision: **NEW**

Stds Committee Approval:

**Approved**



CAP, LOADBREAK INSULATING  
15KV, 200AMP

Originator: DSmith

Date: 4/25/2023

Approval: DScott

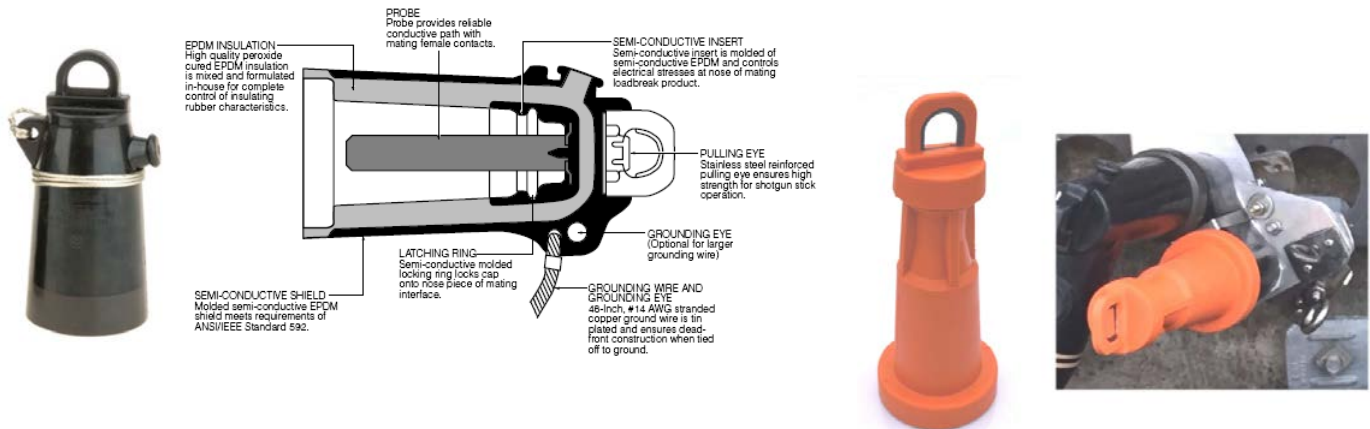
Date: 4/25/2023

Page 1 of 1

Revision: Added Orange cover with no drain wire

Stds Committee Approval:

23 April 2023



**Application:** Used to insulate and shield energized 15kV bushings.

**Specification:** The Insulated Protective Cap is an accessory device designed to electrically insulate and mechanically seal loadbreak bushing interfaces. When mated to a loadbreak product (and the drain wire is attached to ground on the ground wire style), the Insulated Protective Cap provides a fully shielded, submersible insulating cover for energized bushings. The cap can be used for permanent or temporary installation on bushings, junctions or feed through devices that meet the requirements of ANSI/IEEE Standard 386.

Each package shall contain:

- Protective Cap
- Silicone Lubricant
- Installation Instruction Sheet

**Applicable Standards:** All separable connectors shall be designed and manufactured to ANSI/IEEE Standard 386 and tested in accordance with IEEE 386, IP67, and ASTM F712.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

| PUD IDENTIFICATION                                     |           | MANUFACTURER CATALOG NUMBER |                |              |         |
|--------------------------------------------------------|-----------|-----------------------------|----------------|--------------|---------|
| Stock Description                                      | Stock No. | R&D Utility Products        | Thomas & Betts | Cooper Power | HUBBELL |
| CAP, LOADBREAK INSULATING WITH DRAIN WIRE 15KV, 200AMP | 041860    |                             | 167DRG         | LPC 215      | 215ICI  |
| CAP, BUSHING COVER, NO DRAIN WIRE, ORANGE              | 041865    | RD-BC15KV                   |                |              |         |

**CONNECTOR, BAR, SLIP FIT  
FOR PADMOUNT TRANSFORMER**

Originator: DSmith

Date: 9/11/2019

Approval: D Scott

Date: 2/27/2020

Page 1 of 1

Revision: Updated catalog number &amp; specs

Stds Committee Approval:

**Approved**

**Application:** Used for providing multiple set screw terminations for padmounted transformers. Designed to slip on the transformer stud and then tightened with a single set screw to facilitate changing out the transformer without having to remove all secondary services.

**Specification:**

- Dual-rated connectors for aluminum or copper conductors
- Clear plated for low-contact resistance.
- Fully tested to ANSI C119.4 for Class 'A' connectors.
- Supplied with radial-tipped set-screw.
- Connector fabricated from 6061-T6 aluminum alloy for conductivity and strength.
- Includes Oxide Inhibitor grease.
- Street light tap

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                                                | MANUFACTURER CATALOG NUMBER |          |              |             |
|--------------------|----------------------------------------------------------------|-----------------------------|----------|--------------|-------------|
| Item No.           | Item Description                                               | HUBBELL                     | UTILCO   | HOMAC        | T&B         |
| 040140             | CONNECTOR, BAR, AL, 4 POS.,<br>#12-350 AAC/CU 5/8"-11 SLIP FIT | NSSM 350-4I                 | PTF4350J | CSW4350SL    | TSB4359D58  |
| 040160             | CONNECTOR, BAR, AL, 6 POS.,<br>#12-350 AAC/CU 5/8"-11 SLIP FIT | NSSM 350-6I                 | PTF6350J | CSW6350SL    | TSB6359D58  |
| 040165             | CONNECTOR, BAR, AL, 6 POS.,<br>#2-500 AAC/CU 5/8"-11 SLIP FIT  | NSSM 500-6IA                | NONE     | CSW6500-58SL | TSB6559D58  |
| 040170             | CONNECTOR, BAR, AL, 6 POS.,<br>#2-500 AAC/CU 1"-14 SLIP FIT    | NSSM 500-6I                 | PTF6500J | CSW 6500SL   | TSB6559D51A |



**BUSSBAR, 600V INSULATED  
SUBMERSIBLE**

Originator: DSmith

Date: 7/7/06

Approval: J. Mitchell

Date: 6/27/2014

Page 1 of 1

Revision: Added 8 Pos., #2-750 kcm AAC/CU.

Stds Committee Approval:  
**Approved**



SSBC



**Application:** Used for connecting multiple secondary conductors in a hand hole or secondary vault using twin set screws.

**Specification:**

- Dual-rated connectors for aluminum or copper conductors
- Clear plated for low-contact resistance.
- Fully tested to ANSI C119.4 for Class 'A' connectors.
- Supplied with twin radial-tipped set-screws.
- Connector fabricated from 6061-T6 aluminum alloy for conductivity and strength.
- Watertight – Outlets sealed with EPDM rubber insulating sleeves
- Includes oxide inhibitor.
- 350Kcm size must come supplied with EZ Torque Limiting Screws

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                  |           | MANUFACTURER CATALOG NUMBER |            |
|---------------------------------------------------------------------|-----------|-----------------------------|------------|
| Stock Description                                                   | Stock No. | HOMAC                       | CMC        |
| Connector, Submersible, Twin Set Screw, 4 Pos., #6 - 350kcm AAC/CU  | 050150    | UH 4 R                      | NA         |
| Connector, Submersible, Twin Set Screw, 6 Pos., #6 - 350kcm AAC/CU  | 050160    | UH 6 R                      | NA         |
| Connector, Submersible, Twin Set Screw, 8 Pos., #6 - 500kcm AAC/CU  | 050170    | UH 500-8 R                  | NA         |
| Connector, Submersible, Twin Set Screw, 6 Pos., #2 - 750kcm AAC/CU  | 050165    | UH 1000-6 R                 | SSBC750-6I |
| Screws, Homac 5/8" EZ Torque Limiting                               | 050453    | HA-508-300                  |            |
| Connector, Submersible, Twin Set Screw, 8 Pos., #2 - 750 kcm AAC/CU | 050455    | UH 1000-8 R                 | SSBC750-8I |

**CONNECTOR, PADMOUNT XMR SECONDARY  
SET SCREW BAR TO NEMA PADDLE**

Originator: DSmith

Date: 10/16/2007

Approval: DSmith

Date: 1/11/2008

Page 1 of 1

Revision: Changed from 1010.28 to 1019.10

Stds Committee Approval:

**9/22/06**

**Application:** Used to provide connect multiple secondary conductors to NEMA 4 hole paddles on large Padmount Transformers up to 750KCM.

**Specification:**

- Manufactured from high strength 6061-T6 aluminum alloy – for use with copper or aluminum conductor - Tin Plated
- Rated for 600 volts for reliability
- Range taking for reduced inventory needs
- Clear plated for low contact resistance
- Meets or exceeds ANSI 119.4 Class A specifications
- Includes CO-OX oxide inhibitor in each conductor hole.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                         |           | MANUFACTURER CATALOG NUMBER |                            |            |
|--------------------------------------------|-----------|-----------------------------|----------------------------|------------|
| Stock Description                          | Stock No. | CMC                         | UTILCO                     | HOMAC      |
| Connector, 1/0-750kcm<br>Al/Cu, 6 Position | 015300    | L6D10-750 Tin Plated        | USG2-750R106<br>Tin Plated | ABT-6750TP |



**UG SLEEVES AND SPLICES, 600V CABLE**

Originator: DSmith

Date: 12/6/2010

Approval: DSmith

Date: 12/6/2010

Page 1 of 1

Revision:

Std's Committee Approval:

**Approved**

**Uninsulated UG Sleeve**



**Secondary  
Submersible  
"Flood Seal"**

**Application:** Used to splice either copper or aluminum underground secondary cable. Aluminum compression sleeve with solid center barrier. Designed for commercial and heavy residential services. Installed with standard tooling. Pre-filled with PENETROX™ joint compound, and capped

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

| PUD IDENTIFICATION |                                                                           | MANUFACTURER CATALOG NUMBER |                    |              |
|--------------------|---------------------------------------------------------------------------|-----------------------------|--------------------|--------------|
| Stock No.          | Stock Description                                                         | BURNDY                      | Other              | Anderson     |
| 030160             | SLEEVE, COMP, UNINSULATED UG, #2/0-#1/0                                   | YSD26R25R                   |                    | VAUS-2/0-1/0 |
| 047710             | SLEEVE, COMP, UNINSULATED UG, 350-350                                     | YCR32RG7                    |                    |              |
| 047660             | SLEEVE, COMP, NONTENSION, #2/0-#2/0                                       | YSD26R26R                   |                    | VAUS-2/0-2/0 |
| 047720             | SLEEVE, COMP, UNINSULATED UG,                                             | YCR361RG8                   |                    |              |
| 044557             | SLEEVE, COMP, UNINSULATED UG, 1000KCM                                     | YS44A1                      |                    |              |
| 045488             | SPLICE COVER, SUBMERSIBLE, "FLOOD SEAL",<br>LENGTH - 12 INCHES, #14 - 500 |                             | HOMAC<br>FSS-500L  |              |
| 048165             | SLEEVE COVER, HEATSHRINK, 250-750KCM, 600V                                |                             | 3M -<br>ITSCN20009 |              |
| 047670             | SLEEVE, COMP, UNINSULATED UG, #3/0-2/0                                    | YSD27R26R                   |                    | VAUS-3/0-2/0 |
| 047680             | SLEEVE, COMP, UNINSULATED UG, #4/0-#2/0                                   | YSD28R26                    |                    | VAUS-4/0-2/0 |
| 047690             | SLEEVE, COMP, UNINSULATED UG, #4/0-#4/0                                   | YSD28R28R                   |                    | VAUS-4/0-4/0 |
| 047695             | SLEEVE, COMP, UNINSULATED UG, #4/0-250                                    | YCR291RG4                   |                    |              |
| 047700             | SLEEVE, COMP, UNINSULATED UG, #4/0-350                                    | YCR32RG4                    |                    |              |
| 047730             | SLEEVE, COMP, UNINSULATED UG, 500-500                                     | YCR361RG10                  |                    |              |
| 047740             | SLEEVE, COMP, UNINSULATED UG, 336-336                                     | YCR30RG9                    |                    |              |
| 047750             | SLEEVE, COMP, UNINSULATED UG, #1/0-#1/0                                   | YSU25R25R                   |                    |              |
| 047755             | SLEEVE, COMP, UNINSULATED UG, #2-#2 (RED)                                 | YSU2R2R                     |                    | VAUS-1-1     |
| 047760             | SLEEVE, COMP, UNINSULATED UG, 500-750                                     | YR39A34CAY                  |                    |              |
| 047770             | SLEEVE, COMP, UNINSULATED UG, 1/0-2                                       | YSU25R2R                    |                    | VAUS-1/0-1/0 |
| 047780             | SLEEVE, COMP, UNINSULATED UG, #2/0-4                                      | YSD26R2R                    |                    | VAUS-2/0-4   |
| 047790             | SLEEVE, COMP, UNINSULATED UG, 3/0-1/0                                     | YCR291RG4                   |                    | VAUS-3/0-1/0 |
| 047800             | SLEEVE, COMP, UNINSULATED UG, #4/0-1/0                                    | YSD28R25R                   |                    | VAUS-4/0-1/0 |
| 047810             | SLEEVE, COMP, UNINSULATED UG, #4/0-#3/0                                   | YSD28R27R                   |                    | VAUS-4/0-3/0 |
| 047820             | SLEEVE, COMP, UNINSULATED UG, 350AL-250AL                                 | YCR32RG5                    |                    |              |
| 047830             | SLEEVE, COMP, UNINSULATED UG, 700/750                                     | YS39AM1                     |                    |              |

**Bushing, 15kV 200 Amp Loadbreak  
Feed Thru**

Originator: D. Scott

Date: 5/5/2016

Approval: J. Mitchell

Date: 05/04/2016

Page 1 of 1

Revision: New

Stds Committee Approval:

**Approved***Horizontal Feed-Thru**Vertical Feed-Thru*

**Application:** Feed thru bushings are used to sectionalize cables or for making taps.

**Specification:** The bushing shall meet all the requirements of ANSI/IEEE 386 - latest revision. Feed thrus must be equipped with a bracket for mounting onto a standoff bracket. Units must be hot stick operable, and provide a means to test, ground, park, bypass a transformer or add an arrestor. The units are to be made with a stainless steel mounting bracket. The eyebolt must be high strength stainless steel and the acorn nut must be silicon-bronze.

**Voltage Rating:** The bushing shall be rated 15 kV and shall be capable of closing on or opening full phase-to-phase voltage (load break). The unit shall be rated at 95 kV BIL or higher, a corona extinction (3pc) of 11kV, AC 1 minute withstand voltage of 34 kV, and DC 15 minute withstand voltage of 53 kV.

**Current Rating:** The elbow and bushing shall be capable of conducting 200 amps continuously and 10,000 amps for 10 cycles momentary or during fault closure at maximum phase-to-phase voltage.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage in separate boxes (1 per container). The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                    |           | MANUFACTURER CATALOG NUMBER |         |
|-------------------------------------------------------|-----------|-----------------------------|---------|
| Stock Description                                     | Stock No. | Cooper                      | Hubbell |
| Bushing, 200amp,15kv, Loadbreak, Horizontal Feed Thru | 041400    | LPF215H                     | 215FT   |
| Bushing, 200amp,15kv, Loadbreak, Vertical Feed Thru   | 041405    | LPF215V                     | 215FTV  |





# POLES & CROSSARMS

Originator: D Scott

Date: 4/26/2023

Approval:

Date: 4/26/2023

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:  
**25April2023**

# POLES & CROSSARMS



**CROSSARMS,  
FIBERGLASS**

Originator: D Scott

Date: 4/26/2023

Approval:

Date: 4/26/2023

Page 1 of 1

Revision: **NEW**Stds Committee Approval:  
**25April2023****Application:**

This specification applies to fiberglass crossarms for tangent, dead-end and alley arm applications for distribution cross arms mounted onto round or flat electrical power poles.

**Standards:** ASTM A36, A153, D635, D4364, G154, G90.

**Fiberglass Arm Construction and Materials:** Must be high quality fiberglass material. The arm must be grey in color. The pultrusion process must include precise fiberglass positioning, with no wrinkles or micro-cracks in the beams or corners. An ultraviolet inhibitor shall be added to the polyester resin mixture for UV protection and to prevent fiber bloom. The UV coating shall be a minimum of 1.5 mils thick. Coating shall be tested in accordance with ASTM G154 for a minimum of 10,000 hours with no degradation. The cross arm shall be foamed filled with a closed-cell high density urethane to prevent water ingress. The foam shall adhere to the sidewalls and completely fill the arm. The arm shall have internal reinforcing inserts at all factory drilled bolt holes unless the manufacturer can show no deflection in the arm under load and the arm can handle a minimum of 50 pounds of torque on the bolts. The arms shall be field drillable without the need for hole inserts, special tools, or other supplies. Cross arms shall be sealed at the ends with internally mounted impact resistant end caps

Dead end arms shall be supplied with eye bolts vertically oriented on each side of the arm, that have a strength rating greater than the fiberglass arm.

The mounting bracket and hardware shall be made of high strength, heat treated aluminum alloy, hot-dipped galvanized steel, thermally diffused galvanized steel, or ductile iron. Mounting bracket holes must be able to accommodate Chelan PUD's ¾ inch pole mounting bolts. All bolts, nuts, and other hardware shall be hot-dipped or thermally diffused galvanized steel. A guy attachment is required on dead end cross arms. Each cross arm shall be fully assembled at the factory and ready for installation. The manufacturer shall supply and install all hardware such as dead-end attachments.

If possible, Chelan PUD prefers each specific style of cross arm to be identical to Avista's arm. Avista approved drawings shall be submitted with proposals.

**Electrical Characteristics:** Must have an average BIL of no less than 15 kV per inch, and an average wet BIL of no less than 12 kV per inch.

**Approved Manufacturers:** Pupi, Alumaform, Shakespeare.

| <b>Chelan PUD Stock Number</b> | <b>Description</b>                                                |
|--------------------------------|-------------------------------------------------------------------|
| 006105                         | Xarm, Fiberglass, 3-5/8" x 4-5/8" x 9', Tangent                   |
| 006107                         | Xarm, Fiberglass, 3-5/8" x 4-5/8" x 9', Dead End                  |
| 006108                         | Xarm, Fiberglass, 3-5/8" x 4-5/8" x 11', Tangent                  |
| 006109                         | Xarm, Fiberglass, 3-5/8" x 4-5/8" x 11', Dead End                 |
| 006110                         | Xarm, Fiberglass, 3-5/8" x 4-5/8" x 13', Dead End, Double Circuit |
| 006111                         | Xarm, Fiberglass, 3-5/8" x 4-5/8" x 13', Tangent, Double Circuit  |
| 006312                         | Xarm, Fiberglass, 3-3/4" x 4-3/4" x 11', Alley Arm                |



# LINE EQUIPMENT

Originator: DSmith

Date: 7/9/2007

Approval: DSmith

Date: 7/9/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



## SECTION 1200 LINE EQUIPMENT



**Regulators, Voltage**

Originator: DSmith

Date: 7/9/2007

Approval: DSmith

Date: 7/9/2007

Page 1 of 2

Revision: **NEW**Stds Committee Approval:  
**Approved**

**Application:** These devices provide for automatic +/- 10% regulation of primary voltage on the Districts distribution system.

**Specifications:** Refer to equipment specification #1211.01 for detail information. This specification covers electrical, mechanical and safety features and characteristics of outdoor, single phase, oil immersed, 60 Hz, 65°C temperature rise by resistance, self cooled and force-air cooled step-type voltage regulators.

The voltage regulators must be completely self contained and provide +/- 10% voltage regulation in thirty-two (32) steps of 5/8% each. The voltage regulator shall be of a sealed tank design that will allow operation at 65°C without increasing the oxidation rate of the oil.

The basic impulse level (BIL) shall be 95 kV. The nominal system voltage will be 12,470 GRD Y/ 7200 volts. Single-phase operation shall be at a nominal voltage of 7200 volts.

**Standards:** - The regulators furnished under this specification shall be designed, manufactured, and tested in accordance with ANSI Standard C57.15, latest revision thereof. That standard shall be a part of this specification

**Shipping:** Refer to equipment specification #1211.01

**Reference:** Refer to Material Catalog #1211.02 for controls information.

**Approved Manufacturers: Cooper, Siemens**

| PUD IDENTIFICATION                       |           | MANUFACTURER CATALOG NUMBER |        |        |
|------------------------------------------|-----------|-----------------------------|--------|--------|
| Stock Description                        | Stock No. | MFG #1                      | MFG #3 | MFG #3 |
| Line Regulator, 1 Phase, 38 kVA, 50AMP   | 088961    |                             |        |        |
| Line Regulator, 1 Phase, 57 kVA, 75AMP   | 088962    |                             |        |        |
| Line Regulator, 1 Phase, 76 kVA, 100AMP  | 088963    |                             |        |        |
| Line Regulator, 1 Phase, 114 kVA, 150AMP | 088964    |                             |        |        |
| Line Regulator, 1 Phase, 167 kVA, 219AMP | 088965    |                             |        |        |
| Line Regulator, 1 Phase, 250 kVA, 328AMP | 088966    |                             |        |        |
| Line Regulator, 1 Phase, 333 kVA, 437AMP | 088967    |                             |        |        |



Regulators, Voltage

Originator: DSmith

Date: 7/9/2007

Approval: DSmith

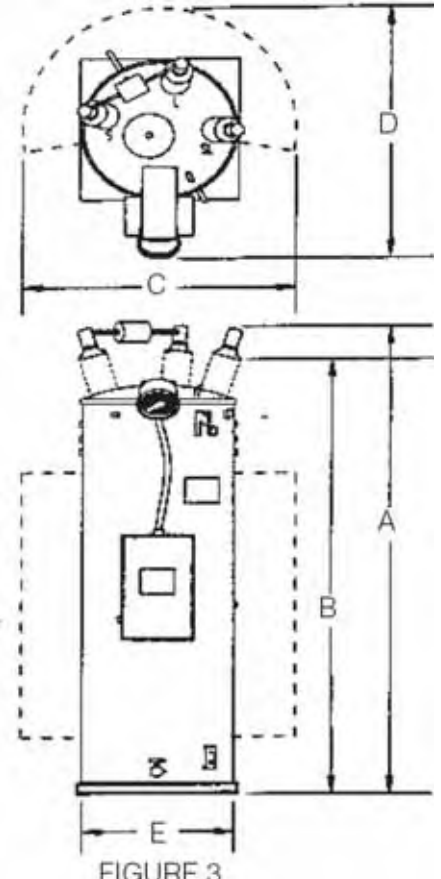
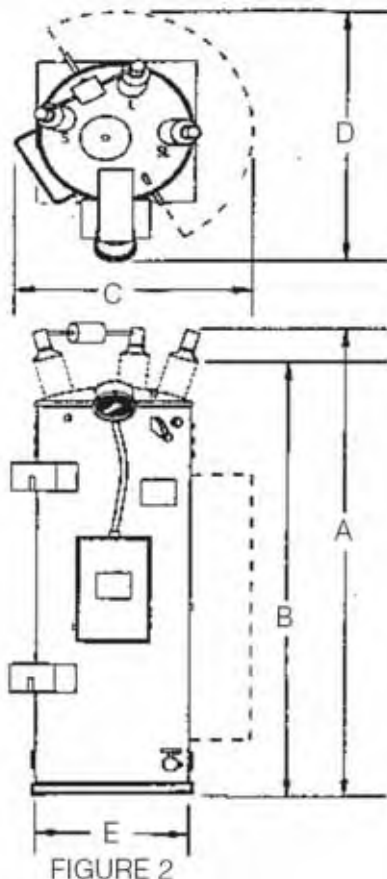
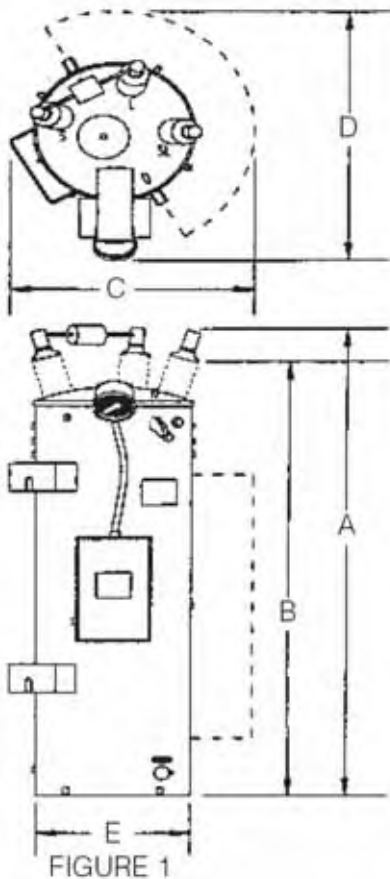
Date: 7/9/2007

Page 2 of 2

Revision: **NEW**

Stds Committee Approval:  
**Approved**

**Approximate Dimensions:**



| kVA | Load Current (Amps) | Figure | A   | B   | C  | D  | E  | Oil (Gallons) | Untanking Weight (lbs.) | Total Weight (lbs.) |
|-----|---------------------|--------|-----|-----|----|----|----|---------------|-------------------------|---------------------|
| 38  | 50                  | 1      | 71  | 64  | 24 | 34 | 20 | 50            | 505                     | 1030                |
| 57  | 75                  | 1      | 75  | 68  | 30 | 39 | 20 | 55            | 635                     | 1185                |
| 76  | 100                 | 1      | 75  | 68  | 31 | 41 | 20 | 56            | 665                     | 1265                |
| 114 | 150                 | 1      | 75  | 68  | 35 | 49 | 22 | 71            | 785                     | 1585                |
| 167 | 219                 | 2      | 78  | 72  | 36 | 49 | 22 | 81            | 995                     | 1975                |
| 250 | 328                 | 2      | 84  | 78  | 44 | 56 | 25 | 100           | 1285                    | 2530                |
| 333 | 438                 | 3      | 97  | 91  | 38 | 61 | 26 | 153           | 1725                    | 3525                |
| 416 | 548                 | 3      | 102 | 96  | 44 | 61 | 27 | 210           | 2075                    | 4485                |
| 500 | 656                 | 3      | 100 | 93  | 40 | 67 | 30 | 224           | 2222                    | 4934                |
| 667 | 875                 | 3      | 100 | 97  | 48 | 68 | 31 | 247           | 3060                    | 5995                |
| 833 | 1093                | 3      | 123 | 119 | 63 | 73 | 35 | 448           | 5620                    | 10620               |





## Voltage Regulator Controls

Originator: D. Smith

Date: 9/18/2023

Approval: Daniel Scott

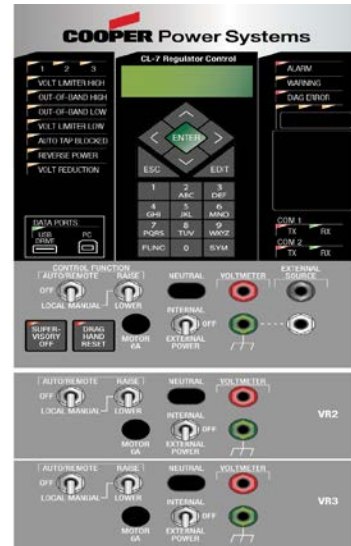
Date: 9/18/2023

Page 1 of 1

Revision: Added Stock Numbers for CL-7 variants

Standards Committee  
Approval:

Approved



**Application:** These devices are used to control line voltage regulators and provide data for engineering. They provide for automatic +/- 10% regulation of primary voltage on the Districts distribution system.

**Specifications:** Refer to equipment specification #1211.01 for detail information.

### Approved Manufacturers: Cooper

| PUD IDENTIFICATION                                   |           | MANUFACTURER CATALOG NUMBER |         |     |
|------------------------------------------------------|-----------|-----------------------------|---------|-----|
| Stock Description                                    | Stock No. | Cooper                      | Siemens | SEL |
| Electronic Control, Regulator, Type CL-5A            | 088976    |                             |         |     |
| Electronic Control, Regulator, Type CL-5C            | 088977    |                             |         |     |
| Electronic Control, Regulator, Type CL-5E            | 088978    |                             |         |     |
| Electronic Control, Regulator, Type CL-6A            | 088980    |                             |         |     |
| Electronic Control, Regulator, 1PH, Type CL-7        | 088971    |                             |         |     |
| Electronic Control, Regulator, 3PH, Type CL-7        | 088974    |                             |         |     |
| Electronic Control, Siemens Old Style (Non-Stock)    | 088981    |                             |         |     |
| Electronic Control, Regulator, Type MJ-X (Non-Stock) | 088979    |                             |         |     |

# Single-Phase Step Voltage Regulator

- Pad-Mounted -

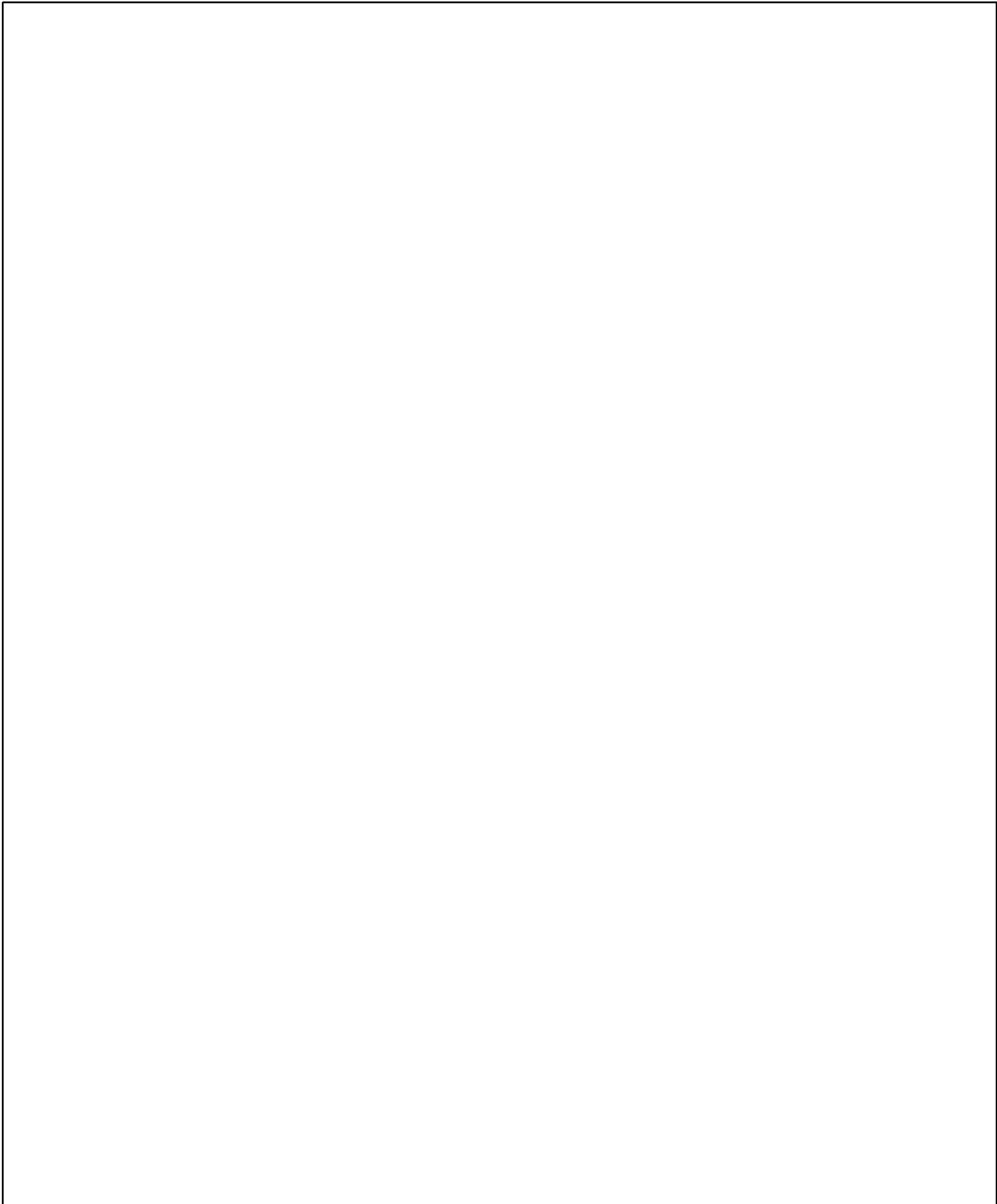
With a Communication-Ready Control Panel





## Table of Contents

|    |                                                  |                              |
|----|--------------------------------------------------|------------------------------|
| 1  | GENERAL .....                                    | 4                            |
| 2  | CONSTRUCTION.....                                | 4                            |
| 3  | RVI REQUIREMENT.....                             | 7                            |
| 4  | REGULATOR CONTROLS.....                          | Error! Bookmark not defined. |
| 5  | TESTS .....                                      | 9                            |
| 6  | EVALUATION .....                                 | 10                           |
| 7  | CONTROL INTERROGATION SOFTWARE .....             | 10                           |
| 8  | DEVIATION FROM SPECIFICATION .....               | 11                           |
| 9  | SHIPPING INSTRUCTIONS.....                       | 11                           |
| 10 | APPENDIX A – EQUIPMENT DATA SHEET .....          | 12                           |
| 11 | APPENDIX B – DEVIATIONS FROM SPECIFICATIONS..... | 13                           |



|                                                                                    |                                                  |                       |               |                     |
|------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------|---------------|---------------------|
|  | <i>Material Specifications</i>                   | <i>Date 9/21/2020</i> | <i>Rev. 0</i> | <i>Standard No.</i> |
|                                                                                    | <b>Single-Phase Step Voltage Regulator – PAD</b> |                       |               | <b>1211.03</b>      |
|                                                                                    | With a Communication-Ready Control Panel         |                       |               | <i>Page 3 of 13</i> |

## 1 GENERAL

1.1 This specification covers electrical, mechanical, and safety features and characteristics of outdoor, pad-mounted, single-phase, oil immersed, 60 Hz, 65°C temperature rise by resistance, self-cooled step-type voltage regulators. The voltage regulator must be completely self-contained and provide  $\pm 10\%$  regulation in thirty-two (32) steps of approximately 5/8% each. The voltage regulator shall be of a sealed tank design that will allow operation at 65°C without increasing the oxidation rate of the oil.

### 1.2 STANDARDS

1.2.1 The regulators furnished under this specification shall be designed, manufactured, and tested in accordance with ANSI Standard C57.15, latest revision thereof. That standard shall be a part of this specification.

### 1.3 RATINGS

1.3.1 All ratings shall be for 60 Hertz alternating current, oil-immersed, air-cooled voltage regulators capable of continuous operation at rated kVA without exceeding a 55°C average temperature rise above 40°C ambient at its rated current with a 10% raise or 10% lowering of tap positions, Type A regulators.

1.3.2 The basic impulse level (BIL) shall be 95kV. The nominal system voltage will be 12,470 GRN Y/7200 volts. Single-phase operation shall be at the nominal voltage of 7200 volts.

1.3.3 The BIL of the Bushings shall meet or exceed 95 KV.

1.3.4 Ambient temperature – minus 30°C to plus 50°C.

1.4 The voltage regulator voltage and capacity will be specified in the purchase order.

## 2 CONSTRUCTION

### 2.1 PRESSURE RELIEF DEVICE

2.1.1 All voltage regulators shall be designed with a mechanical, self-resetting pressure relief device releasing all excessive pressure build-ups without damage to the tank and venting between 4 PSIG and 10 PSIG.

2.1.2 All voltage regulators shall be equipped with a pressure relief device (Model 202-032-1 or District approved equivalent). Threads shall be sealed with pipe dope.

### 2.2 VOLTAGE REGULATOR OIL

2.2.1 Voltage regulators shall be insulated with new (unused) mineral oil. The oil shall meet the requirements of ANSI C57.12.00, Article 6.6.1 (1), ANSI C57.106 and ASTM 3487 Type II.

2.2.2 The voltage regulator nameplates shall indicate that the PCB content of said voltage regulator is less than 1 PPM or that at time of manufacture gas chromatographic analysis certified non-detectable PCB.

2.2.3 The oil shall be inhibited mineral oil containing 0.2% by weight DBPC.

2.2.4 The nameplate shall show the gallons of oil.

### 2.3 HIGH VOLTAGE BUSHINGS AND TERMINALS

2.3.1 Voltage regulators shall be equipped with identical and interchangeable bushing wells and corresponding load break inserts on the S and L bushings.

2.3.2 For regulators rated at 200 amps or less, the bushing wells shall be externally clamped, 200-amp rated, separable, and rated for primary switching per IEEE 386. The bushings shall conform to ANSI C57.12.25, Type II arrangement. Regulators larger than 200 amps shall have 600-amp bushings.

2.3.3 The load-break bushing inserts shall be Eaton-Cooper Power Systems LBI 215 or Elastimold (Catalog NO. 1601A4).

2.3.4 Inserts shall be shipped with physically wired down & secured dust caps or use a dust cap equipped with a pressure relief hole to prevent pressure build up in the dust cap that would cause loss of the dust cap.

2.3.5 The bushing designations (S, L, or SL) shall be permanently marked adjacent to the associated bushings.

2.3.6 All regulators shall be provided with a metal oxide varistor (MOV) bypass arrester connected across the series winding.

### 2.4 VOLTAGE REGULATOR TANKS

2.4.1 Voltage regulator tanks shall be of sealed tank design with welded steel construction.

2.4.2 There shall be a tap changer switch mounted on the front plate that can change the control and differential PT taps external to the unit.

2.4.3 Single phase voltage regulators rated 250 kVA and smaller must fit on a 66 x 88 inch vault lid with an opening of 48 x 20 inches.

2.4.4 There shall be gauges indicating oil temperature and oil level in a separate compartment with the controller (not in the HV compartment).

2.4.5 A 1" drain valve with sampling device and a 1" upper fill port with a brass or silicon bronze NPT style pipe plug.

## 2.5 GROUNDING PROVISIONS

- 2.5.1 Voltage regulators shall be furnished with a total of 2 grounding lugs with a grounding bus installed voltage regulator ground provision, centered at the bottom of the HV compartment and spaced horizontally 8 inches or more apart.
- 2.5.2 The ground lugs shall be Fargo (Catalog No. BVC-207-FT) with thin brass jam nut, installed in horizontal position on pad-mount voltage regulator.

## 2.6 TAP CHANGER

- 2.6.1 The tap changing mechanism shall be a motor driven, quick-break design and it shall be completely oil-immersed.
- 2.6.2 The tap changer shall be able to go from full buck to full boost in under 25 seconds.

## 2.7 PAINT FINISH

- 2.7.1 The external parts of the voltage regulator shall have a primer coat of special rust resisting paint. The primer coat shall be followed by two coats of finish paint. All paint applied shall be highly resistant to oil and weathering. The finish coat shall be semi-gloss and ANSI Green (Munsell 7GY 3.29/1.5) per C57.12.28.
- 2.7.2 All finishes shall be certified to meet or exceed the latest revisions of ANSI C57.12.28.
- 2.7.3 The top of the voltage regulator shall have at least 3.0 mils of paint. The voltage regulator sides and bottom shall have at least 3.0 mils of paint. Complete painting of the inside is acceptable.
- 2.7.4 One One-Quart Can of touch up paint used for the final coat shall be shipped with each regulator.

## 2.8 BYPASS SWITCH

- 2.8.1 The voltage regulator shall be equipped with a bypass switch module inside the cabinet and allows the regulator to be removed from service without interrupting the continuity of the system.
- 2.8.2 The bypass module shall provide hot-stick operable sectionalizing switches and have bushings matching the regulator.

## 2.9 COMPARTMENTAL LOCKING

- 2.9.1 All hinged or removable cabinet access lids or doors shall have a three-point latch and be provided with a 9/16" stainless steel or silicon bronze Pentahead captive bolt locking device and provisions for padlocking. The Pentahead bolt shall be coordinated so that it must be engaged before a padlock can be inserted into or removed from the hasp.
- 2.9.2 All regulators shall meet the requirements for tamper-resistance of NEMA TR-1 and Western Underground Guide No. 2.13.

|                                                                                    |                                                  |                       |               |                     |
|------------------------------------------------------------------------------------|--------------------------------------------------|-----------------------|---------------|---------------------|
|  | <i>Material Specifications</i>                   | <i>Date 9/21/2020</i> | <i>Rev. 0</i> | <i>Standard No.</i> |
|                                                                                    | <b>Single-Phase Step Voltage Regulator – PAD</b> |                       |               | <b>1211.03</b>      |
|                                                                                    | With a Communication-Ready Control Panel         |                       |               | <i>Page 6 of 13</i> |

## 2.10 NAMEPLATES

- 2.10.1 Each regulator shall be provided with two nameplates mechanically fastened; one mounted on the control enclosure and the other mounted on the regulator tank. Nameplates shall be made of stainless steel or laser etched anodized Aluminum and permanently marked with essential operating data as specified in the latest revision of ANSI C57.15.
- 2.10.2 The voltage regulator nameplate shall specifically state that the voltage regulator is mineral oil filled and the number of gallons of oil it contains. The nameplate shall also indicate that the PCB content of said voltage regulator is less than 1PPM or that the time of manufacture gas chromatographic analysis certified non-detectable PCB.
- 2.10.3 All nameplates shall have the manufacturer's serial number bar-coded into the nameplate. Manufacture identification characters shall not be included as part of the barcode. This barcode shall be etched into the nameplate. The character size shall be ¼ inch. The barcode shall be minimum of ½ inch high and 2-1/2 inches wide.
- 2.10.4 The District also requests the following information be provided on similar nameplates located on both the control panel and tank.
- Impedance at the 16 raise position and rated kVA
  - Diagrammatic sketch of the windings
  - Untanking weight
  - Weight of tank and fittings
  - Weight and gallons of oil in use
  - Total weight
  - District purchase order numbers
- 2.10.5 There shall be a permanently stenciled note on the regulator stating that the regulator must be on neutral before operating the bypass switch.

## 3 RIV REQUIREMENT

- 3.1 The radio influence voltage shall not exceed 100 microvolts (average measurement) at 1000 kHz measured at 115 percent of rated voltage in accordance with NEMA Specification TR-1.

## 4 REGULATOR CONTROLS

- 4.1 The District approved regulator control panel is the latest version of the Eaton's Cooper Power series CL-7. The following setting and/or options shall be provided.

## 4.2 REVERSE POWER FLOW OPERATION

- 4.2.1 All voltage regulators shall be provided with reverse power flow detectors properly assembled on the unit. The reverse power flow detector shall be capable of detecting power flow in the reverse direction and insuring that the automatic voltage control of the regulator is sensing what is effectively the load or output voltage of the unit. A (source-to-load) differential potential transformer (PT) shall be supplied as part of this voltage regulator accessory. The addition of the PT shall also permit metering for reverse power flow conditions. The PT shall be located internally to the regulator tank.

## 4.3 TAP POSITION INDICATOR

- 4.3.1 An external position indicator shall indicate the tap changer position. There shall be a tap position reset button on the controller.

## 4.4 LIMITED OPERATING RANGE CAPABILITY

- 4.4.1 All voltage regulators shall include a feature that will permit additional current carrying capabilities at reduced regulation according to the following schedule:

| Regulation (Percent) | CURRENT (% of 55°C Rating) |
|----------------------|----------------------------|
| $\pm 10$             | 100                        |
| $\pm 8.75$           | 110                        |
| $\pm 7.5$            | 120                        |
| $\pm 6.25$           | 135                        |
| $\pm 5$              | 160                        |

- 4.4.2 The adjustment for the load bonus device shall be located inside the faceplate of the tap position indicator to prevent inadvertent adjustment.

## 4.5 CONTROL PANEL

- 4.5.1 The regulator control panel shall be mounted in a weather resistant enclosure inside the accessory compartment.
- 4.5.2 The control panel shall be hinge-mounted and designed for easy replacement. The front panel shall be constructed to provide direct control interchangeability without requiring the removal of the control enclosure. Visible means shall be provided to de-energize the control and short the current transformer prior to testing or removal of the control.
- 4.5.3 All leads in the control shall be either color coated or labeled for easy identification.
- 4.5.4 All printed circuit boards shall be conformal coated for fungi and moisture protection.



- 4.5.5 A ratio correction transformer shall be provided inside the control enclosure to provide easy access to fine voltage adjustment. Ratio correction taps and corresponding system voltage shall be clearly identified on the regulator nameplates.
- 4.5.6 The regulator control panel shall be microprocessor based with an event recorder that has the ability to time stamp all events placed in the event recorder. The control panel shall have the ability to digitally meter with Class 1 accuracy, as defined in the latest revision of ANSI C57.15.
- 4.5.7 The control panel shall have USB update and download capabilities and be compatible with Cooper Proview NXG software.
- 4.5.8 The control panel shall operate properly over a temperature range of minus 40°C to plus 85°C.
- 4.5.9 A heater in the control panel box shall be provided to mitigate moisture concerns in the controller box.
- 4.5.10 The control panel shall have a digital communication port(s) located on the front panel. The port(s) shall allow trouble-free communications between a laptop (or personal computer or Data Reader) and the control panel. The successful Bidder at no additional cost to the District shall supply all accessories and software for trouble-free communications.
- 4.5.11 Fiber-Optic Communication for Remote Access utilizing the DNP 3.0 protocol.
- 4.5.12 Retaining springs to secure manuals to the cabinet shall be supplied on the inside of the enclosure. Storage of the manuals, in this manner, shall not adversely affect the control unit.
- 4.5.13 The control panel shall allow automatic operation of the voltage regulator under reverse power flow conditions. The reverse power flow detector shall operate within the following limits: Sensitivity – reverse power flow detected at two percent (2%) of the rated 55°C load current of the regulator.
- 4.5.14 Load power factor – 0.5 lag to 0.55 lead.
- 4.5.15 Input Voltage – 100 to 140 volts, 60 Hertz. Potential transformer shall be internally located for input voltage requirements.
- 4.5.16 The motor starting capacitor shall be located inside the Control panel and be easily accessible for maintenance.

## 5 TESTS

- 5.1 Each voltage regulator shall receive complete tests at the factory in accordance with latest ANSI C57.15 and NEMA TR.1.

5.2 In addition, every voltage regulator shall be test operated for a minimum of 250 operations, stepping through multiple steps in both the raise and lower directions to verify correct control and tap changer operation.

5.3 Copies of Certified test reports shall be available for District inspection at the District's request. Test reports shall be sent to District prior to shipping regulators.

5.4 SHORT CIRCUIT WITHSTAND

5.4.1 All voltage regulators shall be capable of withstanding, without damage, short circuit currents as specified in the latest revision of ANSI C57.15.

6 EVALUATION

6.1 Appendix A of this specification must be completely filled out for bid/quote to be evaluated. Prices will be firm for delivery date specified. Failure to include prices and/or delivery in the appropriate blank for each item will be sufficient cause for rejection of bid.

6.2 For bid evaluation, regulator losses will be considered. The evaluation price will be calculated using the following equation:

$$REP = BP + (NL \times \$4.07) + (LL \times \$1.79)$$

*REP* – Regulator Evaluation Price

*BP* – Base Bid Price

*NL\** – Core Loss (Watts)

*LL\** – Conductor Loss (Watts)

\* For loss evaluation purposes, loss values at 16 raise in the Bidder's Data shall be used.

7 CONTROL INTERROGATION SOFTWARE

7.1 Software required to interrogate, modify, and download control panel functions, and event recorder shall be compatible with Microsoft Windows operating systems.

7.2 Included with the software shall be a site license that would allow for the software to be installed on any personal computer and server that Chelan PUD deems necessary.

## 8 DEVIATION FROM SPECIFICATION

- 8.1 It is expected that any regulators supplied by the vendor will be in strict accordance with this specification unless appropriately noted with the original bid. The purchaser reserves the right to evaluate any exceptions that are taken by a vendor. Any deviation from this specification without prior approval will be sufficient cause for rejection of the regulators furnished and/or rejection of that manufacturer from furnishing the equipment in the future. All deviations shall be noted on the Appendix B form "Deviations From Specifications".

## 9 SHIPPING INSTRUCTIONS

- 9.1 Voltage regulators shall be shipped completely assembled and oil filled with the proper amount of voltage regulator oil.
- 9.2 Voltage regulators shall be shipped on individual pallets (one voltage regulator per pallet). Voltage regulators shall be securely attached to the pallets to allow for forklift handling.
- 9.3 Voltage regulators shall be shipped on an enclosed van.
- 9.4 Voltage regulators must be shipped FOB Destination.

# 10 APPENDIX A – EQUIPMENT DATA SHEET

|                                                                                                        |  |                |
|--------------------------------------------------------------------------------------------------------|--|----------------|
| Line Item Number:                                                                                      |  | Delivery Date: |
| Description:                                                                                           |  |                |
| Manufacture:                                                                                           |  |                |
| Model:                                                                                                 |  |                |
| Control Cabinet Manufacture & Model Number:                                                            |  |                |
| Temperature Rating                                                                                     |  | °C             |
| Size                                                                                                   |  | kVA            |
| Voltage Rating                                                                                         |  | kV             |
| Ampere Rating                                                                                          |  | AMP            |
| Design Working Pressure at Tank                                                                        |  | PSI            |
| Total Weight:                                                                                          |  | Lbs.           |
| Untanking Weight:                                                                                      |  | Lbs.           |
| Oil Weight:                                                                                            |  | Lbs.           |
| Case & Fittings Weight:                                                                                |  | Lbs.           |
| Shipping Weight:                                                                                       |  | Lbs.           |
| Maximum Megger voltage that can be applied to Series winding                                           |  | kV             |
| Maximum Megger Voltage that can be applied to Shunt winding                                            |  | kV             |
| Volume of Oil:                                                                                         |  | Gal            |
| Maximum ampacity of switch assembly                                                                    |  | Amps           |
| Maximum ampacity of contacts                                                                           |  | Amps           |
| Height                                                                                                 |  | Inches         |
| Width                                                                                                  |  | Inches         |
| Depth                                                                                                  |  | Inches         |
| Core loss at 16 raise at full load, rated current                                                      |  | Watts          |
| Conductor losses at 16 raise at full load, rated current:                                              |  | Watts          |
| Manufacture of pressure relief device                                                                  |  |                |
| Model number of pressure relief device                                                                 |  |                |
| Percent Z*                                                                                             |  |                |
| Series winding wire material                                                                           |  |                |
| Shunt winding wire material                                                                            |  |                |
| Type of core material                                                                                  |  |                |
| Recommended number of tap changer operations per contact prior to inspection.                          |  |                |
| Lifetime number of tap changer operations per contact.                                                 |  |                |
| Lifetime number of total tap changer operations per contact at full load current and 0.8 power factor. |  |                |

[illegible]

Page 13 of 13



## Single Phase 15kV Transformer Pole Type 25-167kVA

Originator: DSmith

Date: 12/5/06

Approval: DSmith

Date: 6/27/2007

Page 1 of 1

Revision: **NEW**Std's Committee Approval:  
**Approved**

**Application:** Overhead pole-type distribution transformers shall be single phase, 60 hz. mineral-oil filled and self-cooled.

**Common Name:** "Overhead POT"

**Material Specifications:** Transformers shall meet Districts Specifications #1212.01

**Size and Ratings:** The transformer shall have a kVA rating of one of the following sizes: 25, 50, 75, 100, or 167 based on not exceeding a 65°C average winding temperature rise. Transformers shall have two primary bushings and rated 95BIL.

Maximum Dimensions and Weights shall not exceed the following values.

| Item Number | kVA | Secondary Voltage | Weight (lbs.) | Height (in.) <sup>*</sup> | Width (in.) <sup>**</sup> | Depth (in.) <sup>***</sup> | Secondary Terminals | Category  |
|-------------|-----|-------------------|---------------|---------------------------|---------------------------|----------------------------|---------------------|-----------|
| 088816      | 25  | 120/240           | 375           | 41                        | 23                        | 25                         | Clamp               | Stock     |
| 088818      | 50  | 120/240           | 600           | 45                        | 25                        | 27                         | Clamp               | Stock     |
| 088819      | 75  | 120/240           | 875           | 51                        | 25                        | 27                         | Clamp               | Non Stock |
| 088820      | 100 | 120/240           | 1000          | 55                        | 32                        | 30                         | Clamp               | Stock     |
| 088821      | 167 | 120/240           | 1600          | 60                        | 38                        | 38                         | 4-hole spade        | Min stock |
| 088824      | 25  | 277               | 375           | 41                        | 23                        | 25                         | Clamp               | Stock     |
| 088826      | 50  | 277               | 600           | 45                        | 25                        | 27                         | Clamp               | Stock     |
| 088828      | 100 | 277               | 1000          | 55                        | 32                        | 30                         | Clamp               | Stock     |
| 088829      | 167 | 277               | 1600          | 60                        | 38                        | 38                         | 4-hole spade        | Min Stock |

<sup>\*</sup> Height shall be measured from bottom of tank to top of primary terminal at top of primary bushing.

<sup>\*\*</sup> Width shall be measured from lifting hook to lifting hook.

<sup>\*\*\*</sup> Depth shall be measured from mounting bracket to outside of secondary terminal.

### Stocking Category:

1. Stock – Sufficient stocking level for normal use is carried.
2. Non Stock – No minimum stock level is carried.
3. Min Stock – Normally, only 1–3 units are carried as critical spares. Any use will trigger a reorder.

**Shipping and Identification:** Transformers shall be shipped on a pallet. A tag indicating the kVA size, manufacturer, voltage rating, serial number, actual test data and customer's purchase order number shall be attached to each unit. Units shall be shipped in a closed van so they are delivered clean and free of surface contamination.

**Marking:** The transformer nameplate shall be so labeled to indicate that at the time of manufacture the transformer liquid contained less than one part per million PCB's. Each unit shall be stenciled (2" high minimum) with the rated kVA on the lower face of the transformer.



## Single Phase 15kV Transformer Pad Type 25-100kVA

Originator: DSmith

Date: 12/5/06

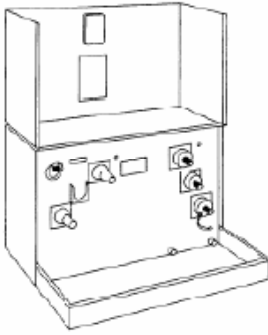
Approval: J. Nieborsky

Date: 12/2/2011

Page 1 of 1

Revision: **ELSP part numbers updated**

Stds Committee Approval:

**Approved**

**Application:** Pad-mounted distribution transformers are used to supply single phase, 60 Hz., secondary 120/240 volt electric power

**Common Name:** "PADMOUNT"

**Material Specifications:** Transformers shall meet Districts Specifications #1212.01.

### Typical Tank Dimensions:

| Item # | kVA | Secondary Voltage | Weight (lbs.) | Height (in.)* | Width (in.)** | Depth (in.)*** | Secondary Terminals    |
|--------|-----|-------------------|---------------|---------------|---------------|----------------|------------------------|
| 088888 | 15  | 240/120           | 650           | 24            | 33            | 29             | Stud type – 5/8"-11UNC |
| 088801 | 25  | 240/120           | 650           | 24            | 33            | 29             | Stud type – 5/8"-11UNC |
| 088802 | 50  | 240/120           | 750           | 24            | 33            | 32             | Stud type – 5/8"-11UNC |
| 088804 | 100 | 240/120           | 1150          | 30            | 36            | 37             | Stud type – 1"-14UNC   |
| 088805 | 167 | 240/120           | 1300          | 36            | 36            | 40             | Stud type – 1"-14UNC   |

### Internal Transformer Fusing

| Item # | KVA | Bay-O-Net Fuse (Dual Sensing) | Continuous Rating (Amps) | Current Limiting (ELSP Backup)       | ELSP Rating |
|--------|-----|-------------------------------|--------------------------|--------------------------------------|-------------|
| 88888  | 15  | 4000358C03                    | 3                        | (Isolation Link only)<br>3001861A01M | NA          |
| 88801  | 25  | 4000358C05                    | 8                        | <b>CBUC08040C100</b>                 | <b>40</b>   |
| 88802  | 50  | 4000358C08                    | 15                       | <b>CBUC08080C100</b>                 | <b>80</b>   |
| 88803  | 75  | 4000358C10                    | 25                       | <b>CBUC08125C100</b>                 | <b>125</b>  |
| 88804  | 100 | 4000358C10                    | 25                       | <b>CBUC08125C100</b>                 | <b>125</b>  |
| 88805  | 167 | 4000358C12                    | 40                       | <b>CBUC08165D100</b>                 | <b>165</b>  |

**Shipping and Identification:** Transformers shall be shipped on a pallet, in a closed van so they are delivered clean and free of surface contamination. A tag indicating the kVA size, manufacturer, voltage rating, serial number, actual test data and customer's purchase order number shall be attached to each unit.

**Marking:** The transformer nameplate shall be so labeled to indicate that at the time of manufacture the transformer liquid contained less than one part per million PCB's. Each unit shall be stenciled (2" high minimum) with the rated kVA on the lower face of the transformer.





# TRANSFORMERS, PADMOUNT THREE PHASE 75-2500 kVA

Originator: DSmith

Date: 10/16/2006

Approval: J. Nieborsky

Date: 12/2/2011

Page 1 of 1

Revision: **ELSP fuse part numbers updated**

Stds Committee Approval:

**Approved**



**Application:** Pad-mounted distribution transformers shall be three phase, 60 Hz., mineral-oil filled and self-cooled and meet Districts Specifications #1212.01.

**Size and Ratings:** Transformers shall be compartmental, pad-mounted, three phase, dead front, loop feed for use with separable high voltage connectors.

**Ratings:** The transformer shall have a kVA rating of 75, 150, 300, 500, 750, 1000, 1500, 2500kva based on not exceeding a 65 °C average winding temperature rise. The low voltage winding shall be 208Y/120 or 480Y/277 volts.

## Typical Dimensions, Does not include cooling fins.

| Item Number | kVA     | Secondary Voltage | Weight (lbs.) | Height (in.) | Width (in.) | Depth (in.) | Secondary Terminals       |
|-------------|---------|-------------------|---------------|--------------|-------------|-------------|---------------------------|
| 088843      | Mini-75 | 208Y/120          | 1750          | 36           | 44          | 51.5        | Stud type – 5/8”- 11UNC   |
| 088848      | 150     | 208Y/120          | 2800          | 70           | 66          | 62          | Stud type – 5/8”- 11UNC   |
| 088849      | 150     | 480Y/277          | 2800          | 70           | 66          | 62          | Stud type – 5/8”- 11UNC   |
| 088853      | 300     | 208Y/277          | 3800          | 70           | 66          | 62          | Stud type – 1”- 14UNC     |
| 088854      | 300     | 480Y/277          | 3800          | 70           | 66          | 62          | Stud type – 5/8”- 11UNC   |
| 088856      | 500     | 208Y/120          | 5600          | 70           | 66          | 62          | 6-Hole Spade              |
| 088857      | 500     | 480Y/277          | 5600          | 70           | 66          | 62          | 6-Hole Spade              |
| 088858      | 750     | 208Y/120          | 7400          | 89           | 70          | 66          | 10-Hole Spade - Supported |
| 088859      | 750     | 480Y/277          | 7400          | 89           | 70          | 66          | 10-Hole Spade – Supported |
| 088861      | 1000    | 480Y/277          | 8200          | 89           | 70          | 66          | 10-Hole Spade – Supported |
| 088862      | 1500    | 480Y/277          | 10300         | 89           | 70          | 66          | 10-Hole Spade - Supported |
| 088876      | 2500    | 480Y/277          | 14100         | 89           | 70          | 66          | 10-Hole Spade - Supported |

## Internal Transformer Fusing

| Stock # |        | Three<br>Phase<br>KVA | Bay-O-Net Fuse<br>(Dual Sensing) | Continuous Ampere<br>Rating | Current Limiting<br>(ELSP Backup) | ELSP<br>Ampere<br>Rating |
|---------|--------|-----------------------|----------------------------------|-----------------------------|-----------------------------------|--------------------------|
| 088843  | 088845 | 75                    | 4000358C05                       | 8                           | CBUC15030C100                     | 30                       |
| 088848  | 088849 | 150                   | 4000358C08                       | 15                          | CBUC15080C100                     | 80                       |
| 088853  | 088854 | 300                   | 4000358C10                       | 25                          | CBUC15100C100                     | 100                      |
| 088857  |        | 500                   | 4000358C12                       | 50                          | CBUC15150D100                     | 150                      |
| 088858  | 088859 | 750                   | 4000358C14                       | 65                          | CBUC15125C100*                    | 250                      |
| 088861  |        | 1000                  | 4000358C14                       | 65                          | CBUC15125C100*                    | 250                      |
| 088862  |        | 1500                  | 4038361C04CB                     | 100                         | CBUC15125C100*                    | 250                      |
| 088863  |        | 2000                  | 4038361C05CB                     | 125                         | CBUC15125C100*                    | 250                      |
| 089007  |        | 2500                  | 4038361C05CB                     | 125                         | CBUC15125C100*                    | 250                      |

\* Two fuses in parallel



**SWITCH, POLE TOP, THREE PHASE  
GANG-OPERATED, LOAD BREAK  
15kV, 600A**

Originator: DScott

Date: 2/13/2020

Approval: J. Mitchell

Date: 10/27/2022

Page 1 of 1

Revision: **Revised descriptions**

Std's Committee Approval:

**Approved**



**Specification Requirement Minimums:** Three phase gang-operated, load break, 15 kV class, 110 kV BIL, 600 Amp minimum. Extra phase spacing for raptor friendly (can be achieved by using 27 kV class switch or GO95 spacing). Fiberglass arm. Polymer or Cypoxy insulators. Single point lifting. Pole band and J hook. Extra section of torsional control rod for tall poles. Fiberglass section of control rod. Padlockable. Arrester brackets on vertical models. Factory assembled and ready for installation. All parts UV stabilized. IEEE C37.30, C37.32, C37.34, and IEEE1247 (load break testing criteria only).

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. Extra strong crates for multi-year outdoor storage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part (and) its packaging.

**Approved Manufacturers:**

Cooper/Eaton, S&C, Hubbell, Inertia

\*Vendors: review manufacturer catalog numbers before accepting orders.

| PUD IDENTIFICATION |                                                                                                                      | MANUFACTURER CATALOG NUMBER |                                        |            |             |
|--------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------------------------|------------|-------------|
| Stock No.          | Stock Description                                                                                                    | Cooper/Eaton                | S&C                                    | Hubbell    | Inertia     |
| 032400             | SWITCH, POLE TOP, GANG-OP w/ <b>SWING HANDLE</b> , SIDE BREAK, HORIZONTAL MOUNT                                      | M1GB2GR2CRV1                | 147442R4<br>-ED-<br>711R4-<br>V1-S1-S2 | AR113FFHP  | L16SLFH2124 |
| 032405             | SWITCH, POLE TOP, GANG-OP w/ <b>HOOK STICK</b> , SIDE BREAK, HORIZONTAL MOUNT                                        | M1G03GR2CRV                 | 147442R4<br>-H-<br>ED710R4             | AR113FHH   | L16SLFH31   |
| 032415             | SWITCH, POLE TOP, GANG-OP w/ <b>HOOK STICK</b> , SIDE BREAK, VERTICAL MOUNT<br>***USED FOR 600A RISER APPLICATIONS   | M1S03GR2CRV                 | 147532R4<br>-H-A2                      | AR123FHL   | L16SLFR31   |
| 032420             | SWITCH, POLE TOP, GANG-OP w/ <b>SWING HANDLE</b> , SIDE BREAK, VERTICAL MOUNT<br>***USED FOR 600A RISER APPLICATIONS | M1SB2GR2CRV1                | 147532R4<br>-S1-S2-<br>V1-A2           | AR123FFHLP | L16SLFR2124 |



## UG MATERIAL

Originator: DSmith

Date: 1/23/2007

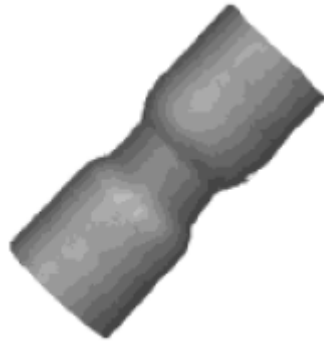
Approval: DSmith

Date: 1/23/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



# UNDERGROUND MATERIAL



**CONDUIT, RIGID STEEL**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/27/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved****Specification:**Material: High-Strength SteelFinish: Hot dipped galvanized, top-coated with a compatible organic layer to inhibit white rust and increase corrosion resistance.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers: ALL**

| PUD IDENTIFICATION                                               |           | MANUFACTURER CATALOG NUMBER |        |        |
|------------------------------------------------------------------|-----------|-----------------------------|--------|--------|
| Stock Description                                                | Stock No. | MFG #1                      | MFG #2 | MFG #3 |
| Conduit, Rigid Steel, 2" X 10' Threaded Ends W/ One Coupling     | 043000    | -                           | -      | -      |
| Conduit, Rigid Steel, 2-1/2" X 10' Threaded Ends W/ One Coupling | 043020    | -                           | -      | -      |
| Conduit, Rigid Steel, 3" X 10' Threaded Ends W/ One Coupling     | 043040    | -                           | -      | -      |
| Conduit, Rigid Steel, 3-1/2" X 10' Threaded Ends W/ One Coupling | 043060    | -                           | -      | -      |
| Conduit, Rigid Steel, 4" X 10' Threaded Ends W/ One Coupling     | 043080    | -                           | -      | -      |
| Conduit, Rigid Steel, 5" X 10' Threaded Ends W/ One Coupling     | 043100    | -                           | -      | -      |
| Conduit, Rigid Steel, 6" X 10' Threaded Ends W/ One Coupling     | 043120    | -                           | -      | -      |

**CONDUIT, FLEXIBLE METAL**

Originator: DSmith

Date: 7/19/2006

Approval: DSmith

Date: 6/27/2007

Page 1 of 1

Revision: **NEW**Stds Committee Approval:  
**Approved**

**Application:** Used in place of rigid steel or rigid PVC.

**Common Name:** SealTite

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** None

**Approved Manufacturers:** ALL

| PUD IDENTIFICATION             |           | MANUFACTURER CATALOG NUMBER |        |        |
|--------------------------------|-----------|-----------------------------|--------|--------|
| Stock Description              | Stock No. | MFG #1                      | MFG #3 | MFG #3 |
| CONNECTOR, SEALTITE, FLEX      | 015810    | XXXXX                       | XXXXX  | XXXXX  |
| CONNECTOR, STRAIGHT 2", LIQUID | 140543    | XXXXX                       | XXXXX  | XXXXX  |



# CHANNEL STRUT, FITTINGS, CLAMPS

Originator: DSmith

Date: 7/7/06

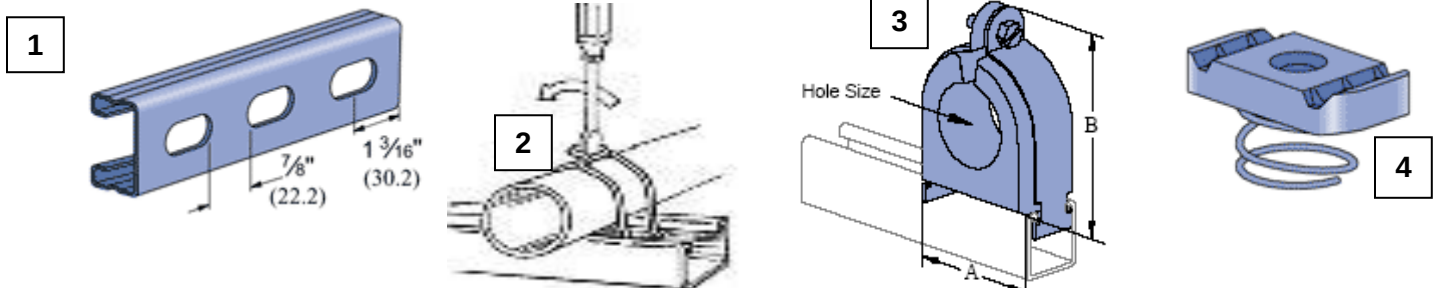
Approval: J Mitchell

Date: 8/17/11

Page 1 of 1

Revision:

Std's Committee Approval: **Approved**



| BOLT SIZE | 1/4" | 5/16" | 3/8" | 1/2" | 5/8" | 3/4" |
|-----------|------|-------|------|------|------|------|
| FOOT LBS. | 6    | 11    | 19   | 50   | 100  | 125  |
| N·m       | 8    | 15    | 25   | 70   | 135  | 170  |

## Approved Manufactures

| PUD IDENTIFICATION                                     |         |          | MANUFACTURER CATALOG NUMBER |           |             |               |
|--------------------------------------------------------|---------|----------|-----------------------------|-----------|-------------|---------------|
| Stock Description                                      | Stock # | Figure # | Unistrut                    | Kindorf   | Powerstrut  | Cooper B-Line |
| STRUT, CHANNEL, 1-5/8" X 13/16" SLOTTED                | 050500  | 1        | P4000T                      | XXXXXX    |             |               |
| CLAMP, CONDUIT, 1" GALV                                | 042440  | 2        |                             | P200-1    |             |               |
| CLAMP, CONDUIT, 2" GALV                                | 042450  | 2        |                             | P200-2    |             |               |
| CLAMP, CONDUIT, 2-1/2" GALV                            | 042460  | 2        |                             | P200-21/2 |             |               |
| CLAMP, CONDUIT, 3" GALV                                | 042470  | 2        |                             | P200-3    |             |               |
| CLAMP, CONDUIT, 3-1/2" GALV                            | 042480  | 2        | P1120                       |           |             |               |
| CLAMP, CONDUIT, 4" GALV                                | 042490  | 2        |                             | P200-4    |             |               |
| CLAMP, CONDUIT, 5" GALV                                | 042500  | 2        | P1123                       | P-200-5   |             |               |
| CLAMP & CUSHION ASSEMBLY, #2 PRIMARY CABLE             | 050750  | 3        |                             |           | PS-7221EV   |               |
| CLAMP & CUSHION ASSEMBLY, #4/0 PRIMARY CABLE           | 050760  | 3        |                             |           | PS-722112EV |               |
| CLAMP & CUSHION ASSEMBLY, 350 ALUM, 1/C 600 VOLT CABLE | 050765  | 3        |                             |           | PS-7223/4   |               |
| CLAMP & CUSHION ASSEMBLY, 750KCM PRIMARY CABLE         | 050770  | 3        |                             |           | PS-7221/8   |               |
| CLAMP & CUSHION ASSEMBLY, 1000 KCM PRIMARY CABLE       | 050780  | 3        |                             |           | PS-722212EV |               |
| CHANNEL NUTS W/ SPRING 1/4" - 20 (1-5/8" Series)       | 050652  | 4        | P4006-1420                  |           |             | N524          |
| CHANNEL NUTS W/ SPRING 3/8" -16 (1-5/8" Series)        | 050650  | 4        | P4008                       |           |             | N528          |
| CHANNEL NUTS W/ SPRING 1/2" -13 (1-5/8" Series)        | 140752  | 4        | P4009                       |           |             | N525          |



**CONDUIT, PVC, SCHEDULE 40/80**

Originator: D Plinski

Date: 02/26/2018

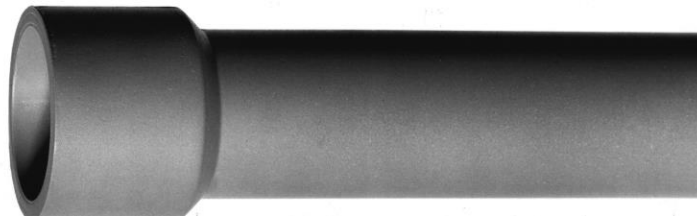
Approval: D Plinski

Date: 02/26/2018

Page 1 of 1

Revision: **Updated wording**

Stds Committee Approval:

**Approved**

**Application:** PVC (Polyvinyl Chloride) conduit is used where primary or secondary cable is buried below streets, patios, and other large concrete or asphalt areas which would make access to the cable difficult for future repairs. Schedule 40 PVC is also used for pole risers.

**Specification:** The conduit shall be made of POLYVINYL CHLORIDE and utility gray in color. It shall be resistant to sunlight and UL Listed for exposed or outdoor usage. This conduit shall meet or exceed the following standards and tests. NEMA standard TC-2, UL listing UL-651, ASTM test method D1598, dimensional requirements of ASTM d 1785 and the joint specifications of ASTM d 2672-96a. (the socket length in inches shall comply with table 1 Tapered sockets for bell-end pipe column "c" pressure). Rated for 90 degree C conductor. Beveled edge on interior of male end to ensure smooth transition of joint.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. At a minimum, lifts of conduit must be framed with at least 2" x 4" dimensional lumber. Duct shall be clearly marked with manufacturer's name or trademark, nominal size, material (PVC) and NEMA type.

**Approved Manufacturers:** Royal Pipe, Carlon, Pw Pipe, Can-Tex, Carlon, J - M Manufacturing

| Stock No. | PUD IDENTIFICATION                                    |
|-----------|-------------------------------------------------------|
|           | Stock Description                                     |
| 043378    | Conduit, Gray PVC, ¾" X 10' Sch 40 W/One Bell End     |
| 043380    | Conduit, Gray PVC, 2" X 10' Sch 40 W/One Bell End     |
| 043381    | Conduit, Gray PVC, 2" X 20' Sch 40 W/One Bell End     |
| 043400    | Conduit, Gray PVC, 2½" X 20' Sch 40 W/One Bell End    |
| 043420    | Conduit, Gray PVC, 3" X 10' Sch 40 W/One Bell End     |
| 043421    | Conduit, Gray PVC, 3" X 20' Sch 40 W/One Bell End     |
| 043440    | Conduit, Gray PVC, 3-1/2" X 10' Sch 40 W/One Bell End |
| 043460    | Conduit, Gray PVC, 4" X 10' Sch 40 W/One Bell End     |
| 043480    | Conduit, Gray PVC, 5" X 10' Sch 40 W/One Bell End     |
| 043484    | Conduit, Gray PVC, 5" X 20' Sch 40 W/One Bell End     |
| 043500    | Conduit, Gray PVC, 6" X 10' Sch 40 W/One Bell End     |
| 043520    | Conduit, Gray PVC, 2" X 10' Sch 80 W/One Bell End     |
| 043540    | Conduit, Gray PVC, 3" X 10' Sch 80 W/One Bell End     |
| 043550    | Conduit, Gray PVC, 4" X 10' Sch 80 W/One Bell End     |
| 043560    | Conduit, Gray PVC, 5" X 10' Sch 80 W/One Bell End     |



**- Material Catalog -****UG****1310.05**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*

**PVC FITTINGS, SCHEDULE 40/80**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 7/7/06

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved****1****2****3****4****PUD IDENTIFICATION****MANUFACTURERS CATALOG #**

| Stock Description                                                   | Stock # | Fig # | PW Pipe   | CARLON | Misc                     |
|---------------------------------------------------------------------|---------|-------|-----------|--------|--------------------------|
| Coupling, SCH 40 Gray PVC, 2-1/2" SCH 40, Deep Socket               | 044551  | 1     |           | E940K  |                          |
| Coupling, SCH 40 Gray PVC, 2" (Extra Long), Length 5.5"             | 044550  | 1     | 600202003 |        | RACEWAY<br>AVRTCUL020    |
| Coupling, SCH 40 Gray PVC, 3" (Extra Long), Length 8.5"             | 044552  | 1     | 600203003 |        |                          |
| Coupling, SCH 40 Gray PVC, 4" (Extra Long), Length 7.5"             | 044554  | 1     | 600204003 |        | RACEWAY<br>AVRTCUL040    |
| Coupling PVC 5" SCH 40 Extra Long                                   | 044555  | 1     |           |        |                          |
| Coupling PVC 6" SCH 40 Extra Long                                   | 044553  | 1     |           |        |                          |
| Fitting, End Bell, 2" SCH 40                                        | 040710  | 2     |           | E297J  |                          |
| Fitting, End Bell, 2-1/2" SCH 40                                    | 040711  | 2     |           | E997K  |                          |
| Fitting, End Bell, 3" SCH 40                                        | 040712  | 2     |           | E997L  | KRALOY<br>#MEB30         |
| Fitting, End Bell, 4" SCH 40                                        | 040714  | 2     |           | E997N  |                          |
| Fitting, End Bell, 5" SCH 40                                        | 040715  | 2     |           | E997P  |                          |
| Fitting, End Bell, 6" SCH 40                                        | 040713  | 2     |           | -      |                          |
| Adapter, SCH 40 Gray PVC, Female, 2" To Rigid                       | 040600  | 3     |           | E942J  | KRALOY FA 20             |
| Adapter, SCH 40 Gray PVC, Female, 2 1/2" To Rigid                   | 040610  | 3     |           | E942K  | KRALOY FA 25             |
| Adapter, SCH 40 Gray PVC, Female, 3" To Rigid                       | 040620  | 3     |           | E942L  | KRALOY FA 30             |
| Adapter, SCH 40 Gray PVC, Female, 3 1/2" To Rigid                   | 040630  | 3     |           | E942M  | KRALOY FA 35             |
| Adapter, SCH 40 Gray PVC, Female, 4" To Rigid                       | 040640  | 3     |           | E942N  | KRALOY FA 40             |
| Adapter, SCH 40 Gray PVC, Female, 5" To Rigid                       | 040650  | 3     |           | E942P  | KRALOY FA 50             |
| Adapter, SCH 40 Gray PVC, Male, 2"                                  | 044510  | 3     |           |        | CED - PVC Ta2            |
| Adapter SCH 40, 2" Gray PVC, Slip To Outside Threaded End           | 044515  | 3     |           |        | CED- BPT 326             |
| Coupling, Reducer, 3" To 2 1/2" SCH 40, PVC                         | 044609  | 4     |           |        |                          |
| Coupling, Reducer, 3" To 2" SCH 40, PVC                             | 044607  | 4     |           |        |                          |
| Coupler, Sherlock li, W/ SS Pipe Clamps Fits OD Size 2.355 To 2.395 | 049480  |       |           |        | Arnco NCO<br>18003217914 |

**CONDUIT, FLEXIBLE PVC**

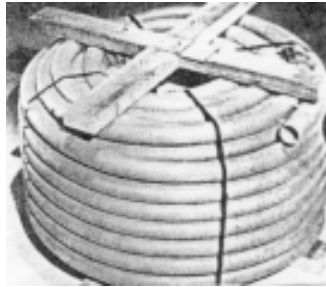
Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/27/2007

Page 1 of 1

Revision: **NEW**Std's Committee Approval:  
**Approved**

**Application:** PVC (polyvinyl chloride) power duct is for encasing power cable in direct burial applications where flexible duct is needed.

**CAUTION:** Care should be taken when installing conductor in flexible duct, duct walls are thin and are easily worn through.

**Ordering Description:** (Size) Flexible PVC plastic conduit.

Duct shall be:

- PVC, gray in color, per NEMA standard TC-12
- suitable for use with 90 deg. C cable in wet or dry locations.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and its packaging.

**Approved Manufacturers**

| PUD IDENTIFICATION                 |           | MANUFACTURER'S CATALOG NUMBER |         |          |
|------------------------------------|-----------|-------------------------------|---------|----------|
| Stock Description                  | Stock No. | Carlson                       | Can-Tex | Kaf-flex |
| CONDUIT, PVC FLEX 2" x 250' ROLL   | 042720    | 11811-250                     | A90CAG1 | 8436     |
| CONDUIT, PVC FLEX 2 ½" x 250' ROLL | 042725    | 11812-250                     | -----   | -----    |
| CONDUIT, PVC 3" x 250' ROLL        | 042730    | 11813-250                     | -----   | -----    |

**CONDUIT, 36" ADS PIPE**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/27/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**

**Application:****Common Name:** ADS pipe**Ordering Description:** N12 36"x20' SOLID A.D.S. PIPEDimensions: 36" x 20'Material: High Density Polyethylene

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                      |           | MANUFACTURER CATALOG NUMBER |
|-----------------------------------------|-----------|-----------------------------|
| Stock Description                       | Stock No. | United Pipe                 |
| Conduit, 36"X20' ADS Pipe, Black Ribbed | 043510    | 024665                      |



## BRACKET, CONDUIT STANDOFF

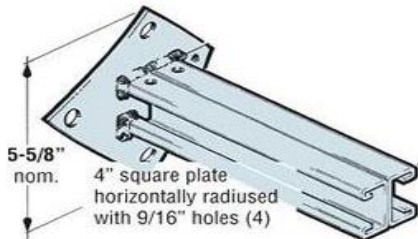
Originator: J. Mitchell Date: 02/01/17

Approval: J. Mitchell Date: 02/01/17

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



1

\*Shown without side plates



2

\*Shown with side plates

**Application:** Used to mount riser conduits to poles. Conduits can be mounted to either side of bracket. The side plate prevents conduits from being mounted too close to pole, thus ensuring climbing space for linemen. 4"x4"x1/8" thick curved, diamond shaped mounting plate has four 9/16" holes for pole attachment. Channel strut is 1-5/8" 12 ga. Clamps secure the conduit to the strut.

**Common Name:** Riser standoff bracket

**Material:** A-36 steel & 12 ga. Strut channel, Hot Dipped Galvanized finish.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

### Approved Manufacturers

| PUD IDENTIFICATION                                      |           | MANUFACTURER CATALOG NUMBER |          |         |          |            |                |
|---------------------------------------------------------|-----------|-----------------------------|----------|---------|----------|------------|----------------|
| Stock Description                                       | Stock No. | Figure #                    | Gheen    | Morfab  | Unistrut | Superstrut | WSNCO          |
| BRACKET, CONDUIT STANDOFF RISER 15" LONG                | 040750    | 1                           |          | 15-SOSM |          |            | W1010-15-HDGAF |
| BRACKET, CONDUIT STANDOFF RISER 18" LONG, W/ SIDE PLATE | 040780    | 2                           | GSOBSP18 |         |          |            |                |
| BRACKET, CONDUIT STANDOFF RISER 24" LONG, W/ SIDE PLATE |           | 2                           | GSOBSP24 |         |          |            |                |
| BRACKET, CONDUIT STANDOFF RISER 24" LONG                | 040751    | 1                           |          |         | P2234    | 5253-24    | W1010-24-HDGAF |
| BRACKET, CONDUIT STANDOFF RISER 30" LONG                | 040752    | 1                           |          |         |          |            | W1010-30-HDGAF |

**CONDUIT, PVC SWEEP ELBOWS**

Originator: DSmith

Date: 7/19/2006

Approval: DSmith

Date: 12/3/2007

Page 1 of 2

Revision: added 2" 24" radius elbow.

Stds Committee Approval:

**Approved**

**Application:** PVC (Polyvinyl Chloride) conduit elbows (sweeps) are used to transition from horizontal to vertical such as riser poles, termination cabinets, etc for primary or secondary cable.

**Specification:** The elbows shall be made of POLYVINYL CHLORIDE and utility GRAY or Orange in color as identified in the description. This conduit shall meet or exceed the following standards and tests. NEMA standard TC-2, UL listing UL-651, ASTM test method D1598, dimensional requirements of ASTM d 1785 and the joint specifications of ASTM d 2672-96a. (The socket length in inches shall comply with table 1 Tapered sockets for bell-end pipe column "c" pressure). Rated for 90 degree C conductor.

**Approved Manufacturers:** Royal Pipe, Carlon, PW Pipe, Can-Tex, J - M Manufacturing

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

| ITEMNUM         | MAXIMO DESCRIPTION                                                            |
|-----------------|-------------------------------------------------------------------------------|
| <b>ELECTRIC</b> |                                                                               |
| 044806          | ELBOW, 2" SCH 40 GRAY PVC CONDUIT, 90 DEGREE, 24" RADIUS W/ONE BELL END       |
| 044810          | ELBOW, 2" SCH 40 GRAY PVC CONDUIT, 90 DEGREE, 36" RADIUS W/ONE BELL END       |
| 044830          | ELBOW, 2 1/2", SCH 40 GRAY PVC CONDUIT, 90 DEGREE, 36 " RADIUS W/ONE BELL END |
| 044821          | ELBOW, 2", SCH 40 GRAY PVC CONDUIT, 22 1/2 DEGREE, 48" RADIUS W/ONE BELL END  |
| 044820          | ELBOW, 2", SCH 40 GRAY PVC CONDUIT, 45 DEGREE, 36" RADIUS W/ONE BELL END      |
| 049625          | ELBOW, 2", SCH 40 GRAY PVC CONDUIT, 90 DEGREE, 60" RADIUS W/ONE BELL END      |
| 044766          | ELBOW, 3", SCH 40 GRAY PVC CONDUIT, 22 1/2 DEGREE, 36" RADIUS W/ONE BELL END  |
| 044765          | ELBOW, 3", SCH 40 GRAY PVC CONDUIT, 45 DEGREE, 36" RADIUS W/ONE BELL END      |
| 044760          | ELBOW, 3", SCH 40 GRAY PVC CONDUIT, 90 DEGREE, 36" RADIUS W/ONE BELL END      |
| 049440          | ELBOW, 3", SCH 40 GRAY PVC CONDUIT, 90 DEGREE, 60" RADIUS W/ONE BELL END      |
| 044840          | ELBOW, 4", SCH 40 GRAY PVC CONDUIT, 22 1/2 DEGREE, 36" RADIUS W/ONE BELL END  |
| 044880          | ELBOW, 4", SCH 40 GRAY PVC CONDUIT, 45 DEGREE, 36" RADIUS W/ONE BELL END      |
| 044770          | ELBOW, 4", SCH 40 GRAY PVC CONDUIT, 90 DEGREE, 36" RADIUS W/ONE BELL END      |
| 044775          | ELBOW, 4", SCH 40 GRAY PVC CONDUIT, 90 DEGREE, 60" RADIUS W/ONE BELL END      |

**- Material Catalog -****UG****1310.09**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*

**CONDUIT, PVC SWEEP ELBOWS**

Originator: DSmith

Date: 7/19/2006

Approval: DSmith

Date: 12/3/2007

Page 2 of 2

Revision: added 2" 24" radius elbow.

Std's Committee Approval:

**Approved**

| ITEMNUM | MAXIMO DESCRIPTION                                                       |
|---------|--------------------------------------------------------------------------|
| 044800  | ELBOW, 5", SCH 40 GRAY PVC CONDUIT, 45 DEGREE, 48" RADIUS W/ONE BELL END |
| 044790  | ELBOW, 5", SCH 40 GRAY PVC CONDUIT, 90 DEGREE, 48" RADIUS W/ONE BELL END |
| 044895  | ELBOW, 5", SCH 40 GRAY PVC CONDUIT, 90 DEGREE, 60" RADIUS W/ONE BELL END |
| 044860  | ELBOW, 6", SCH 40 GRAY PVC CONDUIT, 45 DEGREE, 48" RADIUS W/ONE BELL END |
| 044850  | ELBOW, 6", SCH 40 GRAY PVC CONDUIT, 90 DEGREE, 48" RADIUS W/ONE BELL END |

**FIBER**

|        |                                                                                        |
|--------|----------------------------------------------------------------------------------------|
| 044805 | ELBOW, 1" SCH 40 ORANGE PVC CONDUIT, 90 DEGREE, 36" RADIUS (FIBER INDIVIDUAL SERVICES) |
| 044815 | ELBOW, 2" SCH 40 ORANGE PVC CONDUIT, 45 DEGREE, 36" RADIUS, (FOR FIBER)                |
| 044808 | ELBOW, 2" SCH 40 ORANGE PVC CONDUIT, 90 DEGREE, 36" RADIUS                             |
| 060089 | ELBOW, 2" SCH 40, REPAIR, 36R 90 DEGREE, GRAY, ( FIBER )                               |
| 060098 | ELBOW, 4" SCH 40, 36R 90 DEGREE, GRAY, NOTCHED, WITH VINYL SEALING STRIP ( FIBER )     |

**CONDUIT SEALING KITS  
Cable Breakouts**

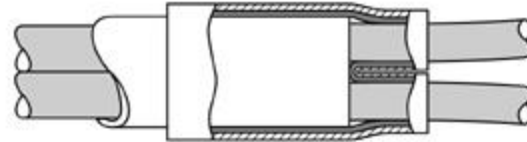
Originator: DSmith

Date: 7/7/06

Approval: J. Mitchell

Date: 01/23/2018

Page 1 of 1

Revision: **Corrected descriptions & typo**Std's Committee Approval:  
**Approved**

**Application:** RayChem used to seal the end of conduits when multiple conductors are installed.

**Common Name:** Cow Udders

**Specification:** These seals shall be made crosslinked polyolefin to provide mechanical protection and strain relief. These seals shall have an adhesive-coating on the body and the legs to form a durable watertight seal, and conform tightly to conduits and cable jackets.

Qualified to ANSI/IEEE C119.1-1986.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION              |           | MANUFACTURER CATALOG NUMBER |
|---------------------------------|-----------|-----------------------------|
| Stock Description               | Stock No. | Raychem                     |
| CONDUIT SEALING KIT, 6 POSITION | 041756    | CBR-6-1-A                   |
| CONDUIT SEALING KIT, 3 POSITION | 041755    | CBR-3-3-A                   |





## Conduit Duct Spacers Underground

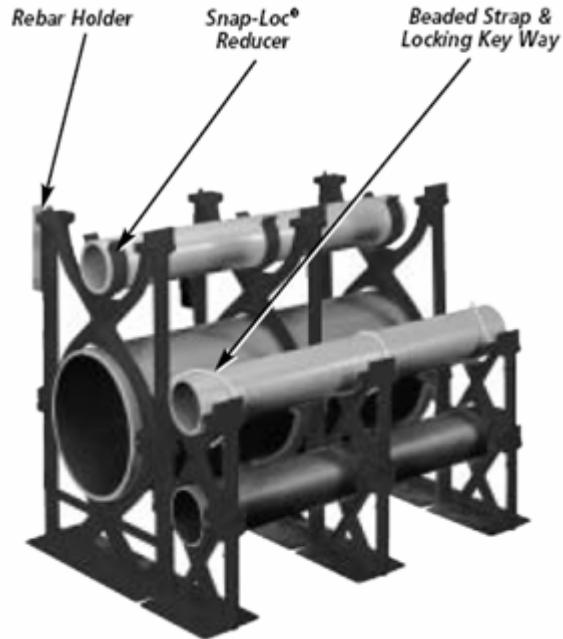
Originator: DSmith

Date: 7/9/2007

Approval: DSmith

Date: 7/9/2007

Page 1 of 1

Revision: **NEW**Stds Committee Approval:  
**Approved****Figure 1****Figure 2**

**Application:** **Underground Conduit Duct Spacers** are designed to be used in concrete encased applications only. The system consist of either a base unit and an intermediate unit that snap together or a one piece dual conduit unit.

The use of duct spacers for direct burial may result in excessive point deflections unless proper compaction of the appropriate backfill material. Direct burial installation is not recommended by the manufacture.

**Specifications:**

Each unit shall be manufactured out of highly engineered thermoplastic material and shall be specifically designed to withstand the rigors of concrete construction.

**Approved Manufacturers:** **Carlton**

| PUD IDENTIFICATION |                                                                     |     | MANUF<br>CATALOG<br>NUMBER |
|--------------------|---------------------------------------------------------------------|-----|----------------------------|
| Stock<br>No.       | Stock Description                                                   | Fig | Carlton                    |
| 042715             | Conduit Spacer, Base, 3" PVC Conduit Racking                        | 1   | S288LLN                    |
| 042716             | Conduit Spacer, Intermediate, 3" PVC Conduit Racking                | 1   | S289LLN                    |
| Under<br>review    | Conduit Spacer, One Piece 3 inch Spacing for 3" PVC Conduit Racking | 2   | SP3W30-2                   |

**CONDUIT SEALING PLUG**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 8/3/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Used for the temporarily plugging of duct, bell-ends and terminators. These polyethylene plugs come in sizes to fit all types of manufactured duct, even when it's bell ended or coupling is attached. The universal plugs extended lip design permits easy extraction.

**Specification:** Each plug is made polyethylene.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number, applicable size and color code shall be on each part.

**Approved Manufacturers:**

| PUD IDENTIFICATION         |           | MANUFACTURER CATALOG NUMBER |        |         |
|----------------------------|-----------|-----------------------------|--------|---------|
| Stock Description          | Stock No. | CONDUX                      | CARLON | CANTEX  |
| Conduit Duct Plug – 2 inch | 044602    | 08047400                    | P258JT | 5315248 |
| Conduit Duct Plug – 3 inch | 044603    | 08047500                    | P258LT | 5315250 |

**SPLIT RING GRIPS**

Originator: Jeff Mitchell

Date: 7/27/2012

Approval: Jeff Mitchell

Date: 7/27/2012

Page 1 of 1

**Rod Closing**

**Application:** Split ring grips are used for cable suspension and can be installed on the conductor inside conduit without having either end of the conductor. Installation is accomplished by wrapping the grip around the desired position on the conductor and securing the basket by twisting rod through the closing rings on the basket.

**Common Name:** Split Ring Grip

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                        |           |            |
|---------------------------------------------------------------------------|-----------|------------|
| Stock Description                                                         | Stock No. | LEWIS      |
| GRIP, 3" SPLIT RING, CABLE SUPPORT, ROD CLOSING, FOR 750/1000KCM UG CABLE | 045492    | LRSR-2-1.0 |
| GRIP, 2" SPLIT RING, CABLE SUPPORT, ROD CLOSING, FOR #2 PRIMARY UG CABLE  | 045494    | LRSR-3-2.0 |



**FIBERGLASS HANDHOLES,  
PEDESTAL AND BURIED**

Originator: DSmith

Date: 7/7/06

Approval: J. Mitchell

Date: 5/20/2014

Page 1 of 1

Revision: **Added fiber optic handhole**

Stds Committee Approval:  
**9/22/06**

**Application:** These fiberglass boxes are used for splice and pull boxes for the District's electric and fiber cable. Boxes and covers are for locations that are non-traffic or may have an occasional, non-deliberate vehicle exposure. Cover is rated for a maximum of 5,000 lbs.

**Features:** These units are molded of high density polyethylene. A flange around the base prevents frost from heaving or tilting. Units can be nested for a minimum amount of warehouse storage space. All units are molded in green color.

The handhole lid shall be secured by a sliding metal latch on one end and a double locking mechanism on the other end. The double locking mechanism shall consist of a 3/8-16 penta head bolt and accommodations for a crimp type lock. In addition a horseshoe cutout is required at the penta head lock area for drainage.

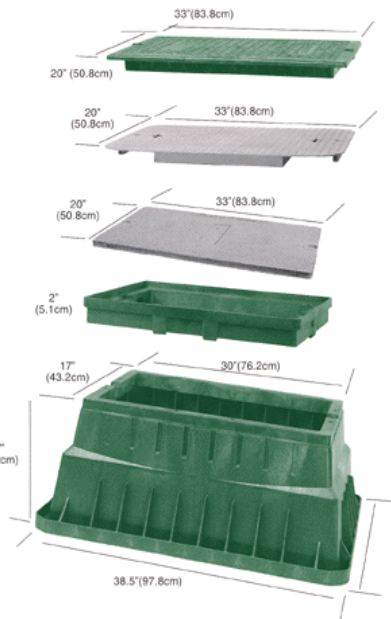
Handhole shall be equipped with a recess in lid for attaching an ID number and the following words shall be molded into the lid depending on its application with a minimum of 1 ¼ inch high letters.

**CCPUD  
ELECTRIC**

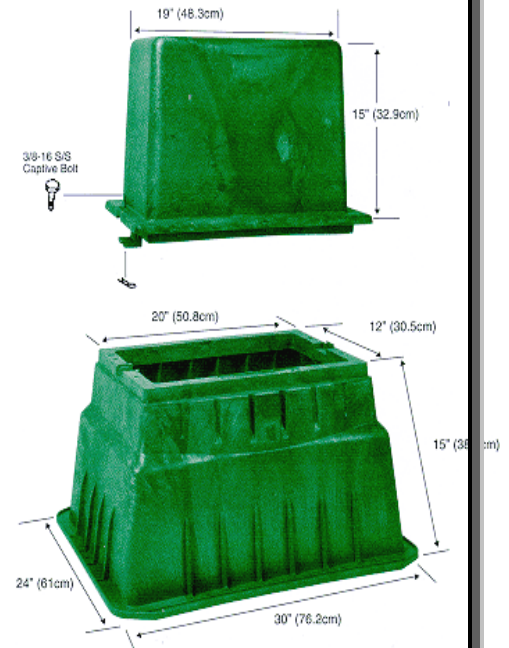
Or

**CCPUD  
FIBER**

**Fig 1**



**Fig 2**



| Description                                | Fig | Item # | Dimensions - Inches                                    | Approved Manufacturers: |
|--------------------------------------------|-----|--------|--------------------------------------------------------|-------------------------|
|                                            |     |        |                                                        | <b>Pencell</b>          |
| Handhole, Buried Pedestal, Fiberglass      | 1   | 045600 | 38.5"Lx25.5"Wx17"H                                     | PE30HDXCL - CHELAN      |
| Handhole, Above Grade Pedestal, Fiberglass | 2   | 045450 | BASE:<br>30"Lx24"Wx15"H<br>PEDESTAL:19"Lx12"W<br>x15"H | AG20HDXCL               |
| Handhole, Fiber Optic                      | 1   | 060033 | 38.5"L x 25.5"W X 17"H                                 | PE30HDXCL-FIBER         |

**Fiberglass Box Pads For  
Single Phase Transformers**

Originator: D Smith

Date: 10/1/2021

Approval: D Scott

Date: 09/27/2021

Page 1 of 1

Revision: 9/22/06: Removed Highline due to lack of reinforcement

Std's Committee Approval: 9/22/06

Revision: 9/27/2021: Add reinforcement information



**Application:** Used to provide a foundation for Single Phase Pad Mounted Transformers from 25 KVA up to 167 KVA.

Covers are used to protect the public from open transformer pads prior to the installation of transformers. See note 7.

**Minimum Specifications:**

| Stock No. | Used For                               | Top       | Opening       | Capacity |
|-----------|----------------------------------------|-----------|---------------|----------|
| 046550    | All Single Phase Padmount Transformers | 42X38X30" | 24" W x 22" D |          |

1. Fiberglass Transformer Box Pads shall be constructed of high-strength FRP laminate to meet Western Underground Guidelines. The laminate shall be applied to a high grade marine grade gel-coated female mold.
2. Exterior color: Munsell #7GY3.29/1.5 Green. Marine grade gel coat.
3. One and a half-ounce random fiber chopped fiberglass and resin will be the initial coating, followed by alternate layers of 24-ounce woven roving and chopped fiberglass.
4. The product shall meet a Class 2 flame retardant rating. Aluminum Tri-Hydrate is permitted as a filler only to a maximum loading of 43%. Glass content of the finished laminate shall not be less than 33%.
5. Each unit shall be supplied with four 4.5 Inch X 1.5 inch hold down cleats with stainless steel inserts and brass bolts installed loosely on each unit.
6. The perimeter base lip shall be a minimum of 4-1/2" for stability.
7. Cover shall be supplied with penta-head bolts for fastening to box pad.
8. Type testing must include a load test; 9,000 pounds of concrete blocks.

**Packaging, Marking & Shipping:** Items shall be suitably packaged to prevent damage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging. Units shall be shipped stacked on wooden pallets, no more than six feet high. Units shall be separated by wood blocks to ensure they do not wedge together.

**Approved Manufactures:**

| PUD IDENTIFICATION                                                   |           | MANUFACTURER CATALOG NUMBER |          |                        |
|----------------------------------------------------------------------|-----------|-----------------------------|----------|------------------------|
| Stock Description                                                    | Stock No. | PROGLASS                    | HIGHLINE | NORDIC                 |
| PAD, FIBERGLASS BOX, TXFMR, TOP 42" X 38", HEIGHT 30", BOT 54" X 50" | 046550    | TX423830TI                  |          | GS-37-43-32C-CE-CHELAN |
| COVER, FIBERGLASS, ( FOR NORDIC ONLY FIBERGLASS SLEEVE STK# 046550 ) | 046555    |                             |          | GSC-37-43              |



## PAD, HILL HOLDER, FIBERGLASS

Originator: DSmith

Date: 7/7/06

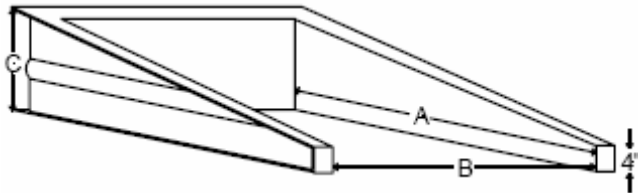
Approval: DSmith

Date: 7/9/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



**Application:** Hill Holders are placed behind a pad-mount equipment situated on a hill. Hill Holders help hold back gravity induced soil movement. In addition they prevent corrosion and other damage by blocking dirt and rocks from falling on or against the back and sides of the equipment.

**Specification:** Each unit shall be produced in a female mold of fire retardant double layers of 24 oz woven roving reinforcement cloth with a C-type fiberglass and resin mix. The exterior finish shall be covered with a smooth Munsell Green gel-coat, which contains UV stabilizer for superior weatherability.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

### Approved Manufacturers:

| PUD IDENTIFICATION                                                                                 |           | MANUFACTURER CATALOG NUMBER |        |
|----------------------------------------------------------------------------------------------------|-----------|-----------------------------|--------|
| Stock Description                                                                                  | Stock No. | PROGLASS                    | Mfg #2 |
| Hill Holder, Fiberglass, For Transformer, One Piece, 54.5"W X 36"H, 50.5" Depth                    | 045655    | HB365450                    |        |
| Hill Holder, Fiberglass, For Three Phase Termination Cabinets, One Piece, 72"W X 36"H, 50.5" Depth | 045658    | HB367250                    |        |



**- Material Specification -**

**UG**

**1313.00**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



**T&D UG VAULTS & COVERS**  
**PRECAST CONCRETE**  
**- Self Grounding -**

Originator: DSmith

Date: 9/17/2021

Approval: J Mitchell

Date: 9/17/2021

Page 1 of 7

Revision: **Updated NESC Rule #**

Std's Committee Approval:  
**APPROVED**



**Chelan County Public Utility District**  
**PO Box 1231**  
**Wenatchee, WA. 98807-1231**  
**(509) 661-4686**  
**Revised 9/29/2021**





## **T&D UG VAULTS & COVERS**

### **PRECAST CONCRETE**

### **- Self Grounding -**

Originator: DSmith

Date: 9/17/2021

Approval: J Mitchell

Date: 9/17/2021

Page 2 of 7

Revision: **Updated NESC Rule #**Stds Committee Approval:  
**APPROVED**

#### **1. SCOPE**

The technical provisions of this specification detail the minimum performance criteria and physical requirements for the concrete junction boxes, switch boxes, transformer vaults and covers to be used in the construction of underground electrical systems.

##### **1.1. Third Party Purchases**

The technical provisions of this specification apply to those units purchased directly by Chelan PUD and those units sold to third parties for use by Chelan PUD.

#### **2. APPROVAL**

All construction drawings used in the manufacturing of the concrete junction boxes, switch boxes, transformer vaults and covers will be reviewed by Chelan PUD before construction/manufacturing begins.

#### **3. STRUCTURAL**

Underground distribution concrete junction boxes, switch boxes, transformer vaults and covers of this specification shall meet the following minimum requirements.

##### **3.1. CONCRETE**

The concrete used shall have a minimum 28 day compressive strength (f'c) = 6000 PSI.

##### **3.2. REINFORCEMENT**

All units shall be reinforced with a minimum grade 60 welded wire fabric and #3 - #8 grade 60 bars.

##### **3.3. DESIGN LOADING**

All units shall be constructed for H-20 wheel loads or better with a 30% impact factor.

##### **3.4. UNISTRUTS**

Unistruts shall be provided and centered per enclosed applicable Chelan PUD T&D Vault and Cover Standards. The Unistrut size shall be 1 5/8" x 13/16" x 36" minimum length. All Unistrut material shall be hot-dipped galvanized.

#### **4. INTERNALLY GROUNDED VAULTS**

Chelan PUD is using internally grounded vaults for junctions, transformer and switch installations. The general requirement will be to bond all internal metallic structures

**T&D UG VAULTS & COVERS  
PRECAST CONCRETE  
- Self Grounding -**

Originator: DSmith

Date: 9/17/2021

Approval: J Mitchell

Date: 9/17/2021

**Page 3 of 7**Revision: **Updated NESC Rule #**Stds Committee Approval:  
**APPROVED**

together to a bronze insert. This grounding procedure shall meet the provisions of NESC Rule 94B5

**4.1. ELECTRODES**

Grounding electrodes shall be as shown on attached drawings and:

| SPECIFICATION  | REBAR      |
|----------------|------------|
| Minimum length | 22 feet    |
| Minimum size   | # 3 - 3/8" |

**4.1.1. Installation**

- The Electrodes shall be installed as straight as possible.
- The Electrodes shall be encased with a minimum of 1½" of radial concrete.
- The Electrodes shall be a minimum of 2.5' below the top of the vault or junction box.

**4.1.2. Ground Insert Connector**

Each bronze insert will be tapped for 1/2"-13 bolt, and located 2 inches below the Unistrut and in the middle of two opposite side walls (two inserts per wall, one faces inside the vault the other faces outside the vault) as shown in the attached Standard Drawings. A 3/8-inch steel rod, or similar sized metallic conductor, shall be used to bond the inserts to the structural steel in the concrete. The inserts shall be plugged to prevent contamination from entering.

On multi-sectioned vaults, the inserts shall be vertically aligned. Only the middle section will have the inserts that face inside the vault and outside the vault, all other inserts in these vaults will be placed as shown in the attached standard for that type vault.

**4.1.2.1- Bonding to rebar and Wire Mesh**

Ground insert connectors shall be electrically bonded to rebar and wire mesh by welded connections in a minimum of two locations

**T&D UG VAULTS & COVERS**  
**PRECAST CONCRETE**  
**- Self Grounding -**

Originator: DSmith

Date: 9/17/2021

Approval: J Mitchell

Date: 9/17/2021

Page 4 of 7

Revision: **Updated NESC Rule #**Std's Committee Approval:  
**APPROVED****4.1.2.2 – Labeling of Inserts**Inserts shall be labeled / identified in **Green Paint** as follows:

| Section                                                                         | Label       |
|---------------------------------------------------------------------------------|-------------|
| Base (Section that includes the minimum of 22 ft. of #3 Rebar bonded to insert) | <b>GRND</b> |
| Cover                                                                           | <b>BOND</b> |
| Mid-Section                                                                     | <b>BOND</b> |

The labeling shall be adjacent to the insert. When inserts on covers are oriented downward the label shall be painted on the access opening side closest to the insert location.

**5. COVERS****5.1. GROUNDING INSERTS**

All covers shall have grounding inserts installed per manufacturer's and Chelan PUD's specification. Each insert shall be bonded to the wire mesh used as reinforcement in the cover. The location is shown on the drawings, for each unit, included with this specification.

**5.2. METALLIC COVERS**

The 36" x 36" cover(s) shall be designed for AASHTO H20 loading, as specified, and shall have two 180-degree flush hinges, lifting handle(s), and concealed locking device(s). A Penta head bolt in a recessed, non-rotating cup is to be part of the required locking device. (See Figure 1, ANSI C57.12.28.1988, for typical installation). The lid shall be manufactured from a skid resistant surface, hot-dipped galvanized steel and be provided with spring-assisted opening and closing requiring a 55-pound maximum effort to open and close it. As an alternate, an aluminum lid may be supplied subject to Chelan PUD's approval. If supplied, it must meet all the applicable requirements above.

**5.3. COVER, TRANSFORMER VAULT**

The transformer vault lids shall have blockouts as described in the attached material standard for each type vault.

**5.3.1. LOGO "CHELAN PUD"**

All covers shall have the logo "**CHELAN PUD**" cast into the concrete structure using minimum two-inch-high letters. The logo is to be legible after 20 years



**T&D UG VAULTS & COVERS**  
**PRECAST CONCRETE**  
**- Self Grounding -**

Originator: DSmith

Date: 9/17/2021

Approval: J Mitchell

Date: 9/17/2021

Page 5 of 7

Revision: **Updated NESC Rule #**Stds Committee Approval:  
**APPROVED**

exposure and placement such as to be easily noticed by a lay person casually inspecting the structure.

**6. LIFTING METHOD**

Lifting provisions shall be installed per manufacturer's and Chelan PUD's requirements.

**6.1. COVERS****6.1.1. Burke Fittings**

All vault covers supplied shall have a Burke fitting placed in each corner of the top according to manufacturer's standards.

**6.1.2. Strap Lifting Notch 554 And 575 Vaults Only**

All 554 and 575 covers supplied shall have a "Strap Lifting Notch" cast in the vault side of the cover in each corner. The triangular notch shall have three (3) inch sides and be ¼ inch high.

**6.1.3. LOWER UNIT****6.1.3.1. 554 And 575 Units**

These units shall have two (2) ton Rigging/Lifting fittings placed in each corner per manufacturer's specifications and approved by Chelan PUD.

**6.1.3.2. 612 And 810 Units**

These units shall have four (4) ton Rigging/Lifting fittings placed in each corner per manufacturer's specifications and approved by Chelan County PUD.

**7. ACCESSORIES**

Items to be included with each type vault.

**7.1. SUMP**

A sump shall be provided in the bottom of each vault. The size and placement of the sump shall be as shown in the manufacturer's catalog and approved by Chelan PUD. The bottom of the sump shall be designed such that it can be knocked out if desired.

**7.2. KNOCKOUTS**

**- Material Specification -**

**UG**

**1313.00**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



**T&D UG VAULTS & COVERS**  
**PRECAST CONCRETE**  
**- Self Grounding -**

Originator: DSmith

Date: 9/17/2021

Approval: J Mitchell

Date: 9/17/2021

Page 6 of 7

Revision: **Updated NESC Rule #**

Std's Committee Approval:  
**APPROVED**

All units shall have cable knockouts located in each corner of the lower portion according to the manufacturer's standard and Chelan PUD's requirements.

**7.3. CABLE PULLING DEVICES**

In addition to the Burke Lifting devices, cable pulling irons shall be mounted in each corner and be suitable as anchors for cable pulling operations. Location in each type unit shall be as shown on specification drawings.

**T&D UG VAULTS & COVERS  
PRECAST CONCRETE  
- Self Grounding -**

Originator: DSmith

Date: 9/17/2021

Approval: J Mitchell

Date: 9/17/2021

Page 7 of 7

Revision: **Updated NESC Rule #**Stds Committee Approval:  
**APPROVED****8. APPROVED MANUFACTURERS**

|                                                                                         |                                                                           |
|-----------------------------------------------------------------------------------------|---------------------------------------------------------------------------|
| Utility Vault<br>P.O. Box 588<br>Auburn, WA 98071                                       | H2 Precast<br>4919 Contractors Drive<br>East Wenatchee, WA. 98802         |
| Phone: (800) 892-1538<br>(253) 839-3500<br>Fax: (253) 735-4201                          | Phone: (509) 884-6644                                                     |
| Email: <a href="mailto:uvauburn@oldcastleprecast.com">uvauburn@oldcastleprecast.com</a> | Email: <a href="mailto:cprewitt@h2precast.com">cprewitt@h2precast.com</a> |

**9. RELATED STANDARDS & DIMENSIONS**

Please refer to the **T&D Material Stock Catalog** for this items detail specifications on the district's web site listed below:

[HTTP://WWW.CHELANPUD.ORG/DISTRICT-STANDARDS.HTML](http://www.chelanpud.org/district-standards.html)

These catalog pages are updated when a change is made to the specifications.

Vendors shall utilize these specifications when responding to a request for quote.

- Material Catalog #1313.01 – 554 Vaults, Concrete, Self Grounding
- Material Catalog #1313.02 – 575 Vaults, Concrete, Self Grounding
- Material Catalog #1313.03 – 612 Vaults, Concrete, Self Grounding
- Material Catalog #1313.04 – 810 Vaults, Concrete, Self Grounding
- Material Catalog #1313.05 – 444 Vaults, Concrete
- Material Catalog #1313.06 – 774 Vaults, Concrete, Self Grounding
- Material Catalog #1313.07 – 954 Vaults, Concrete, Self Grounding



Originator: Date: 6/27/2014

Approval: J. Mitchell Date: 6/27/2014

Page 1 of 3

Revision:

Stds Committee: Approved

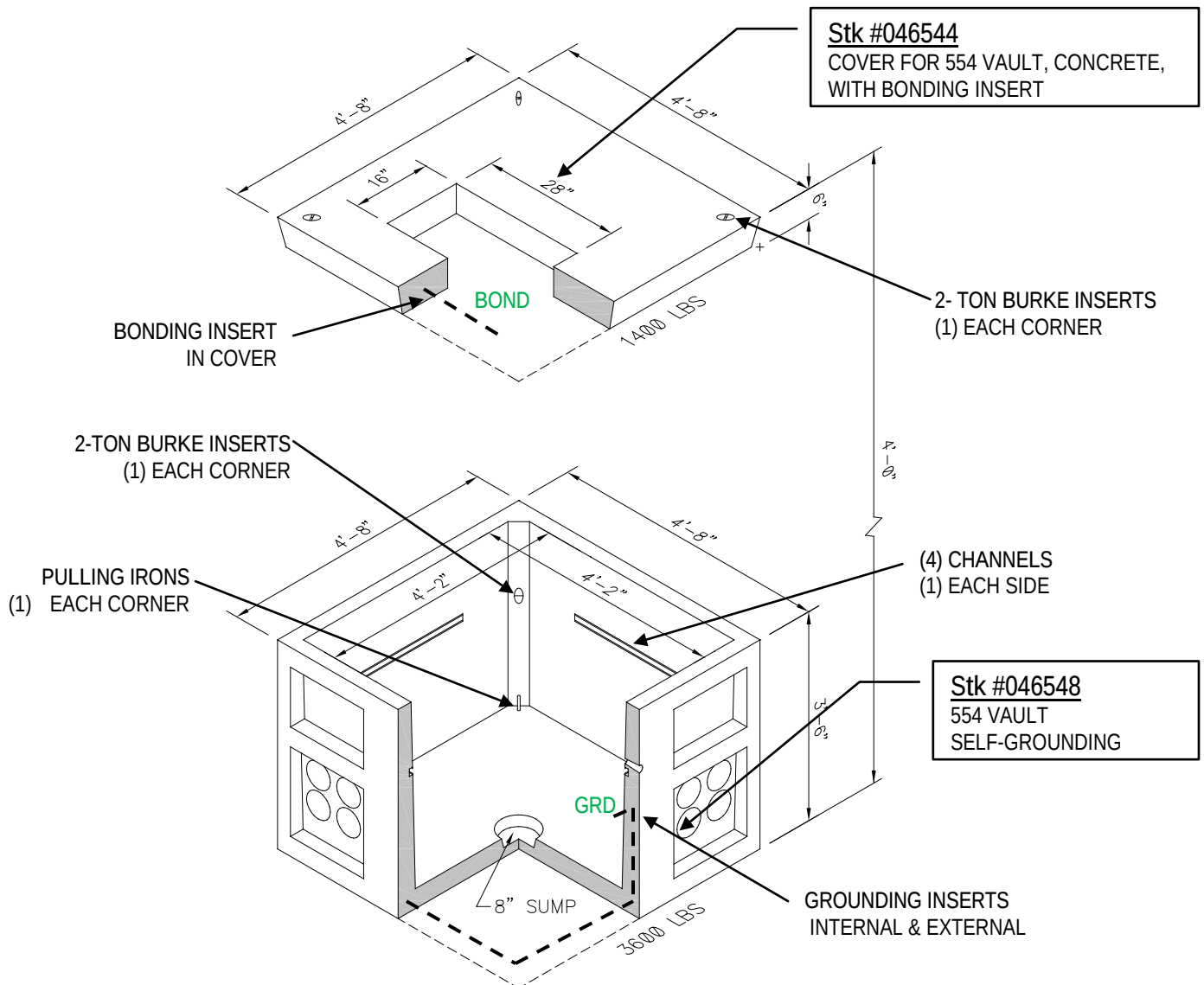
**Application:**

- Large single phase (100-167Kva), minipad 75Kva, and 150-300Kva three phase transformer.
- Commercial Secondary Service Box
- Single phase junction vault or splice vault

**Specifications:**

- All covers are 6" thick and H20 rated for light traffic/parking unless otherwise noted.
- All vault bases are self grounding and have grounding inserts accessible internally and externally. All covers have bonding inserts.

Refer to "1313.00 - VAULTS, PRECAST CONCRETE - SELF GROUNDING" for Manufacturing Details





# - Material Catalog -

UG Material

1313.01

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



**Vaults, Concrete 554,  
Self Grounding  
Large 1Ph & Small 3Ph Transformers, J-box or  
Commercial Secondary Service Box**

Originator:

Date: 6/23/2009

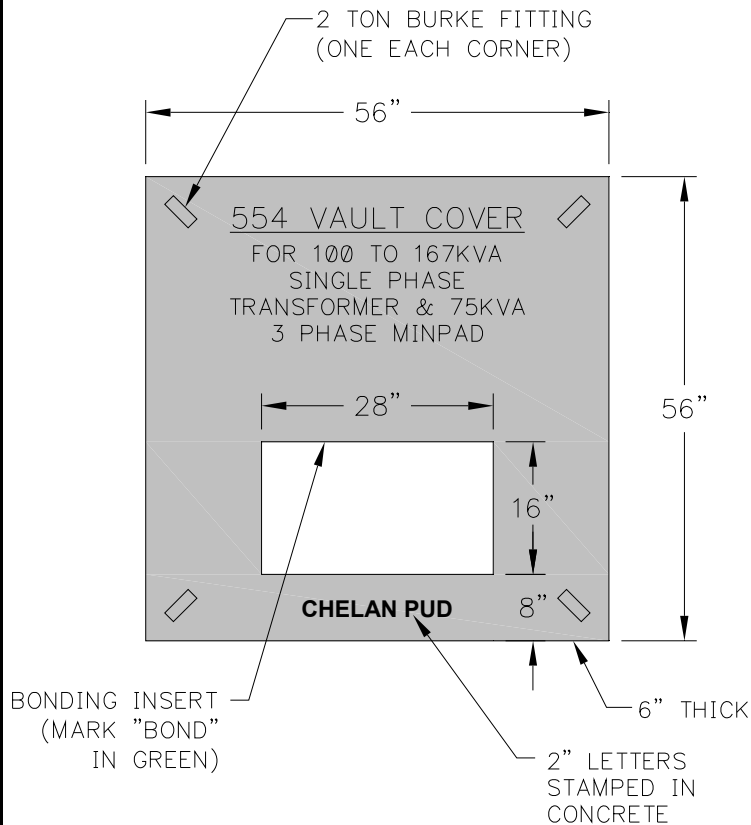
Approval:

Date: 6/23/2009

Page 2 of 3

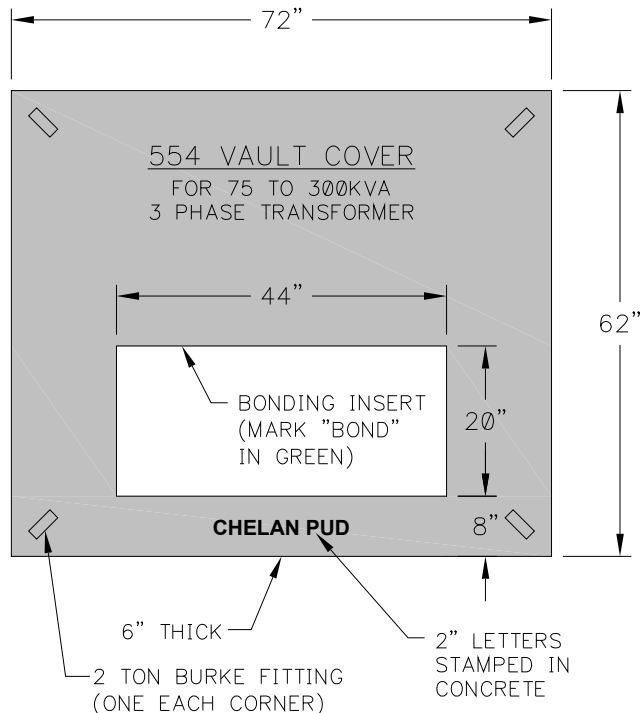
Revision: Added 75kav minipad 3ph., increased pad size of 046458 6 inches on both sides.

Stds Committee: Approved



## Stk #046544

Cover For 554 Vault, Concrete, with Bonding Insert  
For: 100 To 167kva Single Phase  
AND 75KVA 3-Phase MiniPad Transformers  
1400 lbs



## Stk #046458

Cover For 554 Vault, Concrete, with Bonding Insert  
For: 75 To 300kva 3 Phase Transformers  
1550lbs

## Stk #046547 (Not Shown)

Cover For 554 Vault, Concrete, with Bonding Insert  
56" x 56" with (1) Spring Assisted Steel Nonslip Door  
1150lbs

**- Material Catalog -****UG Material****1313.01**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



**Vaults, Concrete 554,  
Self Grounding  
Large 1Ph & Small 3Ph Transformers, J-box or  
Commercial Secondary Service Box**

Originator: Date: 6/23/2009

Approval: Date: 6/23/2009

Page 3 of 3

Revision: Added 75kav minipad 3ph., increased pad size of 046458 6 inches on both sides.

Stds Committee: Approved

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                                                                                                                  | MANUFACTURER CATALOG NUMBER |             |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------|
| Stock No.          | Stock Description                                                                                                                | Utility Vault               | H2 Precast  |
| 046548             | VAULT 554 BASE, CONCRETE, 4'8" X 4'8" X 3'6", SELF GROUNDING, H2O LOADING                                                        | CC-504-BL                   | VBCC554     |
| 046547             | COVER, FOR 554 VAULT, CONCRETE, 56" X 56" X 6", w/ 36"X36" SINGLE SPRING ASSISTED NONSLIP STEEL DOOR W/ BONDING INSERT, 1150 LBS | CC-55-332P                  | VLCC550-13  |
| 046544             | COVER, FOR 554 VAULT, CONCRETE, 56" X 56" X 6", w/ BONDING, 100 TO 167KVA 1PH & 75KVA 3PH MINIPAD, 1400LBS                       | CC-55-1226                  | TPCC55-1628 |
| 046458             | COVER, FOR 554 VAULT, CONCRETE, 72" X 62" X 6", w/ BONDING INSERT, 3PH XMR, 75 TO 300KVA, 1550LBS                                | CC-72-2044                  | TPCC55-2044 |



**Vaults, Concrete 575**  
**- Self Grounding -**  
**Splice/Switch Vault & 3Ph Transformer Base**  
**4'8" X 7'-0" X 5'-0"**

Originator: J. Mitchell

Date: 8/02/2022

Approval: D. Scott

Date: 8/02/2022

Page 1 of 2

Revision: Misc.

Stds Committee: Approved

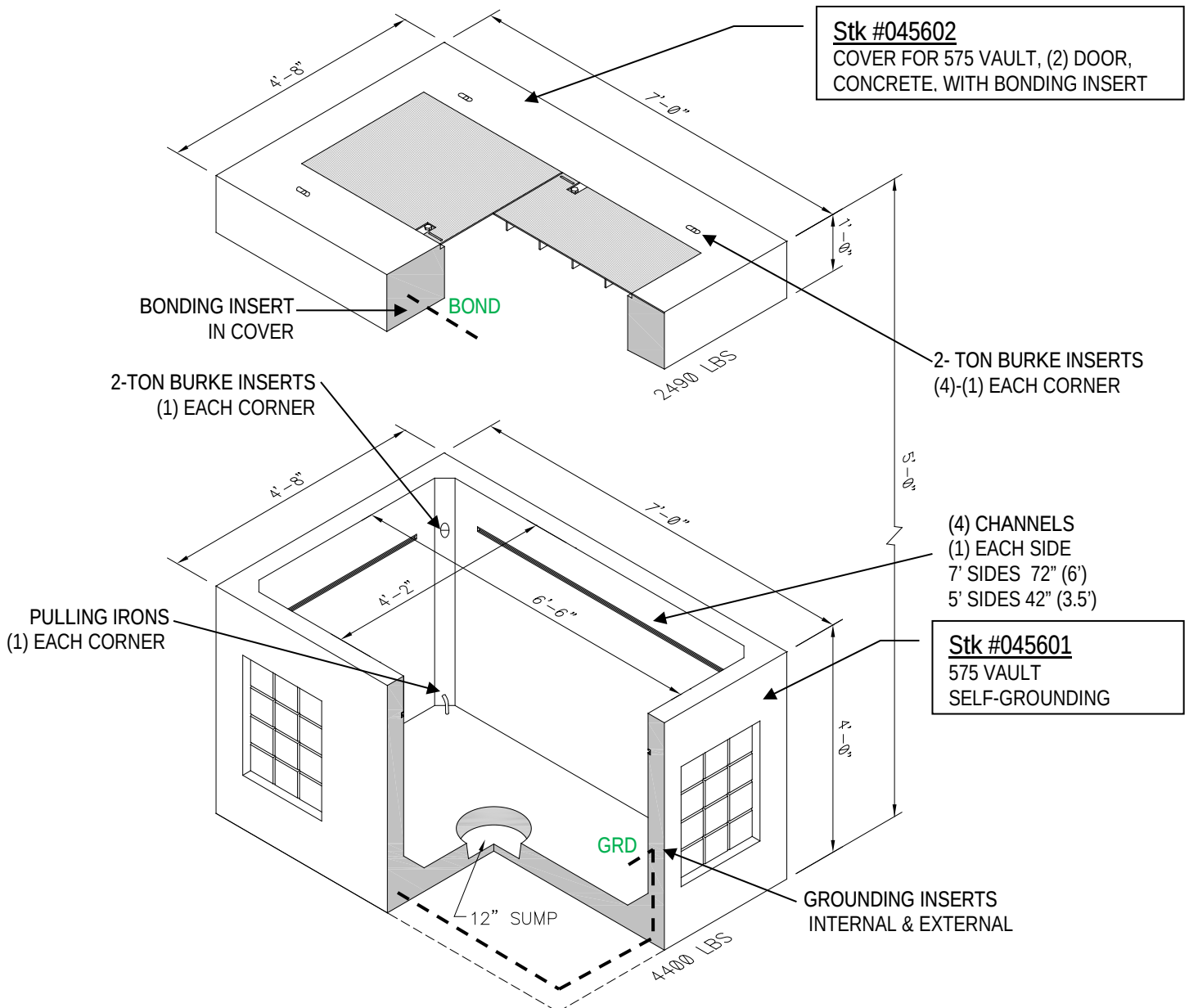
**Application:**

- Medium-sized three phase (500, 750Kva) transformers.
- Commercial Secondary Service Box
- Junction vault or splice vault for smaller cables (#2, #4/0)

**Specifications:**

- All vault bases are self-grounding and have grounding inserts accessible internally and externally. All covers have bonding inserts

Refer to "1313.00 - VAULTS, PRECAST CONCRETE - SELF GROUNDING" for Manufacturing Details



# - Material Catalog -

UG Material

1313.02

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



## Vaults, Concrete 575

- Self Grounding -

Splice/Switch Vault & 3Ph Transformer Base

4'8" X 7'-0" x 5'-0"

Originator: J. Mitchell

Date: 5/10/2021

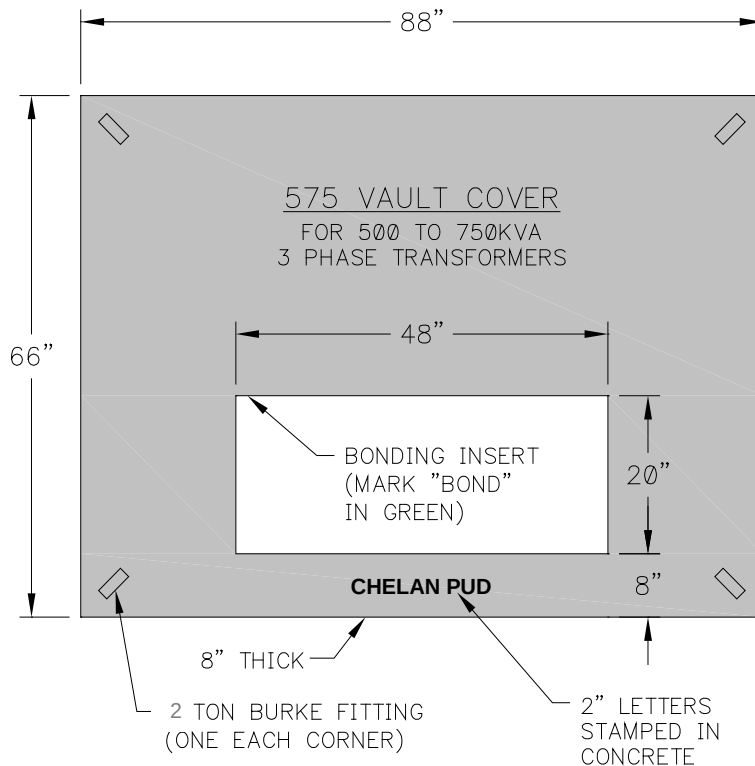
Approval: D. Scott

Date: 5/10/2021

Page 2 of 2

Revision: UPDATED UNISTRUT LENGTHS

Stds Committee: Approved



### Stk #045608

Cover For 575 Vault, Concrete, with Bonding Insert  
For: 500 to 750Kva, 3 Phase Transformers  
2800lbs

### Approved Manufacturers:

| PUD IDENTIFICATION |                                                                                                                                  | MANUFACTURER CATALOG NUMBER |            |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------|
| Stock No.          | Stock Description                                                                                                                | Utility Vault               | H2 Precast |
| 045601             | Vault, 575 Base, Concrete, Self-Grounding, 4400 Lbs.                                                                             | CC-575                      | VBCC575    |
| 045602             | Cover, For 575 Vault, Concrete, (2) Spring Assisted Nonskid Steel 3'X3' Doors, with Bonding Insert. 2430 Lbs.                    | CC-575-2-323                | VLCC570-23 |
| 045608             | Cover, For 575 Vault, Concrete, 88" X 66" X 8", with Bonding Insert, 20" x 48" opening - For 3 phase transformers, 500 To 750kva | xxxxxx                      | xxxxxx     |



# Vaults, Precast Concrete & Covers

## 612 - Self Grounding

6' X 12' X 6' 6" I.D.

Originator: DSMITH

Date: 6/23/2009

Approval: J.Nieborsky

Date: 2/6/2016

Page 1 of 3

Revision: Added lid for dead front gear

Std's Committee Approval:  
**Approved**

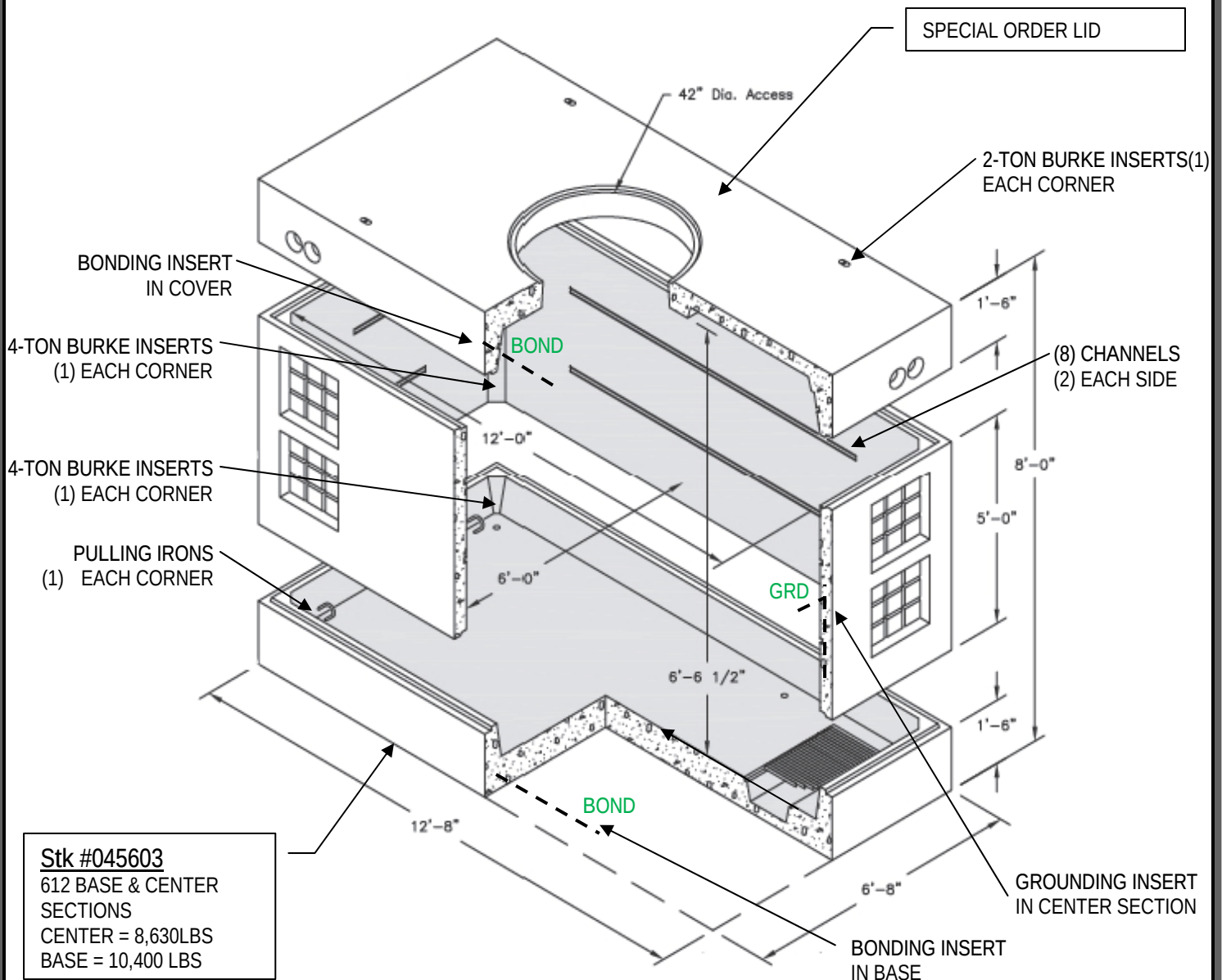
### Application:

- Three phase splicing or junction vault
- PM Cabinet (padmounted switchgear) installation
- Primary metering cabinet installations

### Specifications:

- The vault center section is self grounding and has grounding inserts accessible internally and externally. The base and covers have bonding inserts.

Refer to "1313.00 - VAULTS, PRECAST CONCRETE - SELF GROUNDING" for Manufacturing Details





# Vaults, Precast Concrete & Covers

## 612 - Self Grounding

6' X 12' X 6' 6" I.D.

Originator: DSMITH

Date: 6/23/2009

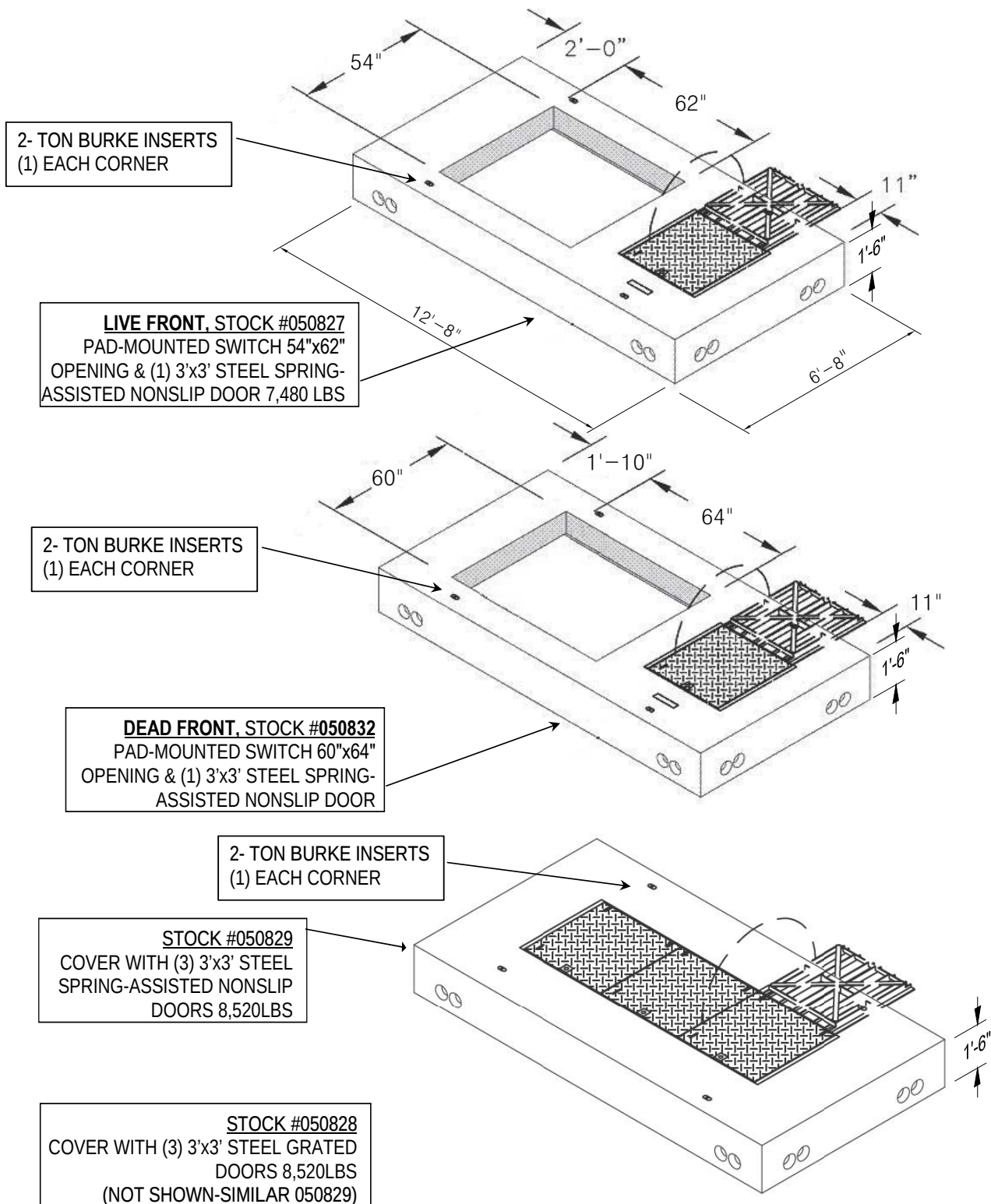
Approval: J.Nieborsky

Date: 2/6/2016

Page 2 of 3

Revision: Added lid for dead front gear

Stds Committee Approval:  
**Approved**



**- Material Catalog -****UG Material****1313.03**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



# **Vaults, Precast Concrete & Covers**

## **612 - Self Grounding**

**6' X 12' X 6' 6" I.D.**

Originator: DSMITH

Date: 6/23/2009

Approval: J.Nieborsky

Date: 2/6/2016

Page 3 of 3

Revision: Added lid for dead front gear

Stds Committee Approval:

**Approved****Approved Manufacturers:**

| PUD IDENTIFICATION |                                                                                                                                                   | MANUFACTURER CATALOG NUMBER |                        |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------------------|
| Stk. No.           | Stock Description                                                                                                                                 | Utility Vault               | H2 Precast             |
| 045603             | VAULT, 612 BASE & CENTER, CONCRETE, 6' X 12' X 6', SELF GROUNDING, H20 LOADING, TWO PIECES                                                        | CC-612BASE & CENTER         | VBCC612-B<br>VBCC612-D |
| 050827             | COVER, FOR 612 VAULT, CONCRETE, 1 SPRING ASSISTED NONSLIP STEEL DOOR AND 54" X 62" OPENING FOR SW CAB W/ BONDING INSERTS, Live Front Applications | CC-612<br>SWITCH TOP        |                        |
| 050832             | COVER, FOR 612 VAULT, CONCRETE, 1 SPRING ASSISTED NONSLIP STEEL DOOR AND 60" X 65" OPENING FOR SW CAB W/ BONDING INSERTS, Dead Front Applications |                             |                        |
| 050829             | COVER, FOR 612 VAULT, CONCRETE, 3 SPRING ASSISTED NONSLIP STEEL 3'x3' DOORS W/ BONDING INSERTS                                                    | CC-612-3-<br>332P TOP       |                        |
| 050828             | COVER, FOR 612 VAULT, CONCRETE, 3 STEEL GRATED LIDS WITH BONDING INSERTS                                                                          | CC-612-3-<br>332GV TOP      |                        |





# Vaults, Precast Concrete & Covers

## 810 - Self Grounding

Originator: DSMITH

Date: 6/23/2009

Approval: J.Nieborsky

Date: 2/6/2016

Page 1 of 2

Revision: added lid for dead front gear

Stds Approval: Approved

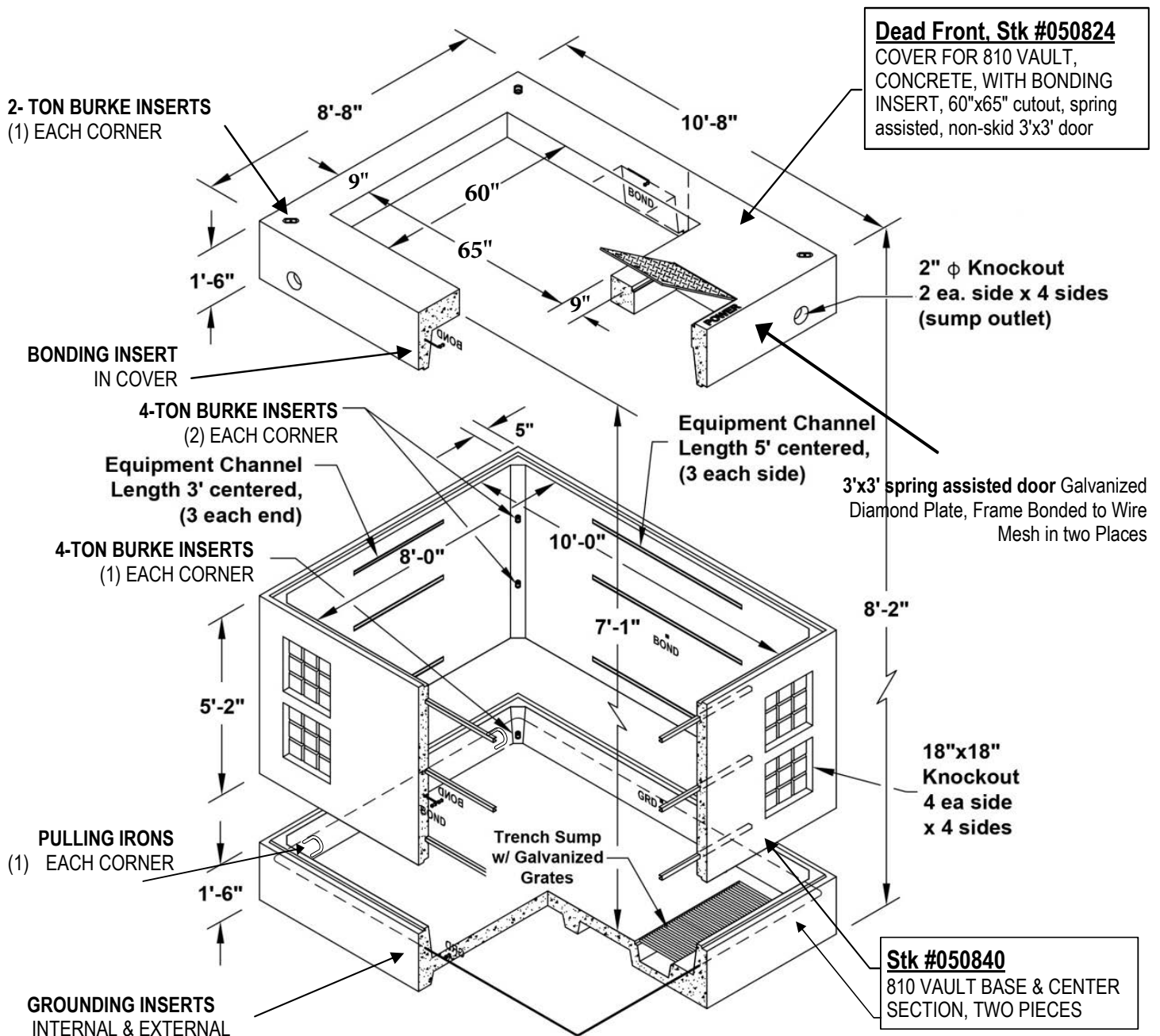
### Application:

- Three phase splicing or junction vault
- PM Cabinet (padmounted switchgear) installation
- Primary metering cabinet installations

### Specifications:

- The vault center section is self grounding and has grounding inserts accessible internally and externally. The base and covers have bonding inserts.

Refer to "1313.00 - VAULTS, PRECAST CONCRETE - SELF GROUNDING" for Manufacturing Details





# Vaults, Precast Concrete & Covers

## 810 - Self Grounding

Originator: DSMITH

Date: 6/23/2009

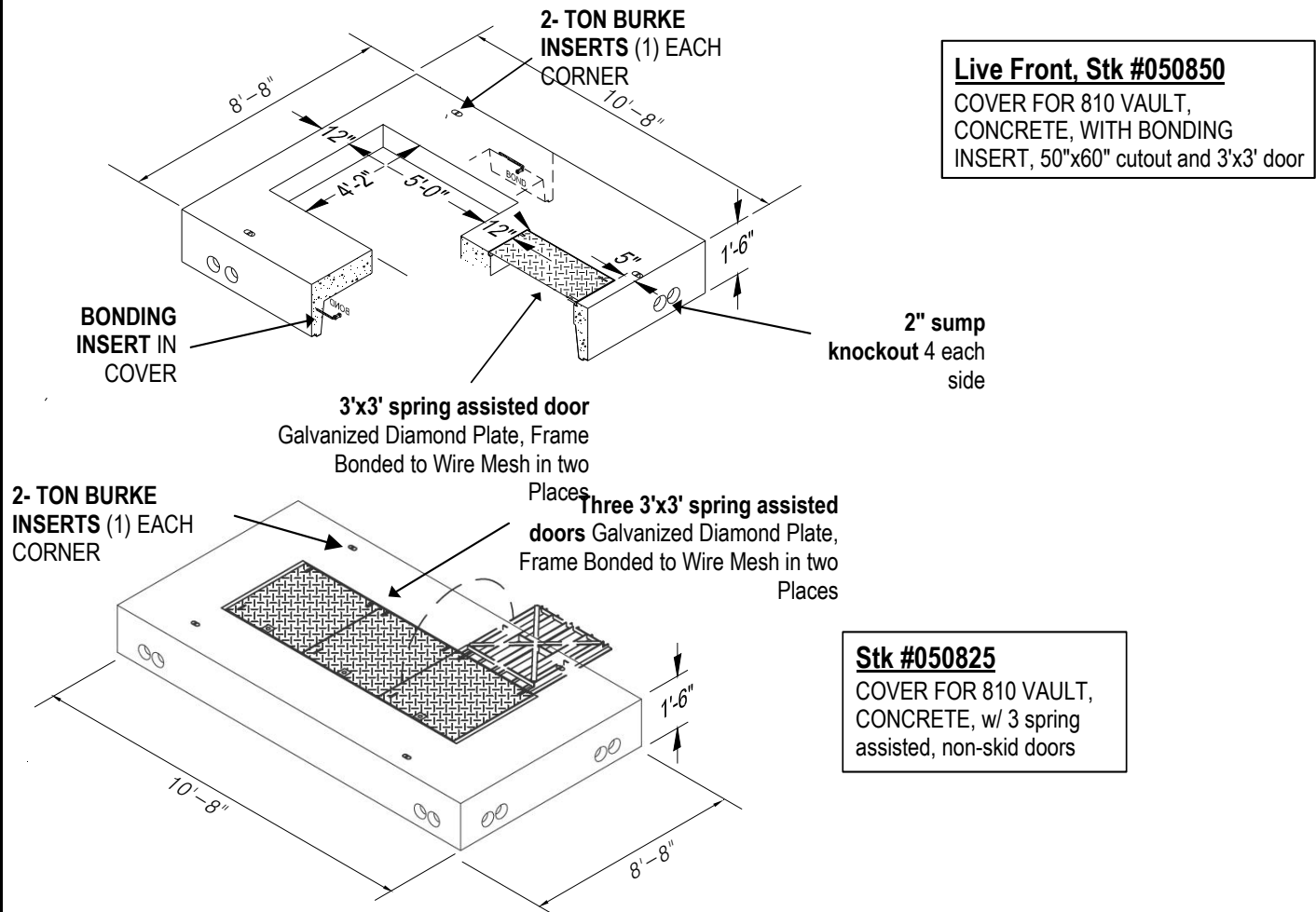
Approval: J.Nieborsky

Date: 2/6/2016

Page 2 of 2

Revision: added new lid for dead front gear

Stds Approval: Approved



### Approved Manufacturers:

| PUD IDENTIFICATION |                                                                                                                                                | MANUFACTURER CATALOG NUMBER |                     |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|---------------------|
| Item No.           | Stock Description                                                                                                                              | Utility Vault               | H2                  |
| 050824             | COVER, FOR 810 VAULT, CONCRETE, SPRING ASSISTED NONSKID STEEL 3' DOOR AND 60" X 65" SW CAB OPENING W/ BONDING INSERT For Deadfront application | -----                       | -----               |
| 050825             | COVER, FOR 810 VAULT, CONCRETE, 3 SPRING ASSISTED NONSKID STEEL 3'x3' DOORS, W/ BONDING INSERT                                                 | CC-810-3-332P TOP           | VLCC810-33          |
| 050850             | COVER, FOR 810 VAULT, CONCRETE, SPRING ASSISTED NONSKID STEEL 3' DOOR AND 50" X 60" SW CAB OPENING W/ BONDING INSERT                           | CC-810-SWITCH TOP           | TPCC810 TRANS LID   |
| 050840             | VAULT, 810 BASE AND CENTER, CONCRETE, SELF GROUNDING, TWO PIECE.                                                                               | CC-810- BASE AND CENTER     | VBCC810-B VBCC810-D |



# Vaults, Precast Concrete

## 444 Vault & Cover

Originator: C SLATTA

Date: 6/26/2024

Approval: J. Mitchell

Date: 6/26/2024

Page 1 of 1

Revision:

Stds Approval: Approved

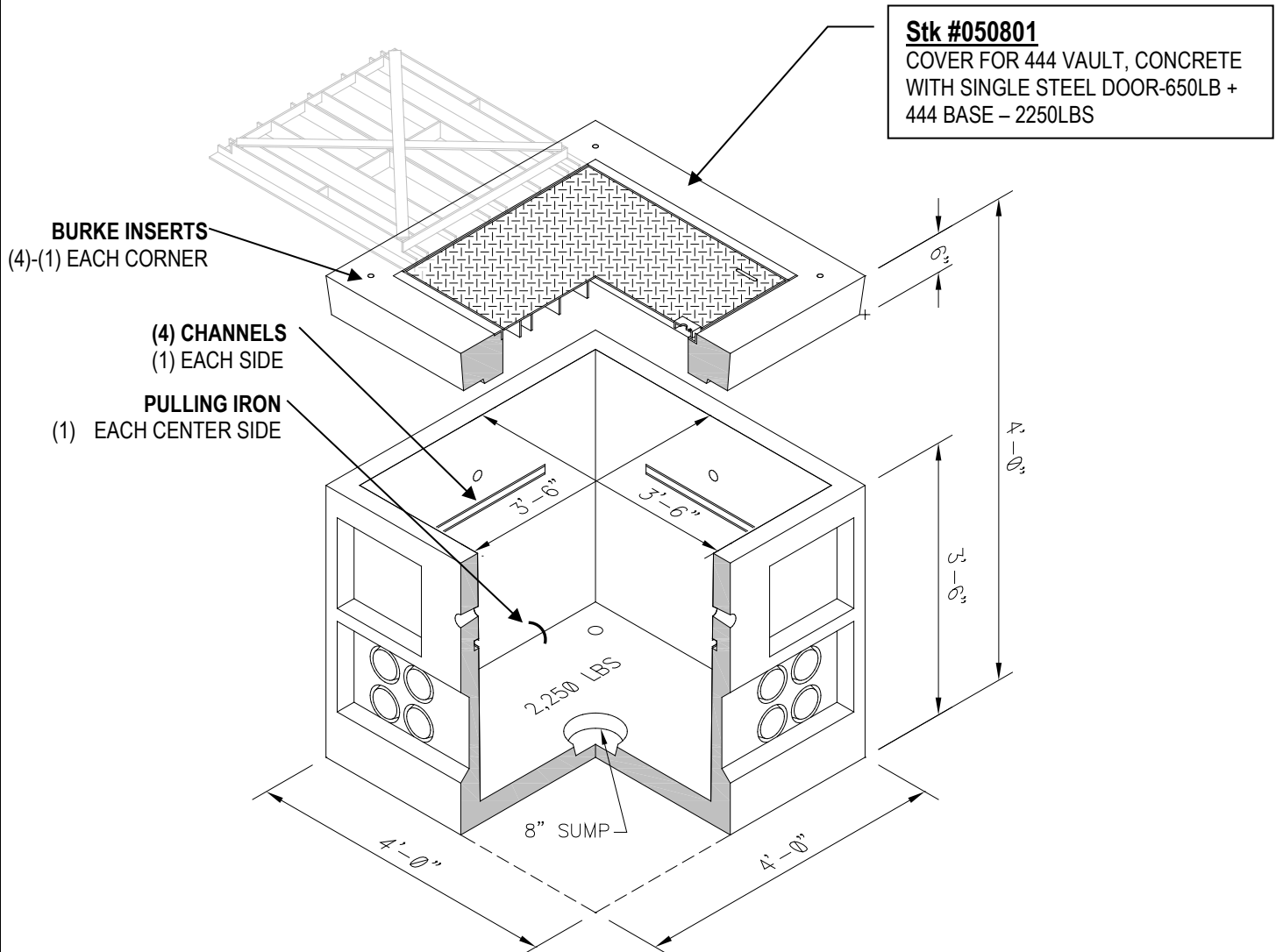
### Application:

- Commercial Secondary Service Box
- Junction vault or splice vault for single phase, smaller cables (#2, 4/0)

### Specifications:

- Cover is 6" thick and H20 rated for light traffic/parking unless otherwise noted.

Refer to "1313.00 - VAULTS, PRECAST CONCRETE - SELF GROUNDING" for Manufacturing Details



### Approved Manufacturers:

| PUD IDENTIFICATION |       |                                                                 | MANUFACTURER CATALOG NUMBER  |  |
|--------------------|-------|-----------------------------------------------------------------|------------------------------|--|
| Item No.           | Fig # | Stock Description                                               | OldCastle                    |  |
| 050800             | 1     | VAULT, 444, BASE AND LID, SPRING ASSISTED NONSKID STEEL 3' DOOR | 444-BL and Cover No. 44-332P |  |



**Vaults, Concrete 774**  
**- Self Grounding -**  
**Large 3-Phase Transformer Base**  
**7'-0" x 7'-0" x 3'-6"**

Originator:

Date: 6/23/2009

Approval:

Date: 6/23/2009

Page 1 of 2

Revision: New vault for Large 3-Phase Transformers

Stds Committee: Approved

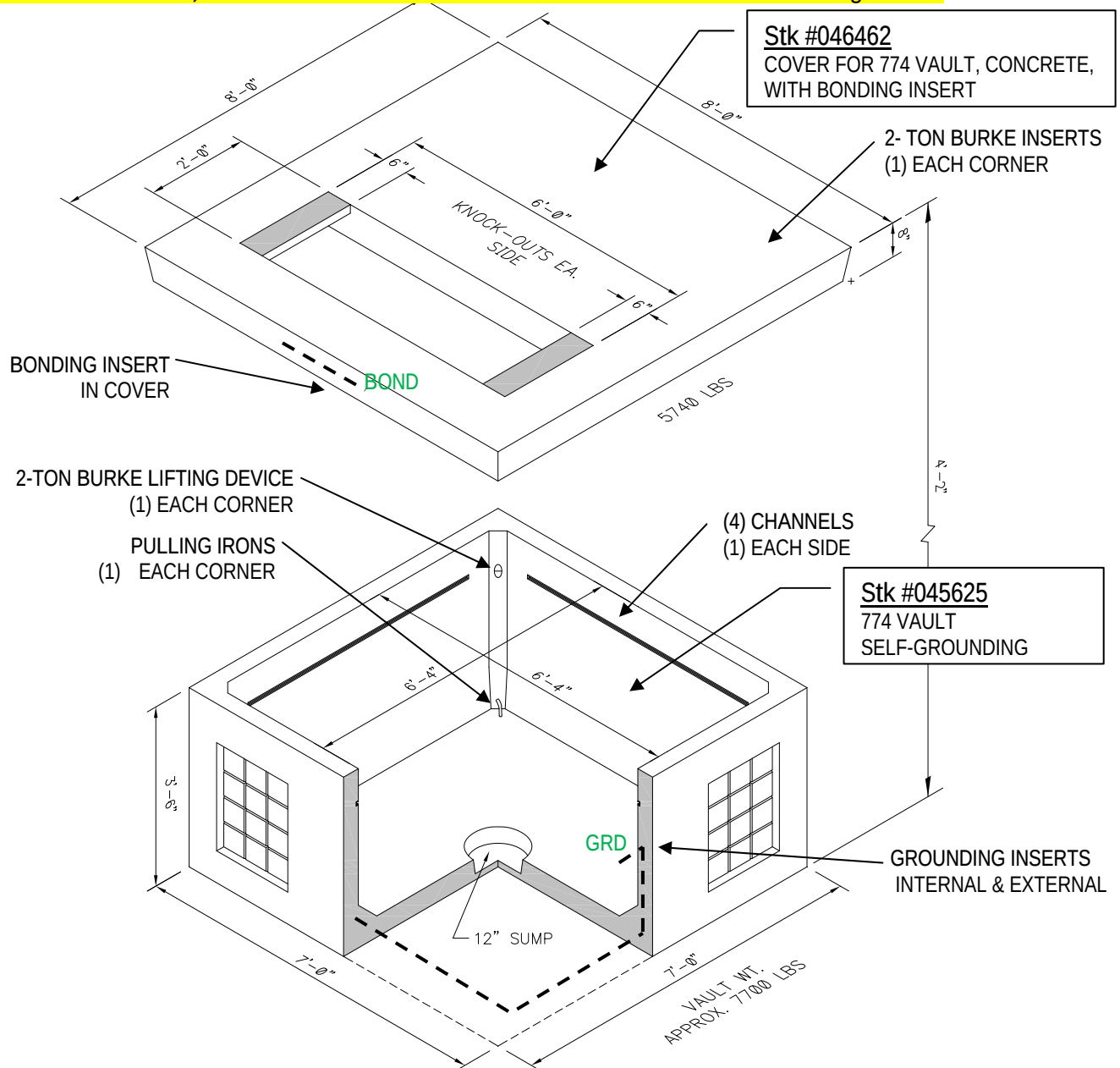
**Application:**

- Large three phase transformers 1000-2500kVA
- The vault base is self grounding and has grounding inserts accessible internally and externally. All covers have bonding inserts.

**Specifications:**

- All vault bases are self grounding and have grounding inserts accessible internally and externally. All covers have bonding inserts

Refer to "1313.00 - VAULTS, PRECAST CONCRETE - SELF GROUNDING" for Manufacturing Details



**- Material Catalog -****UG Material****1313.06**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



**Vaults, Concrete 774**  
**- Self Grounding -**  
**Large 3-Phase Transformer Base**  
**7'-0" x 7'-0" x 3'-6"**

Originator:

Date: 6/23/2009

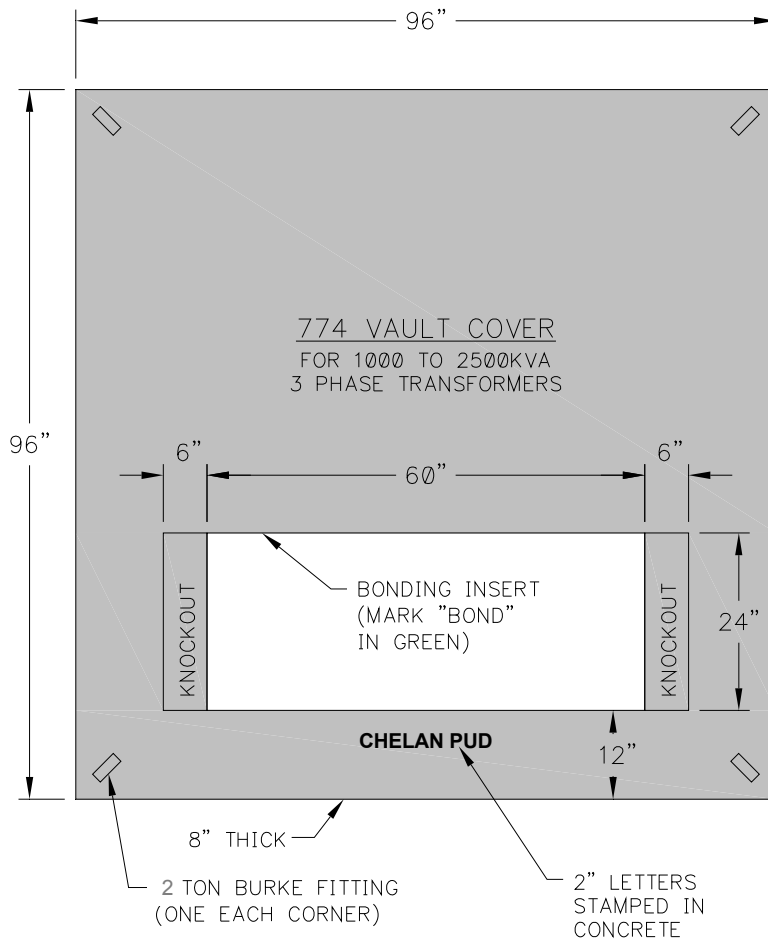
Approval:

Date: 6/23/2009

Page 2 of 2

Revision: New vault for Large 3-Phase Transformers

Stds Committee: Approved

**Stk #046462**

Cover For 774 Vault, Concrete, with Bonding Insert  
For: 1000 to 2500kVA, 3 Phase Transformers  
5740lbs

| PUD IDENTIFICATION |                                                                                                                                                                | MANUFACTURER CATALOG NUMBER |             |
|--------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-------------|
| Stock No.          | Stock Description                                                                                                                                              | Utility Vault               | H2 Precast  |
| 045625             | Vault, 774 Base, Concrete, Self Grounding, 4400 Lbs                                                                                                            | XXXX                        | XXXX        |
| 046462             | Cover, For 774 Vault, Concrete, 96" X 96" X 8", with Bonding Insert, 24" x 60" opening with (2) - 6" knockouts. For 3PH transformers, 1000 to 2500kva. 5740lbs | CC-88-2460                  | TPCC88-2460 |



# Vaults, Precast Concrete & Covers

## 954 - Self Grounding

9'-4" x 5'-4" x 4' O.D.

Originator: C SLATTA

Date: 11/17/2010

Approval: J. Nieborsky

Date: 2/7/2016

Page 1 of 2

Revision: New Vault lid for Dead Front gear

Stds Committee Approval:  
**Approved**

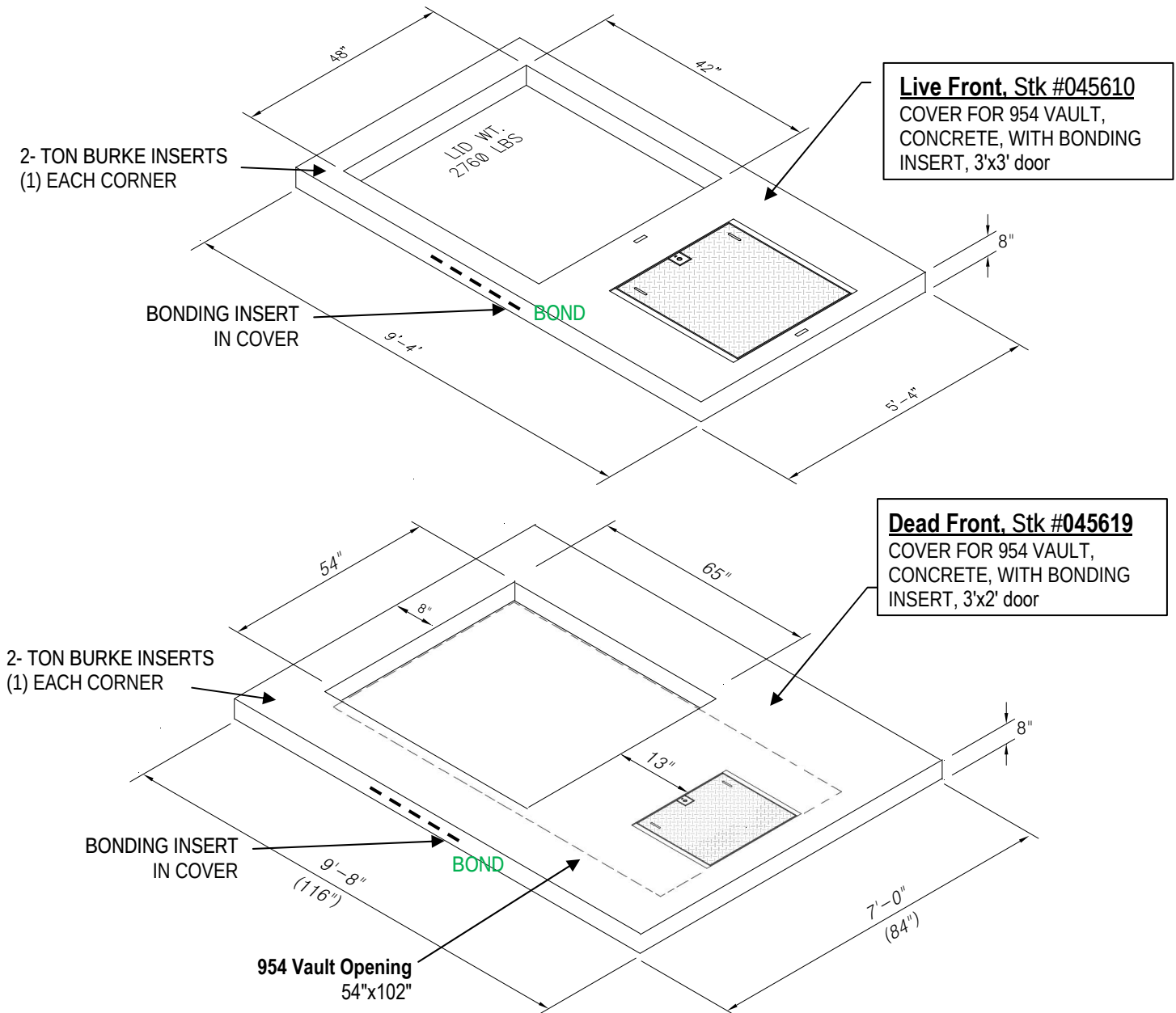
### Application:

- PM Cabinet (switchgear) installation in limited space areas

### Specifications:

- Cover is 6" thick and H-20 rated for light traffic/parking unless otherwise noted.
- All vault bases are self grounding and have grounding inserts accessible internally and externally. All covers have bonding inserts.

Refer to "1313.00 - VAULTS, PRECAST CONCRETE - SELF GROUNDING" for Manufacturing Details







**Vaults, Concrete 776**  
**- Self Grounding -**  
**Large 3-Phase Transformer Base**  
**7'-0" x 7'-0" x 5'-6"**

Originator: J. Mitchell

Date: 4/26/2023

Approval: C. Rissman

Date: 01/21/2020

Page 1 of 2

Revision: New vault & lds

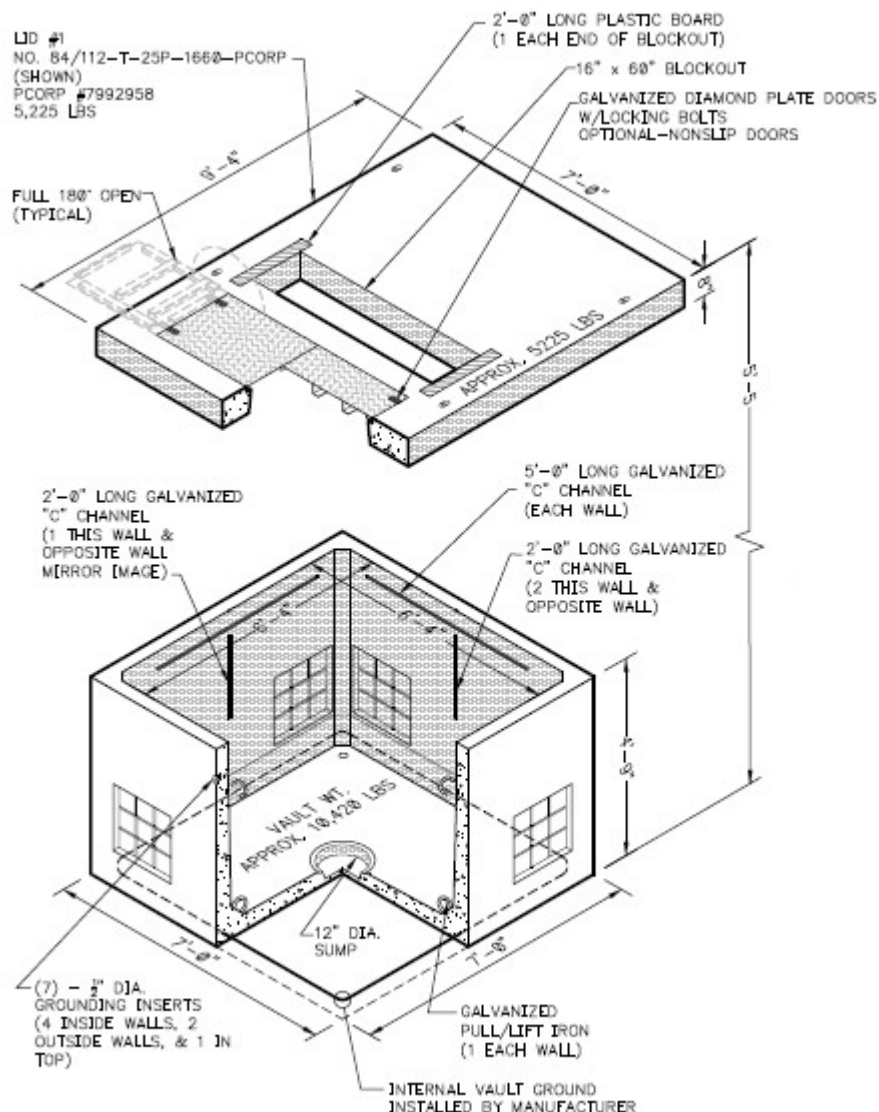
Stds Committee: Approved

**Application:**

- Large three phase transformers 500-2500kVA and small PME 3, 4, & 5 switches.
- The vault base is self-grounding and has grounding inserts accessible internally and externally. All covers shall have bonding inserts.

**Specifications:**

- All vault bases are self-grounding and have grounding inserts accessible internally and externally. All covers shall have bonding inserts.





# - Material Catalog -

UG Material

1313.08

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



## Vaults, Concrete 776 - Self Grounding - Large 3-Phase Transformer Base 7'-0" x 7'-0" x 5'-6"

Originator: J. Mitchell

Date: 4/26/2023

Approval: C. Rissman

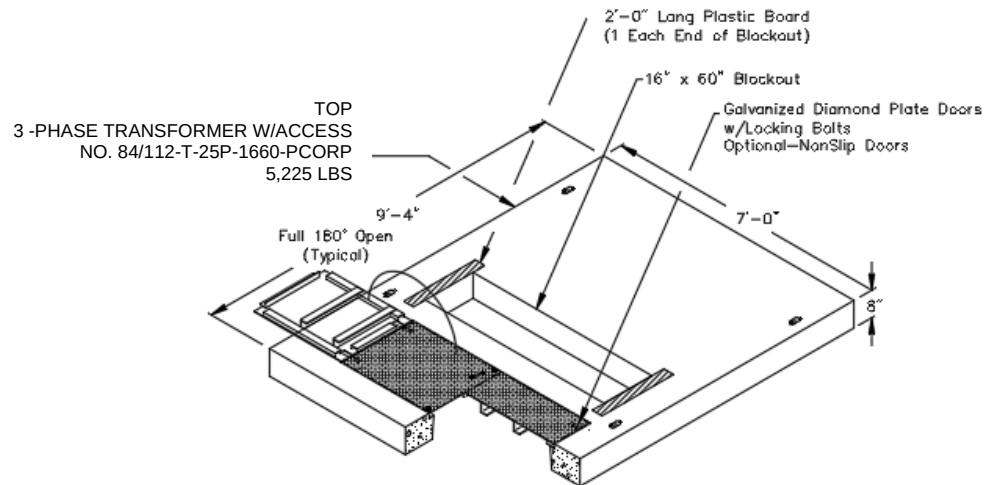
Date: 01/21/2020

Page 2 of 2

Revision: New vault & lds

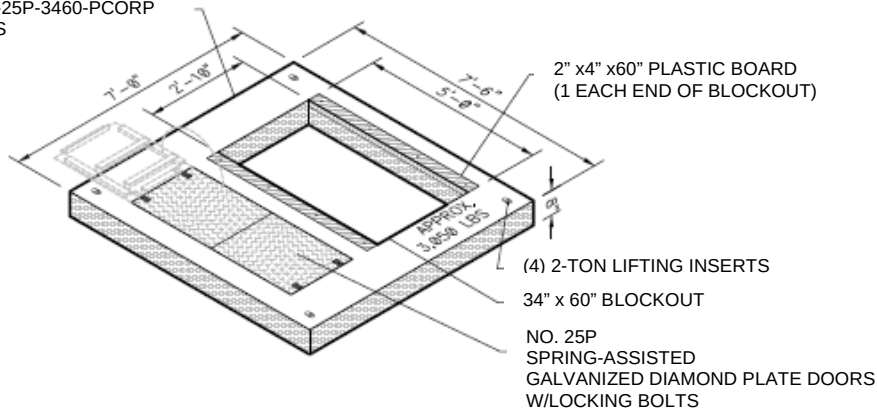
Stds Committee: Approved

### LID #1 – COVER FOR 3PH TRANSFORMERS 500 – 2500kVA



### LID #2 – COVER FOR SMALL PME'S 3, 4, & 5

NO.  
8490-8-T-25P-3460-PCORP  
3,050 LBS



| PUD IDENTIFICATION |                                                                                                                                                                                    | MANUFACTURER CATALOG NUMBER |            |
|--------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|------------|
| Stock No.          | Stock Description                                                                                                                                                                  | Oldcastle                   | H2 Precast |
| 045623             | Vault, 776 Base, Concrete, Self-Grounding, 10,420lbs                                                                                                                               | 776-66-B                    |            |
| 045627             | Cover, For 776 Vault, Concrete, 9'-4" x 7'-0" x 8", with bonding insert, 16" x 60" opening & (2) 2'-0" knockouts & (2) man doors.<br>For 3PH transformers, 500 - 2500kva. 5,225lbs | 7992958                     |            |
| 045629             | Cover, For 776 Vault, Concrete, 7'-0" x 7'-6" x 8", with bonding insert, 34" x 60" opening & (2) 2"x4"x60" knockouts & (2) man doors.<br>For small PME's 3, 4, & 5. 3,050lbs       | 7992787                     |            |



# Vaults, Precast Concrete & Covers

## 954 - Self Grounding

9'-4" x 5'-4" x 4' O.D.

Originator: C SLATTA

Date: 11/17/2010

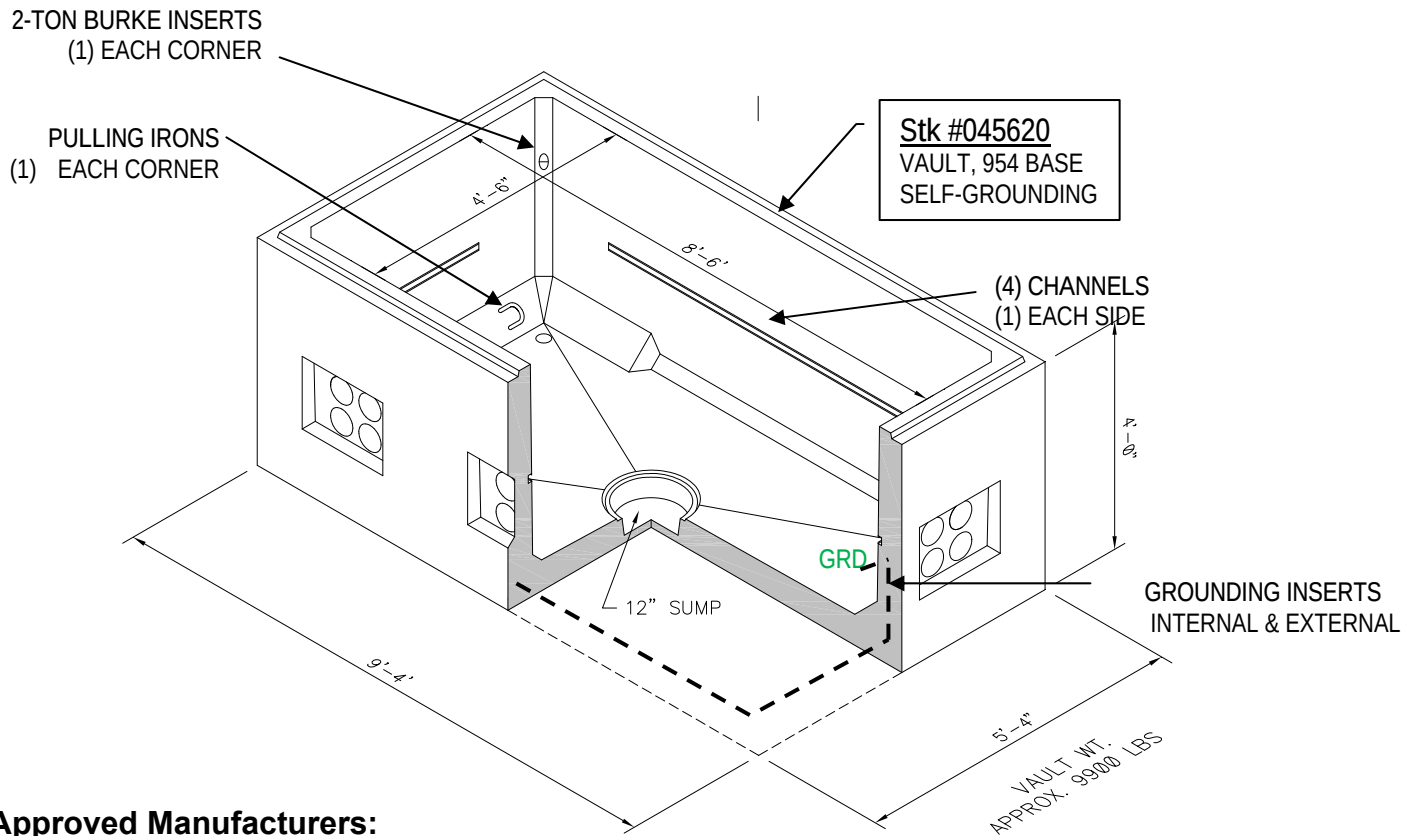
Approval: J. Nieborsky

Date: 2/7/2016

Page 2 of 2

Revision: New Vault lid for dead front gear

Stds Committee Approval:  
**Approved**



### Approved Manufacturers:

| PUD IDENTIFICATION |           |                                                                                               | MANUFACTURER CATALOG NUMBER |            |
|--------------------|-----------|-----------------------------------------------------------------------------------------------|-----------------------------|------------|
| Figure             | Stock No. | Stock Description                                                                             | Utility Vault               | H2 Precast |
| 1                  | 045610    | COVER, FOR LIVE FRONT CABINET WITH 42" X 48" OPENING AND 36" X 36" SPRING ASSISTED STEEL DOOR |                             |            |
| 2                  | 045619    | COVER, FOR DEAD FRONT CABINET WITH 54" X 65" OPENING AND 24" X 36" SPRING ASSISTED STEEL DOOR |                             |            |
| 3                  | 045620    | VAULT, 954 BASE, CONCRETE, 9'-4" x 5'-4" x 4', SELF GROUNDING.                                | XXXX                        |            |



**SECTIONALIZING CABINET, 15kv, 200AMP  
Single & Three Phase  
with Mounting Hardware.**

Originator: DSmith

Date: 08/31/2006

Approval: D. Scott

Date: 5/13/2025

Page 1 of 1

Revision: Updated ground lug requirements

Stds Committee Approval: 4/23/2025



**Specification:** Terminating cabinets shall meet the requirements of Western Underground Committee Guide 2.13 and shall be constructed of all-welded construction 12-gauge steel. The lid shall be hinged at the top and secured with a stainless-steel Penta-head bolt and have provisions for a padlock. A "Wind Stop" shall be included to prevent the top-hinge from closing inadvertently. The enclosure shall be painted with Munsell Green (7GY 329/1.5). All hardware and hinges shall be 304 stainless-steel.

Each unit shall include one or more 4-position 15kv 200-amp loadbreak cable junction modules (Elastimold, Hubbell or Cooper) Two parking stands shall be located inline with each junction module, (one on each side of the cable junctions).

Single phase cabinets shall have two grounding lugs, near the bottom of the cabinet, spaced near each side. Three phase cabinets shall have three grounding lugs, near the bottom of the cabinet, spaced with one in the middle and one on each side. All cable junction mounting plates shall have two ground lug provision each and be painted white or light gray. All grounding provisions shall come equipped with Fargo BVC-207-FT with slim jam nut grounding lugs.

In addition, **four (4) sets of 1-1/4" X 3/8" stainless steel mounting bolts, lock washers, and nuts** shall be provided in a bag attached to each unit to facilitate attachment to a fiberglass ground sleeve

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and/or its packaging.

**Table 1: Minimum Dimensions:**

| Description             | Material Gauge | Quantity of Modules | Dimensions D X W X H (inches) | Base Opening D X W (inches) | Weight (lbs) |
|-------------------------|----------------|---------------------|-------------------------------|-----------------------------|--------------|
| Cabinet, Term., 1 Phase | 12             | 1                   | 18 x 30 x 30                  | 13 X 26                     | 95           |
| Cabinet, Term., 3 Phase | 12             | 3                   | 24 X 67 X 30                  | 19 X 63                     | 225          |

**Table 2: Approved Manufacturers:**

| PUD IDENTIFICATION                                           |        | MANUFACTURER CATALOG NUMBER |                                |
|--------------------------------------------------------------|--------|-----------------------------|--------------------------------|
| Stock Description                                            | Stock# | Hoffman                     | Hubbell CMC/Barfield           |
| Cabinet, Sectionalizing, 1 Phase, 15Kv 200A, w/ Mtg Hardware | 041765 | UJ303018M2                  | BMSSE183030SP-H-133-W-M-CCPUD  |
| Cabinet, Sectionalizing, 3 Phase, 15Kv 200A, w/ Mtg Hardware | 041791 | UJ306724M2                  | BMSSE183030SP-H-133-15J4-CCPUD |



## SLEEVE, GROUND, FIBERGLASS FOR 15KV TERMINATING CABINETS

Originator: DSmith

Date: 06/17/2009

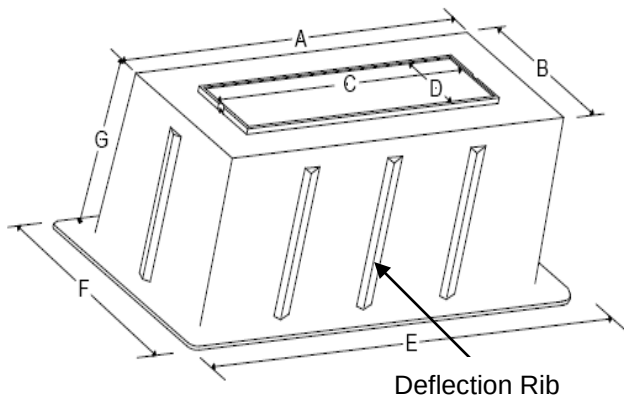
Approval: J Mitchell

Date: 11/01/2016

Page 1 of 1

Revision: **Revised shipping requirements**

Stds Committee Approval: **Approved**



**Application:** Used to supply a base for single phase & three phase 15kV 200Amp terminating cabinets.

**Specification:** Each unit shall be produced in a female mold of fire retardant layers of 16 oz woven roving reinforcement cloth with a C-type or E-Type fiberglass and resin mix. The exterior finish shall be covered with a smooth Munsell Green gel-coat, which contains UV stabilizer for superior weatherability. The units shall be non-conductive and have external deflection ribs for increased deflection resistance. Deflection ribs shall be placed at a minimum: (1) every 24".

### Exact Dimensions:

|         | Top<br>(inches) |    | Opening<br>(inches) |    | Base<br>(inches) |    | Height<br>(inches) |
|---------|-----------------|----|---------------------|----|------------------|----|--------------------|
|         | A               | B  | C                   | D  | E                | F  |                    |
| 1 Phase | 33              | 24 | 26                  | 12 | 45               | 36 | 30                 |
| 3 Phase | 69              | 26 | 60                  | 18 | 88               | 42 | 30                 |

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. Cardboard or wood spacers shall be used to prevent stacked units from sticking together. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

### Approved Manufacturers:

| PUD IDENTIFICATION                                    |           | MANUFACTURER CATALOG NUMBER |
|-------------------------------------------------------|-----------|-----------------------------|
| Stock Description                                     | Stock No. | Proglass                    |
| Sleeve, Ground, Fiberglass, for 1 Phase Term, Cabinet | 041670    | S332430                     |
| Sleeve, Ground, Fiberglass, for 3 Phase Term, Cabinet | 041671    | S692630                     |

**Pad Mounted 600V Termination Cabinet**Originator: **DSmith**Date: **6/10/2011**Approval: **J Mitchell**Date: **06/10/2011**

Page 1 of 2

Revision: Change # connections from 20 to 22 for small cabinet. Added Minimum Dimensions. Revised approved manufacturers section.

STD Committee: **Approved**

1. **Application:** This equipment is intended for use as a secondary junction point between a District's large three phase padmount transformer and Customer owned switchgear where the number of customer secondary cables exceeds 12 per phase.
2. **Reference Standards:** Except as modified herein, these enclosures shall meet the applicable requirements of the latest revisions of ANSI C57.12.28 and ANSI C119.4.

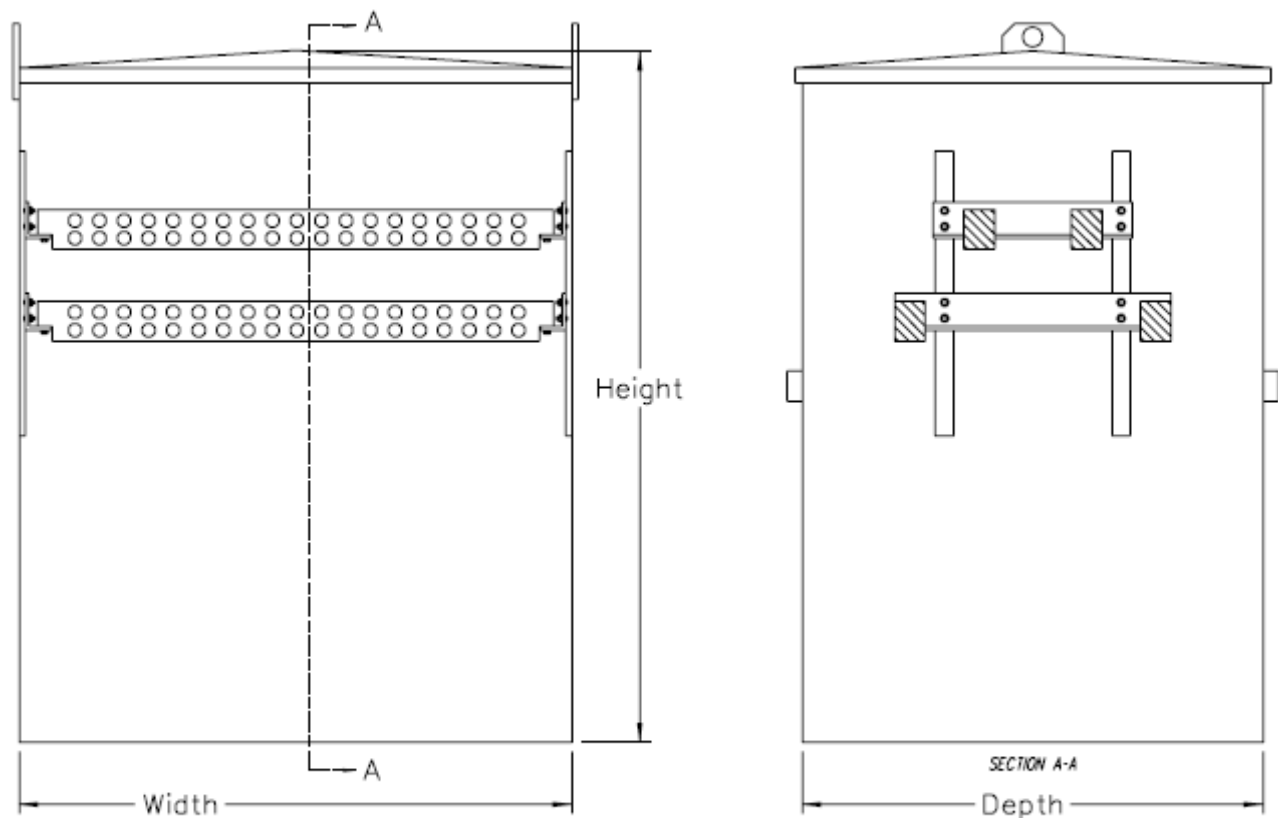


Figure 1

Minor variations in enclosure dimensions may be allowed with prior District Approval.

3. **Approved Manufacturers:**

| Stock No. | PUD IDENTIFICATION<br>Stock Description                | Dimensions   |         |       |             |
|-----------|--------------------------------------------------------|--------------|---------|-------|-------------|
|           |                                                        | CMC          | Hoffman | Duram | Shallbetter |
| 041766    | 600V Termination Enclosure, Pad Mounted, Small Cabinet | LTPE22-750C  |         |       |             |
| 041767    | 600V Termination Enclosure, Pad Mounted Large Cabinet  | LPTE30-750SC |         |       |             |



## Pad Mounted 600V Termination Cabinet

Originator: **DSmith**

Date: **6/10/2011**

Approval: **J Mitchell**

Date: **06/10/2011**

Page 2 of 2

Revision: Change # connections from 20 to 22 for small cabinet. Added Minimum Dimensions. Revised approved manufacturers section.

STD Committee: **Approved**

#### 4. Minimum Dimensions:

| Description   | Material Gauge | No. of Conductors per phase | Dimensions D X W X H (inches) | Minimum Bus Rating | Approximate Weight (lbs) |
|---------------|----------------|-----------------------------|-------------------------------|--------------------|--------------------------|
| Small Cabinet | 12             | 24                          | 30" x 36" x 44"               | 4000               | 95                       |
| Large Cabinet | 12             | 30                          | 54" X 48" X 44"               | 4000               | 225                      |

#### 5. Specification:

##### 5.1. Cabinet:

The cabinet shall be manufactured from galvanized steel, stainless steel or 5052-H32 aluminum. Cabinet thickness shall be 12 gauge minimum for steel and 0.125 inch minimum for aluminum. The cabinet and supporting frame shall be sufficiently strong to prevent noticeable deflection or distortion to the cabinet during installation and use. The cabinet roof shall be crowned so as to shed water. The cabinet shall include lifting provisions.

##### 5.2. Doors

Each termination enclosure shall be equipped with side-hinged doors designed to swing open horizontally. The doors shall be located on opposite sides of the cabinet and parallel to the bus bars. Doors shall be of sufficient size to allow full access to the bus bars and cabinet interior and be equipped for latching in the open position.

##### 5.3. Finish

The enclosure finish shall meet or exceed the requirements of ANSI C57.12.28, latest revision. The topcoat color of paint shall be dark green Munsell No. 7GY 3.29/1.5. Combined primer and topcoat thickness shall be no less than 3.0 mils. Primer and paint shall be lead free.

##### 5.4. Set Screw Bus Bars

Each enclosure shall be equipped with four set screw bus bars (one per phase). These bars shall be manufactured from 6061-T6 aluminum or a District approved equivalent and shall be fully tested per ANSI C119.4 for Class A connectors. Bus bars shall have a minimum 4,000 amp load rating.

Set screw bus bars shall utilize two 3/8 inch allen head set screws per cable position and shall accommodate cable sizes from #2 through 750 kcm. Holes shall actually be drilled to fit 800 kcm cables. Set screw bus bars shall be compatible with aluminum or copper conductors.

Set screw bus bars shall be installed in the cabinet on a nonconductive mounting bracket. All mounting hardware shall be stainless steel. Bus bar locations shall be staggered as shown in Figure 1. The bus bars, mounting bracket and hardware must be of sufficient strength to support full secondary cable weight without the need for supplemental cable supports.

Each bus bar shall be equipped with an insulated 105°C rated plastic cover of District approved design.

#### 6. Packaging and Marking: Pad-mounted secondary termination enclosures shall be shipped in an enclosed van and secured to individual nonreturnable wooden pallets suitable for handling with a forklift.



## Fuses & Arresters

Originator: DSmith

Date: 7/9/2007

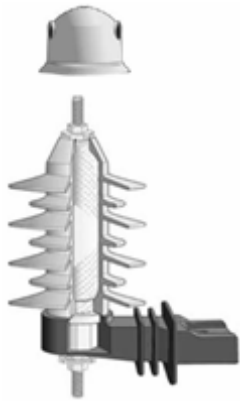
Approval: DSmith

Date: 7/9/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



# FUSES & ARRESTERS





**SURGE ARRESTERS, METAL OXIDE  
DISTRIBUTION CLASS**

Originator: DSmith

Date: 7/25/2006

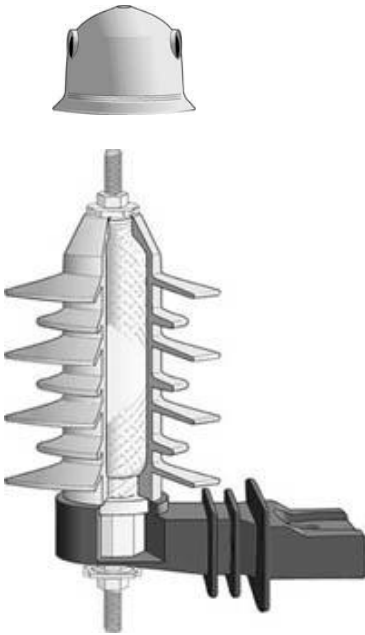
Approval: DScott

Date: 8/26/2019

Page 1 of 1

Revision: Catalog Numbers

Stds Committee Approval:

**Approved**

**Application:** This standard applies to metal-oxide surge arresters designed to limit the voltage surges on 60 Hz power circuits by passing surge discharge current to ground and automatically limiting the flow of system power current.

**Applicable Standards:** IEEE Standard for Metal-Oxide Surge Arresters for Alternating Current Power Circuits, C62.11

**Specification:** Metal Oxide Varistor with Polymer S. With ground lead isolator, insulating base bracket, protective terminal cap, Silicon Bronze Nut, Stainless Steel Wire Clamp with Wildlife Protector and without crossarm mounting bracket.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Commonly Applied Arrester Voltage Ratings:**

| System Voltage |            | Recommended Arrester Rating per IEEE C62.22 (kV rms) |                                   |                                     |                          |
|----------------|------------|------------------------------------------------------|-----------------------------------|-------------------------------------|--------------------------|
| Nominal        | Maximum    | MCOV                                                 | 4-Wire WYE Multi Grounded Neutral | 3-Wire WYE Solidly Grounded Neutral | Delta and Ungrounded WYE |
| 12.47Y/7.2     | 13.2Y/7.62 | 7.65                                                 | 9                                 | 12                                  | -                        |

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                       |           | MANUFACTURER CATALOG NUMBER |                |                   |
|------------------------------------------------------------------------------------------|-----------|-----------------------------|----------------|-------------------|
| Stock Description                                                                        | Stock No. | Hubbell                     | Joslyn         | Cooper            |
| Arrester, Lightning, 9kV MOV, Heavy Duty with Isolator and Wildlife Protector. 7.65 MCOV | 006750    | 213708-7314                 | ZHP009-0000100 | URT0905-0A1A-1A1A |
| Arrester, Lightning, 9kV MOV, Riser Pole with Isolator and Wildlife Protector. 7.65 MCOV | 006770    | 221608-7314                 | ZRP009-0000100 | URT0905-0A1A-1A1A |

**ARRESTERS, STATION CLASS METAL OXIDE**

Originator: DSmith

Date: 7/25/2006

Approval: D Scott

Date: 8/26/2019

Page 1 of 1

Revision: Stock numbers

Stds Committee Approval:

**Approved**

**Application:** Used to protect substations from lightning and switching voltage surges.

**Applicable Standards:** IEEE C62.11

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** No Special Shipping Instructions

**Approved Manufacturers:**

| PUD IDENTIFICATION                                  |           | MANUFACTURER CATALOG NUMBER |                |
|-----------------------------------------------------|-----------|-----------------------------|----------------|
| Stock Description                                   | Stock No. | Cooper                      | Hubbell        |
| Arrester, Lightning, 9kv, Sub Intermediate Class    | 006730    | UIAA009007A0845A11          |                |
| Arrester, Lightning, 19kv, Ultrasil Veri Gap HD MOV | 006780    | URT1868-0a1a                |                |
| Arrester, Surge Substation                          | 007150    | AZEH001G007009              | VL-219508-3001 |

**CLAMP, LIGHTNING ARRESTER**

Originator: DSmith

Date: 7/7/06

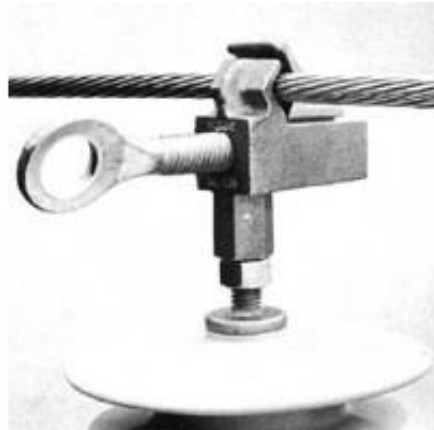
Approval: J. Mitchell

Date: 04/04/2018

Page 1 of 1

Revision: **Updated catalog #**

Stds Committee Approval:

**Approved**

**Application:** Used to attach lightning arrester to conductor. Operable with a hotstick.

**Specification:** Units shall be made from utility grade bronze.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                           |           | MANUFACTURER<br>CATALOG NUMBER |
|----------------------------------------------|-----------|--------------------------------|
| Stock Description                            | Stock No. | Hubbell                        |
| CLAMP, LIGHTNING ARRESTER, CONNECTOR, #6-#10 | 014200    | GO375                          |



**Open-Type Cutouts 15kV,  
100/200 Amp 10,000 Amp Interrupting  
Polymer Insulator**

Originator: D. Scott

Date: 01/18/17

Approval: D Scott

Date: 03/08/2017

Page 1 of 1

Revision: Added Alumaform & stock numbers

Stds Committee Approval:

**Approved**



**Application:** This device is used to provide overcurrent protection and visible indication of fuse operation for the overhead 15kV distribution system. The cutout can also provide a visible break sectionalizing point for maintenance personnel, and can function as a loadbreak switch when used in conjunction with a portable loadbreak tool.

**Insulator:** Insulator shall be made of composite-polymer silicone.

**Loadbuster Hooks:** All cutouts shall have loadbuster hooks for use with S&C loadbuster tool.

**Brackets:** Cutouts shall have standard NEMA Class B bracket, galvanized steel and shall include 5" carriage bolts with locking nuts.

**Ratings:**

- Class I: 100 amps, 15kV max., 110kV BIL, Interrupting rating: 10,000 amps AIC. @60Hz
- Class II: 200 amps, 15kV max., 110kV BIL, Interrupting rating: 12,000 amps AIC. @60Hz

**Fuseholder:** The fuseholder tube shall be an S&C TYPE XS fiberglass or fully compatible equivalent.

**Connectors:** Conductor connectors shall be standard parallel-groove type for wire size #6 Sol. to 2/0 Str. Cu. or Al.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION          |           | MANUFACTURER CATALOG NUMBER |              |         |                        |
|-----------------------------|-----------|-----------------------------|--------------|---------|------------------------|
| Stock Description           | Stock No. | ABB                         | MacLean      | Cooper  | Alumaform              |
| CUTOUT, 15kV 100A, Polymer  | 016000    | X1JCBNAM11                  | SC15HG110-CD | S4B1R1A | CSG15-100A-110-CB-10KA |
| CUTOUT, 15kV 200A, Polymer  | 016080    | X1JCBNKA21                  | SC15HD212-CD | S4B2R1A | CSG15-200A-110-CB-12KA |
| FUSEHOLDER only, 15kV, 100A | 017200    | 7194C60G01MP                | 89521R10     | LDB100A | CFH15-100A-10KA        |
| FUSEHOLDER only, 15kV, 200A | 017210    | 7194C60G19                  | 89571R11     | LDB200B | CFG15-200A-12KA        |
| SOLID BLADE                 | 017100    | 7194C60G04                  | 89621R10     | LDB300A | CSB27-300A             |

**Salvage Instructions:** Items removed from service in good condition shall be salvaged for reuse.

**FUSE HOLDER, POWER FUSE**

Originator: DSmith

Date: 7/25/2006

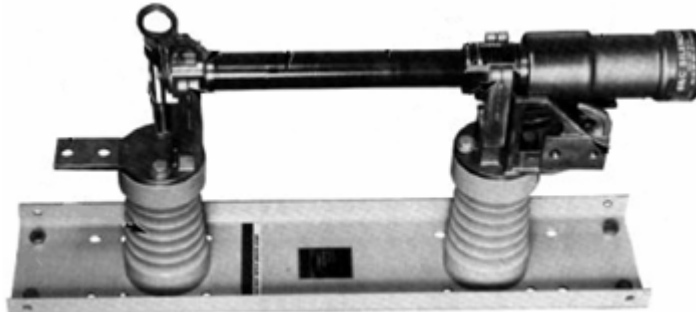
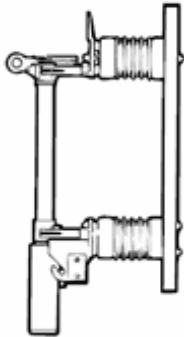
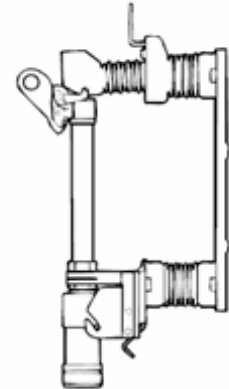
Approval: DSmith

Date: 7/9/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved****SM-4Z****SML-4Z**

**Application:** These fuses are utilized in indoor and outdoor metal enclosures on 15kv systems. They consist of a fuse unit and fuse holder. The bases and insulators are not part of this assembly.

**Specification:**

1. The SM-4Z fuse is a non load break fuse assembly rated up to 200 Amps.
2. The SML-4Z fuse assembly contains a Uni-Rupter and is designed for single-pole live-switching duties in single-phase or three-phase circuits of distribution systems rated 14.4 kV. The unit shall be designed for a one-time fault closing equal to the interrupting rating of 20,000 amperes RMS asymmetrical at 14.4 kV and a two-time capability of 13,000 amperes RMS asymmetrical at 14.4 kV. The maximum fuse size is 200 Amps.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** No Special Shipping Instructions

**Approved Manufacturers:**

| PUD IDENTIFICATION                                    |           | MANUFACTURER CATALOG NUMBER |
|-------------------------------------------------------|-----------|-----------------------------|
| Stock Description                                     | Stock No. | S & C                       |
| FUSE HOLDER, SM-4Z, 15KV W/ SILENCER, NON LOAD BREAK. | 166477    | 86632R2                     |
| FUSE HOLDER, SML-4Z, 15KV W/ SILENCER, LOAD BREAK     | 166479    | 92352                       |

**FUSE HOLDER, BAY-O-NET**

Originator: DSmith

Date: 7/25/2006

Approval: DSmith

Date: 6/29/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**

**Application:** Bayonet Fuses are used to protect transformers and distribution systems. They are designed for use in pad-mounted or subsurface distribution transformers filled with transformer oil. The assemblies can be removed with a hotstick.

Removal of the fuse holder from the assembly indicates that the apparatus is electrically disconnected. It also allows convenient fuse element inspection and replacement. When typical safety practices are followed, the assemblies can be loadbreak operated for working on the transformer secondary; changing distribution voltage with dual voltage switches or tap changers; or disconnecting the apparatus from the line.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** Special Shipping Instructions

**Approved Manufacturers:**

| PUD IDENTIFICATION        |           | MANUFACTURER CATALOG NUMBER |
|---------------------------|-----------|-----------------------------|
| Stock Description         | Stock No. | Cooper Power                |
| FUSE HOLDER, BAYONET FUSE | 090255    | 4001030B52M                 |

**FUSE LINKS, TYPE T OH DROPOUT**

Originator: DSmith

Date: 7/17/2006

Approval: DSmith

Date: 6/29/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**

**Application:** This standard applies to links for high voltage fuses (above 600V) for enclosed and open link types for distribution cutouts.

**Specifications:** Distribution fuse links shall be the removable or solid buttonhead type meeting the following requirements.

**Dimensions:** All fuses shall be at least 23 inches long.

**Strength:** Fuses shall meet ANSI standard C37.42, latest revision. Fuses 10 through 100 amp size shall have non-damageable silver fusible elements.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage.

The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and its packaging. The part shall show rated continuous current followed by a type identification, STD, T, 200, or K.

| PUD IDENTIFICATION |                          | MANUFACTURER<br>CATALOG<br>NUMBER |
|--------------------|--------------------------|-----------------------------------|
| Stock<br>No.       | Maximo Stock Description | S&C                               |
| 017780             | FUSE, TLINK, 6AMP        | 279006                            |
| 017785             | FUSE, TLINK, 8AMP        | 279008                            |
| 017790             | FUSE, TLINK, 10AMP       | 279010                            |
| 017795             | FUSE, TLINK, 12AMP       | 279012                            |
| 017800             | FUSE, TLINK, 15AMP       | 279015                            |
| 017805             | FUSE, TLINK, 20AMP       | 279020                            |
| 017810             | FUSE, TLINK, 25AMP       | 279025                            |
| 017815             | FUSE, TLINK, 30AMP       | 279030                            |
| 017820             | FUSE, TLINK, 40AMP       | 279040                            |
| 017830             | FUSE, TLINK, 50AMP       | 279050                            |
| 018650             | FUSE, TLINK, 65AMP       | 279065                            |
| 018660             | FUSE, TLINK, 80AMP       | 279080                            |
| 018700             | FUSE, TLINK, 100AMP      | 279100                            |
| 018750             | FUSE, TLINK, 140AMP      | 279140                            |
| 018800             | FUSE, TLINK, 200AMP      | 279200                            |





## FUSE, CURRENT LIMITING DROPOUT (ELF FUSE)

Originator: DSmith

Date: 7/17/2006

Approval: DSmith

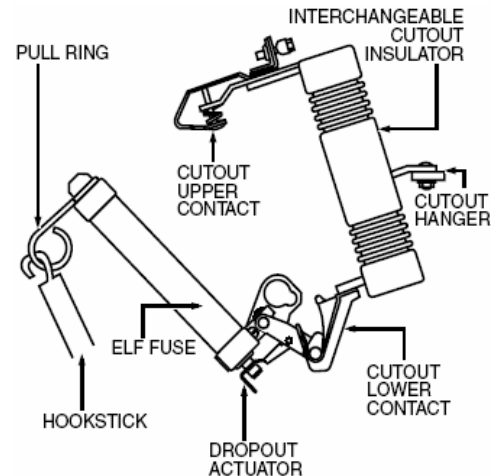
Date: 6/29/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**



**Application:** This Current-Limiting Dropout Fuse is a full range current-limiting fuse designed for mounting in an industry standard interchangeable cutout that is presently used for expulsion fuses. The ELF fuse is designed to be used to protect poletype transformers, single-phase and three-phase laterals and underground taps.

The ELF dropout fuse operates silently, unlike expulsion fuses. In addition, the expulsive shower that exists with an expulsion fuse operation is eliminated. It is designed to be mounted in open distribution cutouts including S&C Type XS, A.B. Chance Type C, Joslyn Type L and ABB Type ICX cutouts. Refer to Cooper Product Literature 240-66

**Common Name:** ELF Fuses

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and/or its packaging.

### Approved Manufacturers:

| PUD IDENTIFICATION                                           |           | MFG. CATALOG NUMBER |
|--------------------------------------------------------------|-----------|---------------------|
| Stock Description                                            | Stock No. | COOPER              |
| FUSE, ELF, 18AMP, 8.3KV (CL DROPOUT FUSE)                    | 17831     | FAK23W18            |
| FUSE, ELF, 25AMP, 8.3KV (CL DROPOUT FUSE)                    | 17832     | FAK23W25            |
| FUSE, ELF, 30AMP, 8.3KV (CL DROPOUT FUSE)                    | 17833     | FAK23W30            |
| FUSE, ELF, 50AMP, 8.3KV DBL BARREL DESIGN, (CL DROPOUT FUSE) | 17834     | FAK23W50            |
| FUSE, ELF, 65AMP, 8.3KV DBL BARREL DESIGN, (CL DROPOUT FUSE) | 17835     | FAK23W65            |
| FUSE, ELF, 6AMP, 15KV, 200AMP CUTOUTS, (CL DROPUT FUSE)      | 17836     | FAK44W6             |
| FUSE, ELF, 12AMP, 8.3KV (CL DROPOUT FUSE)                    | 17837     | FAK23W12            |



**FUSE, BAY-O-NET OIL-IMMERSED FUSE LINKS**

Originator: DSmith

Date: 7/17/2006

Approval: DSmith

Date: 7/5/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

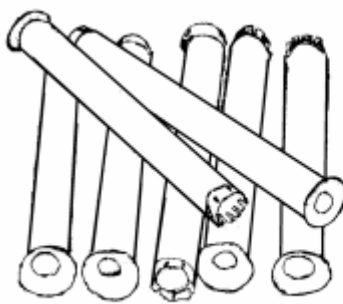


Figure 1

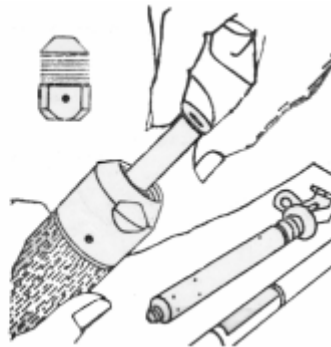


Figure 2

**Application:** The District uses the-Cooper Bay-o-net fault sensing fuse on pad and submersible type distribution transformers connected to 12.47kV feeders. An isolation link in series with the Bay-o-net fuse melts when exposed to fault currents in excess of the Bay-o-net rating. The Bay-o-net fuse has a replaceable cartridge.

**Packaging and Marking:** Replaceable fuse links shall be individually packaged in a container suitable for easy handling and storage. Each container shall be marked with MFR's name, catalog number, name of item and size contained.

M = Denotes Bag Of 50

B = Denotes Individual Units

**APPROVED MANUFACTURERS:**

| PUD IDENTIFICATION                   |        |           | MANUFACTURER'S CATALOG NUMBER |
|--------------------------------------|--------|-----------|-------------------------------|
| Stock Description                    | Figure | Stock No. | Cooper                        |
| FUSE, BAYONET 3 AMP (Bag Of 50)      | 1      | 090260    | 4000358C03M                   |
| FUSE, BAYONET 8 AMP (Bag Of 50)      | 1      | 090270    | 4000358C05M                   |
| FUSE, BAYONET 15 AMP (Bag Of 50)     | 1      | 090280    | 4000358C08M                   |
| FUSE, BAYONET 25 AMP (Bag Of 50)     | 1      | 090290    | 4000358C10M                   |
| FUSE, BAYONET 50 AMP (Bag Of 50)     | 1      | 090300    | 4000358C12M                   |
| FUSE, BAYONET 65 AMP (Bag Of 50)     | 1      | 090310    | 4000358C14M                   |
| FUSE, BAYONET 100 AMP, High Amperage | 2      | 090325    | 4038361C04CB                  |
| FUSE, BAYONET 125 AMP, High Amperage | 2      | 090315    | 4038361C05CB                  |



## FUSE, SM-4 (E)

Originator: DSmith

Date: 7/7/06

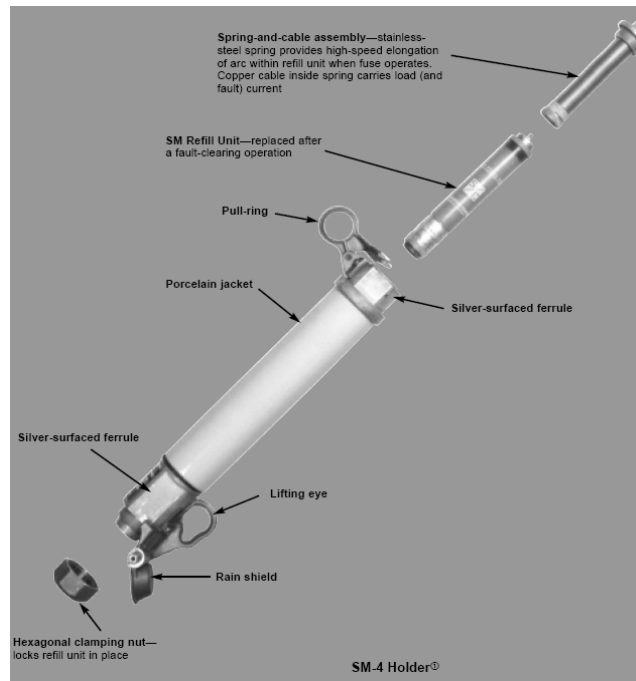
Approval: DSmith

Date: 6/29/2007

Page 1 of 2

Revision: **NEW**

Stds Committee Approval:  
**PENDING**



**Application:** Used in SM4 Fuse Holder Assemblies.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** Special Shipping Instructions

### Approved Manufacturers:

| PUD IDENTIFICATION |                                  | MANUFACTURER CATALOG NUMBER |
|--------------------|----------------------------------|-----------------------------|
| Stock No.          | Stock Description                | S & C                       |
| 090000             | FUSE, SM4, 14.4KV 15AMP, E SLOW  | 252025R4                    |
| 090105             | FUSE, SM4, 14.4KV 20AMP, E SLOW  | 252030R4                    |
| 090010             | FUSE, SM4, 14.4KV 25AMP, E SLOW  | 252040R4                    |
| 090015             | FUSE, SM4, 14.4KV 30AMP, E SLOW  | 252050R4                    |
| 090020             | FUSE, SM4, 14.4KV 40AMP, E SLOW  | 252060R4                    |
| 090121             | FUSE, SM4, 14.4KV 50AMP, E SLOW  | 252075R4                    |
| 090030             | FUSE, SM4, 14.4KV 65AMP, E SLOW  | 252100R4                    |
| 090040             | FUSE, SM4, 14.4KV 80AMP, E SLOW  | 252125R4                    |
| 090050             | FUSE, SM4, 14.4KV 100AMP, E SLOW | 252150R4                    |

**- Material Catalog -****PROTECTION****1412.05**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*

**FUSE, SM-4 (E)**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/29/2007

Page 2 of 2

Revision: **NEW**

Stds Committee Approval:

**PENDING**

|        |                                  |          |
|--------|----------------------------------|----------|
| 090060 | FUSE, SM4, 14.4KV 125AMP, E SLOW | 252200R4 |
| 090070 | FUSE, SM4, 14.4KV 150AMP, E SLOW | 252250R4 |
| 090080 | FUSE, SM4, 14.4KV 175AMP, E SLOW | 252275R4 |
| 090090 | FUSE, SM4, 14.4KV 200AMP, E SLOW | 252300R4 |
| 090100 | FUSE, SM4, 14.4KV 15AMP, E STD   | 122025R4 |
| 090110 | FUSE, SM4, 14.4KV 25AMP, E STD   | 122040R4 |
| 090120 | FUSE, SM4, 14.4KV 40AMP, E STD   | 122060R4 |
| 090130 | FUSE, SM4, 14.4KV 65AMP, E STD   | 122100R4 |
| 090140 | FUSE, SM4, 14.4KV 80AMP, E STD   | 122125R4 |
| 090150 | FUSE, SM4, 14.4KV 100AMP, E STD  | 122150R4 |
| 090160 | FUSE, SM4, 14.4KV 125AMP, E STD  | 122200R4 |
| 090170 | FUSE, SM4, 14.4KV 150AMP, E STD  | 122250R4 |
| 090180 | FUSE, SM4, 14.4KV 175AMP, E STD  | 122275R4 |
| 090190 | FUSE, SM4, 14.4KV 200AMP, E STD  | 122300R4 |
| 090210 | FUSE, SM4, 14.4KV 250AMP, E STD  | 122400R4 |



## FUSE, SMU20 POWER UNITS

Originator: DSmith

Date: 8/10/2022

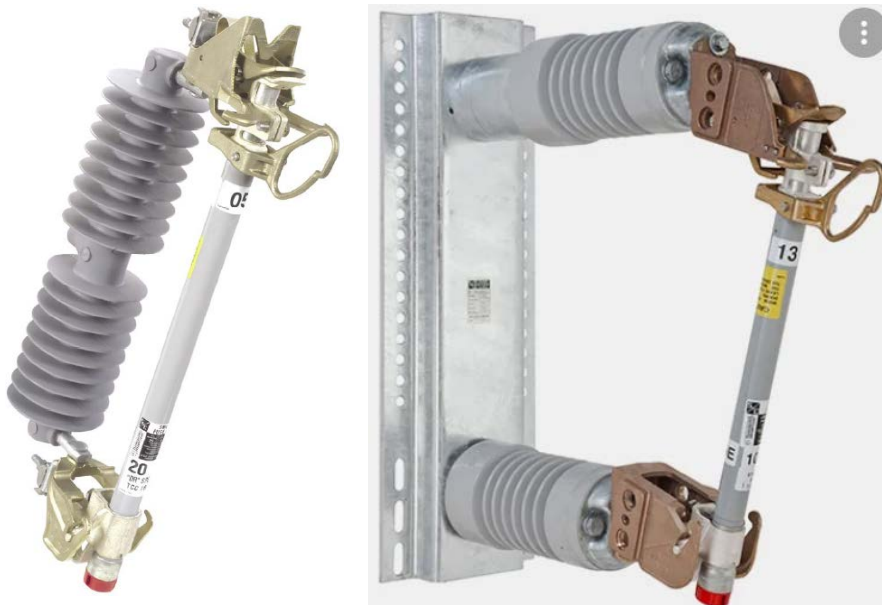
Approval: DScott

Date: 8/8/2022

Page 1 of 1

Revision: **1**

Std's Committee Approval:  
**Standards Committee**



**Application:** Primarily used inside substations for fusing station service transformers, Potential Transformers, or other equipment where higher fault currents are present.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** No Special Shipping Instructions

### Approved Manufacturers:

| PUD IDENTIFICATION                                     |           | MANUFACTURER<br>CATALOG<br>NUMBER |
|--------------------------------------------------------|-----------|-----------------------------------|
| Stock Description                                      | Stock No. | S & C                             |
| FUSE, SUBSTATION P.T.                                  | 032394    | 702001                            |
| FUSE, SUBSTATION XFMR, 5E for 25 kVA pole transformer  | 032396    | 612005                            |
| FUSE, SUBSTATION XFMR, 13E for 50 kVA pole transformer | 032395    | 612013                            |
| FUSE, SMD20, 14.4KV 80AMP, E STD                       | 090220    | 612080                            |
| FUSE, SMU20, 14.4KV 3AMP, "K"                          | 090230    | 702003                            |
| FUSE, SMU20, 24.4KV 150AMP, E SLOW                     | 090250    | 612150                            |
| MOUNT, FUSE, SUBSTATION SMD-20                         | 032392    | 92544R3                           |
| MOUNT, FUSE, SUBSTATION, SMD-20, VERTICAL OFFSET       | 032391    | 192222R2-E                        |

**SOLID DISCONNECT BLADE , DOOR**

Originator: DSmith

Date: 7/26/2006

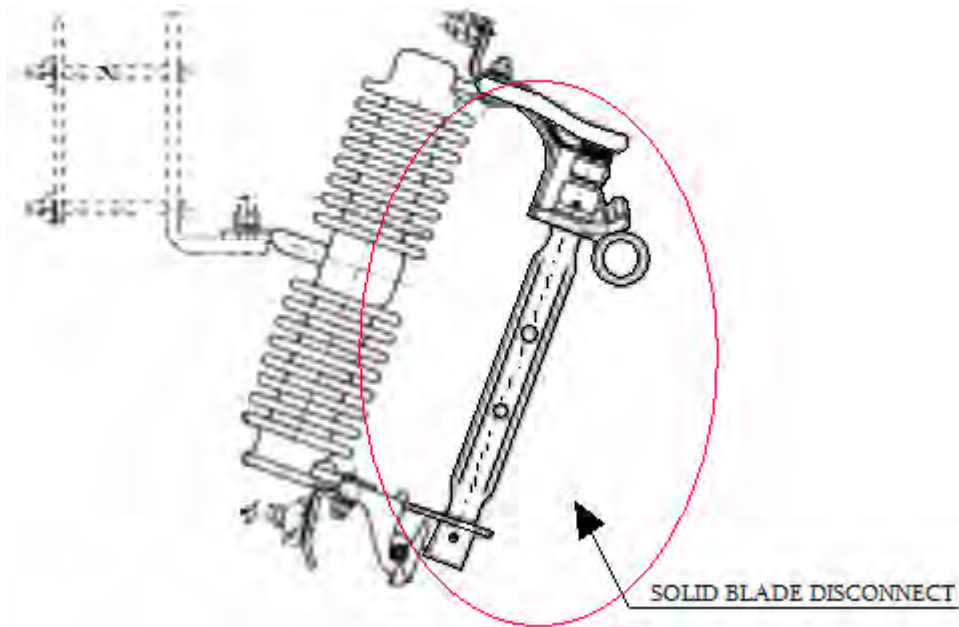
Approval: DSmith

Date: 6/29/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**

**Application:** Used in standard 100A and 200A cutouts as a high amperage switch.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                          |              | MANUFACTURER<br>CATALOG<br>NUMBER |
|---------------------------------------------|--------------|-----------------------------------|
| Stock Description                           | Stock<br>No. | S & C                             |
| DOOR, SOLID BLADE ONLY, 15KV, 100AMP CUTOUT | 017100       | 89621R10                          |
| DOOR, SOLID BLADE ONLY, 15KV, 200AMP CUTOUT | 017110       | 89622R10                          |



# FUSE, NX-TYPE, ARC STRANGLER

Originator: DSmith

Date: 7/26/2006

Approval: DSmith

Date: 6/29/2007

Page 1 of 2

Revision: **NEW**

Stds Committee Approval:  
**Approved**



Clip Style NX Fuse



Arc Strangler NX Fuse



Arc Strangler Switchblade

**Application:** Current Limiting type fuses or solid switchblade used in live front padmounted switch cabinets

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

| PUD IDENTIFICATION                  |           | MANUFACTURER CATALOG NUMBER |
|-------------------------------------|-----------|-----------------------------|
| Stock Description                   | Stock No. | Cooper Power                |
| FUSE, ARC STRANGLER, NX, 8KV 6 AMP  | 090540    | FA3A6                       |
| FUSE, ARC STRANGLER, NX, 8KV 8 AMP  | 090550    | FA3A8                       |
| FUSE, ARC STRANGLER, NX, 8KV 10 AMP | 090560    | FA3A10                      |
| FUSE, ARC STRANGLER, NX, 8KV 12 AMP | 090570    | FA3A12                      |
| FUSE, ARC STRANGLER, NX, 8KV 18 AMP | 090580    | FA3A18                      |
| FUSE, ARC STRANGLER, NX, 8KV 25 AMP | 090590    | FA3A25                      |
| FUSE, ARC STRANGLER, NX, 8KV 30 AMP | 090600    | FA3A30                      |
| FUSE, ARC STRANGLER, NX, 8KV 40 AMP | 090610    | FA3A40                      |



**- Material Catalog -****PROTECTION****1412.08**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*

**FUSE, NX-TYPE, ARC STRANGLER**

Originator: DSmith

Date: 7/26/2006

Approval: DSmith

Date: 6/29/2007

Page 2 of 2

Revision: **NEW**Stds Committee Approval:  
**Approved**

|                                                      |        |         |
|------------------------------------------------------|--------|---------|
| FUSE, ARC STRANGLER, NX, 15KV 6 AMP                  | 090620 | FA4A6   |
| FUSE, ARC STRANGLER, NX, 15KV 8 AMP                  | 090630 | FA4A8   |
| FUSE, ARC STRANGLER, NX, 15KV 10 AMP                 | 090640 | FA4A10  |
| FUSE, ARC STRANGLER, NX, 15KV 12 AMP                 | 090650 | FA4A12  |
| FUSE, ARC STRANGLER, NX, 15KV 18 AMP                 | 090660 | FA4A18  |
| FUSE, ARC STRANGLER, NX, 15KV 25 AMP                 | 090670 | FA4A25  |
| FUSE, ARC STRANGLER, NX, 15KV 30 AMP                 | 090680 | FA4A30  |
| FUSE, ARC STRANGLER, NX, 15KV 40 AMP                 | 090690 | FA4A40  |
| FUSE, CLIP STYLE, NX, 8KV 6 AMP                      | 090700 | FA3H6   |
| FUSE, CLIP STYLE, NX, 8KV 8 AMP                      | 090710 | FA3H8   |
| FUSE, CLIP STYLE, NX, 8KV 10 AMP                     | 090720 | FA3H10  |
| FUSE, CLIP STYLE, NX, 8KV 12 AMP                     | 090730 | FA3H12  |
| FUSE, CLIP STYLE, NX, 8KV 18 AMP                     | 090740 | FA3H18  |
| FUSE, CLIP STYLE, NX, 8KV 25 AMP                     | 090750 | FA3H25  |
| FUSE, CLIP STYLE, NX, 8KV 30 AMP                     | 090760 | FA3H30  |
| FUSE, CLIP STYLE, NX, 8KV 40 AMP                     | 090770 | FA3H40  |
| FUSE, CLIP STYLE, NX, 15KV 6 AMP                     | 090780 | FA4H6   |
| FUSE, CLIP STYLE, NX, 15KV 8 AMP                     | 090790 | FA4H8   |
| FUSE, CLIP STYLE, NX, 15KV 10 AMP                    | 090800 | FA4H10  |
| FUSE, CLIP STYLE, NX, 15KV 12 AMP                    | 090810 | FA4H12  |
| FUSE, CLIP STYLE, NX, 15KV 18 AMP                    | 090820 | FA4H18  |
| FUSE, CLIP STYLE, NX, 15KV 25 AMP                    | 090830 | FA4H25  |
| FUSE, CLIP STYLE, NX, 15KV 30 AMP                    | 090840 | FA4H30  |
| FUSE, CLIP STYLE, NX, 15KV 40 AMP                    | 090850 | FA4H40  |
| FUSE, CLIP STYLE, NX, 15KV 50 AMP                    | 090855 | FA4H50  |
| FUSE, CLIP STYLE, NX, 15KV 65 AMP                    | 090860 | FA4H65  |
| FUSE, CLIP STYLE, NX, 15KV 80 AMP                    | 090870 | FA4H80  |
| FUSE, CLIP STYLE, NX, 15KV 100 AMP                   | 090880 | FA4H100 |
| FUSE, ARC STRANGLER SWITCHBLADE, 8KV 200A            | 090890 | FA1B1   |
| FUSE, ARC STRANGLER SWITCHBLADE, 15KV 200A,<br>SHORT | 090900 | FA4B1   |
| FUSE, ARC STRANGLER SWITCHBLADE, 15KV 200A,<br>LONG  | 090910 | FA3B1   |
| FUSE, TANDEM, MT-NX, 15KV 80 AMP                     | 09020  | FA11A80 |

**FAULT FITER, ETP FUSE**

Originator: DSmith

Date: 7/17/2006

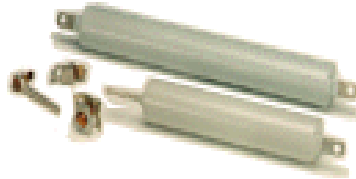
Approval: DSmith

Date: 6/29/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Backup current-limiting fuses designed to protect transformers are used in series with another protective device (such as an expulsion fuse). This combination limits the high-fault current to a safe level, thus providing protection through the complete range. As its name implies, the "ETP" is for External Transformer Protection.

For conventional transformers protected by expulsion-fuse cutouts, the ETP can be installed in series with the cutout. For self-protected transformers, the ETP can be applied on the high-voltage bushing in series with the internal transformer expulsion fuse. From 8.3kV to 23kV and from 8T to 80K

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                              |              | MANUFACTURER<br>CATALOG NUMBER |
|-------------------------------------------------------------------------------------------------|--------------|--------------------------------|
| Stock Description                                                                               | Stock<br>No. | GE                             |
| FUSE, CURRENT LIMITING, 1-15KVA OH TRANSFORMER, USE WITH CUTOUT, (FAULT FITER "A" RANGE #5521)  | 045410       | 9F59UBC131                     |
| FUSE, CURRENT LIMITING, 25-50KVA OH TRANSFORMER, USE WITH CUTOUT, (FAULT FITER "B" RANGE #5522) | 045420       | 9F59UBC132                     |
| FUSE, CURRENT LIMITING, OH 75KVA UP TRANSFORMER, USE WITH CUTOUT, (FAULT FITER "C" RANGE #5523) | 045430       | 9F59UBC134                     |



# FAULT INDICATORS, OVERHEAD

Originator: DSmith

Date: 2/26/2018

Approval: J. Mitchell

Date: 2/26/2018

Page 1 of 1

Revision: **Added new item; removed obsolete items**

Std's Committee Approval:

**APPROVED**



**Application:** These devices are electric field reset fault indicators (type ERL) derive their operating power from the potential gradient around high-voltage power lines. The ERL's inrush restraint option blocks targeting for recloser operations. When the upstream protection operates, the indicator senses the collapse of the voltage field and prohibits tripping until the utility is able to restore normal system conditions.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

## Approved Manufacturers:

| PUD IDENTIFICATION                                                         |           | MANUFACTURER CATALOG NUMBER |  |
|----------------------------------------------------------------------------|-----------|-----------------------------|--|
| Stock Description                                                          | Stock No. | SEL                         |  |
| FAULT INDICATOR, OVERHEAD, 50 – 1200 AMP, ELECTRONIC, AUTO RESET, CLAMP-ON | 045465    | AR360                       |  |
|                                                                            |           |                             |  |



**FAULT INDICATOR**  
**15kV URD Elbow Test Point**  
**Voltage Reset**

Originator: DSmith

Date: 6/29/2007

Approval: DSmith

Date: 6/29/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**

**Application:** These units are used on 200 and 600 A class underground distribution systems whose terminators have test points. The unit requires a 5 kV phase-to-ground minimum voltage to reset and remain ready to trip. Its target, built into the sensor housing itself, automatically resets when system voltage returns to normal. The conductive, EPDM rubber housing maintains the separable connector system's ground shielding. The unit operates independently of load current.

The unit's inrush restraint feature blocks tripping that might result from reclosing operations. When the breaker or recloser opens, the unit senses a loss of voltage on the test point. The unit blocks the display from targeting if the subsequent inrush current exceeds the trip value. It is ready to trip a few minutes after reenergization.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                      |           | MANUFACTURER<br>CATALOG NUMBER         |
|---------------------------------------------------------|-----------|----------------------------------------|
| Stock Description                                       | Stock No. | Schweitzer Engineering<br>Laboratories |
| FAULT IND, ELBOW TEST PT, 15KV, 200AMP<br>VOLTAGE RESET | 045470    | 1TPRI0200J                             |
| FAULT IND, ELBOW TEST PT, 15KV, 450AMP<br>VOLTAGE RESET | 045480    | ITPRI0450J                             |
| FAULT IND, ELBOW TEST PT, 15KV, 800AMP<br>VOLTAGE RESET | 045481    | 1TPRI-0800J                            |



# SWITCHGEAR

Originator: DSmith

Date: 7/9/2007

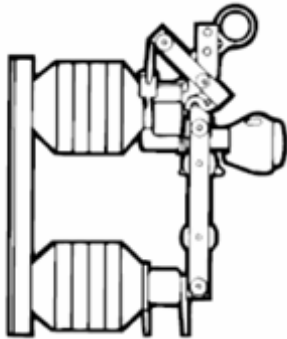
Approval: DSmith

Date: 7/9/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



# SWITCHGEAR





**SWITCH, DISCONNECT SPST  
Crossarm Mounted  
15kV, 600 Amp**

Originator: DSmith

Date: 7/9/2013

Approval: J. Nleborgsky

Date: 7/9/2013

Page 1 of 1

Revision: **Added Cooper Catalog Number**

Std's Committee Approval:

**Approved**

**Application:** Loadbuster Disconnects are designed for use with Loadbuster, S&C's portable loadbreak tool, which has an interrupting rating of 600 amperes nominal, 900 amperes maximum.

When used with Loadbuster, the disconnects are suitable for these single-phase live-switching duties on single-phase or three-phase circuits of overhead distribution systems:  
They can be mounted either vertically or horizontally.



**Specification:** Each switch shall have the following ratings:

**Equipped:** With Loadbuster hooks for operation with an S & C Loadbuster tool.

**Electrical Rating:** Switch shall be capable of conducting 600 amps continuous, 30,000 amps momentary in the bypass position.

**Insulators:** Shall be NEMA standard posts **non porcelain** suitable for outdoor operation.

**Terminal Pads:** Shall be NEMA standard with two 9/16 inch diameter holes on 1-3/4 inch centers.

**Base:** Shall Be Structural Steel Channel Approximately 5 Inches Wide Carriage Bolt Slots And A Backing Plate Suitable For Mounting Either Vertically Or Horizontally. Base Shall Be Hot-Dipped Galvanized After Fabrication Per Latest Revision Of Astm A-153.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or its packaging.

**Accepted Manufacturers: S&C, Cooper Power Systems**

| Stock Description                  | Stock No. | S&C      | Cooper   |
|------------------------------------|-----------|----------|----------|
| SWITCH, DISCONNECT 600A 15KV, SPST | 016150    | 4922R9-E | D73P16S0 |





**SWITCH, POLE TOP, THREE PHASE, GANG,  
LOAD BREAK, 15 kV, 600 A**

Originator: DScott

Date: 2/13/2020 Draft

Approval: Standards

Date:

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**For Review**



**Specification Requirement Minimums:** Three phase gang operated. Load break. 15 kV class, 110 kV BIL. 600 Amp minimum. Extra phase spacing raptor friendly. Fiberglass arm. Polymer or Cyproxy insulators. Single point lifting. Pole band and J hook. Extra section of torsional control rod for tall poles. Fiberglass section of control rod. Pad lockable. Arrester brackets on vertical models. Factory assembled ready for installation. All parts UV stabilized. IEEE C37.30, C37.32, C37.34, and IEEE1247 (load break testing criteria only).

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. Extra strong crates for multi-year outdoor storage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

Cooper/Eaton, Siemens/Bridges, S&C, Hubbell, Inertia

\*Vendors: review manufacturer catalog numbers before accepting orders.

| PUD IDENTIFICATION |                                                                                   | MANUFACTURER CATALOG NUMBER |                            |            |              |              |
|--------------------|-----------------------------------------------------------------------------------|-----------------------------|----------------------------|------------|--------------|--------------|
| Stock No.          | Stock Description                                                                 | Cooper/Eaton                | S&C                        | Hubbell    | Inertia      | Siemens      |
| 032400             | SWITCH, POLE TOP, SIDE BREAK, GANG OP, UPRIGHT MOUNTING, HORIZONTAL, SWING HANDLE | M1GB2GR2CRV1                | 147442R4-ED-711R4-V1-S1-S2 | AR113FFHP  | L16SLFH 2124 | 963XF-40BFS  |
| 032405             | SWITCH, POLE TOP, SIDE BREAK, GANG OP, UPRIGHT MOUNTING, HORIZONTAL, HOOK STICK   | M1G03GR2CRV                 | 147442R4-H-ED710R4         | AR113FHH   | L16SLFH 31   | 963XF-HBS    |
| 032420             | SWITCH, POLE TOP, GANG OP, VERTICAL RISER, SWING HANDLE                           | M1SB2GR2CRV1                | 147532R4-S1-S2-V1-A2       | AR123FFHLP | L16SLFR 2124 | 963VF-40ABFS |
| 032415             | SWITCH, POLE TOP, GANG OP, VERTICAL RISER, HOOK STICK                             | M1S03GR2CRV                 | 147532R4-H-A2              | AR123FHL   | L16SLFR 31   | 963VF-HABS   |





**Switch Operating Platform**  
**4' X 6" Galvanized**

Originator: WSweeney

Date: 6/29/2007

Approval: DSmith

Date: 6/29/2007

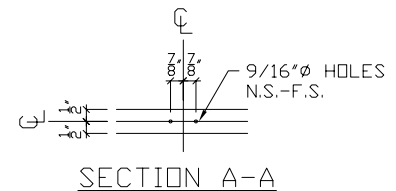
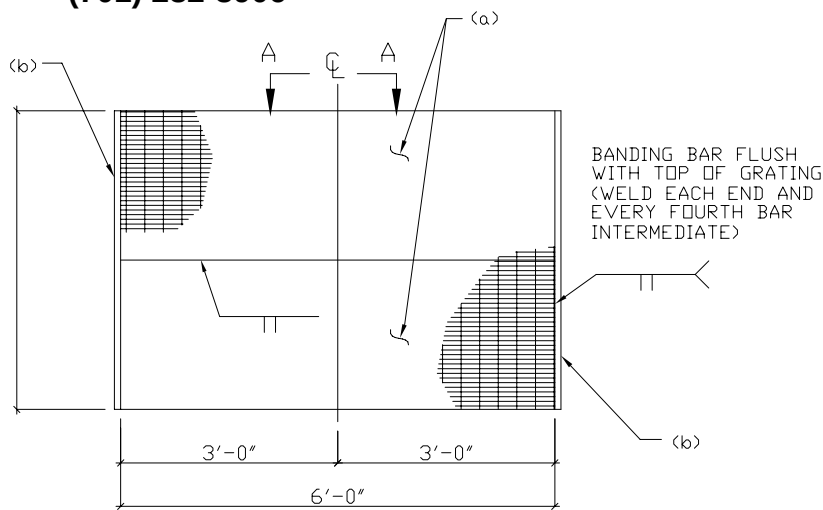
Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Refer To Manufactures Drawing 05-WW-05, Dated 03/09/05**  
**Galvanizers, INC**  
**1202 Seventh Avenue North**  
**West Fargo, ND 58078**  
**(701) 282-3906**



NOTES:

1. ALL STEEL - ASTM A36 U.N.D.
2. GALV. AFTER FABRICATION PER ASTM A123
3. SMOOTH GRATING -  
1" x 3/16" BARS  
1 3/16" C TO C W/  
4" C TO C CROSSBARS

**Application:** Used for grounding 15kV & 115Kv 3 Phase OH Switches with Ground Mounted Switch handle. Weight is 186.7 lbs.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                     |           | MANUFACTURER CATALOG NUMBER |        |        |
|----------------------------------------|-----------|-----------------------------|--------|--------|
| Stock Description                      | Stock No. | Galvanizers, INC            | MFG #3 | MFG #3 |
| Switch Operating Platform - Galvanized | 026205    | 05-WW-05                    | XXXXXX | XXXXXX |



## SWITCH, REGULATOR BYPASS Sequenced

Originator: DSmith

Date: 6/29/2007

Approval: DSmith

Date: 10/17/2018

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** A single-phase regulator bypass switch (bypass-disconnect) is used to bypass a regulator before isolating it from the circuit. The operation requires a single stroke and will not interrupt customer service. The closing stroke puts the regulator back into service before the bypass is removed.

**Specification:** The Voltage regulator bypass switch shall be equipped with a device for interrupting regulator exciting current with no exposed arcing and meeting the following additional requirements. Sequence coordination required.

**Electrical Rating:** Switch shall be capable of conducting 600 amps continuous, 30,000 amps momentary in the bypass position.

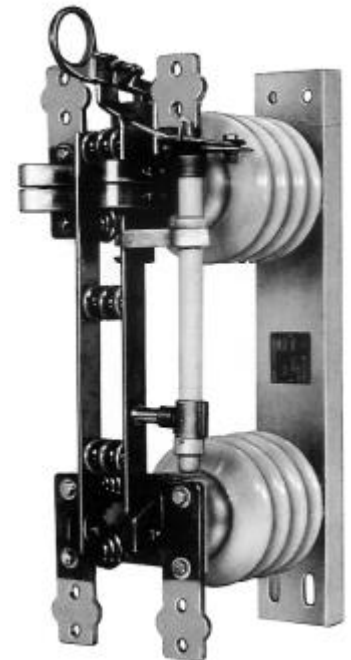
**Insulators:** Shall be NEMA standard non-porcelain posts suitable for outdoor operation.

**Terminal Pads:** Shall be NEMA standard with two 9/16 inch diameter holes on 1-3/4 inch centers.

**Base:** Shall be structural steel channel approximately 9 inches wide with 9/16 inch diameter holes for mounting bolts. Base shall be hot-dipped galvanized after fabrication per latest revision of ASTM A-153.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or its packaging.

**Accepted Manufacturers: Cooper Power Systems, S&C**



| PUD IDENTIFICATION |                                                              | MANUFACTURER CATALOG NUMBER |            |
|--------------------|--------------------------------------------------------------|-----------------------------|------------|
| Stock No.          | Maximo Stock Description                                     | Cooper                      | S&C        |
| 032560             | SWITCH, BYPASS, 600AMP REGULATOR, DISCONNECT, VERTICAL MOUNT | 125821-20-Y                 | 333412R7-E |



# Switchgear, Pad-Mounted 15kv Air-Insulated Live-Front

Originator: DSmith

Date: 7/20/2009

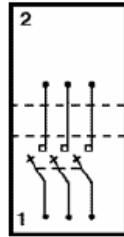
Approval: DSmith

Date: 7/20/2009

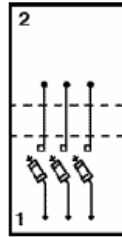
Page 1 of 1

Revision: **NEW**

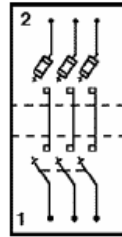
Stds Committee Approval:  
**Approved**



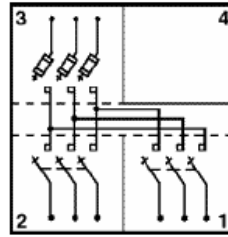
PM-3



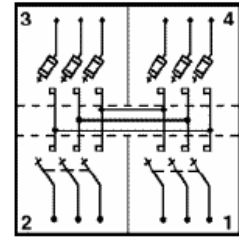
PM-4



PM-5

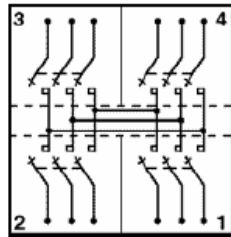


PM-6

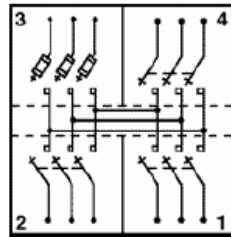


PM-9

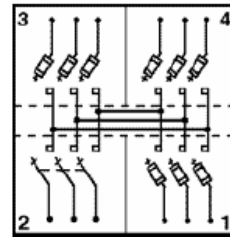
**Application:** This switchgear will be used for sectionalizing and protecting underground distribution express feeders, sub-loops, and laterals as well as switching and protecting transformers.



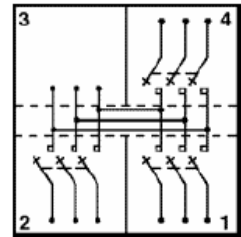
PM-10



PM-11



PM-12



PM-13

**Specification:** Refer to Equipment Specification #1513.01 which covers the requirements for furnishing and delivering free-standing, self-contained, cabinet enclosed 15kV rated air-insulated live-front pad-mounted switchgear with 600 amp interrupter switches and/or 200 amp fuses with integral load interrupters. This switchgear is intended for use in 60 hertz, three-phase, 12470 volt grounded-WYE underground distribution systems. This switchgear shall be designed for outdoor installation and operation and for mounting on a concrete pad or fiberglass ground sleeve.

**Approved Manufactures; S&C or Federal Pacific**

| PUD IDENTIFICATION                                                        |        |       |
|---------------------------------------------------------------------------|--------|-------|
| Stock Description                                                         | Stock  | Style |
| Switch, Padmt Livefront, 15kV, PM3, 1-600A SW, No Fused Compartments      | 049416 | PM-3  |
| Switch, Padmt Livefront, 15kV, PM4, No SW, 1-200a Fused Compartments      | 049418 | PM-4  |
| Switch, Padmt Livefront, 15kV, PM5, 1-600A SW, 1-200a Fused Compartment   | 049414 | PM-5  |
| Switch, Padmt Livefront, 15kV, PM6, 2-600A SW, 1-200a Fused Compartment   | 049415 | PM-6  |
| Switch, Padmt Livefront, 15kV, PM9, 2-600A SW, 2-200a Fused Compartments  | 049420 | PM-9  |
| Switch, Padmt Livefront, 15kV, PM10, 4-600A SW, No Fuses                  | 049417 | PM-10 |
| Switch, Padmt Livefront, 15kV, PM11, 3-600A SW, 1-200a Fused Compartments | 049425 | PM-11 |
| Switch, Padmt Livefront, 15kV, PM12, 1 600A SW, 3-200a Fused Compartments | 049426 | PM-12 |
| Switch, Padmt Livefront, 15kV, PM13, 3- 600A SW & No Fuses                | 049430 | PM-13 |



# Switchgear, Pad-Mounted 15kV Air-Insulated Dead-Front

Originator: J.Nieborsky

Date: 1/20/2012

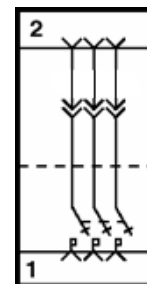
Approval: J.Nieborsky

Date: 2/4/2015

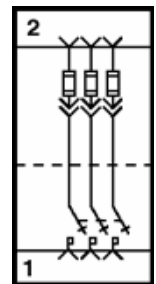
Page 1 of 2

Revision: **NEW**

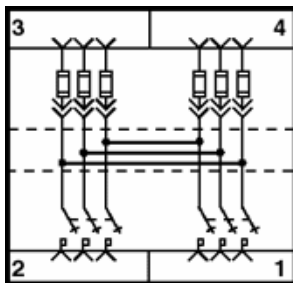
Stds Committee Approval:  
**Approved**



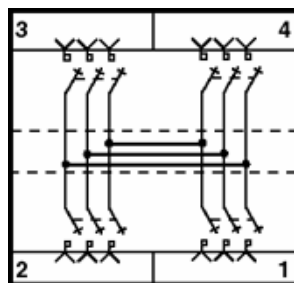
PM-3



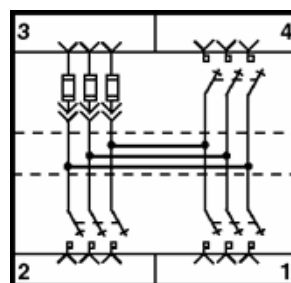
PM-5



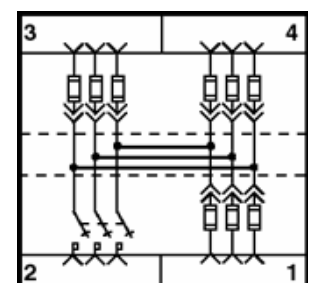
PM-9



PM-10



PM-11



PM-12

## Application:

This switchgear will be installed on a concrete vault or fiberglass pad and used for sectionalizing and protecting underground distribution express feeders, sub-loops, and laterals as well as switching and protecting transformers.

## Specification:

Refer to Equipment Specification #1513.03 which covers the requirements for furnishing and delivering free-standing, self-contained, cabinet enclosed 15kV air-insulated, deadfront, padmounted switchgear with 600 amp 3Ø group-operated interrupter switches and 3Ø sets of 200 amp single-pole fuse ways configured as shown below. Switchgear shall be rated for use on a 60 Hz, 12.47 Grd Y/7.2kV electrical distribution system. Electrical loads include residential, commercial and industrial customers.

**Switchgear, Pad-Mounted 15kV  
Air-Insulated Dead-Front**

Originator: J.Nieborsky

Date: 1/20/2012

Approval: J.Nieborsky

Date: 2/4/2015

Page 2 of 2

Revision: **NEW**Std's Committee Approval:  
**Approved****Approved Manufactures; Hubbell, S&C, Federal Pacific****PUD IDENTIFICATION**

| Stock Description                                                          | Stock  | Style |
|----------------------------------------------------------------------------|--------|-------|
| Switch, Padmt Deadfront, 15kV, PM3, 1-600A SW, No Fused Compartments       | 049431 | PM-3  |
| Switch, Padmt Deadfront, 15kV, PM4, No SW, 1-200a Fused Compartments       | 049432 | PM-4  |
| Switch, Padmt Deadfront, 15kV, PM5, 1-600A SW, 1-200a Fused Compartment    | 049433 | PM-5  |
| Switch, Padmt Deadfront, 15kV, PM6, 2-600A SW, 1-200a Fused Compartment    | 049434 | PM-6  |
| Switch, Padmt Deadfront, 15kV, PM7, 1- 600A SW & 2-200a Fused Compartments | 049435 | PM-7  |
| Switch, Padmt Deadfront, 15kV, PM9, 2-600A SW, 2-200a Fused Compartments   | 049436 | PM-9  |
| Switch, Padmt Deadfront, 15kV, PM10, 4-600A SW, No Fuses                   | 049437 | PM-10 |
| Switch, Padmt Deadfront, 15kV, PM11, 3-600A SW, 1-200a Fused Compartments  | 049438 | PM-11 |
| Switch, Padmt Deadfront, 15kV, PM12, 1 600A SW, 3-200a Fused Compartments  | 049439 | PM-12 |



# LINE HARDWARE

Originator: DSmith

Date: 1/24/2007

Approval: DSmith

Date: 1/24/2007

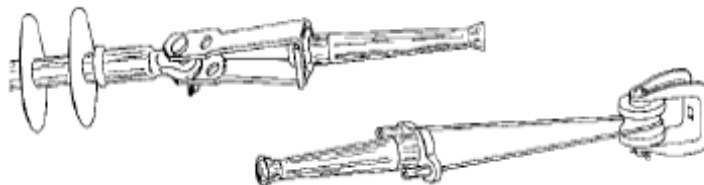
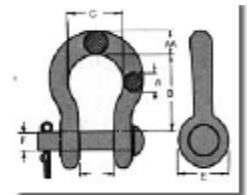
Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



## SECTION 1600 LINE HARDWARE





Originator: DSmith

Date: 7/7/06

Approval: DSmith

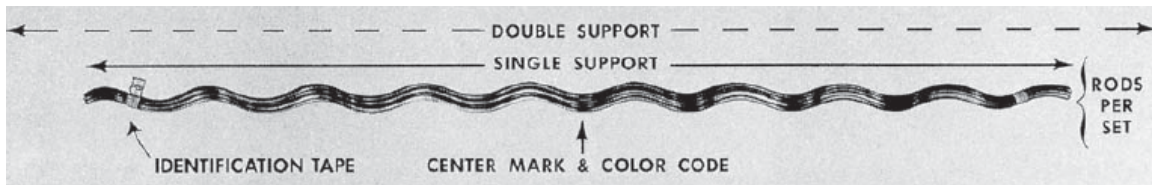
Date: 2/21/2017

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**



**Application:** Used to prevent wear on conductor State description and purpose of item, how it is used, any precaution associated with its use and any exceptional salvage instructions.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION             |           | MANUFACTURER CATALOG NUMBER |
|--------------------------------|-----------|-----------------------------|
| Stock Description              | Stock No. | Preformed Line Products     |
| ARMOR ROD, 266KCM ACSR, YELLOW | 028140    | AR-0127                     |
| ARMOR ROD, #2/0 AAC, BROWN     | 028200    | AR-0119                     |
| ARMOR ROD, #4/0 AAC, BLACK     | 028220    | AR-0123                     |





**LINE HARDWARE, DOUBLE SIDE TIES**

Originator: DSmith

Date: 7/26/2006

Approval: DSmith

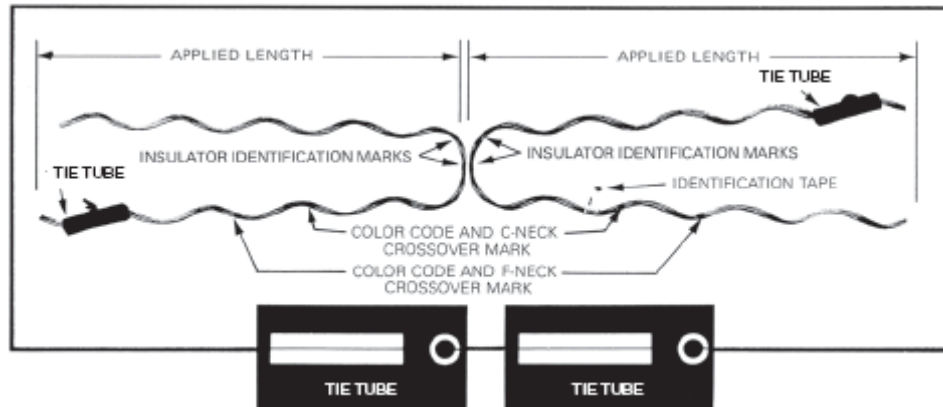
Date: 7/5/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**



**Application:** The double side tie is designed to secure conductors on double-arm construction in the side groove of interchangeable headstyle insulators. They are intended for larger line angles than top groove style ties, such as, Double-Support Ties.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                 |           | MANUFACTURER CATALOG NUMBER |           |
|--------------------------------------------------------------------|-----------|-----------------------------|-----------|
| Stock Description                                                  | Stock No. | Preformed Line Products     | DULMISON  |
| TIE, DOUBLE SIDE, #2 ACSR RED, W/ 2-1/4" AND 2-7/8" NECK DIA       | 037330    | DBST-1102                   | DBST-0805 |
| TIE, DOUBLE SIDE, 2/0 ACSR BLUE                                    | 037410    | DBST-1104                   | DBST-1030 |
| TIE, DOUBLE SIDE, 336KCM ACSR BROWN, W/ 2-1/4" AND 2-7/8" NECK DIA | 037480    | DBST-1108                   | DBST-1695 |
| TIE, DOUBLE SIDE, #4/0 AAC, RED W/ 2-1/4" AND 2-7/8" NECK DIA      | 037760    | DBST-1106                   | DBST-1325 |
| TIE, DOUBLE SIDE, 266KCM AAC, PURPLE W/ 2-1/4" AND 2-7/8" NECK DIA | 037880    | DBST-1107                   | DBST-1495 |
| TIE, DOUBLE SIDE, 636KCM AAC BLUE, W/ 2-1/4" AND 2-7/8" NECK DIA   | 037920    | DBST-1110                   | DBST-2175 |

**LINE HARDWARE, DOUBLE TOP TIES**

Originator: DSmith

Date: 7/26/2006

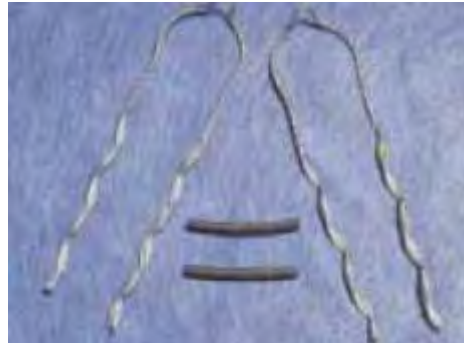
Approval: DSmith

Date: 7/5/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** The double top tie is designed to secure conductors on double-arm construction in the top groove of interchangeable pin style insulators. They are intended for larger line angles than single top groove style ties..

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                            |           | MANUFACTURER CATALOG NUMBER |            |
|-------------------------------------------------------------------------------|-----------|-----------------------------|------------|
| Stock Description                                                             | Stock No. | Preformed Line (PLP)        | DULMISON   |
| TIE, DBL TOP, #2 ACSR, RED<br>PIN INSLTR W/ 2-1/2" AND 2-7/8" NECK DIA.       | 037340    | DST-0152                    | DSTCF-0800 |
| TIE, DBL TOP, #4/0 ACSR, RED<br>PIN INSLTR W/ 2-1/2" AND 2-7/8" NECK DIA.     | 037350    | DST-0156                    | DSTCF-1325 |
| TIE, DBL TOP, 336KCM ACSR, BROWN<br>PIN INSLTR W/ 2-1/2" AND 2-7/8" NECK DIA. | 037390    | -----                       | DSTCF-1696 |
| TIE, DBL TOP, 636KCM ACSR, BLUE<br>PIN INSLTR W/ 2-1/2" AND 2-7/8" NECK DIA.  | 037950    | DST-0160                    | DSTCF-2175 |

**LINE HARDWARE, SPOOL TIES**

Originator: DSmith

Date: 7/26/2006

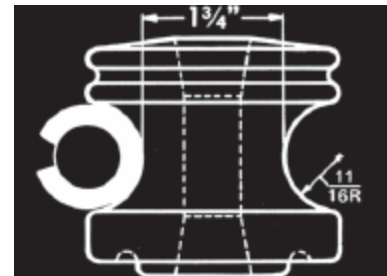
Approval: DSmith

Date: 7/9/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** A Spool Tie Assembly consists of one metal tie component plus tie tube. Spool ties are designed to be looped around a spool insulator mounted to a distribution pole and then twisted around the service wire neutral (messenger) to provide longitudinal support. Each spool tie is supplied with an electrometric tie tube designed to minimize abrasion to the insulator.

**Specification:** Each tie shall be suitable for use with ACSR, AAC, & AAAC conductor and suitable for use on ANSI 53-1,2, & 3 insulators with a 1-3/4" diameter neck. The strength of the tie shall be equal to or exceed the conductor strength.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number, applicable conductor size and color code shall be on each part.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                    |           | MANUFACTURER CATALOG NUMBER |            |
|-----------------------------------------------------------------------|-----------|-----------------------------|------------|
| Stock Description                                                     | Stock No. | PLP                         | DULMISON   |
| Tie, Spool, #4 ACSR, Insulator W/ 1-3/4" Neck Diameter, Orange        | 037230    | SPL-1352-P                  | SPL-0620-P |
| Tie, Spool, #2 ACSR Insulator W/ 1-3/4" Neck Diameter, Red            | 037350    | SPL-1354-P                  | SPL-0800-P |
| Tie, Spool, #2/0 ACSR/AAC Insulator W/ 1-3/4" Neck Diameter, Blue     | 037400    | SPL-1356-P                  | SPL-1030-P |
| Tie, Spool, #4/0 ACSR/AAC Insulator W/ 1-3/4" Neck Diameter, Red      | 037440    | SPL-1358-P                  | SPL-1325-P |
| Tie, Spool, 336kcm ACSR/AAC, Insulator W/ 1-3/4" Neck Diameter, Brown | 037870    | SPL-1360-P                  | SPL-1695-P |

**DEADEND, SERVICE GRIP**

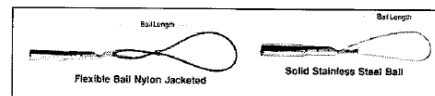
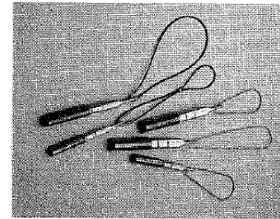
Originator: DSmith

Date: 7/26/2006

Approval: DSmith

Date: 6/23/2010

Page 1 of 1

Revision: **NEW**Stds Committee Approval:  
**Approved**

**Application:** Service-Grip dead-ends are manufactured of aluminum-covered steel are designed for bare neutral messengers of self-supporting cable used in making service drops. The dead-end is recommended for service drops by reason of minimum length, economy, and neatness of appearance. Mechanical strength meets the requirements for NESC Grade "N", Rule 263-E, Supply Services, Spans not exceeding 150 feet. For service drops exceeding 150 feet, Grade "C" Construction, the Distribution Grip dead-end is recommended.

**Specification:** Each grip shall be suitable for use with ACSR, AAC, & AAAC conductor and suitable for use on ANSI 53-1,2, & 3 insulators with a 1-3/4" diameter neck. The strength of the tie shall be equal to or exceed the conductor strength.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number, applicable conductor size and color code shall be on each part.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                   |           | MANUFACTURER CATALOG NUMBER |            |         |
|--------------------------------------------------------------------------------------|-----------|-----------------------------|------------|---------|
| Stock Description                                                                    | Stock No. | PLP                         | DULMISON   | MACLEAN |
| Deadend, Service, #4 Str Wire (#2 Triplex) AAC ACSR, AWAC, Holding Strength 1144lb   | 016250    | SG-4502                     | SG-0570    |         |
| Deadend, Service, #2 Str Wire (#2 Quad) AAC, ACSR, AWAC, Holding Strength 1395lb     | 016260    | SG-4504                     | SPL-0800-P |         |
| Deadend, Service, #1 Str Wire (2/0 Triplex) Al, ACSR, AWAC, Holding Strength 1740lb  | 016270    | SG-4505                     | SG-0830    |         |
| Deadend, Service, #2/0 Str, Wire (2/0 Quad, #4/0 Trplx) AAC, ACSR, AWAC              | 016280    | SG-4507                     | SG-1020    |         |
| Deadend, Service, #4/0 Str, Wire (4/0 Quad) AAC, ACSR, AWAC, Holding Strength 3300lb | 016290    | SG-4509                     |            |         |
| Clamp, Wedge, Hard Bail, 11" Long, fits #4 du, fits 4/0 triplex and quad OH          | 016278    |                             |            | 7198    |
| Clamp, Wedge, Hard Bail, 6 1/2" Long, #2 & 2/0 triplex OH                            | 016255    |                             |            | 7195    |



**SINGLE SIDE TIES**

Originator: DSmith

Date: 7/27/2006

Approval: DSmith

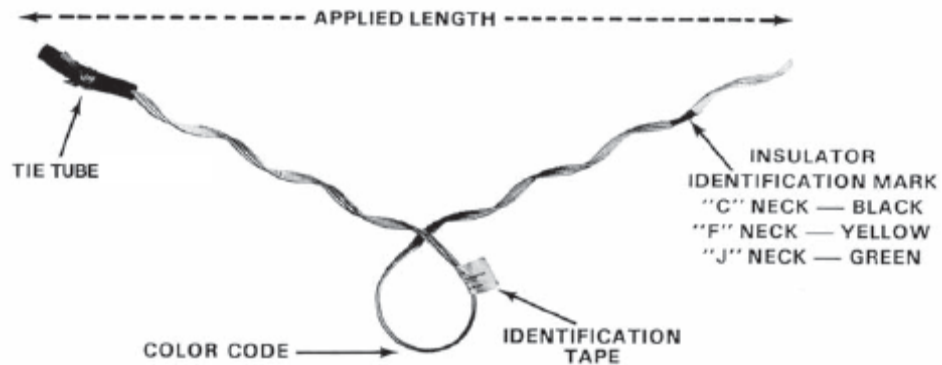
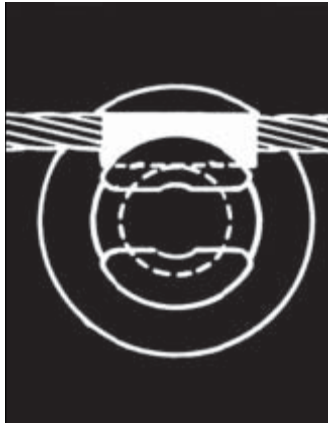
Date: 7/5/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**



**Application:** Side Ties manufactured of aluminum covered steel secure conductors in the side groove of insulators. Side Ties provide an improved method of securing conductor compared to clamp-top insulators or hand ties over Armor Rods.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                     |           | MANUFACTURER CATALOG NUMBER |            |
|------------------------------------------------------------------------|-----------|-----------------------------|------------|
| Stock Description                                                      | Stock No. | PLP                         | DULMISON   |
| TIE, SIDE, #2 ACSR RED PIN INSULATOR W/ 2-1/4" NECK DIAMETER           | 037300    | STC-1254-P                  | STC-0805-P |
| TIE, SIDE, #2/0 ACSR BLUE PIN INSULATOR W/ 2-1/4" NECK DIAMETER        | 037390    | STC-1256-P                  | STC-1030-P |
| TIE, SIDE, #4/0 ACSR RED PIN INSULATOR W/ 2-1/4" NECK DIAMETER         | 037430    | STC-1258-P                  | STC-1325-P |
| TIE, SIDE, 336KCM ACSR BROWN PIN INSULATOR W/ 2-1/4" NECK DIAMETER     | 037470    | STC-1260-P                  | STC-1695-P |
| TIE, SIDE, 266ACSR/336AAC PURPLE PIN INSULATOR W/ 2-1/4" NECK DIAMETER | 037850    | STC-1259-P                  | STC-1495-P |
| TIE, SIDE, 636KCM ACSR BLUE PIN INSULATOR W/ 2-1/4" NECK DIAMETER      | 037910    | STC-1262-P                  | TBD        |



TOP TIES

Originator: DSmith

Date: 7/27/2006

Approval: J Mitchell

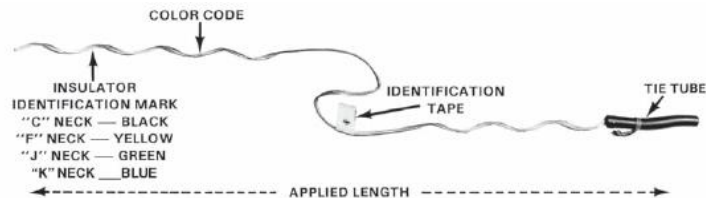
02/23/2015

Page 1 of 1

Revision: **Stock # for 636**

Std's Committee Approval:

**Approved**



**Application:** On vertically-mounted insulators, Distribution Ties can normally accommodate line angles up to **10°**. This product is intended for a single (one-time) use and for the specified application. CAUTION: DO NOT REUSE OR MODIFY THIS PRODUCT UNDER ANY CIRCUMSTANCES.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION               |           | MANUFACTURER CATALOG NUMBER |            |
|----------------------------------|-----------|-----------------------------|------------|
| Stock Description                | Stock No. | PLP                         | DULMISON   |
| TIE, TOP, #4 ACSR/AAC ORANGE     | 037210    | UTC-1102                    | DTC-0620-P |
| TIE, TOP, #2 ACSR/AAC RED        | 037250    | UTC-1104                    | DTC-0805-P |
| TIE, TOP, #2/0 ACSR/AAC BLUE     | 037380    | UTC-1106                    | DTC-1030-P |
| TIE, TOP, #4/0 ACSR/AAC RED      | 037420    | UTC-1108                    | DTC-1325-P |
| TIE, TOP, #336 ACSR/397AAC BROWN | 037460    | UTC-1110                    | DTC-1695-P |
| TIE, TOP, #336 KCM AAC BROWN     | 037800    | UTC-1109                    | DTC-1495-P |
| TIE, TOP, #636 KCM ACSR/AAC BLUE | 037900    | UTC-1112                    | DTC-2175-P |





## Conductor Repair Splice – Overhead

Originator: DSmith

Date: 7/7/06

Approval: DSmith

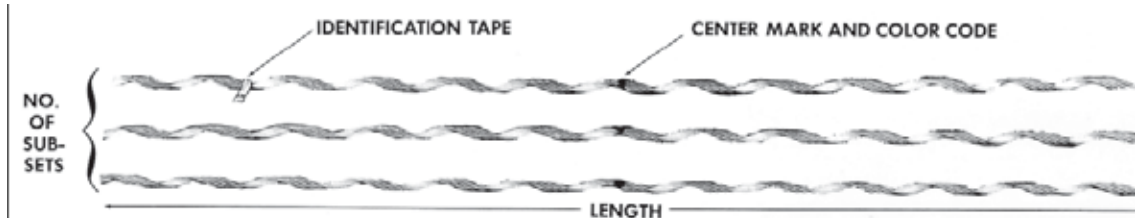
Date: 8/31/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**



**Application:** Conductor Splices are designed as a single-component outer-layer assembly generally for Sub-EHV applications composed of three subsets.

On all-aluminum, aluminum alloy, and copper conductors of homogenous stranding, the Conductor Splice will hold a minimum of 90% of the rated breaking strength of, and provide better conductance than, an equal length of un-spliced conductor. On ACSR conductor, the *Conductor Splice* will hold a minimum tension amounting to the full strength of the aluminum strands plus 10% of the steel core strength. Conductance will be better than in an equivalent length of un-spliced conductor.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

### Approved Manufacturers

| PUD IDENTIFICATION |                                                                                  | MFG NUMBER              |
|--------------------|----------------------------------------------------------------------------------|-------------------------|
| Stock No.          | Stock Description                                                                | Preformed Line Products |
| 031390             | SPLICE, OH REPAIR, #6ACSR 6/1, Three Rods, (BLUE)                                | LS-0108                 |
| 031450             | SPLICE, OH REPAIR, #2ACSR 6/1, Three Rods, (RED)                                 | LS-0120                 |
| 031250             | SPLICE, OH REPAIR, #2/0AAC 7W, Three Rods, (BROWN)                               | LS-0127                 |
| 031480             | SPLICE, OH REPAIR, #2/0ACSR 6/1, Three Rods, (BLUE)                              | LS-0129                 |
| 031270             | SPLICE, OH REPAIR, #4/0AAC 7W, Three Rods, (BLACK)                               | LS-0133                 |
| 031510             | SPLICE, OH REPAIR, #4/0 ACSR 6/1, Three Rods, (RED)                              | LS-0134                 |
| 031540             | SPLICE, OH REPAIR, 266.8ACSR 26/7, Three Rods, (YELLOW)                          | LS-0137                 |
| 031330             | SPLICE, OH REPAIR, 336AAC 19W & 37W, Three Rods, (BROWN)                         | LS-0138                 |
| 087530             | SPLICE, OH REPAIR, 336ACSR 26/7, 397AAC 19W, Three Rods, (GREEN)                 | LS-0140                 |
| 087520             | SPLICE, OH REPAIR, 336ACSR 30/7, 397ACSR 18/1, 397 ACSR 36/1 Three Rods, (BLACK) | LS-0141                 |
| 031550             | SPLICE, OH REPAIR, 397ACSR 26/7, Three Rods, (PURPLE)                            | LS-0142                 |
| 031560             | SPLICE, OH REPAIR, 477ACSR 26/7, Three Rods, (ORANGE)                            | LS-0145                 |
| 031360             | SPLICE, OH REPAIR, 636 AAC 37W, Three Rods, (ORANGE)                             | LS-0146                 |
| 031570             | SPLICE, OH REPAIR, 636 ACSR 26/7, Three Rods, (YELLOW)                           | LS-0148                 |





**ARMOR RODS, FOR TRANSMISSION  
ACSR & AAC CONDUCTORS**

Originator: Jeff Flader Date: 1/13/17

Approval: Jeff Flader Date: 1/13/17

Page 1 of 1

**ARMOR RODS RESTORATIVE-REPAIR.**

Armor Rods may be used to restore full conductance and strength to ACSR and AAC conductors where damage does not exceed 50 percent of the outer strand layer.

**Consult Factory for repair capability of specific strandings.**

**STRENGTH RESTORATION OF ACSR & AAC ALLOY CONDUCTOR.**

The Table Below Illustrates The Total Number of Broken or Damaged Strands on The Outer Layer That Can be Repaired Using Armor Rod. For Example Armor Rod Will Repair (8) Outer Strands on 26/7 ACSR.

| MATERIAL     |            | ACSR |     |     |     |      |      |      |      |      |      |      | AAC |     |     |     |
|--------------|------------|------|-----|-----|-----|------|------|------|------|------|------|------|-----|-----|-----|-----|
| STRAND RATIO |            | 5/1  | 6/1 | 7/1 | 8/1 | 18/1 | 12/7 | 24/7 | 26/7 | 30/7 | 45/7 | 54/7 | 7W  | 19W | 37W | 61W |
| Product      | Armor Rod  | 2    | 3   | 3   | 4   | 6    | 6    | 7    | 8    | 9    | 10   | 12   | 2   | 5   | 9   | 12  |
|              | Line Guard | 1    | 1   | 1   | 1   | 4    | 3    | 3    | 4    | 5    | 5    | 6    | 1   | 3   | 4   | 6   |

**Application:** Used to prevent wear on conductor and for repairs.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The Container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                 | O.D.  | STOCK NO. | MANUFACTURER – CATALOG NUMBER |
|------------------------------------|-------|-----------|-------------------------------|
| ARMOR ROD, 266 ACSR PARTRIDGE 26/7 | .642  | 028140    | AR-0127                       |
| ARMOR ROD, 336.4 ACSR LINNET 26/7  | .720  | 028160    | AR-0342                       |
| ARMOR ROD, 397.5 ACSR IBIS 26/7    | .783  | 028165    | AR-0131                       |
| ARMOR ROD, 477 ACSR HAWK 26/7      | .858  | 028167    | AR-0134                       |
| ARMOR ROD, 636 AAC ORCHID 37       | .918  | 028270    | AR-0125                       |
| ARMOR ROD, 636 ACSR GROSBEAK 26/7  | .990  | 028170    | AR-0127                       |
| ARMOR ROD, 795 ACSR DRAKE 26/7     | 1.108 | 028280    | AR-0141                       |
| ARMOR ROD, 954 AAC MAGNOLIA 37     | 1.124 | 028280    | AR-0141                       |
| ARMOR ROD, 1272 ACSR BITTERN 45/7  | 1.345 | 028180    | AR-0146                       |
| ARMOR ROD, 1780 ACSR CHUKAR 84/19  | 1.602 | 028185    | AR-0165                       |



**ARMOR RODS, FOR TRANSMISSION  
ACSR & AAC CONDUCTORS**

Originator: Jeff Flader Date: 1/13/17

Approval: Jeff Flader Date: 1/13/17

Page 1 of 1

**ARMOR RODS RESTORATIVE-REPAIR.**

Armor Rods may be used to restore full conductance and strength to ACSR and AAC conductors where damage does not exceed 50 percent of the outer strand layer.

**Consult Factory for repair capability of specific strandings.**

**STRENGTH RESTORATION OF ACSR & AAC ALLOY CONDUCTOR.**

The Table Below Illustrates The Total Number of Broken or Damaged Strands on The Outer Layer That Can be Repaired Using Armor Rod. For Example Armor Rod Will Repair (8) Outer Strands on 26/7 ACSR.

| MATERIAL     |            | ACSR |     |     |     |      |      |      |      |      |      |      | AAC |     |     |     |
|--------------|------------|------|-----|-----|-----|------|------|------|------|------|------|------|-----|-----|-----|-----|
| STRAND RATIO |            | 5/1  | 6/1 | 7/1 | 8/1 | 18/1 | 12/7 | 24/7 | 26/7 | 30/7 | 45/7 | 54/7 | 7W  | 19W | 37W | 61W |
| Product      | Armor Rod  | 2    | 3   | 3   | 4   | 6    | 6    | 7    | 8    | 9    | 10   | 12   | 2   | 5   | 9   | 12  |
|              | Line Guard | 1    | 1   | 1   | 1   | 4    | 3    | 3    | 4    | 5    | 5    | 6    | 1   | 3   | 4   | 6   |

**Application:** Used to prevent wear on conductor and for repairs.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The Container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                 | O.D.  | STOCK NO. | MANUFACTURER – CATALOG NUMBER |
|------------------------------------|-------|-----------|-------------------------------|
| ARMOR ROD, 266 ACSR PARTRIDGE 26/7 | .642  | 028140    | AR-0127                       |
| ARMOR ROD, 336.4 ACSR LINNET 26/7  | .720  | 028160    | AR-0342                       |
| ARMOR ROD, 397.5 ACSR IBIS 26/7    | .783  | 028165    | AR-0131                       |
| ARMOR ROD, 477 ACSR HAWK 26/7      | .858  | 028167    | AR-0134                       |
| ARMOR ROD, 636 AAC ORCHID 37       | .918  | 028270    | AR-0125                       |
| ARMOR ROD, 636 ACSR GROSBEAK 26/7  | .990  | 028170    | AR-0127                       |
| ARMOR ROD, 795 ACSR DRAKE 26/7     | 1.108 | 028280    | AR-0141                       |
| ARMOR ROD, 954 AAC MAGNOLIA 37     | 1.124 | 028280    | AR-0141                       |
| ARMOR ROD, 1272 ACSR BITTERN 45/7  | 1.345 | 028180    | AR-0146                       |
| ARMOR ROD, 1780 ACSR CHUKAR 84/19  | 1.602 | 028185    | AR-0165                       |



**ARMOR RODS, FOR TRANSMISSION  
ACSR & AAC CONDUCTORS**

Originator: Jeff Flader Date: 1/13/17

Approval: Jeff Flader Date: 1/13/17

Page 1 of 1

**ARMOR RODS RESTORATIVE-REPAIR.**

Armor Rods may be used to restore full conductance and strength to ACSR and AAC conductors where damage does not exceed 50 percent of the outer strand layer.

**Consult Factory for repair capability of specific strandings.**

**STRENGTH RESTORATION OF ACSR & AAC ALLOY CONDUCTOR.**

The Table Below Illustrates The Total Number of Broken or Damaged Strands on The Outer Layer That Can be Repaired Using Armor Rod. For Example Armor Rod Will Repair (8) Outer Strands on 26/7 ACSR.

| MATERIAL     |            | ACSR |     |     |     |      |      |      |      |      |      |      | AAC |     |     |     |
|--------------|------------|------|-----|-----|-----|------|------|------|------|------|------|------|-----|-----|-----|-----|
| STRAND RATIO |            | 5/1  | 6/1 | 7/1 | 8/1 | 18/1 | 12/7 | 24/7 | 26/7 | 30/7 | 45/7 | 54/7 | 7W  | 19W | 37W | 61W |
| Product      | Armor Rod  | 2    | 3   | 3   | 4   | 6    | 6    | 7    | 8    | 9    | 10   | 12   | 2   | 5   | 9   | 12  |
|              | Line Guard | 1    | 1   | 1   | 1   | 4    | 3    | 3    | 4    | 5    | 5    | 6    | 1   | 3   | 4   | 6   |

**Application:** Used to prevent wear on conductor and for repairs.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The Container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                 | O.D.  | STOCK NO. | MANUFACTURER – CATALOG NUMBER |
|------------------------------------|-------|-----------|-------------------------------|
| ARMOR ROD, 266 ACSR PARTRIDGE 26/7 | .642  | 028140    | AR-0127                       |
| ARMOR ROD, 336.4 ACSR LINNET 26/7  | .720  | 028160    | AR-0342                       |
| ARMOR ROD, 397.5 ACSR IBIS 26/7    | .783  | 028165    | AR-0131                       |
| ARMOR ROD, 477 ACSR HAWK 26/7      | .858  | 028167    | AR-0134                       |
| ARMOR ROD, 636 AAC ORCHID 37       | .918  | 028270    | AR-0125                       |
| ARMOR ROD, 636 ACSR GROSBEAK 26/7  | .990  | 028170    | AR-0127                       |
| ARMOR ROD, 795 ACSR DRAKE 26/7     | 1.108 | 028280    | AR-0141                       |
| ARMOR ROD, 954 AAC MAGNOLIA 37     | 1.124 | 028280    | AR-0141                       |
| ARMOR ROD, 1272 ACSR BITTERN 45/7  | 1.345 | 028180    | AR-0146                       |
| ARMOR ROD, 1780 ACSR CHUKAR 84/19  | 1.602 | 028185    | AR-0165                       |



# PINS, INSULATOR

Originator: DSmith

Date: 5/31/2023

Approval: JMitchell

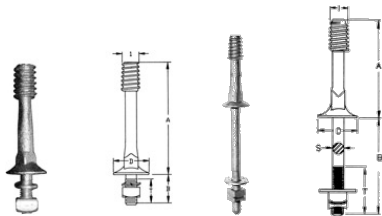
Date: 5/24/2023

Page 1 of 1

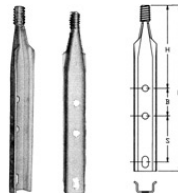
Revision: **Revised descriptions**

Std's Committee Approval:

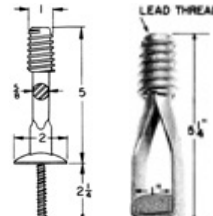
**Approved**



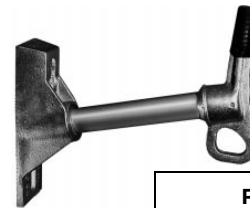
**Crossarm Pins**



**Pole Top Pins**



**Transformer Lead Pins**



**Fiberglass Vertical Single Standoff Bracket**

**Insulator Crossarm Pin Style:** Crossarms Pins are forged in one piece from alloy steel, hot dip galvanized, and supplied with 1" nylon thread for insulator mounting. They include a square washer, square nut and curved lock nut.

**Pole Top Pins:** Pressed steel pole top pins with nylon alloy insulator threads are mounted against the pole by 5/8-inch bolts. The lower hole is slotted 11/16 x 1-1/4-inch on both two and three hole styles. Hot dip galvanized. The lower end of these pins is flattened and flared to give a solid bearing surface when mounted with the flange against the pole.

**Transformer Lead Pins:** This pin is used for carrying the leads to the transformer. It has nylon alloy threads for insulators with ANSI standard 1-inch threaded pin holes. The Hot Dip Galvanized Body is a forging with a 1/2" diameter shank.

**Fiberglass Single Phase Vertical Standoff Brackets:** Fiberglass Standoff Brackets are manufactured from Fiberglass Reinforced Plastic (FRP) with ductile iron or aluminum alloy fittings. The plastic material is a Polyester or Vynylester matrix containing ultraviolet protective inhibitors. The insulator threads are 1" threads in accordance with ANSI C29.5 and are coated with a semi-conductive heat shrink material. All exposed fiberglass rod shall be coated with 2-3 mils of acrylic urethane enamel paint which is baked to hardness.

| PUD IDENTIFICATION                                                 |           | Manufacture Part Numbers |                        |              |
|--------------------------------------------------------------------|-----------|--------------------------|------------------------|--------------|
| Stock Description                                                  | Stock No. | Hubbell                  | MacLean                | Hughes       |
| PIN, STL Pole Top 20" 13/24KV-1" Thread                            | 025730    | 2174P                    | J1220Z                 | 2770A20C5100 |
| PIN, STL Pole Top 24" 35KV-1" Thread                               | 025740    | 2197-1P                  | J744Z                  |              |
| PIN, XFMR LEAD                                                     | 025595    | 888                      | J025Z                  |              |
| PIN, STEEL, 1 1/2"-1 HD                                            | 025610    |                          | J221Z                  |              |
| PIN, STEEL, 5/8" X 6 1/2" Shank w/ 1" Nylon Thread                 | 025630    | 881AP                    | J204Z                  | 2775A-6.5    |
| PIN, STEEL, 5/8" X 8" Shank with 1" Nylon Thread                   | 025650    |                          | J2802Z                 |              |
| PIN, STEEL, 3/4" X 6 1/2" Shank w/ 1" Nylon Thread                 | 025690    |                          | J607Z                  |              |
| PIN, Vertical, Single Standoff Bracket, Fiberglass                 | 025750    | Shakespeare 81020P       | Continental #GBP56M20P | CF81021      |
| PIN, STEEL ADAPTER EXTENSION FOR 15KV INSULATORS, Transformer Lead | 025625    | DP1A1                    | J2840                  |              |



**BRACKET, STANDOFF  
CUTOUT/ARRESTOR, POLE MOUNT**

Originator: DPlinski

Date: 7/10/2025

Approval: Standards  
Committee

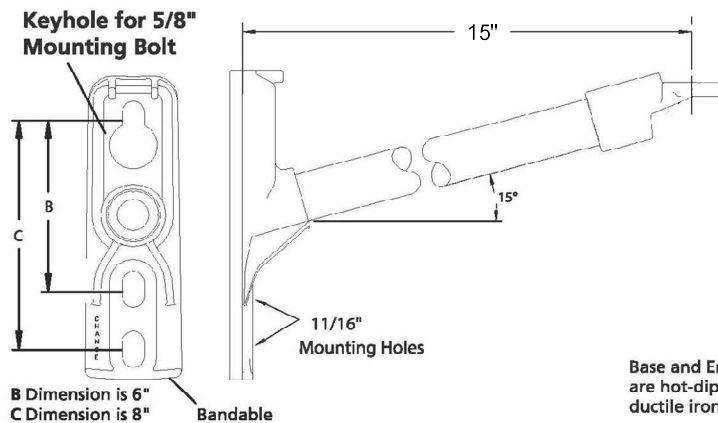
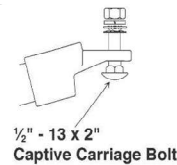
Date: 7/10/2025

Page 1 of 1

Revision: **2** added FLH as approved supplier

Stds Committee Approval:

**Approved**



Base and End Fitting  
are hot-dip-galvanized  
ductile iron.

**Application:** Used to hang a 15kV cutout/arrester off a wooden pole.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** No Special Shipping Instructions

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                              |           | MANUFACTURER CATALOG NUMBER |                          |
|-------------------------------------------------------------------------------------------------|-----------|-----------------------------|--------------------------|
| Stock Description                                                                               | Stock No. | Hubbell                     | Fiberglass Line Hardware |
| BRACKET, STANDOFF, 15° 1- POSITION FOR CUTOUT/ARRESTER, 15" FIBERGLASS, SILCONE-COATED, 1 PHASE | 012585    | 1SBM15AMBSC                 | FLHR-1-15-C1-H-SC        |



**BRACKET, EXTENSION PLATE, DOUBLE  
ARMING**

Originator: DSmith

Date: 7/7/06

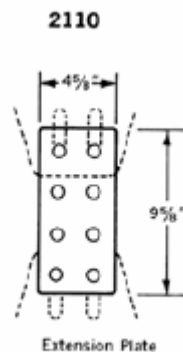
Approval: DSmith

Date: 7/7/06

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**PENDING**



**Application:** State description and purpose of item, how it is used, any precaution associated with its use and any exceptional salvage instructions.

**Common Name:** Nickname or common name

**Ordering Description:** List requirements as needed to describe the properties of the item. If necessary, use blanks ( ) in description and add any of the following.

Dimensions:

Strength: Shall be capable of holding XXXX pounds

Material: The item shall be made of XXXX

Finish: The item shall be hot dipped galvanized

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** Special Shipping Instructions

**Approved Manufacturers:**

| PUD IDENTIFICATION                                      |           | MANUFACTURER CATALOG NUMBER |
|---------------------------------------------------------|-----------|-----------------------------|
| Stock Description                                       | Stock No. | Linsley                     |
| BRACKET, PLATE, EXTENSION USED IN DOUBLE ARMING BRACKET | 012780    | 2110                        |



# BRACKET, TRANSFORMER, POLE MOUNT, DUAL/TRIPLE

Originator: DSmith

Date: 7/3/2007

Approval: DSmith

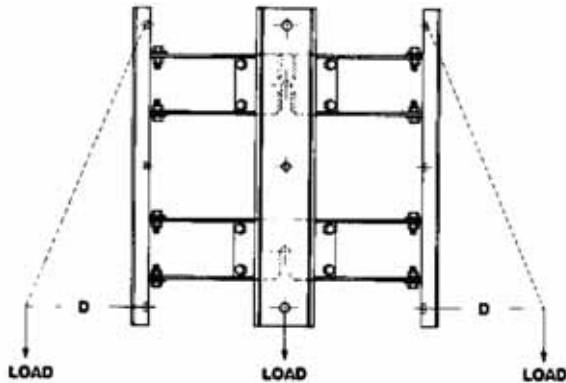
Date: 7/9/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**



## WING-TYPE CLUSTER MOUNTS

| Model    | Maximum Recommended Equipment Load (in pounds), <i>per Cluster Mount Phase</i> , for typical distance (in inches) from mounting pad face to equipment center of mass (C.O.G.): |            |            |            |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|------------|------------|
|          | 14"                                                                                                                                                                            | 18"        | 22"        | 26"        |
| 3MW-24   | 625 lbs.                                                                                                                                                                       | 500 lbs.   | 410 lbs.   | 350 lbs.   |
| 3MW-24-M | 1,250 lbs.                                                                                                                                                                     | 1,000 lbs. | 820 lbs.   | 700 lbs.   |
| 11MW-24  | 2,500 lbs.                                                                                                                                                                     | 2,000 lbs. | 1,640 lbs. | 1,385 lbs. |
| 12MW-24  | 2,500 lbs.                                                                                                                                                                     | 1,950 lbs. | 1,600 lbs. | 1,350 lbs. |
| 12MW-30  | 2,000 lbs.                                                                                                                                                                     | 1,550 lbs. | 1,275 lbs. | 1,075 lbs. |



**Application:** Used to mount two or three transformers on a single wood pole.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** No Special Shipping Instructions

### Approved Manufacturers:

| PUD IDENTIFICATION                        |           |                                                                                | MANUFACTURER CATALOG NUMBER |
|-------------------------------------------|-----------|--------------------------------------------------------------------------------|-----------------------------|
| Stock Description                         | Stock No. | (D)<br>Max Lbs per position from mounting pad face to equipment center of mass | ALUMAFORM                   |
| BRACKET, XFMR, DUAL MOUNT, 3KVA-100KVA    | 012600    | 1,275 lbs @ 14"                                                                | DM-4M2                      |
| BRACKET, XFMR, TRIPLE MOUNT, 5KVA-50KVA   | 012620    | 1,000 lbs @ 18"                                                                | 3MW-24-M-L                  |
| BRACKET, XFMR, TRIPLE MOUNT, 50KVA-250KVA | 012640    | 2,000 lbs @ 18"                                                                | 11MW-24-L                   |





**BRACKET, STANDOFF**  
**1, 2, & 3 PHASE FIBERGLASS 15<sup>0</sup> TUBULAR ARM**  
**For 15kV Cutout & Arrestor**

Originator: DSmith

Date: 7/7/06

Approval: DScott

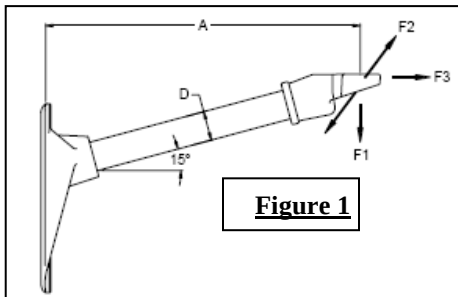
Date: 8/11/2017

Page 1 of 1

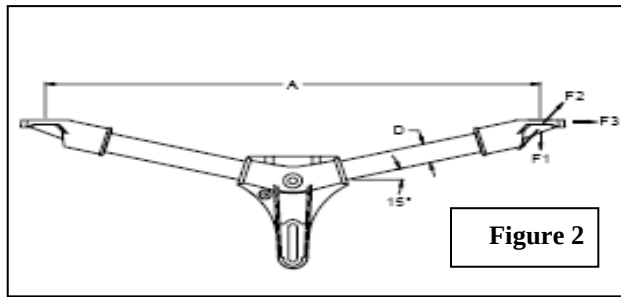
Revision: **NEW**

Std's Committee Approval:

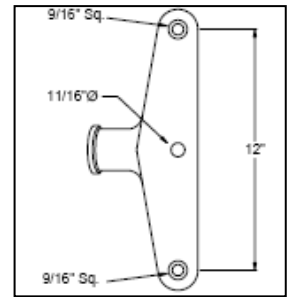
**Approved**



**Figure 1**

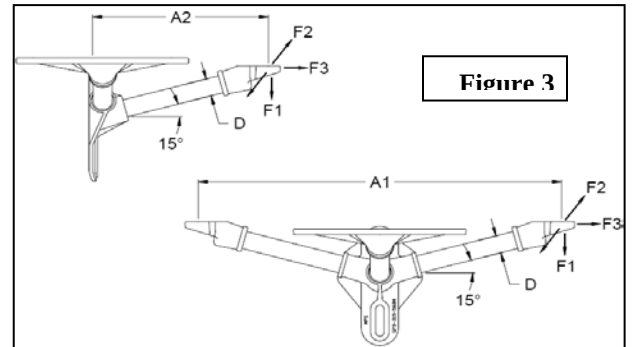
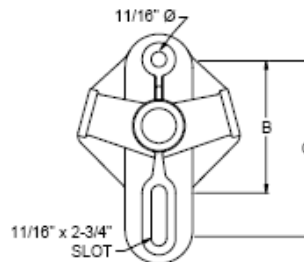


**Figure 2**



**Figure 3**

**Application:** This specification applies to pole mounted fiberglass standoff brackets for mounting a cable termination and surge arrester on a primary riser.



| PUD IDENTIFICATION                                       |           | MANUFACTURER CATALOG NUMBER |                 |                           |              |
|----------------------------------------------------------|-----------|-----------------------------|-----------------|---------------------------|--------------|
| Stock Description                                        | Stock No. | Fig                         | HUGHES Brothers | Aluma Form                | Hubbell      |
| Bracket, Standoff For Cutout, Fiberglass, <b>1 Phase</b> | 012650    | 1                           | CF892-24B       | <b>F1CA-MU-A24-D3-H</b>   | 1SBM24AMTB   |
| Bracket, Standoff For Cutout, Fiberglass, <b>2 Phase</b> | 012680    | 2                           | CF550-48B       | <b>F2CA-MU-A48-D3-H</b>   | 2SBM48AMTB   |
| Bracket, Standoff For Cutout, Fiberglass, <b>3 Phase</b> | 012690    | 3                           | NA              | <b>F3CA-MU-A4824-D3-H</b> | 3SBM4824AMTB |

| Description | Stock No. | Rod Dia | Dimensions (in.) |    | Bolt Spacing (in.) |   | Minimum Ultimate Strength - Lbs |          |               |
|-------------|-----------|---------|------------------|----|--------------------|---|---------------------------------|----------|---------------|
|             |           |         | A1/A             | A2 | B                  | C | F1 Vertical                     | F2 Long. | F3 Transverse |
| 1 Phase     | 012650    | 1-1/2"  | 24               |    | 6                  | 8 | 900                             | 700      | 10,000        |
| 2 Phase     | 012680    | 1-1/2"  | 48               |    | 6                  | 8 | 900                             | 700      | 10,000        |
| 3 Phase     | 012690    | 1-1/2"  | 48               | 24 | 6                  | 8 | 900                             | 700      | 10,000        |

The standoff bracket shall consist of a no removable base and end fittings permanently secured to a fiberglass rod. Base and end fittings shall be manufactured from cast aluminum alloy or hot-dip galvanized malleable iron. Fiberglass rod shall have a weather and ultraviolet resistant coating and shall be Munsell gray in color. Galvanized or stainless steel 1/2" X 2" carriage bolts, hex nut and lock washer shall be supplied for each equipment mounting hole.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.



# TURNBUCKLE

Originator: Jeff Flader

Date: 3/18/2013

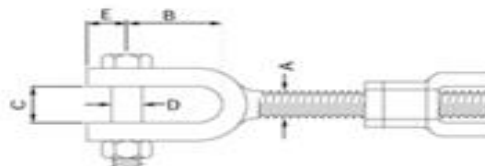
Approval: Jeff Flader

Date: 3/18/2013

Page 1 of 1



Product Image



**Application:** Used in braced post insulator assemblies for transmission.

**Common Name:** Turnbuckle

**Ordering Description:** Ultimate Strength 26,000 lbs plus, Length 15 1/2" to 22 1/2". Jaw width = minimum of 3/4", Jaw to Jaw connectors.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

## Approved Manufacturers:

| PUD IDENTIFICATION                                                                                     |           | MANUFACTURER CATALOG NUMBER |             |             |
|--------------------------------------------------------------------------------------------------------|-----------|-----------------------------|-------------|-------------|
| Stock Description                                                                                      | Stock No. | Hughes                      | Hubbell     | MacLean     |
| Turnbuckle, 26,000 Lbs, Length 15 1/2" To 22 1/2". Jaw Width = Minimum Of 3/4". Jaw To Jaw Connectors. | 085899    | AS2545Z                     | TB-3/4-JJ-6 | G-228-3/4x6 |



# CLAMP, X-ARM, FOR 7 1/2" X 7 1/2" SQUARE CROSSARMS.

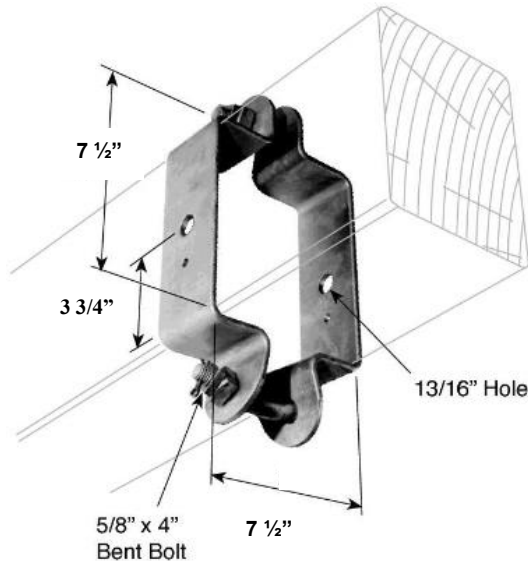
Originator: Jeff Flader

Date: 11/4/16

Approval: Jeff Flader

Date: 11/4/16

Page 1 of 1



**Application:** The cross arm phase fitting provides an attachment point for suspension insulators without a cross arm thru bolt.

**Common Name:** Cross arm phase fitting.

**Ordering Description:** Cross arm phase fitting for 7 1/2" x 7 1/2" cross arms. Assembly comes with 5/8" x 4" bent bottom bolt with cotter key. The top bolt assembly is 3/4" x 3". All material should be hot dipped galvanized per ASTM A153.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

## Approved Manufacturers:

| PUD IDENTIFICATION                                                                                                                                                                                                      |           | MANUFACTURER CATALOG NUMBER                                                                                                                                                                                                                                                                                                                          |         |         |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------|---------|
| Stock Description                                                                                                                                                                                                       | Stock No. | Hughes Bros.                                                                                                                                                                                                                                                                                                                                         | Hubbell | MacLean |
| Cross arm phase fitting for 7 1/2" x 7 1/2" cross arms. Assembly comes with 5/8" x 4" bent bottom bolt with cotter key. The top bolt assembly is 3/4" x 3". All material should be hot dipped galvanized per ASTM A153. | 085220    | Each cross arm assembly consists of these items/quantities. When combined, they make (1) B2351.1K:<br>(2) B2351.1K-2 (straps)<br>(1) C3901.1B-2 (5/8" x 4" Bent Bolt)<br>(1) N60 (5/8" Square Nut)<br>(1) MF60 (5/8" Lock Nut)<br>(1) HB73-1-3/4 (3/4" x 3" Hex head Bolt w/Nut)<br>(1) MFH70 (3/4" Hex head Lock Nut)<br>(1) AS2531.1D (Cotter Pin) | NA      | NA      |



## SADDLE ASSEMBLY

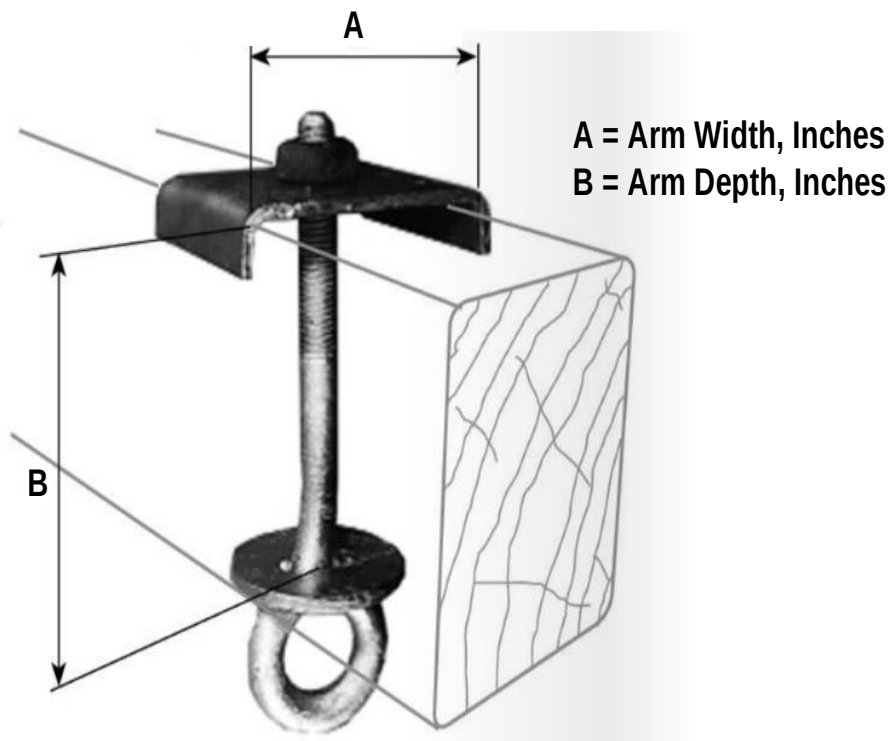
Originator: Jeff Flader

Date: 11/4/16

Approval: Jeff Flader

Date: 11/4/16

Page 1 of 1



**Application:** Saddle Assemblies are used for phase attachment of suspension insulators to wood cross arms.

**Common Name:** Saddle Assembly.

**Ordering Description:** Fits cross arms 7 1/2" wide x 8 3/4" deep. Saddle washer is 3/16" thick x 4" wide with a tapped 3/4" hole. Assembly includes a 3/4" X 10 1/2" shoulder eye bolt. All parts galvanized.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

### Approved Manufacturers:

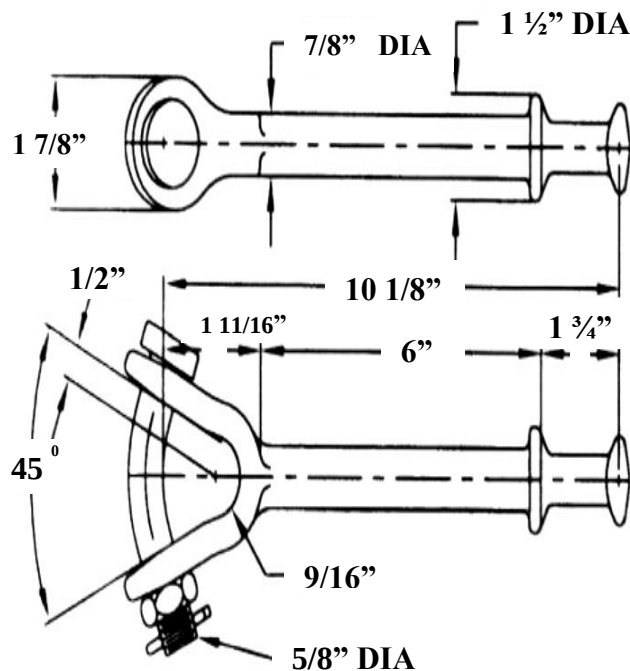
| PUD IDENTIFICATION                                                                                                                                                                                     |           | MANUFACTURER CATALOG NUMBER |         |         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------|---------|---------|
| Stock Description                                                                                                                                                                                      | Stock No. | Hughes                      | Hubbell | MacLean |
| Saddle Assembly - fits cross arms 7 1/2" wide x 8 3/4" deep. Saddle washer is 3/16" thick x 4" wide with a tapped 3/4" hole. Assembly includes 3/4" X 10 1/2" shoulder eye bolt. All parts galvanized. | 085222    | 2824.6 - 7 1/2" - 8 3/4"    | NA      | NA      |



# DEADEND, CLEVIS, Y BALL - HOTLINE TRANSMISSION

Originator: Jeff Flader Date: 1/24/17

Approval: Jeff Flader Date: 1/24/17



**Application:** Installed between transmission conductor dead ends and insulators.

**Common Name:** Deadend, Clevis, Y Ball - Hotline.

**Ordering Description:** Deadend, Clevis, Y Ball – Hotline, HD Galv, 9" To 10" Long. 5/8" Pin with Cotter Key and Nut, 30,000 LB Rating.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

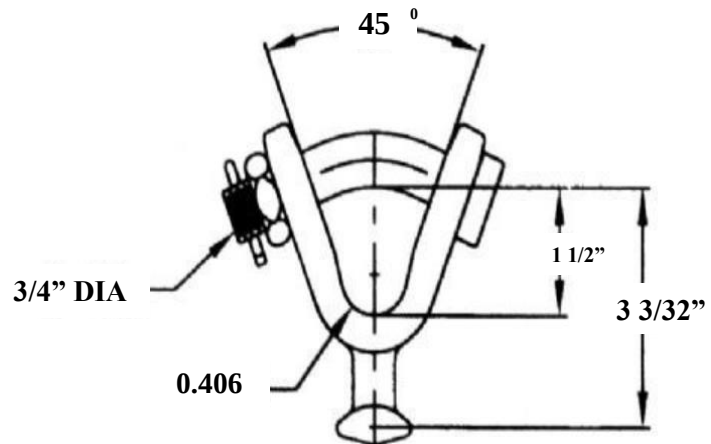
## Approved Manufacturers:

| PUD IDENTIFICATION                |           | MANUFACTURER CATALOG NUMBER |         |           |
|-----------------------------------|-----------|-----------------------------|---------|-----------|
| Stock Description                 | Stock No. | Anderson                    | Hubbell | MacLean   |
| DEADEND, CLEVIS, Y BALL - HOTLINE | 085700    | HBC30                       | HBC30   | YCBHL-65A |

**DEADEND, CLEVIS, Y BALL  
TRANSMISSION**

Originator: Jeff Flader      Date: 1/24/17

Approval: Jeff Flader      Date: 1/24/17



**Application:** Used to secure suspension cushion grips to side stack insulators.

**Common Name:** Deadend, Clevis, Y Ball.

**Ordering Description:** Deadend, Clevis, Y Ball, HD Galv, 3" to 4" Long. 3/4" Pin with Cotter Key and Nut, 30,000 LB Rating.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION      |           | MANUFACTURER CATALOG NUMBER |         |         |
|-------------------------|-----------|-----------------------------|---------|---------|
| Stock Description       | Stock No. | Anderson                    | Hubbell | MacLean |
| DEADEND, CLEVIS, Y BALL | 015150    | YBC30                       | YBC30   | YCB-65A |

**POST CLAMP ADAPTERS,  
VERTICAL/HORIZONTAL**

Originator: DSmith

Date: 7/7/06

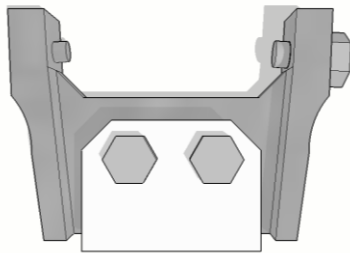
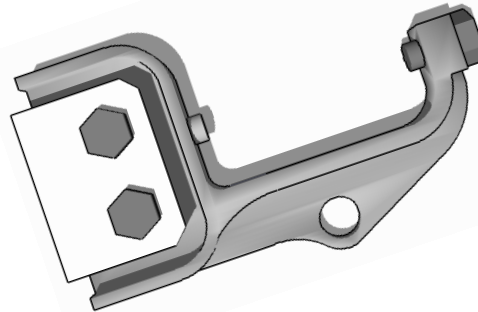
Approval: J Flader

Date: 5/1/12

Page 1 of 1

Revision:

Stds Committee Approval:

**Approved****Vertical Post Clamp Adapter****Horizontal Post Clamp Adapter**

**Application:** Used to support wire saddle on horizontal post transmission insulators that only have NEMA two hole connector.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                  |           | MANUFACTURER CATALOG NUMBER |
|-------------------------------------------------------------------------------------|-----------|-----------------------------|
| Stock Description                                                                   | Stock No. | HUBBELL                     |
| ADAPTER, VERTICAL LINE, POST CLAMP, FOR 3-1/2" WIDE WIRE CLAMP (SUSP TYPE)          | 021835    | 271615-3001                 |
| ADAPTER, HORIZ. LINE, POST CLAMP W/ RIGGING EYE, FOR 4" WIDE WIRE CLAMP (SUSP TYPE) | 021840    | 271630-3001                 |





# YOKE, PLATE, SUSPENSION TRANSMISSION

Originator: Jeff Flader Date: 2/27/18

Approval: Jeff Flader Date: 2/27/18

Page 1 of 1

Revision: **Part Numbers**

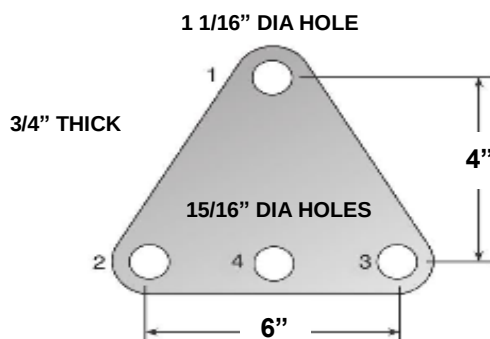
Stds Committee Approval:  
**Approved**

**Application:** Yoke Plates are used when a double string of insulators or bundled conductors are needed and maintain phase or insulator separation.

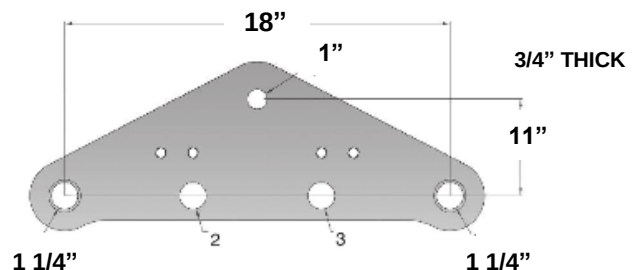
**Common Name:** Yoke Plate, Suspension.

**Ordering Description:** See Stock Description below. Ductile Iron or Steel galvanized.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.



Stock No.086700



Stock No.086800

## **Approved Manufacturers:**

| PUD IDENTIFICATION                                                                                            |           | MANUFACTURER CATALOG NUMBER |            |          |
|---------------------------------------------------------------------------------------------------------------|-----------|-----------------------------|------------|----------|
| Stock Description                                                                                             | Stock No. | Hughes Bros.                | Hubbell    | MacLean  |
| YOKE, PLATE, DBL ARM, 6" X 4" X 3/4"<br>TRIANGULAR, MINIMUM OF 15/16" BOLT<br>HOLES, ULTIMATE STRENGTH 38,000 | 086700    | AS2355-B                    | YPD5024685 | Y1VS030S |

**TRANSMISSION  
DEADEND, CLEVIS, Y- EYE  
STANDARD & 90°**

Originator: Jeff Flader

Date: 1/25/17

Approval: Jeff Flader

Date: 1/25/17

Page 1 of 1

Revision: **PART NUMBERS**Stds Committee Approval:  
**4/25/17****STANDARD****90°**

**Application:** Used in dead end assemblies to connect down guys to vangs or pole eye plates.

**Common Name:** Deadend, Clevis, Y- Eye

**Ordering Description:** Deadend, Clevis, Y- Eye, Standard or 90, Ductile Iron, Hd Galv, See Stock Description.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                                                            |           | MANUFACTURER CATALOG NUMBER |         |
|-------------------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------|---------|
| Stock Description                                                                                                             | Stock No. | MACLEAN                     | HUBBELL |
| Deadend, Clevis, Y-Eye, Standard, 12M, Ductile Iron, Hd Galv, 11/16" hole at Eye with 3/4" Pin, 19,000 Lb. ultimate strength. | 015105    | YCE-65-625                  | YCSO4   |
| Deadend, Clevis, Y-Eye, 90, Ductile Iron, Hd Galv, 13/16" hole at Eye, with 3/4" Pin, 25,000 Lb. ultimate strength.           | 015110    | RYCE-66-875                 |         |

**Deadends, Compression, Vertical Eye Type,  
Single Tongue, ACSR Conductors**

Originator: Jeff Flader

Date: 2/27/2018

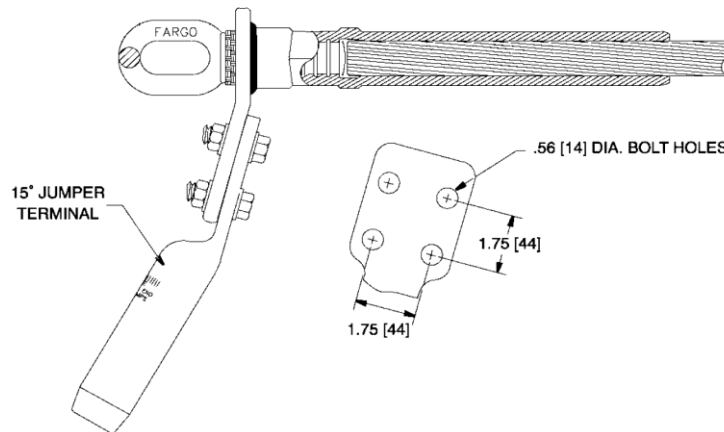
Approval: Jeff Flader

Date: 2/27/2018

Page 1 of 1

Revision: **Updated Catalog Numbers**

Stds Committee Approval:

**Approved**

**Application:** A deadend assembly for All Aluminum Conductor Steel Reinforced (ACSR) conductors consists of a pre-filled aluminum deadend body precompressed onto a steel eye, two prefilled 15° jumper terminal, mounting hardware and core gripping unit. Terminal and tongue have NEMA hole spacing.

**Common Name:** Deadend Bodies

**Packaging and Marketing:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:** Hubbell, Alcoa

| PUD IDENTIFICATION                                                                |           | MANUFACTURER CATALOG NUMBER |          |
|-----------------------------------------------------------------------------------|-----------|-----------------------------|----------|
| Stock Description                                                                 | Stock No. | Alcoa                       | Hubbell  |
| Deadend, Compression, Vertical Eye Type, Single Tongue, 336 ACSR 26/7, "Linnet"   | 030303    | VES086                      | A010813  |
| Deadend, Compression, Vertical Eye Type, Single Tongue, 397 ACSR 26/7, "Ibis"     | 030304    | VES096                      | A010917  |
| Deadend, Compression, Vertical Eye Type, Single Tongue, 477 ACSR 26/7, "Hawk"     | 030305    | VES105                      | A011021  |
| Deadend, Compression, Vertical Eye Type, Single Tongue, 636 ACSR 26/7, "Grosbeak" | 030306    | VES116                      | A011133  |
| Deadend, Compression, Vertical Eye Type, Single Tongue, 795 ACSR 26/7, "Drake"    | 030307    | VES126                      | A0112451 |
| Deadend, Compression, Vertical Eye Type, Single Tongue, 1272 ACSR 45/7, "Bittern" | 030308    | VES153                      | A0115591 |
| Deadend, Compression, Vertical Eye Type, Single Tongue, 1780 ACSR 84/19, "Chukar" | 030309    | VES174                      | A011769  |



## Deadends, Compression, Vertical Eye Type, Double Tongue, ACSR Conductors

Originator: Jeff Flader

Date: 2/27/2018

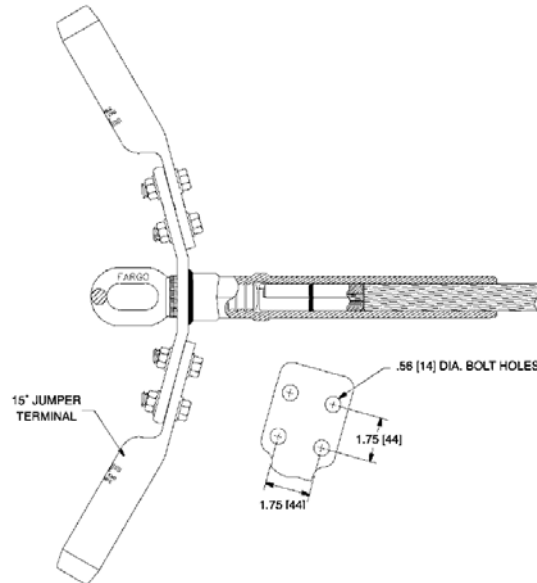
Approval: Jeff Flader

Date: 2/27/2018

Page 1 of 1

Revision: Updated Catalog Numbers

Stds Committee Approval:  
**Approved**



**Application:** A deadend assembly for All Aluminum (ACSR) conductors consists of a pre-filled aluminum deadend body precompressed onto a steel eye, two prefilled 15° jumper terminals, mounting hardware. Terminal and tongue have NEMA hole spacing.

**Common Name:** Deadend Bodies

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:** Hubbell, Alcoa

| PUD IDENTIFICATION                                                                |           | MANUFACTURER CATALOG NUMBER |          |
|-----------------------------------------------------------------------------------|-----------|-----------------------------|----------|
| Stock Description                                                                 | Stock No. | Alcoa                       | Hubbell  |
| Deadend, Compression, Vertical Eye Type, Double Tongue, 336 ACSR 26/7, "Linnet"   | 030283    | VED086                      | A020813  |
| Deadend, Compression, Vertical Eye Type, Double Tongue, 636 ACSR 26/7, "Grosbeak" | 030284    | VED116                      | A0201133 |
| Deadend, Compression, Vertical Eye Type, Double Tongue, 795 ACSR 26/7, "Drake"    | 082070    | VED126                      | A0212451 |

**- Material Catalog -****HARDWARE, LINE****1612.08**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*

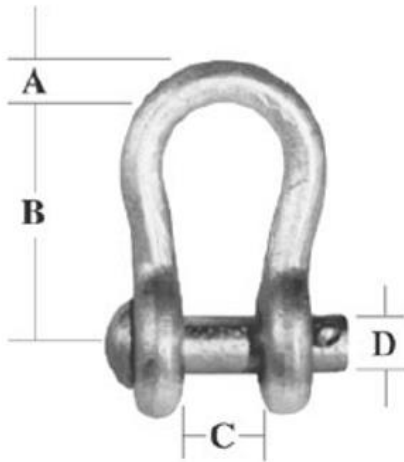
**ANCHOR SHACKLE**

Originator: J. FLADER Date: 2/15/18

Approval: J. FLADER Date: 2/15/18

Page 1 of 1

Revision: New Part Numbers

Std's Committee Approval:  
APPROVED**Application**

The anchor shackle is generally used as part of the insulator attachment hardware on electric transmission lines. Anchor Shackles are used for attaching suspension insulators to towers, yokes, and double arming plates. Openings are enlarged to permit the use of two or more fittings.

**Specifications:**

**Material:** Shackle, bolt and nut shall be heat treated steel per latest revisions of ASTM A36, A354 and A563 or better. Cotter pin shall be stainless steel.

**Weight of Coating:** All hardware shall be hot dip galvanized per latest revision of ASTM A153 Class A.

**Packaging & Marking**

Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and its packaging.

**Approved Manufacturers**

| PUD IDENTIFICATION              |           | MANUFACTURER CATALOG NUMBER |          |         |
|---------------------------------|-----------|-----------------------------|----------|---------|
| Stock Description               | Stock No. | Joylyn                      | Hubbell  | Maclean |
| Shackle 1/2" Body with 5/8" Pin | 028580    | J2742                       | 5801     |         |
| Shackle 5/8" Body with 5/8" Pin | 028590    |                             |          | ASH-55  |
| Shackle 5/8" Body with 3/4" Pin | 028600    |                             | AS35-BNK | ASH-56  |
| Shackle 7/8" Body with 3/4" Pin | 028610    |                             | AS-50    | ASH-66  |
| Shackle 3/4" Body with 3/4" Pin | 028611    |                             |          | ASH-66A |

**Slack Span Dead End  
Twisted-Grip**

Originator: DSmith

Date: 7/10/2006

Approval: DSmith

Date: 7/9/2007

Page 1 of 1

Revision: **NEW**Stds Committee Approval:  
**Approved**

**Application:** The slack span dead end is intended for use where guying restrictions prevent full tension spans. This type of dead end is RFI free and is more economical than the DE clamp/insulator combination. Do not use automatic deadends on slack spans. For use on ACSR, AAAC, and AAC.

**Specification:** Helical Leg Section: Coated steel, right-hand lay. Covered Loop Section: Elastomeric compound shall resist ozone attack, weathering and abrasion.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                        |           | MANUFACTURER CATALOG # |           |
|-------------------------------------------|-----------|------------------------|-----------|
| Stock Description                         | Stock No. | Preformed              | TYCO      |
| GRIP SLK SPAN, C&F #2 ACSR, RED           | 016200    | SSDE-9124              | SSDE-0735 |
| GRIP SLK SPAN, C&F #2/0 ACSR, BLUE        | 016205    | SSDE-9127              | SSDE-1040 |
| GRIP SLK SPAN, C&F #4/0 ACSR, RED         | 016210    | SSDE-9129              |           |
| GRIP SLK SPAN, C&F 336.4KCMIL ACSR, Green | 016215    | SSDE-9131              |           |
| GRIP SLK SPAN, C&F 636KCM ACSR, Brown     | 016212    | SSDE-9133              |           |

**Salvage Instructions**

Do not salvage; do not reuse after initial installation.





**DEADENDS  
AUTOMATIC FEED THRU**

Originator: DSmith

Date: 12/5/06

Approval: DSmith

Date: 12/5/06

Page 1 of 2

Revision: **NEW**

Stds Committee Approval:  
**Approved**



**Fig 1**

Clevis Bail



Flex Bail

**Fig 2**



**Fig 3**

Z Bail



**Fig 4**

Semi-flex Bail

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                                           |       | MANUFACTURER CATALOG NUMBER |            |           |
|--------------------------------------------------------------------------------------------------------------|-------|-----------------------------|------------|-----------|
| Stock Description                                                                                            | Fig # | Stock No.                   | Hubbell    | MaClean   |
| DEADEND, AUTO, CLEVIS BAIL, 12M Guy                                                                          | 1     | 016300                      |            | 5202LD    |
| DEADEND, AUTO, CLEVIS BAIL, #4 AAC/ACSR                                                                      | 1     | 016350                      | GD442A     | 7651LDE   |
| DEADEND, FEED THRU, AUTOMATIC W/CLEVIS BAIL AND PULLING EYE, #2 - #4 ACSR, AL, AAAC - COLOR CODED RED-ORANGE | 1     | 016375                      | GD4442A-TA | 7652APLDE |
| DEADEND, AUTO, CLEVIS BAIL AND PULLING EYE, #2/0 ACSR/AAC/AAAC, COLOR CODED GRAY                             | 1     | 016400                      | GD447-TA   | 7654APLDE |
| DEADEND, AUTO, CLEVIS BAIL AND PULLING EYE, #4/0 ACSR/AAC/AAAC, COLOR CODED PINK                             | 1     | 016410                      | GD449A-TA  | 7656APLDE |
| DEADEND, AUTO, CLEVIS BAIL, #2/0 SOL CU, 1/0 STR, #2A CWELD                                                  | 1     | 016610                      | GD517      | 107-LD    |
| DEADEND, AUTO, FLEX BAIL, #4 AAC/ACSR - ORANGE                                                               | 2     | 016360                      | GD402A     |           |
| DEADEND, AUTO, SS FLEX BAIL, #2 - #4 AAC/ACSR - COLOR CODED RED-ORANGE                                       | 2     | 016370                      | GD4042A    | 7652AP-FD |
| DEADEND, AUTO, SS FLEX BAIL, #2/0 AAC/ACSR/AAAC, COLOR CODED GRAY                                            | 2     | 016390                      | GD407      | 7654AP-FD |
| DEADEND, AUTO, FLEX BAIL, #4 STR CU, #6A CW                                                                  | 2     | 016525                      | GD113      | 47-FD     |
| DEADEND, AUTO, FLEX BAIL, #6 SOL CU                                                                          | 2     | 016550                      | GD111      | 61-FD     |
| DEADEND, AUTO, FLEX BAIL, #4 SOL CU, #8A CWELD                                                               | 2     | 016570                      | GD112      | 41-FD     |
| DEADEND, AUTO, FLEX BAIL, #2 SOL CU, #3 STR, #5A CWELD                                                       | 2     | 016590                      | GD114      | 21-FD     |
| DEADEND, AUTO, Z BAIL, #6A CW, #4 STR CU                                                                     | 3     | 016530                      | GD113Z     | 21-SDS    |
| DEADEND, AUTO, Z BAIL, #6 SOL CU                                                                             | 3     | 016560                      | GD111Z     | 61-SDS    |
| DEADEND, AUTO, Z BAIL, #4 SOL CU                                                                             | 3     | 016580                      | GD112Z     | 41-SDS    |
| DEADEND, AUTO, Z BAIL, #2 SOL CU, #3 STR CU                                                                  | 3     | 016595                      | GD114Z     | 21-SDS    |





**DEADENDS  
AUTOMATIC FEED THRU**

Originator: DSmith

Date: 12/5/06

Approval: DSmith

Date: 12/5/06

Page 2 of 2

Revision: **NEW**

Std's Committee Approval:

**Approved**

**Application:** Fastest method of deadending ACSR, AAAC, and AAC conductor

**Specification:**

Material: Shell – High Strength Aluminum Alloy or copper

Jaws – Aluminum Alloy or Brass

Clevis Bail – Aluminum Alloy or Galvanized Steel

Z Bail – Stainless Steel, formed wire

Flex Bail – Braided stainless steel

Semi-flex Bail – Stainless Steel, formed wire

Pulling Eye – Aluminum Alloy

Strength: The grips shall be capable of holding at least 95% of the rated conductor ultimate strength. The flexible bail shall be detachable. The clamp shall contain protective inhibitor.

All clevis pins are 0.62" in diameter.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**SOCKET EYE  
TRANSMISSION**

Originator: DSmith

Date: 11/29/2011

Approval: J Flader

Date: 12/1/2011

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**APPROVED**

**Application:** Socket eyes can be used for connecting transmission conductor clamping devices to ball and socket type insulators.

**Specifications:**

Material: Body—ductile iron, galvanized  
Cotter Pin—stainless steel

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                     |           | MANUFACTURER CATALOG NUMBER |         |           |
|----------------------------------------------------------------------------------------|-----------|-----------------------------|---------|-----------|
| Stock Description                                                                      | Stock No. | MacLean                     | Hubbell | Preformed |
| SOCKET EYE, DUCTILE IRON, GALV, 3/4" THICK WITH 13/16" HOLE, STRENGTH RATING 25000 LB. | 017380    | SE-1250-6                   | SA-11   | SE-5154   |
| SOCKET EYE, DUCTILE IRON, GALV, 1/2" THICK WITH 11/16" HOLE                            | 017390    | SI-500                      | SA-04   |           |

**HOOK, SHORT/LONG SHANK, SELF LOCKING**

Originator: DSmith

Date: 7/7/2006

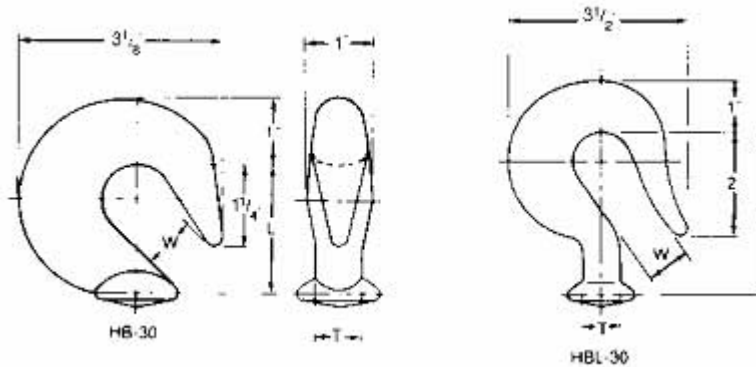
Approval: DSmith

Date: 7/10/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**APPROVED**

**Application:** Hooks are used to attach ball and socket or clevis insulators directly to the tower attachment pad. All hooks are of the self-locking design.

| Catalog Number | Ultimate Strength<br>Lbs (kg) | Dimensions Inches (mm) |                  |               | Approx Wt<br>Each Lbs (kg) |
|----------------|-------------------------------|------------------------|------------------|---------------|----------------------------|
|                |                               | L                      | W                | T             |                            |
| HB-30          | 30,000 (13,608)               | 2 (50.80)              | 13/16<br>(20.64) | 23.32 (18.26) | 1.05 (.48)                 |
| HBL-30         | 30,000 (13,608)               | 3-1/8 (79.38)          | 7/8 (22.23)      | 23.32 (18.26) | 1.33 (.60)                 |

**Approved Manufacturers:**

| PUD IDENTIFICATION |          | MANUFACTURER CATALOG NUMBER |
|--------------------|----------|-----------------------------|
| Stock Description  | Stock No | Hubbell                     |
| Hook, Short Shank  | 020790   | HB-30                       |
| Hook, Long Shank   | 020810   | HBL-30                      |

**CLEVIS, SOCKET, HOTLINE**

Originator: Flader, Jeff

Date: 1/25/2012

Approval: Flader, Jeff

Date: 1/25/2012

Page 1 of 1

Revision: **NEW**Std's Committee Approval:  
**Pending**

**Application:** used at dead end assemblies to secure transmission conductor.

**Common Name:** Clevis, Socket, Hotline

**Ordering Description:** Clevis, Socket, Hotline, Hd Galv, 10", Clevis Width 1" With 5/8" Pin & Cotter Key, 30k Lb Ultimate Strength.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                    |           | MANUFACTURER CATALOG NUMBER |          |          |
|---------------------------------------|-----------|-----------------------------|----------|----------|
| Stock Description                     | Stock No. | Hubbell                     | Anderson | Maclean  |
| Clevis, Socket, Hotline, Hd Galv, 10" | 085500    | HSC-100                     | HSC-100  | HCHL-55A |

**POLE ANCHOR, TRI-ANCHOR**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/8/2009

Page 1 of 2

Revision: **Added Installation Instructions**

Stds Committee Approval:

**Approved**

**Application:** This device is used to support a utility pole when no hole can be dug to a sufficient depth due to rock. The unit must be mounted into solid rock.

**Specification:** INCLINED UNIVERSAL NO.9 TRI-ANCHOR® modules are shipped assembled, each consisting of a forged anchor bolt, expansion shell, welded pipe and band assembly, washer and nut; along with the required field assembly hardware (2 studs c/w 2 nuts each, and 4 lag bolts) included in a separate canvas bag. Each pole installation requires 3, 4, or 5 anchor modules, depending on the pole butt diameter

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                              |           |  |  | MANUFACTURER CATALOG NUMBER |
|-------------------------------------------------|-----------|--|--|-----------------------------|
| Stock Description                               | Stock No. |  |  | TRI-ANCHOR                  |
| ANCHOR, POLE, TRI-ANCHOR, (1) LEG + ACCESSORIES | 027350    |  |  | P-9UT                       |

See STD Practice 062.ROCKANCHOR for engineering/installation information and requirements (# of legs required, grd line moment, etc.).

**INSTALLATION INSTRUCTIONS**

1. **REMOVE OVERBURDEN:** The pole butt must rest directly on the rock, so all loose overburden of soil, gravel, etc. must be removed.
2. **EVALUATE ROCK:** If the rock is fractured or unsound, an alternative method to the INCLINED UNIVERSAL NO.9 TRI-ANCHOR® should be used. e.g. if the rock can be easily broken, shoveled or augered, this would suggest insufficient rock soundness.
3. **CHECK SLOPE:** The maximum allowable slope in the rock under the pole for an INCLINED UNIVERSAL NO.9 TRI-ANCHOR® installation is 3 inches, over the diameter of the pole butt. i.e. there must not be a gap of more than 3 inches between the pole butt and the rock, and the pole must rest on the rock at some point.

**POLE ANCHOR, TRI-ANCHOR**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/8/2009

Page 2 of 2

Revision: **Added Installation Instructions**

Stds Committee Approval:

**Approved**

4. **DECIDE ON NUMBER OF MODULES:** Consult the Selection Chart to decide on the required number of modules for the installation, which varies with the pole butt diameter. Where the ranges overlap, the required ground line moments will help determine the number of modules to be used.
5. **ASSEMBLE ROCK DRILLING TEMPLATE:** Choose the appropriate template core for the configuration chosen (i.e. 3, 4 or 5 modules). Insert the sleeves into the template core.
6. **ADJUST TEMPLATE:** Fit the assembled template to the pole butt, adjusting it for the pole size. Place the template right side up on the rock so that the holes to be drilled point OUTWARD from the pole center. The proper slope is given by the inclined drilling sleeve. On sloped rock, use the leveling bolts to ensure that the template is level before drilling.
7. **DRILL HOLES:** Begin at the highest point of the rock and drill a 2" diameter hole through the template to a depth of 24 inches. Continue drilling the remaining holes through the template to the same depth, when measured from a horizontal line. All rock dust should be cleaned out.
8. **INSERT THE ANCHORS:** With all holes drilled, remove the template and drop the anchors into the holes. Loosely connect the bands with the studs.
9. **ERECT POLE AND TIGHTEN BANDS:** Lift and hold the pole in place vertically. Tighten all the studs to grip the pole within the bands. Ensure that all nuts are firmly tightened.
10. **TIGHTEN ANCHOR BOLTS:** Tighten the nuts of the anchor bolts firmly. In sound rock a positive anchor will develop from the expansion of the expansion shell. In poor rock you will run out of thread before developing an adequate bond, and an alternate location or method must be used.
11. **INSTALL LAG BOLTS:** Install all lag bolts with a wrench. Pre-drilling holes in the pole and using an impact wrench or socket wrench are recommended. Release the pole.
12. **FINAL STEPS:** Grouting of the holes is optional if ice is a concern. Backfill any removed overburden if desired.
13. **MAINTENANCE:** Incorporate the INCLINED UNIVERSAL NO.9 TRI-ANCHOR® system into the regular pole and line maintenance schedule and procedures. At each inspection ensure that all nuts and lags are in place and tight.

**Manufacture Contact Information:**

TRI-STEEL USA

1535 CABOT ST. # 201

MONTREAL, CANADA H4E 1C8

TOLL FREE: 1-888-ON-ROCK-8

1-888-667-6258

Fax: 514-766-6111

E-MAIL: [info@tri-anchor.com](mailto:info@tri-anchor.com)

**THIMBLE, GUY WIRE**

Originator: DSmith

Date: 7/28/2006

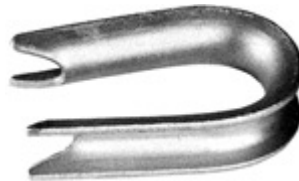
Approval: DSmith

Date: 7/3/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Guy Wire Thimbles for wire rope strand size. Open end slips over ovaleye anchor rods and bolts. Grooved to fit various strand sizes, they are made from crescent-shaped stock to prevent abrupt, strand-weakening kinks. Hot dip galvanized steel.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                      |           | MANUFACTURER<br>CATALOG<br>NUMBER |
|-------------------------------------------------------------------------|-----------|-----------------------------------|
| Stock Description                                                       | Stock No. | Hubbell                           |
| THIMBLE, OPEN WIRE ROPE, GROOVE: ½"<br>OPEN WIDTH: ¾" EYE WIDTH: 1-1/8" | 033300    | 6594                              |



**Deadends, Compression, Vertical Eye Type,  
Single Tongue, AAC Conductors**

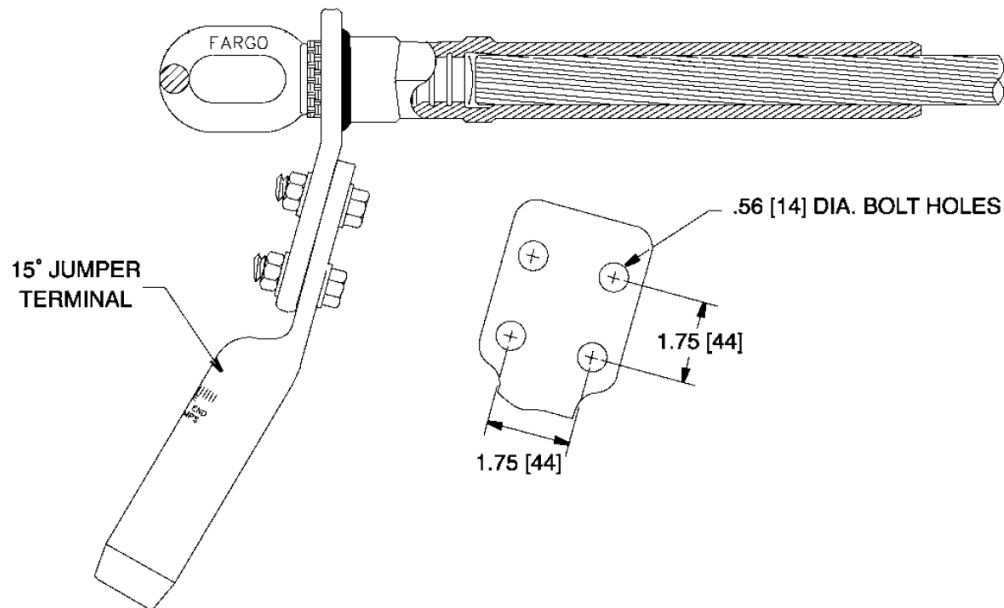
Originator: Jeff Flader

Date: 2/27/2018

Approval: Jeff Flader

Date: 2/27/2018

Page 1 of 1

Revision: **Updated Catalog Numbers**Stds Committee Approval:  
**Approved**

**Application:** A deadend assembly for All Aluminum (AAC) conductors consists of a pre-filled aluminum deadend body precompressed onto a steel eye, two prefilled 15° jumper terminals, mounting hardware. Terminal and tongue have NEMA hole spacing.

**Common Name:** Deadend Bodies

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:** Anderson, Alcoa

| PUD IDENTIFICATION                                                                    |           | MANUFACTURER CATALOG NUMBER |          |
|---------------------------------------------------------------------------------------|-----------|-----------------------------|----------|
| Stock                                                                                 | Stock No. | Alcoa                       | Anderson |
| Deadend, Compression, Vertical Eye Type, Single Tongue, 336 AAC 19 Strand, "Tulip"    | 030300    | VESE070                     | AC010707 |
| Deadend, Compression, Vertical Eye Type, Single Tongue, 636 AAC 37 Strand, "Orchid"   | 030301    | VESE100                     | C011010  |
| Deadend, Compression, Vertical Eye Type, Single Tongue, 954 AAC 37 Strand, "Magnolia" | 030302    | VESE120                     | C011212  |

**Deadends, Compression, Vertical Eye Type,  
Double Tongue, AAC Conductors**

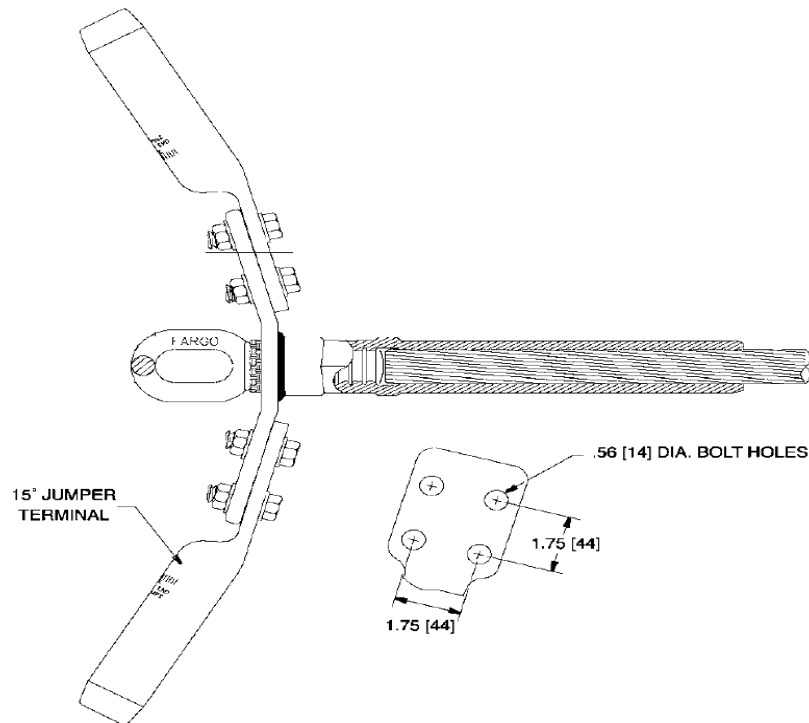
Originator: Jeff Flader

Date: 2/27/2018

Approval: Jeff Flader

Date: 2/27/2018

Page 1 of 1

Revision: **Updated Catalog Numbers**Stds Committee Approval:  
**Approved**

**Application:** A deadend assembly for All Aluminum (AAC) conductors consists of a pre-filled aluminum deadend body precompressed onto a steel eye, two prefilled 15° jumper terminals, mounting hardware. Terminal and tongue have NEMA hole spacing.

**Common Name:** Deadend Bodies

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:** Anderson, Alcoa

| PUD IDENTIFICATION                                                                    |           | MANUFACTURER CATALOG NUMBER |          |
|---------------------------------------------------------------------------------------|-----------|-----------------------------|----------|
| Stock Description                                                                     | Stock No. | Alcoa                       | Anderson |
| Deadend, Compression, Vertical Eye Type, Double Tongue, 336 AAC 19 Strand, "Tulip"    | 030280    | VEDE070                     | C020707  |
| Deadend, Compression, Vertical Eye Type, Double Tongue, 636 AAC 37 Strand, "Orchid"   | 030281    | VEDE100                     | AC021010 |
| Deadend, Compression, Vertical Eye Type, Double Tongue, 954 AAC 37 Strand, "Magnolia" | 030282    | VEDE120                     | C021212  |



**LINK, RIGGING**

Originator: Jeff Flader

Date: 2/27/2018

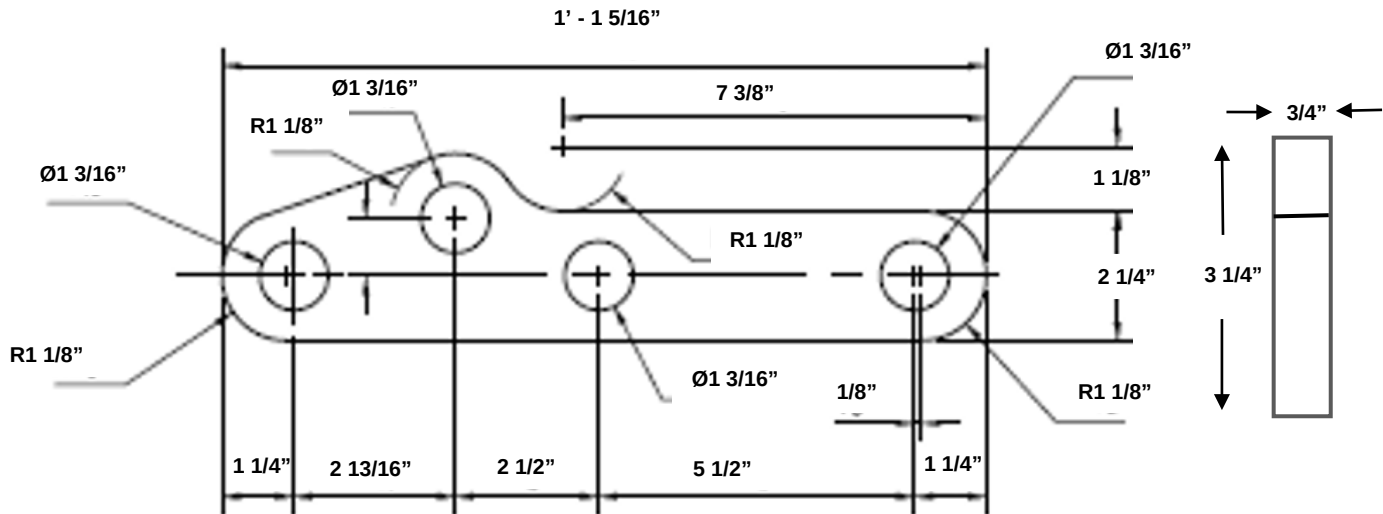
Approval: Jeff Flader

Date: 2/27/2018

Page 1 of 1

Revision: **Updated Drawing**

Stds Committee Approval:  
**Approved**



**Template #103**  
**A2195.6A LINK**

**Application:** Used At 115 KV Dead Ends Between Pole Eye Plates and Insulators.

**Common Name:** Rigging Link

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                  |           | MANUFACTURER CATALOG NUMBER     |
|-------------------------------------------------------------------------------------|-----------|---------------------------------|
| Stock Description                                                                   | Stock No. | HUGHES BROTHERS                 |
| LINK, RIGGING, HD GALV, 13 5/16",<br>WIDTH 2 1/4", THICKNESS 3/4",<br>HOLES 1 3/16" | 086530    | *SPECIAL ORDER HUGHES BROTHERS* |

**SOCKET, CLEVIS – SHORT  
TRANSMISSION**

Originator: Jeff Flader

Date: 2/26/18

Approval: Jeff Flader

Date: 2/26/18

Page 1 of 1

Revision: **Committee Approval**Stds Committee Approval:  
**Approved**

**Application:** Used in Dead end assemblies to connect polymer insulators to vertical eye compression dead ends.

**Common Name:** Clevis, Socket, Short.

**Ordering Description:** Clevis, Socket, Short, 5/8" Pin, 2 5/8" From Socket to Pin, Ductile Iron, Hd Galv, 30,000 Lb. Ultimate Strength.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                                                                 |          | MANUFACTURER CATALOG NUMBER |        |           |
|------------------------------------------------------------------------------------------------------------------------------------|----------|-----------------------------|--------|-----------|
| Stock Description                                                                                                                  | Stock No | MACLEAN                     | HUBBLE | PREFORMED |
| <b>Clevis, Socket, Short, 5/8" Pin,<br/>2 5/8" From Socket to Pin,<br/>Ductile Iron, Hd Galv, 30,000<br/>Lb. Ultimate Strength</b> | 014950   | SC-55                       | SC30   | SC-5194   |

**GUYING ANCHOR, CROSS PLATE**

Originator: DSmith

Date: 7/28/2006

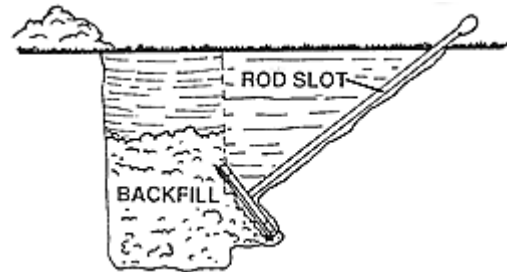
Approval: DSmith

Date: 7/3/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**

**Application:** The Cross-Plate anchor is made for installation in holes drilled by power diggers. Because the size of the hole does not affect holding capacity, the hole can be dug by the same auger that is used to dig the pole holes on transmission projects. Cross-Plate anchors are installed in a diagonal bored hole which is undercut so the anchor is at right angles to the guy.

A rod trench is either cut with a trenching tool or drilled with a small power auger. Both anchor and rod trench should be refilled and tamped.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION      |           | MANUFACTURER CATALOG NUMBER |  |
|-------------------------|-----------|-----------------------------|--|
| Stock Description       | Stock No. | Chance                      |  |
| ANCHOR, 24" CROSS PLATE | 005255    | X24                         |  |

**GUY ANCHOR  
EXPANDING ROCK**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 7/7/06

Page 1 of 1

Revision: J Mitchell

Date: 9/13/10

Stds Committee Approval:  
**Approved**

**Application:** Used to guy utility poles in solid rock. A hole is drilled into the rock to a minimum 12 inch depth in line with the guy. The anchor is placed into the hole and a bar through the eye is used to turn and expand the anchor into the rock. The anchor expands and wedges against the wall of the rock.

**Specification:** List requirements as needed to describe the properties of the item. If necessary, use blanks ( ) in description and add any of the following.

Dimensions:

Strength: Shall be capable of holding 23,000 pounds

Material: GALVANIZED Steel

Finish: The item shall be hot dipped galvanized

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** Special Shipping Instructions

**Approved Manufacturers:**

| PUD IDENTIFICATION                 |           | MANUFACTURER CATALOG NUMBER |        |
|------------------------------------|-----------|-----------------------------|--------|
| Stock Description                  | Stock No. | HUBBELL                     | JOSLYN |
| ANCHOR, ROCK, 15"x3/4", TRIPLE EYE | 005380    | R315                        | J3436  |
| ANCHOR, ROCK, 30"x3/4", TRIPLE EYE | 005400    | R330                        | J3437  |
| ANCHOR, ROCK, 53"x3/4", TRIPLE EYE | 005420    | R353                        | J3438  |
| ANCHOR, ROCK, 53"x 1", TRIPLE EYE  | 005460    | R153L                       | JR153L |
| ANCHOR, ROCK, 72"x3/4", TRIPLE EYE | 005440    | R372                        | JR372  |
| ANCHOR, ROCK, 72"x 1", TRIPLE EYE  | 005480    | R172L                       | JR172L |

**GUY ANCHOR, MULTIPLE HELIX SCREW  
ANCHOR**

Originator: DSmith

Date: 8/8/2013

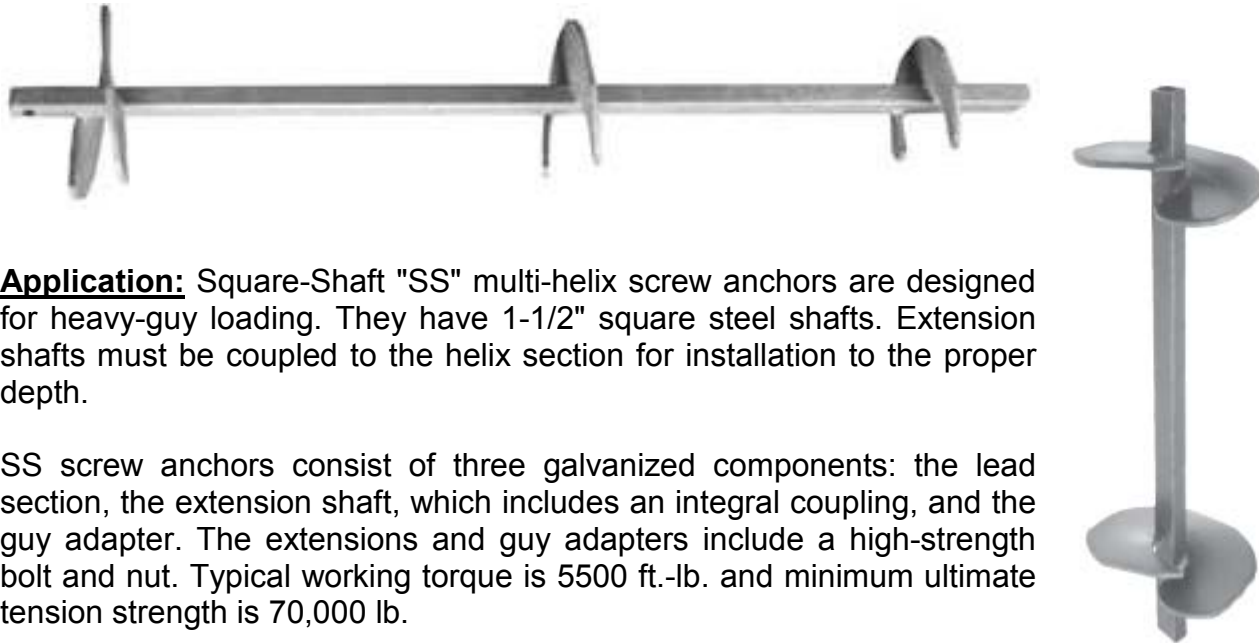
Approval: DSmith

Date: 8/8/2013

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Square-Shaft "SS" multi-helix screw anchors are designed for heavy-guy loading. They have 1-1/2" square steel shafts. Extension shafts must be coupled to the helix section for installation to the proper depth.

SS screw anchors consist of three galvanized components: the lead section, the extension shaft, which includes an integral coupling, and the guy adapter. The extensions and guy adapters include a high-strength bolt and nut. Typical working torque is 5500 ft.-lb. and minimum ultimate tension strength is 70,000 lb.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                     |           | MANUFACTURER<br>CATALOG<br>NUMBER |
|--------------------------------------------------------|-----------|-----------------------------------|
| Stock Description                                      | Stock No. | Chance                            |
| ANCHOR, LEAD SECTION, 7", 8", 10", OR 12" TRIPLE HELIX | 005220    | 012642-AEJ                        |





# GUYING, ANCHOR RODS Extensions, Eye Nuts & Couplings

Originator: DSmith

Date: 8/19/2013

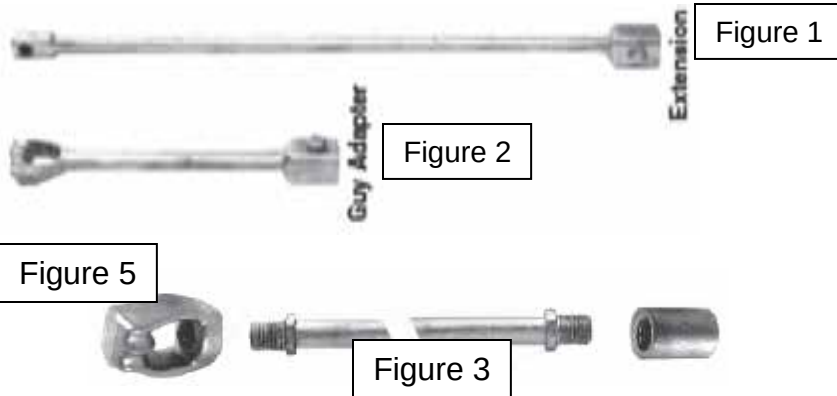
Approval: J. Mitchell

Date: 10/23/2014

Page 1 of 1

Revision: **Added MacLean Catalog Numbers**

Std's Committee Approval:  
**Approved**



**Application:** Attached to Plate Anchor or screw anchor and guy wire. .

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

| Stock No. | PUD IDENTIFICATION                                                    |       | MANUFACTURER CATALOG NUMBER |           |
|-----------|-----------------------------------------------------------------------|-------|-----------------------------|-----------|
|           | Stock Description                                                     | Fig # | Chance                      | MacLean   |
| 005210    | ANCHOR, GUY ADAPTER, 18" TRIPLE EYE W/HIGH STRENGTH BOLT AND NUT      | 2     | C102-0025                   |           |
| 005230    | ANCHOR, EXTENSION SHAFT, 7' W/HIGH STRENGTH BOLT AND NUT              | 1     | 12657                       |           |
| 005240    | ANCHOR, EXTENSION SHAFT, 10' W/HIGH STRENGTH BOLT AND NUT (SWAMP)     | 1     | 12658                       |           |
| 005260    | ANCHOR, EXTENSION SHAFT, 3.5' W/HIGH STRENGTH BOLT AND NUT            | 1     | 12655                       |           |
| 005530    | ANCHOR, EXTENSION ROD, 1" X 3 1/2' THREADED BOTH ENDS W/COUPLER, GALV | 3     | 12251A J                    | D10031/2C |
| 005580    | ANCHOR, EXTENSION ROD, 1" X 7', THREADED BOTH ENDS W/COUPLER, GALV    | 3     | 12334P                      | D100      |
| 005650    | ANCHOR, ROD, 1" X 8' THREADED W/SQ NUT, TRIPLE EYE, GALV              | 4     | 7568                        |           |
| 005660    | ANCHOR, ROD, 1" X 10' THREADED W/SQ NUT, TRIPLE EYE, GALV             | 4     | 7570                        |           |
| 005000    | ANCHOR, DBL EYENUT, 3/4" BOLT HOLE                                    | 5     |                             |           |
| 005320    | ANCHOR, DBL EYENUT, 1" BOLT HOLE                                      | 5     | 6562                        |           |
| 005330    | ANCHOR, TRIPLE EYENUT, 1" BOLT HOLE                                   | 5     | 12585                       | D6567     |



## GUY GRIP, DEAD END

Originator: DSmith

Date: 7/28/2006

Approval: DSmith

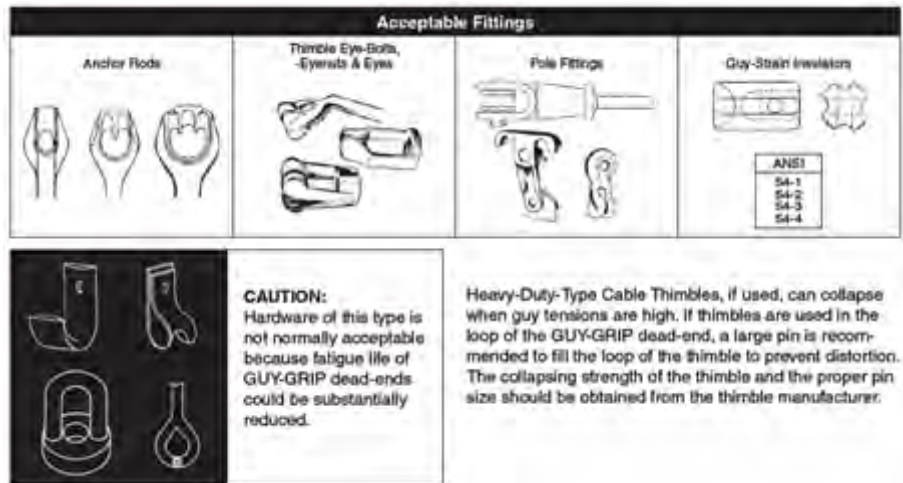
Date: 7/9/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**



**Application:** GUY-GRIP dead-ends are intended for use on single wood poles and Aluminum Clad Steel Strand down guy wire 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.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

### Approved Manufacturers:

| PUD IDENTIFICATION                    |           | MANUFACTURER CATALOG NUMBER |                       |           |
|---------------------------------------|-----------|-----------------------------|-----------------------|-----------|
| Stock Description                     | Stock No. | PLP                         | Helical Line Products | DULMISON  |
| GRIP, GUY, 6M, DEADEND, BLUE          | 019500    | AWDE-4110                   | HG517-6M              | TBD       |
| GRIP, GUY, 12.5M DEADEND, YELLOW      | 019550    | AWDE-4119                   | HG523-12.5M           | AWGG-0870 |
| GRIP, GUY, ½" (7STR) #6 DEADEND, BLUE | 019580    | AWDE-4128                   | HG530-7 #6            | TBD       |
| GRIP, GUY, 25M DEADEND, RED           | 019600    | AWDE-4130                   | HG531-25M             | AWGG-1310 |



## GUY GUARDS

Originator: DSmith

Date: 9/29/2021

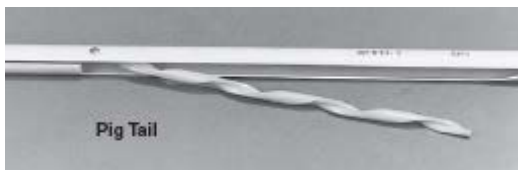
Approval: DScott

Date: 9/29/2021

Page 1 of 1

Revision 1: Updated PLP catalog number

Std's Committee Approval:  
Approved



**Application:** Guy Guards are designed to identify Down Guys or other wire and cable installations where anchoring devices are exposed to pedestrian and/or vehicular traffic.

**Specification:** Each 8' long unit shall be made of 1-1/2" OD bright yellow round PVC that is UV resistant and flame retardant with a slotted top end. Each unit shall have an integral helix grip (pigtail) and locking strap that prevents the unit from sliding after initial installation.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

### Approved Manufacturers:

| PUD IDENTIFICATION                                                |           | MANUFACTURER CATALOG NUMBER |  |  |
|-------------------------------------------------------------------|-----------|-----------------------------|--|--|
| Stock Description                                                 | Stock No. | PLP                         |  |  |
| GUARD, GUY, 1-1/2" O.D. YELLOW - ROUND, 8' LONG, UV RESISTANT PVC | 027500    | PG-5518                     |  |  |



# GUY HOOKS

Originator: DSmith

Date: 7/28/2006

Approval: DSmith

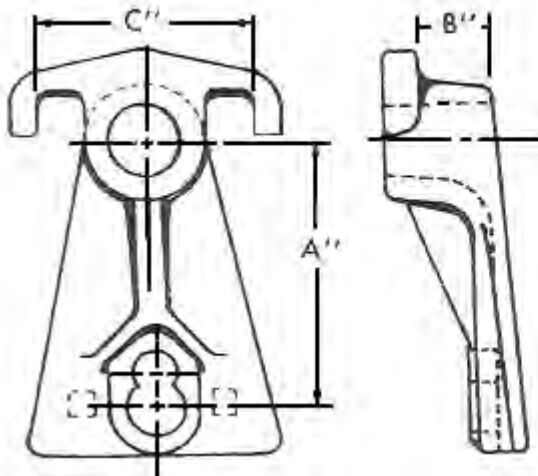
Date: 7/5/2007

Page 1 of 1

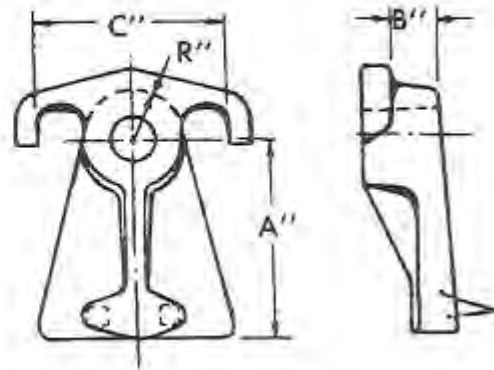
Revision: **NEW**

Std's Committee Approval:

**Approved**



**Figure 1**



**Figure 2**

**Application:** Guy Hook, cast ductile iron, for down guy applications. Mounts with 3/4" through bolt and has cast integral lag spur.

**Specifications:** Integral Lag Type, Malleable Iron, Hot Dipped Galvanized. Ultimate Strength (lbs) is measured at 45° downward pressure

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

## Approved Manufacturers:

| PUD IDENTIFICATION                                  |           |        | MANUFACTURER CATALOG NUMBER |         |                |
|-----------------------------------------------------|-----------|--------|-----------------------------|---------|----------------|
| Stock Description                                   | Stock No. | Figure | MIF                         | MacLean | Chance Hubbell |
| HOOK, GUY, SMALL, 20K Lbs, 5/8" BOLT HOLE           | 020750    | 2      | P133A                       | P133AX  | GH5ILS         |
| HOOK, GUY, MEDIUM, 25K Lbs, 3/4" & 1/2 " BOLT HOLES | 020770    | 1      | P132C                       | G-764X2 | TBD            |
| HOOK, GUY, LARGE, 25K Lbs, 1" & 1/2 " BOLT HOLES    | 020780    | 1      | P132B                       | G-864X2 | TBD            |

**SINGLE & DOUBLE POLE EYE PLATES**

Originator: Jeff Flader

Date: 2/27/2018

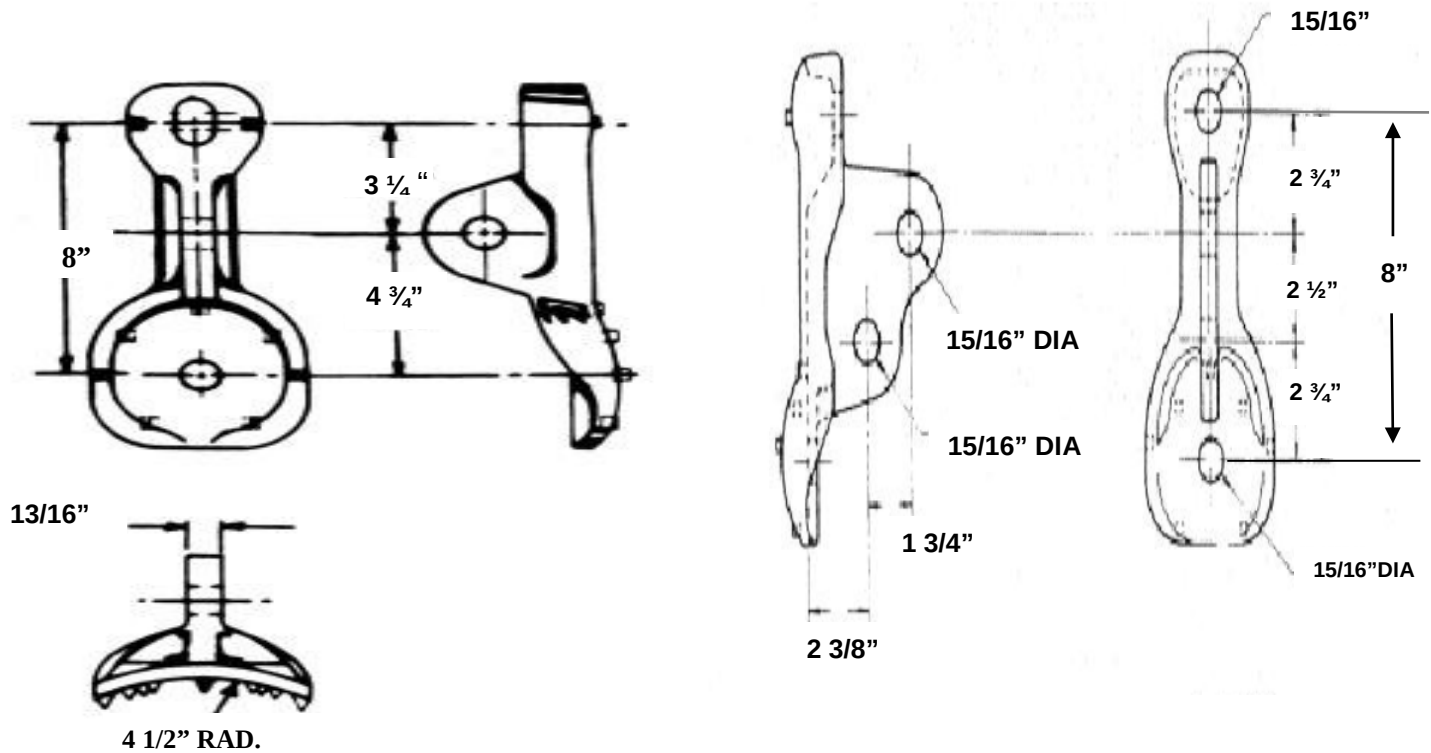
Approval: Jeff Flader

Date: 2/27/2018

Page 1 of 1

Revision: **Updated Catalog Numbers**

Stds Committee Approval:

**Approved**

**Application:** Pole Eye plates are used to dead end both conductor and/or guying.

**Common Name:** Pole Eye Plate.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                    |           | MANUFACTURER CATALOG NUMBER         |
|---------------------------------------------------------------------------------------|-----------|-------------------------------------|
| Stock Description                                                                     | Stock No. | MACLEAN                             |
| PLATE, POLE, SINGLE EYE, HD GALV, 15/16" BOLT HOLES WITH 8" SPACING, 15/16" PIN HOLES | 086790    | EPR8777                             |
| PLATE, POLE, DOUBLE EYE, HD GALV, 15/16" BOLT HOLES WITH 8" SPACING, 15/16" PIN HOLES | 086800    | EPR877-D7RE<br>OR<br>EPR877-D7RE-LT |



## VIBRATION DAMPERS

Originator: Jeff Flader

Date: 7/10/2012

Approval: Jeff Flader

Date: 9/25/2013

Page 1 of 1

### USED WITHOUT ARMOR RODS



**Application:** Vibration dampers work to cancel damaging fatigue caused by wind-induced vibration. Most tuned damping devices operate best near their natural frequencies. Vibration dampers are designed for efficient transfer and dissipation of energy over a wide spectrum of frequencies.

**Common Name:** Vibration Dampers

**Ordering Description:** Use tables below to order by conductor size and type. Actual damper weight may vary. Exact bolt size is not critical for the correct fit, but all connector bolts should be breakaway and removable. Dampers are sized for specific conductor sizes so weights may vary.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

### Approved Manufacturers:

| PUD IDENTIFICATION                                                                                  | MANUFACTURER CATALOG NUMBER |           |             |
|-----------------------------------------------------------------------------------------------------|-----------------------------|-----------|-------------|
| Stock Description                                                                                   | Stock No.                   | ALCOA     | PREFORMED   |
| DAMPER, VIBRATION, (3/8" - .375 STATIC WIRE), USED W/OUT ARMOR ROD – W/BREAKAWAY BOLTS.             | 085910                      | 1701-3BA  | DB-05-09-SH |
| DAMPER, VIBRATION, (2/0 ACSR - .447), USED W/OUT ARMOR ROD – W/BREAKAWAY BOLTS.                     | 085900                      | 1703-3BA  | VSD-1012-B  |
| DAMPER, VIBRATION, (4/0 ACSR - .563), USED W/OUT ARMOR ROD – W/BREAKAWAY BOLTS.                     | 085902                      | 1703-4BA  | VSD-2016-B  |
| DAMPER, VIBRATION, (336 AAC - .666), USED W/OUT ARMOR ROD – W/BREAKAWAY BOLTS.                      | 085911                      | 1704-5BA  | VSD-2020-B  |
| DAMPER, VIBRATION, (336 ACSR - .720), USED W/OUT ARMOR ROD – W/BREAKAWAY BOLTS.                     | 085904                      | 1704-6BA  | VSD-2020-B  |
| DAMPER, VIBRATION, (636 AAC - .918), USED W/OUT ARMOR ROD – W/BREAKAWAY BOLTS.                      | 085912                      | 1705-8BA  | VSD-3525-B  |
| DAMPER, VIBRATION, (636 ACSR - .990), USED W/OUT ARMOR ROD – W/BREAKAWAY BOLTS.                     | 085906                      | 1706-9BA  | VSD-4032-B  |
| DAMPER, VIBRATION, (795 ACSR – 1.108 & 954 AAC – 1.124 ), USED W/OUT ARMOR ROD - W/BREAKAWAY BOLTS. | 085908                      | 1706-10BA | VSD-4032-B  |
| DAMPER, VIBRATION, (1272 ACSR – 1.345 ), USED WITHOUT ARMOR ROD – WITH BREAKAWAY BOLTS.             | 085913                      | 1707-13BA | VSD-4040-B  |





# POLE GAINS AND SHIMS

Originator: DSmith

Date: 7/28/2006

Approval: DSmith

Date: 7/5/2007

Page 1 of 1

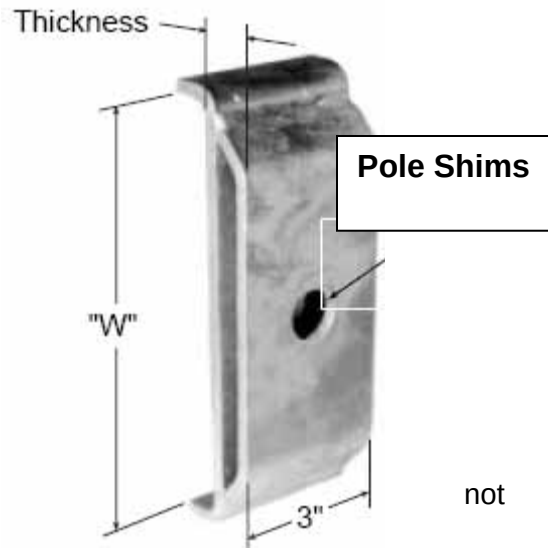
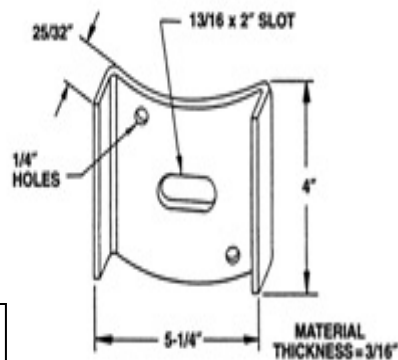
Revision: **NEW**

Stds Committee Approval:

**Approved**

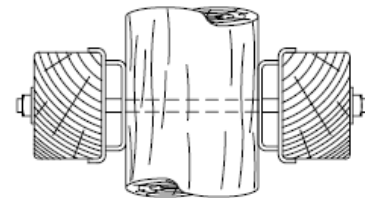


**Pole Gains**



**Application:** Pole gains enhance the stability of the crossarm and pole interface. They are used where it is possible or desirable to cut a gain in the pole.

Pole Shims are used in double arm assemblies, when the variations between pole diameters occur on H-Frame structures. Shims are used as an alternative to gaining the larger pole in and used predominantly in maintenance applications.



**Specification:** The item shall be made of hot dipped galvanized steel per ASTM A153.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

| PUD IDENTIFICATION |                                                | MANUFACTURER CATALOG NUMBER |        |                         |
|--------------------|------------------------------------------------|-----------------------------|--------|-------------------------|
| Stock No.          | Stock Description                              | MACLEAN                     | JOSLYN | HUGHES BROS             |
| 019020             | GAIN, DUCTILE IRON, 6-3/4"x4", 7/8" BOLT HOLE  | GCA 74-7                    | PX262B |                         |
| 019050             | GAIN, 5-1/4"x4" CURVED, 2"x3/4" SLOT HOLE      |                             | J4060  | HUBBELL: DG9M1          |
| 019055             | GAIN, POLE, BRACELESS, GALV                    |                             |        | CONTINENTAL #DEA-65-10B |
| 019060             | GAIN, STUBBING                                 | MIF #PX148E                 |        | CONTINENTAL #GRR-54-11  |
| 085860             | GAIN, TIMBER, GALV, 3" DIA, 13/16" CENTER HOLE | MIF #PX-157C                |        |                         |
| 086810             | POLE SHIM 7-3/4" X 1-1/2" X 3"                 |                             |        | 2844-15H                |
| 086820             | POLE SHIM 7-3/4" X 1" X 3"                     |                             |        | 2844-10H                |





**CROSSARM BRACE  
WISHBONE or SPAN BRACE**

Originator: DSmith

Date: 7/28/2006

Approval: DSmith

Date: 7/5/2007

Page 1 of 1

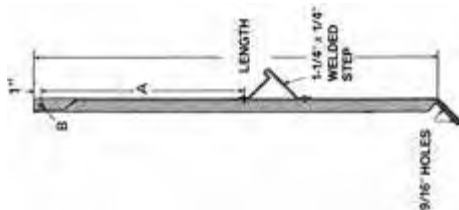
Revision: **NEW**

Stds Committee Approval:

**Approved**



**Flat Brace**



**Alley Arm**



**Wishbone Brace**

**Application:** Flat & Wishborn braces are used to align an support wooden crossarms.

The Steel Alley Arm Brace is used where the arms are mounted on one side of the pole. The brace end is flattened for the pole or arm attachment and mounted at a 45 degree angle.

**Specification:** Each unit shall be made of Hot Dipped Galvanized steel per ASTM A153.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION |                                                                 | MANUFACTURER CATALOG NUMBER |        |
|--------------------|-----------------------------------------------------------------|-----------------------------|--------|
| Stock No.          | Stock Description                                               | HUBBELL                     | JOSLYN |
| 012400             | BRACE, ALLEY ARM, HD GALV ANGLE IRON BRACE, 2" X 2" X 1/4", 10' | DB7L2                       | J1526  |
| 012528             | BRACE, XARM, 28" FLAT, HD GALV                                  | 7128                        | J7128  |
| 012530             | BRACE, WISHBONE, 42" SPAN, 12" DROP, ANGLE STEEL, HD GALV       | 69401                       | J1506  |
| 012550             | BRACE, WISHBONE, 60" SPAN, 18" DROP, ANGLE STEEL, HD GALV       | 69421                       | J1508  |
| 012570             | BRACE, WISHBONE, 72" SPAN, 22" DROP, ANGLE STEEL, HD GALV       | ----                        | J1512  |



**GROUNDING CLAMP, SUSPENSION,  
DUCTILE IRON  
w/ Socket Connector**

Originator: DSmith

Date: 12/6/06

Approval: DSmith

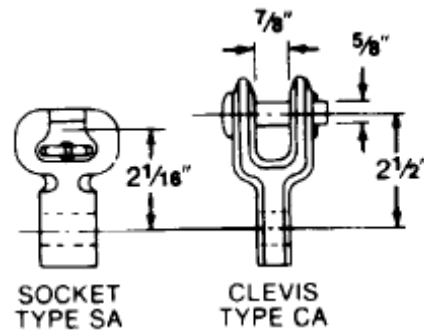
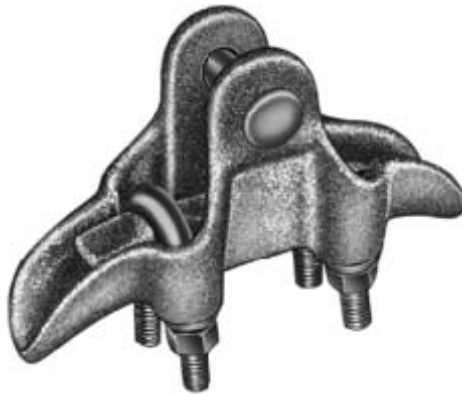
Date: 7/5/2007

Page 1 of 1

Revision: Revised Catalog Numbers to Include Socket

Stds Committee Approval:

**Approved**



**Application:** For ground wire application with galvanized steel cable with or without armor rods. Includes socket fitting for use with Class 52-3 or 52-3 insulators.

May also be used to suspend copper or Copperweld® cable, but Magnetic induction heating will occur.

Recommended Torque on U-bolts = 40-45 ft/lbs

**Specification:** Body and Keeper—ductile iron, galvanized  
Hardware—galvanized steel  
Cotter Pin—#302 stainless steel

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol, catalog number, and cable range shall be on each part and its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                   |           | MANUFACTURER CATALOG NUMBER |             |          |         |        |
|--------------------------------------------------------------------------------------|-----------|-----------------------------|-------------|----------|---------|--------|
| Stock Description                                                                    | Stock No. | Min Body Strength (LBS)     | Cable Range | MacLean  | Hubbell | Mfg #3 |
| Clamp, Susp, Galv Ductile Iron, W/ Socket, #2-250 Grdwire, Galv Steel, Cu Or CWELD   | 014530    | 16,000                      | .20" - .60" | FSC-60-S | MS60S   | -----  |
| Clamp, Susp, Galv Ductile Iron, W/ Socket, #2/0-500 Grdwire, Galv Steel, Cu Or CWELD | 014540    | 18,000                      | .40" - .83" | FSC-83-S | MS83S   | -----  |

**- Material Standards -****1616.03**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



**LINE HARDWARE  
SWITCH OPERATOR PLATFORM  
GROUND MOUNTED**

Originator:  
**J. Flader**

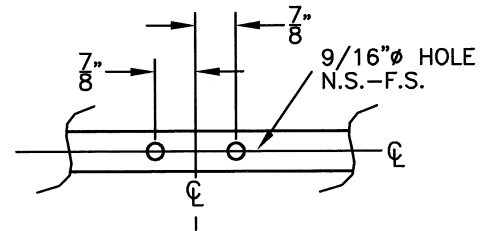
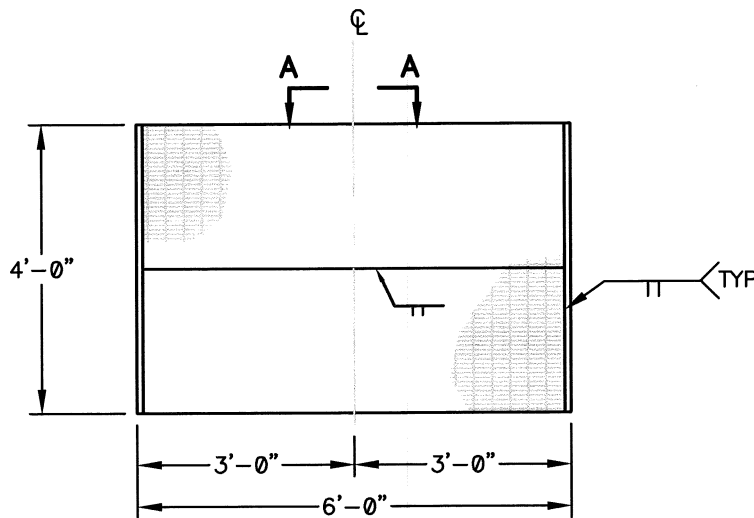
Standards Approval:  
**C. Bowman**

Approval:  
**C. Bowman**

Date:  
**6/8/2012**

Page 1 of 1

Rev #: Revision Description:

**0****SWITCH OPERATOR PLATFORM-GROUND MOUNTED****SECTION A-A****SWITCH OPERATOR PLATFORM**

| PUD IDENTIFICATION |                                               | MANUFACTURER |
|--------------------|-----------------------------------------------|--------------|
| STOCK NO.          | STOCK DESCRIPTION                             |              |
| 026205             | PLATFORM, SWITCH OPERATING 4' X 6' GALVANIZED | * SEE NOTES  |

**FABRICATION NOTES: \***

1. ALL STEEL - ASTM A36 U.N.O.
2. GALV. AFTER FABRICATION PER ASTM A123
3. SMOOTH GRATING -  
1" x 3/16" BARS  
1 3/16" C TO C  
W/4" C TO C X-BARS

4. 3/16 X 1 BAR END BANDING REQUIRED

ORIGINAL BUILDING PRINT #05-WW-05 - ORIGINAL JOB NAME IS MCKENZIE SWITCHYARD

REF, DWG: SKETCHES - ATTN: STEVE KNOX.

**MOLDING, FLAT FLEXIBLE COPPER BRAID**

Originator: DSmith

Date: 7/28/2006

Approval: DSmith

Date: 7/5/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**PENDING**

**Application:** This tin plated Flexible Copper Braid is designed to take up the expansion or misalignment between two pieces of equipment. Drilled for standard NEMA hole spacing

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION               |           | MANUFACTURER CATALOG NUMBER |
|----------------------------------|-----------|-----------------------------|
| Stock Description                | Stock No. | PENN UNION                  |
| COPPER BRAID, FLAT, FLEXIBLE 24" | 013000    | FXBA24NQ                    |

**GROUNDING CABLE TO FLAT BAR**

Originator: DSmith

Date: 7/5/2007

Approval: DSmith

Date: 6/8/2009

Page 1 of 1

Revision: Eliminated Galvanized Hardware

Stds Committee Approval:

**Approved**

**Application:** Bronze alloy ground clamp for clamping a copper cable to flat bar. Cable groove in bottom piece prevents excessive cable distortion.

**Specification:** Castings—bronze alloy  
Hardware— Stainless Steel or Bronze Alloy

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol, catalog number, and cable range shall be on each part and its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                    |           | MANUFACTURER CATALOG NUMBER |         |  |
|-----------------------------------------------------------------------|-----------|-----------------------------|---------|--|
| Stock Description                                                     | Stock No. | Hubbell                     | Dossert |  |
| CLAMP, GROUNDING, BRONZE, CABLE TO FLAT, #6 SOL - 2/0 STR - 3/8" BOLT | 014750    | GC-141-3-01                 | GF-13   |  |
| CLAMP, GROUNDING, BRONZE, CABLE TO FLAT, #4 SOL - 300KCM - 1/2" BOLT  | 014780    | GC-141A-02                  | GF-30   |  |



# INSULATORS

Originator: DSmith

Date: 1/24/2007

Approval: DSmith

Date: 2/8/2007

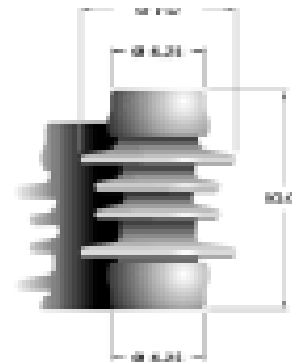
Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



## SECTION 1700 INSULATORS





**Insulators, Transmission, Polymer  
Suspension & Dead End**

Originator: DSmith

Date: 5/14/2012

Approval: J Flader

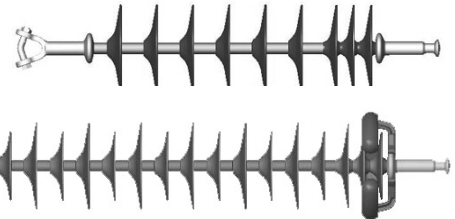
Date: 5/11/2013

Page 1 of 2

Revision: Added Spec #9. Updated Manufacturer catalog numbers.

Std's Committee :Approved

**Specification:** Composite suspension insulator shall comply with the latest revision of IEEE P1024 and meet the following requirements:



1. Weather Sheds: Non-tracking elastomer such as EPDM Rubber OR EP Silicone.
2. Core: Fiberglass Rod
3. End Fittings: Aluminum alloy 356-T6 or galvanized malleable iron ASTM A47M
4. Construction: The weather sheds shall be one piece molded type, fully bonded to the core. The end fitting/weather shed interface shall be sealed from moisture entry and free of voids. End fittings shall be attached to the core by swaging (compression). Color: Shall be Sky Gray.
5. Tests: Insulators shall be tested per latest revision of ANSI C29.1 Test Methods for Electric Power Insulators. Every insulator in production runs shall be given a routine tension load proof test per ANSI C29.1 and manufacturer's published proof test load rating.
6. Line Fitting: ANSI 52-5 Ball
7. Tower Fitting: Y Clevis
8. Corona Ring Required On 230Kv Units District Stock #021437 – Line end only
9. Units for which manufacturer requires or recommends the use of corona rings for District Stock # 021436 or #021435 will not be accepted.

| Stock # | P-P Line Voltage | ideal Section Length (in) | Strength Class (lbs) | Working Load (lbs) | Leakage (in) | Dry Arc Distance | Dry Electrical Flashover (kV) 60 Hz | Wet Electrical Flashover (kV) 60 Hz | ANSI Critical Impulse FO - Positive | ANSI Critical Impulse FO - Negative |
|---------|------------------|---------------------------|----------------------|--------------------|--------------|------------------|-------------------------------------|-------------------------------------|-------------------------------------|-------------------------------------|
| 021436  | 115kv            | 42                        | 25,000               | 12,500             | 76           | 30.7             | 310                                 | 295                                 | 505kV                               | 490kV                               |
| 021435  | 115kv            | 53                        | 25,000               | 12,500             | 107          | 42.9             | 430                                 | 405                                 | 700kV                               | 695kV                               |
| 021437  | 230kv            | 103                       | 30,000               | 15,000             | 228          | 91.7             | 855                                 | 790                                 | 1440                                | 1465                                |

**Approved Manufacturers**

| PUD IDENTIFICATION                                                                                                  |           | MANUFACTURER CATALOG NUMBER |                         |                     |                        |
|---------------------------------------------------------------------------------------------------------------------|-----------|-----------------------------|-------------------------|---------------------|------------------------|
| Stock Description                                                                                                   | Stock No. | Hubbell                     | Sediver                 | MacLean             | NGK-Locke              |
| Insulator, Polymer, Suspension, 115kv, min of 40.5", max of 44.5"<br>Ball & Y Clevis ends                           | 021436    | S025030S2010 (41.9")        | SEDNYB120XL29E0 (42.8") | S148041MX01 (41.7") | 251-SS280-YJ (44.3")   |
| Insulator, Polymer Suspension.115kv, min. of 53", max. of 55"<br>Ball & Y Clevis ends.                              | 021435    | S025043S2010 (54.9")        | SEDNYB120XL39E0 (53.6") | S148054MX01 (54.3") | 251-SS350-YJ (53")     |
| Insulator, Polymer Suspension, 230kv, min of 102", max. of 111",<br>Ball & Y Clevis ends.<br>Ring on line side only | 021437    | S030090S2010 (102.4")       | SEDNYB180XL87E1 (106")  | S548111FB02 (111")  | 251-SS780-YJ-08 (103") |



**- Material Catalog -****INSULATORS****1710.01**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*

**Insulators, Transmission, Polymer  
Suspension & Dead End**

Originator: DSmith

Date: 5/14/0212

Approval: J Flader

Date: 5/11/2013

Page 2 of 2

Revision: Added Spec #9. Updated Manufacturer catalog numbers.

Std's Committee :Approved

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol, catalog number, strength rating and date code shall be permanently marked on each part and its packaging.



**INSULATORS, HORIZONTAL LINE POST  
TRANSMISSION - Polymer**

Originator: DSmith

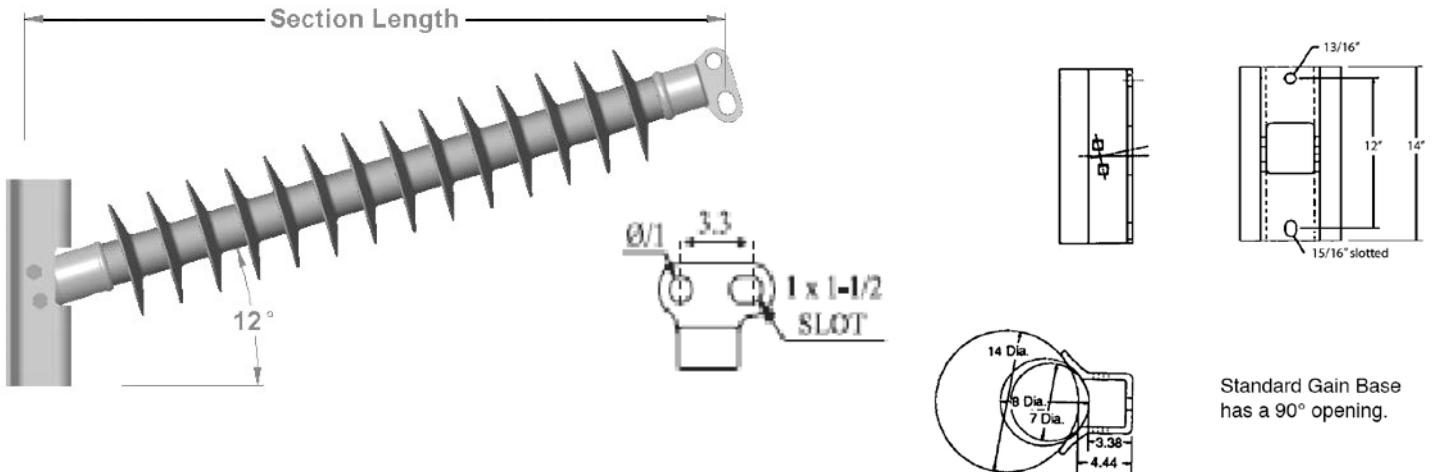
Date: 4/17/2023

Approval: Jeff Flader

Date: 5/11/2013

Revision: Specs

Page 1 of 1  
Stds Committee:  
**Approved**



**Application:** Post insulators described in this standard are for transmission line construction. Maximum design tension shall be 2500 lbs.

**Specifications:**

**Insulators:** shall be manufactured from a fiberglass rod with Polymer weather sheds. Insulators shall be rated and tested in accordance with ANSI C29.11

**Horizontal End Fittings** shall be galvanized steel or ductile iron two hole blade with 1" hole and 1" x 1 1/2 slot.

**Horizontal Mounting Base** shall be bendable aluminum or galvanized steel gain style with 90 degree opening with (1) 13/16" diameter hole and (1) 15/16" diameter elongated hole on 12" spacing. Insulator shall be offset from horizontal by 12 degrees.

Units for which manufacturer requires or recommends the use of corona rings for District Stock # 021760 will not be accepted.

**Packaging and Marking:** Each insulator shall be individually packaged & permanently marked with the manufacturer's name and catalog number.

| Stock No. | PUD IDENTIFICATION<br>Stock Description                                                                                | MANUFACTURER CATALOG NUMBER |                                  |                            |
|-----------|------------------------------------------------------------------------------------------------------------------------|-----------------------------|----------------------------------|----------------------------|
|           |                                                                                                                        | Hubbell/OHIO<br>BRASS       | MacLean                          | NGK-LOCKE                  |
| 021761    | Insulator 115kv Horiz Post Polymer W/ Bendable Gain Base & Two Hole Blade End Fitting - 2500#, Approximate Length 55"  | P250043S0020<br>55.9 inches | NBSG30XH028S<br>0<br>52.6 Inches | L2-SN291-13<br>53.8 Inches |
| 021766    | Insulator 230kv Horiz Post Polymer W/ Bendable Gain Base & Two Hole Blade End Fitting - 2500#, Approximate Length 96 " | P250087S0020<br>98.5 inches | H291096FA02<br>96 Inches         | L3-SN581-13<br>95.7 Inches |



# INSULATORS, VERTICAL-LINE POST FACE MOUNT, 115 KV - POLYMER

Originator: Jeff Flader

Date: 2/27/2018

Approval: Jeff Flader

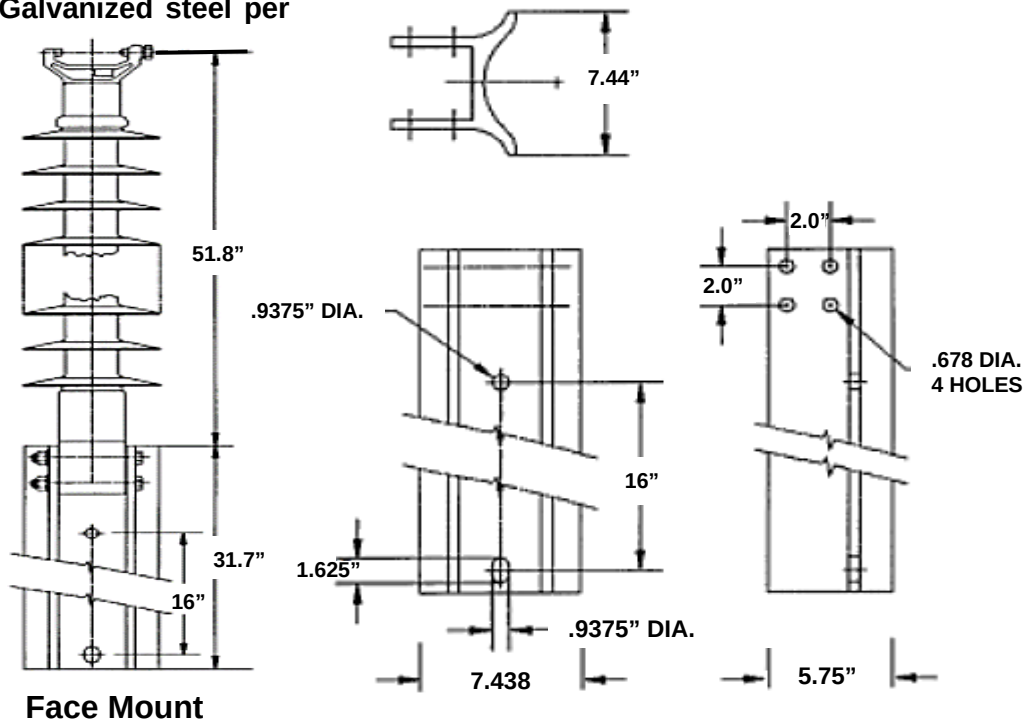
Date: 2/27/2018

Page 1 of 1

Revision: Updated Catalog Numbers

Stds Committee Approval:  
**Approved**

**Vertical Clamp Tops: Galvanized steel per ANSI C29.7.**



**Face Mount**

## Specifications:

**Insulators:** Shall be manufactured from a fiberglass rod with one piece Polymer weather sheds made of a non-tracking elastomer such as EPDM Rubber or EP Silicone and fully bonded to the core. Insulators shall be rated and tested in accordance with ANSI C29.11.

**Vertical Clamp Tops:** Galvanized steel clamp top per ANSI C29.7.

**Horizontal Mounting Base:** Shall be bendable aluminum or galvanized steel gain style with (2) holes on 16" centers. The top hole diameter will be .9375" and the bottom hole will be elongated .9375" x 1.625".

**Packaging and Marking:** Each insulator shall be individually packaged & permanently marked with the manufacturer's name and catalog number.

## **Approved Manufactures:**

| PUD IDENTIFICATION                                                                             |           | MANUFACTURER CATALOG NUMBER |           |
|------------------------------------------------------------------------------------------------|-----------|-----------------------------|-----------|
| Stock Description                                                                              | Stock No. | HUBBELL OHIO/BRASS          | NGK LOCKE |
| INSULATOR, VERTICAL POST, FACE MOUNT, POLY, 115KV, 54", W/ 31.75" BRACKET, TOTAL LENGTH 85.75" | 021825    | P250043S2260                | OBSOLETE  |



**INSULATORS, VERTICAL-LINE POST  
SIDE MOUNT, 115 KV - POLYMER**

Originator: Jeff Flader

Date: 2/27/2018

Approval: Jeff Flader

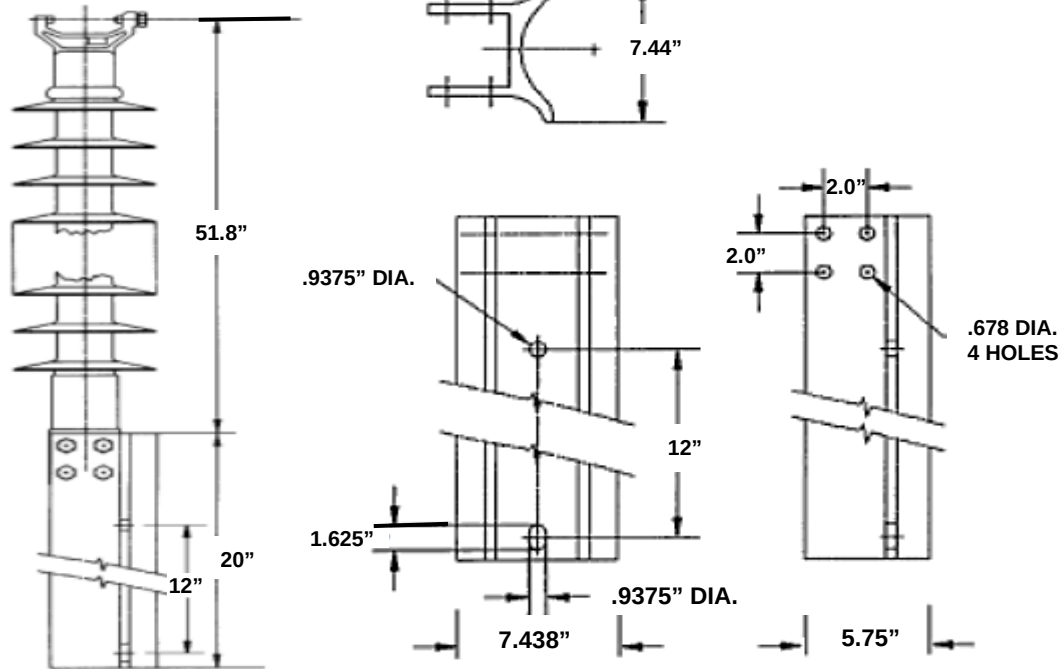
Date: 2/27/2018

Page 1 of 1

Revision: **Updated Catalog Numbers**

Stds Committee Approval:  
**Approved**

**Vertical Clamp Tops: Galvanized steel per  
ANSI C29.7.**



**Side Mount**

**Specifications:**

**Insulators:** Shall be manufactured from a fiberglass rod with one piece Polymer weather sheds made of a non-tracking elastomer such as EPDM Rubber or EP Silicone and fully bonded to the core. Insulators shall be rated and tested in accordance with ANSI C29.11.

**Vertical Clamp Tops:** Galvanized steel clamp top per ANSI C29.7.

**Horizontal Mounting Base:** Shall be bendable aluminum or galvanized steel gain style with (2) holes on 12" centers. The top hole diameter will be .9375" and the bottom hole will be elongated .9375" x 1.625".

**Packaging and Marking:** Each insulator shall be individually packaged & permanently marked with the manufacturer's name and catalog number.

**Approved Manufactures:**

| PUD IDENTIFICATION                                                                       |           | MANUFACTURER CATALOG NUMBER |           |
|------------------------------------------------------------------------------------------|-----------|-----------------------------|-----------|
| Stock Description                                                                        | Stock No. | HUBBELL OHIO/BRASS          | NGK LOCKE |
| INSULATOR, VERTICAL POST, SIDE MOUNT, POLY, 115KV, 54", W/ 20" BRACKET, TOTAL LENGTH 74" | 021820    | P250043S2230                | OBSOLETE  |

**INSULATOR, GUY  
FIBERGLASS**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 7/5/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**9/22/06**

**Application:** Fiberglass-reinforced, plastic guy insulators are used in the down guys and span guys of 15kV distribution lines to electrically insulate the guys.

**Specifications:**

**Dimensions:** Insulators shall have an insulated length of 12 inches.

**Electrical Ratings:** Minimum dry flashover shall be 140kV; minimum wet flashover shall be 70kV.

**Strength Ratings:** Insulators shall have a minimum breaking strength of either 15000 lbs or 30,000 lbs.

**Tests:** Insulators shall be tested electrically and mechanically per ANSI C29.1 as applicable. Test results shall be supplied upon request.

**Material:** Insulator shall be epoxy or polyester resin fiberglass with ultraviolet inhibitor. Color shall be light gray.

**Finish:** The insulator shall have a high gloss 2 mil minimum acrylic (aliphatic) urethane finish or equivalent to resist the adherence of contaminating materials, to minimize tracking and to prevent ultraviolet degradation.

**Fittings:** The unit shall be provided with end fittings which include guy wire rollers at each end capable of accepting 3/8" to 5/8" guy strand. End Fittings shall be pearlitic malleable iron casting per ASTM Specification A-220, or ductile iron casting per ASTM Specification A-536, latest revisions. Casting shall be hot dip galvanized per ASTM Specification A-153, latest revision.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage in a container convenient for handling and storage. Manufacturer's name or symbol, catalog number and rated mechanical strength shall be on each part and its packaging. The month and year of manufacture shall be permanently stamped on the insulator.

**Approved Manufacturers**

| PUD IDENTIFICATION                    |           | MANUFACTURER CATALOG NUMBER |             |
|---------------------------------------|-----------|-----------------------------|-------------|
| Stock Description                     | Stock No. | MacLean                     | Hughes      |
| Insulator, Guy, Fiberglass, 15M#, 12" | 021890    | GCC15-12R2                  | CF692-12R2  |
| Insulator, Guy, Fiberglass, 30M#, 12" | 021895    | GCC30-12R2                  | CF695-12-R2 |
| Insulator, Guy, Fiberglass, 30M#, 36" | 021900    | GCC30-36R2                  | CF695-36R2  |
| Insulator, Guy, Fiberglass, 30M#, 54" | 021950    | GCC30-54R2                  | CF695-54R2  |
| Insulator, Guy, Fiberglass, 30M#, 96" | 021960    | GS3096R2                    | CF695-96R2  |



INSULATORS, PORCELAIN PIN

Originator: DSmith

Date: 6/1/2023

Approval: J. Mitchell

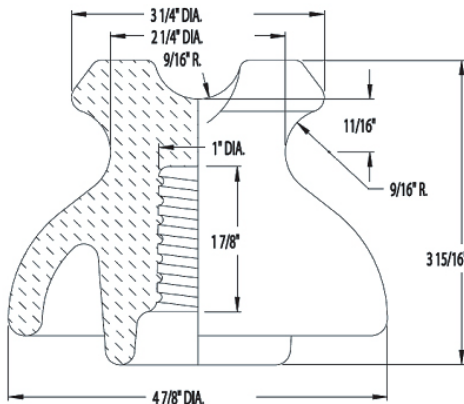
Date: 5/24/2023

Page 1 of 1

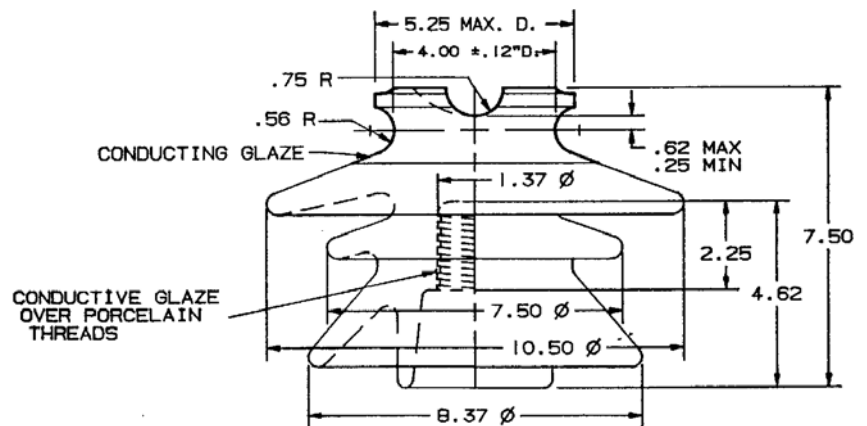
Revision: **Revised description for 021550.**

Stds Committee Approval:  
**Approved**

ANSI Class 55-3 "C" Neck



ANSI Class 55-3 "K" Neck



**Specification:**

**Pin-Type Porcelain Insulators** for low-and medium-voltage shall be of the configurations shown, and shall be made of good commercial-grade, wet-process porcelain in accordance with EEI-NEMA Standards TDJ-55, except as modified herein. Supplied with semi conductive glass to eliminate noise. Color as specified in description below.

**Reference Specifications:** EEI-NEMA TDJ-55, latest revision.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and its packaging.

**Approved Manufacturers:**

| PUD Identification                                                            |          | Manufacturer Catalog Number |                 |         |
|-------------------------------------------------------------------------------|----------|-----------------------------|-----------------|---------|
| Stock Description                                                             | Item No. | PPC Insulators              | Lapp Insulators | Victor  |
| INSULATORS, PIN, 11.5 KV WHITE PORCELAIN, ANSI CLASS 55-3, "C" Neck           | 021320   | 261S-W                      |                 |         |
| INSULATORS, PIN, 11.5 KV, GRAY PORCELAIN, ANSI CLASS 55-3, "C" Neck           | 021340   | 261S-MG                     | 6184R-70        | VI 605R |
| INSULATORS, PIN, 35 KV GRAY PORCELAIN, ANSI CLASS 56-3, "J" Neck, 1" PIN HOLE | 021550   |                             |                 | VI 611R |

**INSULATORS, PORCELAIN  
SUBSTATION POST**

Originator: DSmith

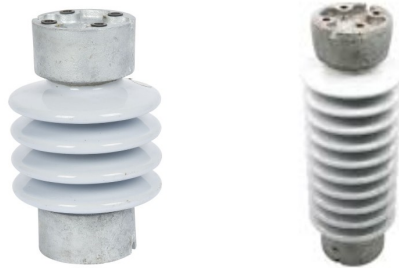
Date: 8/25/06

Approval: Daniel Scott

Date: 08/11/25

Page 1 of 1

Revision: Rev 2: added TR286

Stds Committee Approval:  
**Pending****Specification:**

| <b>ANSI C29.9 TECHNICAL<br/>REFERENCE</b>      | <b>TR205</b> | <b>TR225</b> | <b>TR208</b> | <b>TR286</b> |
|------------------------------------------------|--------------|--------------|--------------|--------------|
| <b>Dimensions</b>                              |              |              |              |              |
| Leakage Distance (in)                          | 15.5         | 15.5         | 24           | 99           |
| Height (in)                                    | 10           | 12           | 14           | 45           |
| Max Shed Diameter (in)                         | 7            | 8            | 7            | 10.5         |
| Bolt Circle Diameter (in)                      | 3            | 5            | 3            | 5            |
| <b>Mechanical Values</b>                       |              |              |              |              |
| Cantilever Strength, Upright,<br>Underhung lbf | 2000         | 4000         | 2000         | 1700         |
| Tension Strength, lbf                          | 8500         | 20000        | 10000        | 20000        |
| Torsion Strength, in-lbf                       | 7000         | 14000        | 8000         | 40000        |
| Compression Strength, lbf                      | 10000        | 20000        | 10000        | 60000        |
| <b>Electrical Values</b>                       |              |              |              |              |
| BIL                                            | 110kV        | 110kV        | 150kV        | 550kV        |
| Impulse Flashover, Positive, kV                | 125          | 125          | 170          | 610          |
| Low Frequency Withstand, 10 Sec.<br>Wet, kV    | 45           | 45           | 60           | 230          |
| Impulse Withstand, kV                          | 110          | 110          | 150          | 550          |
| <b>Radio Influence Voltage Data</b>            |              |              |              |              |
| Test Voltage, Rms to Ground, kV                | 10           | 10           | 15           | 73           |
| Maximum RIV, Microvolts at<br>1000kHz          | 50           | 50           | 100          | 200          |

**Application:** Porcelain substation post insulators used for insulating Switches & Substation Bus.**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and its packaging.**Chelan PUD Stock Numbers with ANSI Technical Reference Number:****021620** (TR205)**021640** (TR225)**021650** (TR208)**022050** (TR286, 115 kV)**Approved Manufacturers:**

Hubbell, LAPP, PPC Insulators, Victor, NGK-Locke





# INSULATORS, DISTRIBUTION, SUSPENSION, DEAD-END, POLYMER

Originator: DSmith

Date: 8/24/2007

Approval: DSmith

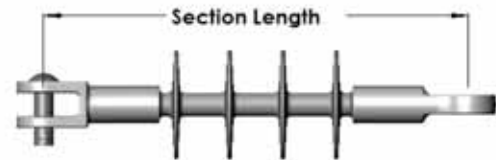
Date: 8/24/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:  
**Approved**

**Specification:** Composite suspension insulator shall comply with the latest revision of IEEE P1024 and meet the following requirements:



1. Weather Sheds: Non-tracking elastomer such as EPDM Rubber or Silicone.
2. Core: Fiberglass, polyester, or epoxy resin.
3. End Fittings: Aluminum alloy 356-T6 or galvanized malleable iron ASTM A47M
4. Grade 22010 coated per ASTM A-153 Class A.
5. Construction: The weather sheds shall be one piece molded type, fully bonded to the core. The end fitting/weather shed interface shall be sealed from moisture entry and free of voids. End fittings shall be attached to the core by swaging (compression).
6. Color: Shall be Sky Gray.
7. All ratings meet or exceed the requirements of ANSI C29.13 (2000) and LWIWG-01(96)  
Corrosion Resistant Boron Free Fiberglass Core / Silicone Housing /  
ANSI 52-4 Clevis & Tongue End Fittings.

| Stock # | Line Voltage | Nominal Section Length (in) | Strength Class | Working Load | Dry Arc (in) | Leakage (in) | Dry Electrical Flashover (kV) 60 Hz | Wet Electrical Flashover (kV) 60 Hz | ANSI Class |
|---------|--------------|-----------------------------|----------------|--------------|--------------|--------------|-------------------------------------|-------------------------------------|------------|
| 21400   | 15kv         | 13                          | 15K            | 7500         | 7.6          | 15           | 90                                  | 65                                  | DS-15      |
| 21403   | 27kv         | 17                          | 15K            | 7500         | 11.6         | 24.7         | 130                                 | 100                                 | DS-28      |

## Approved Manufacturers

| PUD IDENTIFICATION                                              |           | MANUFACTURER CATALOG NUMBER |             |          |         |
|-----------------------------------------------------------------|-----------|-----------------------------|-------------|----------|---------|
| Stock Description                                               | Stock No. | Salisbury                   | Hubbell     | Volt TEK | MacLean |
| Insulator, Suspension Dead End Poly 15kv, 13", ANSI Class DS-15 | 021400    | 9501U-SI                    | 401015-0215 | 1515-00  | DS-15M  |
| Insulator, Suspension Dead End Poly 27kv, 17", ANSI Class DS-28 | 021403    | 9502U-SI                    | 401025-0215 | 2515-00  | DS-28M  |

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol, catalog number, strength rating and date code shall be on each part or its packaging.

Every insulator in production runs shall be marked permanently and legibly in large, easily read figures with manufacturer's published routine proof tension load per ANSI C29.1.

**SPOOL INSULATOR - POLYMER**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 7/7/06

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Used for terminator secondary overhead conductor or neutrals. Direct replacement for existing porcelain insulators.

**Specification:** Each unit shall be molded from a UV-stable polymer and meet all requirements for ANSI 53-2 spool insulators. It will be compatible with all standard hardware installations; its shape shall be consistent with its porcelain counterpart.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                           |           | MANUFACTURER CATALOG NUMBER |           |
|--------------------------------------------------------------|-----------|-----------------------------|-----------|
| Stock Description                                            | Stock No. | JOSLYN                      | HUBBELL   |
| Insulator, Polymer, #2 Spool Only, Black, Use With 5/8" Bolt | 021250    | -                           | C9091032P |

**INSULATOR, PORCELAIN GUY STRAIN**

Originator: DSmith

Date: 7/10/2006

Approval: DSmith

Date: 7/5/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**APPROVED**

**Application:** The porcelain guy strain insulator is used to electrically insulate guy wires. This insulator is suitable for use in guying circuits to 15kV YG. For higher distribution voltages (24.9 and 34.5kV YG) this insulator must be doubled.

**Ordering Description:** (size) inches porcelain guy strain insulator, ANSI ( ) class, gray or skytone glaze with the following requirements:

**Material:** Guy strain insulators shall be fabricated from wet process porcelain per latest revision of ANSI C29.4.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and its packaging.

| Details                   | ANSI Class | Maximum Cable Diameter Inches | Ultimate Tensile Strength Lbs. | Max. Operating Load (Lbs.) | Low Frequency Flashover, kV |     |
|---------------------------|------------|-------------------------------|--------------------------------|----------------------------|-----------------------------|-----|
|                           |            |                               |                                |                            | Dry                         | Wet |
| Size<br>2 1/8"D x 4 1/2"L | 54-2       | 1/2                           | 12,000                         | 6000                       | 30                          | 15  |

**Approved Manufacturers**

| PUD IDENTIFICATION       |           | MANUFACTURER CATALOG NUMBER |           |         |         |        |  |
|--------------------------|-----------|-----------------------------|-----------|---------|---------|--------|--|
| Stock Description        | Stock No. | Joslyn                      | Porc Prod | Lapp    | Santana | Victor |  |
| INSLTR GUY PORC 4"L, 12K | 021170    | L504                        | 504       | 8504-70 | CA12014 | 504    |  |

**RIGID CLEVIS with INSULATOR  
Secondary & Grounding**

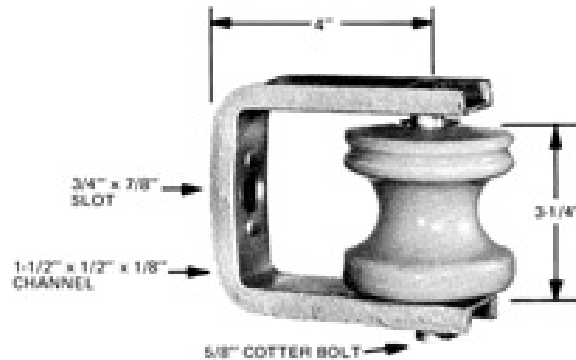
Originator: C. Rissman

Date: 7/7/06

Approval:

Date: 4/25/2008

Page 1 of 1

Revision: **Revised Draft**Stds Committee Approval:  
**Approved**

**Application:** This rigid clevis for spool insulator are used to deadend or support overhead services, secondaries and common neutrals. Mounting holes are slotted to permit installation without removing insulators.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                                                  |           | MANUFACTURER CATALOG NUMBER |         |           |
|-----------------------------------------------------------------------------------------------------|-----------|-----------------------------|---------|-----------|
| Stock Description                                                                                   | Stock No. | MacLaen                     | Hubbell | Porc Prod |
| DEADEND, CLEVIS, RIGID, HD GALV 3/4" BOLT HOLE, WILL TAKE 3 1/4" DEADEND, SPOOL INSULATOR, NO SPOOL | 027850    | J93                         |         |           |

**INSULATOR, SERVICE KNOB – NYLON  
Pin & Clamp Type**

Originator: DSmith

Date: 8/2/2006

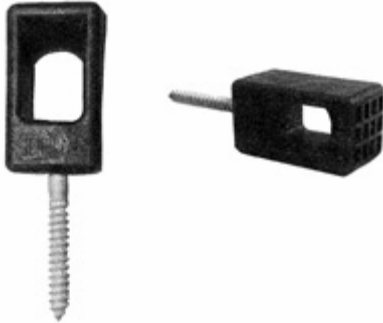
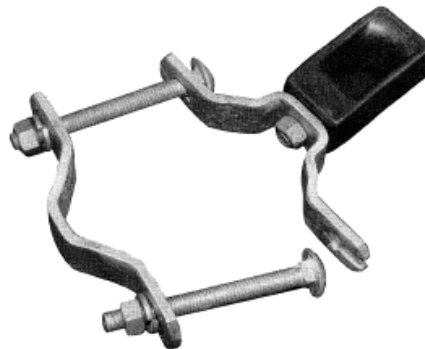
Approval: DSmith

Date: 7/5/2007

Page 1 of 1

Revision: **NEW**Std's Committee Approval:  
**Approved**

Pin Type

Clamp Type For  
Service Mast

**Application:** Used to attached service wire to a wooden structure (Pin Type) or service mast. (Clamp type).

**Common Name:** House Knob or Mast Clamp

**Description:** Each unit shall be manufactured wireholders are manufactured from an engineered blend of nylon alloy reinforced with fibers to provide approximately twice the fracture strength as porcelain. The durable nylon alloy material shall be U.V. stabilized for extended service life in ultraviolet exposure.

The bracket design features an open slot which allows the bracket to be installed without disassembling the bolts. Accommodates a range of 1-1/4 through 3-inch diameter pipe. Insulator Color shall be Black.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** Special Shipping Instructions

**Approved Manufacturers:**

| PUD IDENTIFICATION                          |           | MANUFACTURER CATALOG NUMBER |          |
|---------------------------------------------|-----------|-----------------------------|----------|
| Stock Description                           | Stock No. | JOSLYN                      | Hubbell  |
| INSULATOR, SERVICE KNOB, CLAMP TYPE - NYLON | 020650    | J0588Z                      |          |
| INSULATOR, SERVICE KNOB, PIN TYPE - NYLON   | 021990    | J0893Z                      | C2070139 |

**INSULATOR, BRACKET  
TRANSFORMER LEAD TRAINER  
OBSOLETE**

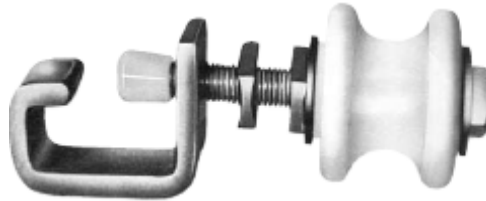
Originator: DSmith

Date: 8/2/2006

Approval: DSmith

Date: 9/22/2009

Page 1 of 1

Revision: **NEW**Std's Committee Approval:  
**Approved**

**Application:** These brackets are clamped to the bottom edge of the transformer tank to provide an insulated support for the secondary leads. A polyethylene cap at the bolt end protects the outside of the transformer from getting scratched. Each bracket is shipped complete with insulator.

**Specification:** All mounting hardware shall be hot dipped galvanized. A J101 insulator is supplied with each unit.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                            |           | MANUFACTURER CATALOG NUMBER |         |
|---------------------------------------------------------------|-----------|-----------------------------|---------|
| Stock Description                                             | Stock No. | JOSLYN                      | Hubbell |
| INSULTOR, SECONDARY LEAD BRKT, W/<br>SPOOL INSULATOR, 6" Bolt | 021870    | J6765                       | 9114    |



# FASTENERS

Originator: DSmith

Date: 2/8/2007

Approval: DSmith

Date: 2/8/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



# FASTENERS







## CARRIAGE BOLTS Galvanized or Zinc Plated

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/19/2007

Page 1 of 3

Revision: **NEW**

Std's Committee Approval:

**Approved**

**Description:** Carriage bolts are roll threaded with square shoulder and square nut. Manufactured in accordance with ANSI standards.

**Finish:** Steel is zinc plated for moderate protection against rust

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

### **Approved Manufacturers** MacLean/Joslyn, Hubbell Power Systems

| Stock # | Description |
|---------|-------------|
|---------|-------------|

|        |                                                                              |
|--------|------------------------------------------------------------------------------|
| 145430 | BOLT, CARRIAGE, 3/16" X 3/4", NC, GD 2, ZINC PLT, USE 10-24 NUTS FOR 3/16"   |
| 145431 | BOLT, CARRIAGE, 3/16" X 1", NC, GD 2, ZINC PLT, USE 10-24 NUTS FOR 3/16"     |
| 145432 | BOLT, CARRIAGE, 3/16" X 1-1/4", NC, GD 2, ZINC PLT, USE 10-24 NUTS FOR 3/16" |
| 145433 | BOLT, CARRIAGE, 3/16" X 1-1/2", NC, GD 2, ZINC PLT, USE 10-24 NUTS FOR 3/16" |
| 145435 | BOLT, CARRIAGE, 3/16" X 2", NC, GD 2, ZINC PLT, USE 10-24 NUTS FOR 3/16"     |
| 145437 | BOLT, CARRIAGE, 3/16" X 2-1/2", NC, GD 2, ZINC PLT, USE 10-24 NUTS FOR 3/16" |
| 145438 | BOLT, CARRIAGE, 3/16" X 3", NC, GD 2, ZINC PLT, USE 10-24 NUTS FOR 3/16"     |
| 145439 | BOLT, CARRIAGE, 1/4" X 1/2", NC, GD 2, ZINC PLT                              |
| 145440 | BOLT, CARRIAGE, 1/4" X 3/4", NC, GD 2, ZINC PLT                              |
| 145441 | BOLT, CARRIAGE, 1/4" X 1", NC, GD 2, ZINC PLT                                |
| 145442 | BOLT, CARRIAGE, 1/4" X 1-1/4", NC, GD 2, ZINC PLT                            |
| 145443 | BOLT, CARRIAGE, 1/4" X 1-1/2", NC, GD 2, ZINC PLT                            |
| 145444 | BOLT, CARRIAGE, 1/4" X 1-3/4", NC, GD 2, ZINC PLT                            |
| 145445 | BOLT, CARRIAGE, 1/4" X 2", NC, GD 2, ZINC PLT                                |
| 145446 | BOLT, CARRIAGE, 1/4" X 2-1/4", NC, ZINC PLT                                  |
| 145447 | BOLT, CARRIAGE, 1/4" X 2-1/2", NC, GD 2, ZINC PLT                            |
| 145448 | BOLT, CARRIAGE, 1/4" X 2-3/4", NC, GD 2, ZINC PLT                            |
| 145449 | BOLT, CARRIAGE, 1/4" X 3", NC, GD 2, ZINC PLT                                |
| 145450 | BOLT, CARRIAGE, 1/4" X 3-1/2", NC, GD 2, ZINC PLT                            |
| 145451 | BOLT, CARRIAGE, 1/4" X 4", NC, GD 2, ZINC PLT                                |
| 145452 | BOLT, CARRIAGE, 1/4" X 4-1/2", NC, GD 2, ZINC PLT                            |
| 145453 | BOLT, CARRIAGE, 1/4" X 5", NC, GD 2, ZINC PLT                                |
| 145454 | BOLT, CARRIAGE, 1/4" X 5-1/2", NC, GD 2, ZINC PLT                            |
| 145455 | BOLT, CARRIAGE, 5/16" X 3/4", NC, GD 2, ZINC PLT                             |
| 145457 | BOLT, CARRIAGE, 5/16" X 1", NC, GD 2, ZINC PLT                               |
| 145458 | BOLT, CARRIAGE, 5/16" X 1-1/4", NC, GD 2, ZINC PLT                           |
| 145459 | BOLT, CARRIAGE, 5/16" X 1-1/2", NC, GD 2, ZINC PLT                           |
| 145460 | BOLT, CARRIAGE, 5/16" X 1-3/4", NC, GD 2, ZINC PLT                           |

**- Material Catalog -****Fasteners****5010.01**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*

**CARRIAGE BOLTS**  
**Galvanized or Zinc Plated**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/19/2007

Page 2 of 3

Revision: **NEW**

Stds Committee Approval:

**Approved**

|        |                                                    |
|--------|----------------------------------------------------|
| 145461 | BOLT, CARRIAGE, 5/16" X 2", NC, GD 2, ZINC PLT     |
| 145462 | BOLT, CARRIAGE, 5/16" X 2-1/4", NC, GD 2, ZINC PLT |
| 145463 | BOLT, CARRIAGE, 5/16" X 2-1/2", NC, GD 2, ZINC PLT |
| 145464 | BOLT, CARRIAGE, 5/16" X 3", NC, GD 2, ZINC PLT     |
| 145465 | BOLT, CARRIAGE, 5/16" X 3-1/2", NC, GD 2, ZINC PLT |
| 145466 | BOLT, CARRIAGE, 5/16" X 4", NC, GD 2, ZINC PLT     |
| 145467 | BOLT, CARRIAGE, 5/16" X 4-1/2", NC, GD 2, ZINC PLT |
| 145468 | BOLT, CARRIAGE, 5/16" X 5", NC, GD 2, ZINC PLT     |
| 145469 | BOLT, CARRIAGE, 5/16" X 5-1/2", NC, GD 2, ZINC PLT |
| 145470 | BOLT, CARRIAGE, 5/16" X 6", NC, GD 2, ZINC PLT     |
| 145471 | BOLT, CARRIAGE, 3/8" X 1", NC, GD 2, ZINC PLT      |
| 145472 | BOLT, CARRIAGE, 3/8" X 1-1/4", NC, GD 2, ZINC PLT  |
| 145473 | BOLT, CARRIAGE, 3/8" X 1-1/2", NC, GD 2, ZINC PLT  |
| 145474 | BOLT, CARRIAGE, 3/8" X 1-3/4", NC, GD 2, ZINC PLT  |
| 145475 | BOLT, CARRIAGE, 3/8" X 2", NC, GD 2, ZINC PLT      |
| 145476 | BOLT, CARRIAGE, 3/8" X 2-1/4", NC, GD 2, ZINC PLT  |
| 145477 | BOLT, CARRIAGE, 3/8" X 2-1/2", NC, GD 2, ZINC PLT  |
| 145478 | BOLT, CARRIAGE, 3/8" X 2-3/4", NC, GD 2, ZINC PLT  |
| 145479 | BOLT, CARRIAGE, 3/8" X 3", NC, GD 2, ZINC PLT      |
| 145480 | BOLT, CARRIAGE, 3/8" X 3-1/2", NC, GD 2, ZINC PLT  |
| 145481 | BOLT, CARRIAGE, 3/8" X 4", NC, GD 2, ZINC PLT      |
| 145482 | BOLT, CARRIAGE, 3/8" X 4-1/2", NC, GD 2, ZINC PLT  |
| 145483 | BOLT, CARRIAGE, 3/8" X 5", NC, GD 2, ZINC PLT      |
| 145484 | BOLT, CARRIAGE, 3/8" X 5-1/2", NC, GD 2, ZINC PLT  |
| 145485 | BOLT, CARRIAGE, 3/8" X 6", NC, GD 2, ZINC PLT      |
| 145486 | BOLT, CARRIAGE, 3/8" X 7", NC, GD 2, ZINC PLT      |
| 145487 | BOLT, CARRIAGE, 3/8" X 8", NC, GD 2, ZINC PLT      |
| 145488 | BOLT, CARRIAGE, 7/16" X 1", NC, GD 2, ZINC PLT     |
| 145489 | BOLT, CARRIAGE, 7/16" X 1-1/4", NC, GD 2, ZINC PLT |
| 145490 | BOLT, CARRIAGE, 7/16" X 1-1/2", NC, GD 2, ZINC PLT |
| 145492 | BOLT, CARRIAGE, 7/16" X 2", NC, GD 2, ZINC PLT     |
| 145494 | BOLT, CARRIAGE, 7/16" X 2-1/2", NC, GD 2, ZINC PLT |
| 145495 | BOLT, CARRIAGE, 7/16" X 3", NC, GD 2, ZINC PLT     |
| 145496 | BOLT, CARRIAGE, 7/16" X 3-1/2", NC, GD 2, ZINC PLT |
| 145497 | BOLT, CARRIAGE, 7/16" X 4", NC, GD 2, ZINC PLT     |
| 145498 | BOLT, CARRIAGE, 7/16" X 5", NC, GD 2, ZINC PLT     |
| 145499 | BOLT, CARRIAGE, 7/16" X 6", NC, GD 2, ZINC PLT     |
| 145500 | BOLT, CARRIAGE, 1/2" X 1-1/2", NC, GD 2, ZINC PLT  |
| 145501 | BOLT, CARRIAGE, 1/2" X 2", NC, GD 2, ZINC PLT      |
| 145502 | BOLT, CARRIAGE, 1/2" X 2-1/2", NC, GD 2, ZINC PLT  |
| 145503 | BOLT, CARRIAGE, 1/2" X 3", NC, GD 2, ZINC PLT      |
| 145504 | BOLT, CARRIAGE, 1/2" X 3-1/2", NC, GD 2, ZINC PLT  |
| 145505 | BOLT, CARRIAGE, 1/2" X 4", NC, GD 2, ZINC PLT      |
| 145506 | BOLT, CARRIAGE, 1/2" X 4-1/2", NC, GD 2, ZINC PLT  |
| 145507 | BOLT, CARRIAGE, 1/2" X 5", NC, GD 2, ZINC PLT      |
| 145508 | BOLT, CARRIAGE, 1/2" X 6", NC, GD 2, ZINC PLT      |
| 145509 | BOLT, CARRIAGE, 1/2" X 7", NC, GD 2, ZINC PLT      |
| 145510 | BOLT, CARRIAGE, 1/2" X 7-1/2", NC, GD 2, ZINC PLT  |
| 145511 | BOLT, CARRIAGE, 1/2" X 8", NC, GD 2, ZINC PLT      |

**- Material Catalog -****Fasteners****5010.01**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*

**CARRIAGE BOLTS  
Galvanized or Zinc Plated**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/19/2007

Page 3 of 3

Revision: **NEW**

Stds Committee Approval:

**Approved**

|        |                                                                    |
|--------|--------------------------------------------------------------------|
| 145512 | BOLT, CARRIAGE, 5/8" X 1-1/2", NC, GD 2, ZINC PLT                  |
| 145513 | BOLT, CARRIAGE, 5/8" X 2", NC, GD 2, ZINC PLT                      |
| 145514 | BOLT, CARRIAGE, 5/8" X 2-1/2", NC, GD 2, ZINC PLT                  |
| 145515 | BOLT, CARRIAGE, 5/8" X 3", NC, GD 2, ZINC PLT                      |
| 145516 | BOLT, CARRIAGE, 5/8" X 3-1/2", NC, GD 2, ZINC PLT                  |
| 145517 | BOLT, CARRIAGE, 5/8" X 4", NC, GD 2, ZINC PLT                      |
| 145518 | BOLT, CARRIAGE, 5/8" X 4-1/2", NC, GD 2, ZINC PLT                  |
| 145519 | BOLT, CARRIAGE, 5/8" X 5", NC, GD 2, ZINC PLT                      |
| 145520 | BOLT, CARRIAGE, 5/8" X 6", NC, GD 2, ZINC PLT                      |
| 145521 | BOLT, CARRIAGE, 5/8" X 7", NC, GD 2, ZINC PLT                      |
| 145522 | BOLT, CARRIAGE, 5/8" X 8", NC, GD 2, ZINC PLT                      |
| 145992 | BOLT, CARRIAGE, 3/4 X 2-1/2, NC, GD 2, ZINC PLT                    |
| 145993 | BOLT, CARRIAGE, 3/4 X 3, NC, GD 2, ZINC PLT                        |
| 145994 | BOLT, CARRIAGE, 3/4 X 3-1/2, NC, GD 2, ZINC PLT                    |
| 145995 | BOLT, CARRIAGE, 3/4 X 4, NC, GD 2, ZINC PLT                        |
| 145996 | BOLT, CARRIAGE, 3/4 X 4-1/2, NC, GD 2, ZINC PLT                    |
| 145997 | BOLT, CARRIAGE, 3/4 X 5, NC, GD 2, ZINC PLT                        |
| 145998 | BOLT, CARRIAGE, 3/4 X 6, NC, GD 2, ZINC PLT                        |
| 145999 | BOLT, CARRIAGE, 3/4 X 7, NC, GD 2, ZINC PLT                        |
| 146000 | BOLT, CARRIAGE, 3/4 X 8, NC, GD 2, ZINC PLT                        |
| 146239 | BOLT, CARRIAGE, 3/8 X 7, HD, GALVANIZED, NC                        |
| 146431 | BOLT, EYE, 1" NC X 2-1/2", W/SHOULDER                              |
| 146436 | BOLT, CARRIAGE, 5/16" X 7", NC, GD 2, ZINC PLT.                    |
| 165350 | BOLT, CARRIAGE, 1/4" X 2", GALVANIZED                              |
| 165351 | BOLT, CARRIAGE, 1/4" X 2-1/4", NC, GALVANIZED                      |
| 165352 | BOLT, CARRIAGE, 3/8" X 2-1/2", NC, GALVANIZED                      |
| 165443 | BOLT, CARRIAGE, 5/16" - 18 X 8", GRADE 2, ZINC PLT                 |
| 165444 | BOLT, CARRIAGE, 3/8" X 3-1/4", NC                                  |
| 166161 | BOLT, CARRIAGE, 1/4" X 7", NC, GD 2, ZINC PLATE                    |
| 166669 | CARRIAGE, 3/8" X 3/4", ZINC PLT. W/LOCK ING NUT, B-LINE CABLE TRAY |



**BOLT, DOUBLE-ARMING  
with Four Square Nuts - Galvanized**

Originator: DSmith

Date: 7/9/2007

Approval: J Mitchell

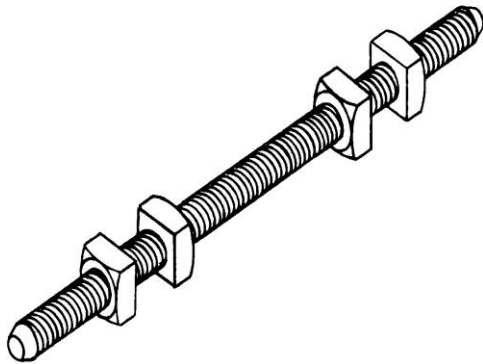
Date: 2/13/13

Page 1 of 1

Revision: Added Item

Std's Committee Approval: Approved

**Application:** Double arm bolts are used for mounting pole line hardware on wood crossarms.



**Specification:** Double arm bolts and nuts shall conform to latest revision of ANSI B18.2.1 and ANSI C135.1.

**Bolts:** Bolt threads shall be machine rolled the full length of the bolt prior to galvanizing, and shall meet tolerances as specified per ANSI B1.1, Series UNC, Class 2B.

**Nuts:** Nut thread shall be tapped to meet tolerances as specified per ANSI B1.1, Series UNC, Class 2B.

**Material:** Hot rolled carbon steel bar per latest revision of ASTM A307

**Finish:** Double arm bolt shall be galvanized per ASTM A153.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on its packaging.

| ITEM NUM | DESCRIPTION                            | ITEM NUM | DESCRIPTION                            |
|----------|----------------------------------------|----------|----------------------------------------|
| 010100   | BOLT, DA, GALV, 1/2" X 26" W/ 4 SQ NUT | 010360   | BOLT, DA, GALV, 5/8" X 36" W/ 4 SQ NUT |
| 010120   | BOLT, DA, GALV, 1/2" X 28" W/ 4 SQ NUT | 010440   | BOLT, DA, GALV, 3/4" X 14" W/ 4 SQ NUT |
| 010130   | BOLT, DA, GALV, 1/2" X 30" W/ 4 SQ NUT | 010442   | BOLT, DA, GALV, 3/4" X 16" W/ 4 SQ NUT |
| 010132   | BOLT, DA, GALV, 1/2" X 32" W/ 4 SQ NUT | 010444   | BOLT, DA, GALV, 3/4" X 18" W/ 4 SQ NUT |
| 010134   | BOLT, DA, GALV, 1/2" X 34" W/ 4 SQ NUT | 010446   | BOLT, DA, GALV, 3/4" X 20" W/ 4 SQ NUT |
| 010050   | BOLT, DA, GALV, 5/8" X 5" W/ 4 SQ NUT  | 010520   | BOLT, DA, GALV, 3/4" X 22" W/ 4 SQ NUT |
| 010140   | BOLT, DA, GALV, 5/8" X 14" W/ 4 SQ NUT | 010540   | BOLT, DA, GALV, 3/4" X 24" W/ 4 SQ NUT |
| 010160   | BOLT, DA, GALV, 5/8" X 16" W/ 4 SQ NUT | 010560   | BOLT, DA, GALV, 3/4" X 26" W/ 4 SQ NUT |
| 010180   | BOLT, DA, GALV, 5/8" X 18" W/ 4 SQ NUT | 010580   | BOLT, DA, GALV, 3/4" X 28" W/ 4 SQ NUT |
| 010200   | BOLT, DA, GALV, 5/8" X 20" W/ 4 SQ NUT | 010600   | BOLT, DA, GALV, 3/4" X 30" W/ 4 SQ NUT |
| 010220   | BOLT, DA, GALV, 5/8" X 22" W/ 4 SQ NUT | 010602   | BOLT, DA, GALV, 3/4" X 32" W/ 4 SQ NUT |
| 010220   | BOLT, DA, GALV, 5/8" X 22" W/ 4 SQ NUT | 010604   | BOLT, DA, GALV, 3/4" X 34" W/ 4 SQ NUT |
| 010240   | BOLT, DA, GALV, 5/8" X 24" W/ 4 SQ NUT | 010660   | BOLT, DA, GALV, 3/4" X 36" W/ 4 SQ NUT |
| 010260   | BOLT, DA, GALV, 5/8" X 26" W/ 4 SQ NUT | 010660   | BOLT, DA, GALV, 3/4" X 36" W/ 4 SQ NUT |
| 010260   | BOLT, DA, GALV, 5/8" X 26" W/ 4 SQ NUT |          |                                        |
| 010280   | BOLT, DA, GALV, 5/8" X 28" W/ 4 SQ NUT |          |                                        |
| 010300   | BOLT, DA, GALV, 5/8" X 30" W/ 4 SQ NUT |          |                                        |
| 010300   | BOLT, DA, GALV, 5/8" X 30" W/ 4 SQ NUT |          |                                        |
| 010302   | BOLT, DA, GALV, 5/8" X 32" W/ 4 SQ NUT |          |                                        |
| 010304   | BOLT, DA, GALV, 5/8" X 34" W/ 4 SQ NUT |          |                                        |



**EYE BOLT, Plain /Thimble  
with Square Nut  
GALVANIZED**

Originator: DSmith

Date: 7/13/2006

Approval: DSmith

Date: 6/19/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Eye bolts are used for mounting pole line hardware on wood structures.

**Specification:** Eye bolts and nuts shall conform to latest revisions of ANSI B18.2.1, B18.2.2, C135.4

**Bolts:** Bolt threads shall be machine rolled prior to galvanizing, and shall meet tolerances as specified per ANSI B1.1 series UNC, Class 2B. Minimum thread length shall be 4 inches on 6, 8 and 10 inch bolts, 6 inches rolled threads on all other lengths.

**Nuts:** Nut thread shall be tapped to meet tolerances as specified per ANSI B1.1, series UNC, Class 2B.

**Material:** Hot rolled carbon steel bar per latest revision of ASTM A307.

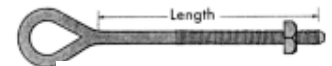
**Finish:** Eye bolt shall be galvanized per ASTM A153.

**Strength:** minimum tensile strength shall be 12,400 lbs.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each bolt or its packaging.

**Approved Manufacturers: Hubbel, Joslyn**

Thimble Eye



Plain Eye

| ITEMNUM | DESCRIPTION                                               |
|---------|-----------------------------------------------------------|
| 011460  | BOLT, EYE PLAIN, GALV, 5/8" X 6" W/ SQ NUT                |
| 011480  | BOLT, EYE PLAIN, GALV, 5/8" X 8" W/ SQ NUT                |
| 011500  | BOLT, EYE PLAIN, GALV, 5/8" X 10" W/ SQ NUT               |
| 011520  | BOLT, EYE PLAIN, GALV, 5/8" X 12" W/ SQ NUT               |
| 011520  | BOLT, EYE PLAIN, GALV, 5/8" X 12" W/ SQ NUT               |
| 011540  | BOLT, EYE PLAIN, GALV, 5/8" X 14" W/ SQ NUT               |
| 011560  | BOLT, EYE PLAIN, GALV, 5/8" X 16" W/ SQ NUT               |
| 011580  | BOLT, EYE PLAIN, GALV, 5/8" X 18" W/ SQ NUT               |
| 011600  | BOLT, EYE PLAIN, GALV, 5/8" X 20" W/ SQ NUT               |
| 011640  | BOLT, EYE PLAIN, GALV, 5/8" X 24" W/ SQ NUT               |
| 011660  | BOLT, EYE PLAIN, GALV, 5/8" X 26" W/ SQ NUT               |
| 011700  | BOLT, EYE PLAIN, GALV, 5/8" X 30" W/ SQ NUT               |
| 011750  | BOLT, EYE PLAIN, GALV, 3/4" X 12" W/ SQ NUT               |
| 011770  | BOLT, EYE PLAIN, GALV, 3/4" X 14" W/ SQ NUT               |
| 011790  | BOLT, EYE PLAIN, GALV, 3/4" X 16" W/ SQ NUT               |
| 011810  | BOLT, EYE PLAIN, GALV, 3/4" X 18" W/ SQ NUT               |
| 011910  | BOLT, THIMBLE EYE, STRAIGHT, 5/8" X 12", HD GALV W/SQ NUT |
| 011930  | BOLT, THIMBLE EYE, STRAIGHT, 5/8" X 14", HD GALV W/SQ NUT |
| 011970  | BOLT, THIMBLE EYE, STRAIGHT, 5/8" X 18", HD GALV W/SQ NUT |
| 011990  | BOLT, THIMBLE EYE, STRAIGHT, 3/4" X 14", HD GALV W/SQ NUT |

**BOLT, MACHINE  
SQUARE HEAD With NUT  
Galvanized**

Originator: DSmith

Date: 7/9/2007

Approval: J Mitchell

Date: 1/17/2013

Page 1 of 3

Revision: **Added vendor**Std's Committee Approval:  
**Approved**

**Application:** Machine bolts are used for mounting pole line hardware on wood structures.

**Specifications:** Machine bolts and nuts shall conform to latest revision of ANSI B18.2.1, B18.2.2, ANSI C135.1.

**Bolts:** Bolt threads shall be machine rolled prior to galvanizing, and shall meet tolerances as specified per ANSI B1.1 series UNC, Class 2B. Minimum thread length shall be 3 inches on 3 1/2", 4", 4 1/2", 5", and 6" bolts, and 6 inches on all longer lengths.

**Nuts:** Thread shall be tapped to meet tolerances as specified per ANSI B1.1, Series UNC, Class 2B.

**Material:** Hot rolled carbon steel bar per latest revision of ASTM A307.

**Finish:** Machine bolt shall be galvanized per ASTM A153.

**Strength:** Minimum tensile strength shall be SAE2 7,800 lbs.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on its packaging.

**Approved Manufacturers:** Joslyn, Hubbell, & Allied

| ITEM NUM | DESCRIPTION                                       |
|----------|---------------------------------------------------|
| 008520   | BOLT, MACH SQ HEAD, GALV, 1/2" X 1 1/2" W/ SQ NUT |
| 008540   | BOLT, MACH SQ HEAD, GALV, 1/2" X 2" W/ SQ NUT     |
| 008560   | BOLT, MACH SQ HEAD, GALV, 1/2" X 2-1/2" W/ SQ NUT |
| 008580   | BOLT, MACH SQ HEAD, GALV, 1/2" X 3" W/ SQ NUT     |
| 008600   | BOLT, MACH SQ HEAD, GALV, 1/2" X 3 1/2" W/ SQ NUT |
| 008620   | BOLT, MACH SQ HEAD, GALV, 1/2" X 4" W/ SQ NUT     |
| 008640   | BOLT, MACH SQ HEAD, GALV, 1/2" X 4 1/2" W/ SQ NUT |
| 008660   | BOLT, MACH SQ HEAD, GALV, 1/2" X 5" W/ SQ NUT     |
| 008700   | BOLT, MACH SQ HEAD, GALV, 1/2" X 6" W/ SQ NUT     |
| 008740   | BOLT, MACH SQ HEAD, GALV, 1/2" X 7" W/ SQ NUT     |
| 008780   | BOLT, MACH SQ HEAD, GALV, 1/2" X 8" W/ SQ NUT     |
| 008820   | BOLT, MACH SQ HEAD, GALV, 1/2" X 9" W/ SQ NUT     |
| 008860   | BOLT, MACH SQ HEAD, GALV, 1/2" X 10" W/ SQ NUT    |
| 008940   | BOLT, MACH SQ HEAD, GALV, 1/2" X 12" W/ SQ NUT    |
| 009020   | BOLT, MACH SQ HEAD, GALV, 1/2" X 14" W/ SQ NUT    |
| 009040   | BOLT, MACH SQ HEAD, GALV, 1/2" X 16" W/ SQ NUT    |
| 009060   | BOLT, MACH SQ HEAD, GALV, 1/2" X 18" W/ SQ NUT    |
| 009080   | BOLT, MACH SQ HEAD, GALV, 1/2" X 20" W/ SQ NUT    |
|          |                                                   |



**- Material Catalog -****FASTENERS****5010.04**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



**BOLT, MACHINE  
SQUARE HEAD With NUT  
Galvanized**

Originator: DSmith

Date: 7/9/2007

Approval: J Mitchell

Date: 1/17/2013

Page 2 of 3

Revision: **Added vendor**

Std's Committee Approval:  
**Approved**

| ITEM NUM | DESCRIPTION                                       |
|----------|---------------------------------------------------|
| 009270   | BOLT, MACH SQ HEAD, GALV, 5/8" X 1 1/2" W/ SQ NUT |
| 009290   | BOLT, MACH SQ HEAD, GALV, 5/8" X 2" W/ SQ NUT     |
| 009350   | BOLT, MACH SQ HEAD, GALV, 5/8" X 5" W/ SQ NUT     |
| 009360   | BOLT, MACH SQ HEAD, GALV, 5/8" X 6" W/ SQ NUT     |
| 009370   | BOLT, MACH SQ HEAD, GALV, 5/8" X 7" W/ SQ NUT     |
| 009380   | BOLT, MACH SQ HEAD, GALV, 5/8" X 8" W/ SQ NUT     |
| 009400   | BOLT, MACH SQ HEAD, GALV, 5/8" X 10" W/ SQ NUT    |
| 009420   | BOLT, MACH SQ HEAD, GALV, 5/8" X 12" W/ SQ NUT    |
| 009440   | BOLT, MACH SQ HEAD, GALV, 5/8" X 14" W/ SQ NUT    |
| 009460   | BOLT, MACH SQ HEAD, GALV, 5/8" X 16" W/ SQ NUT    |
| 009480   | BOLT, MACH SQ HEAD, GALV, 5/8" X 18" W/ SQ NUT    |
| 009500   | BOLT, MACH SQ HEAD, GALV, 5/8" X 20" W/ SQ NUT    |
| 009500   | BOLT, MACH SQ HEAD, GALV, 5/8" X 20" W/ SQ NUT    |
| 009520   | BOLT, MACH SQ HEAD, GALV, 5/8" X 22" W/ SQ NUT    |
| 009540   | BOLT, MACH SQ HEAD, GALV, 5/8" X 24" W/ SQ NUT    |
| 009540   | BOLT, MACH SQ HEAD, GALV, 5/8" X 24" W/ SQ NUT    |
| 009560   | BOLT, MACH SQ HEAD, GALV, 5/8" X 26" W/ SQ NUT    |
| 009580   | BOLT, MACH SQ HEAD, GALV, 5/8" X 28" W/ SQ NUT    |
| 009600   | BOLT, MACH SQ HEAD, GALV, 5/8" X 30" W/ SQ NUT    |
| 009620   | BOLT, MACH SQ HEAD, GALV, 5/8" X 32" W/ SQ NUT    |
| 009640   | BOLT, MACH SQ HEAD, GALV, 5/8" X 34" W/ SQ NUT    |
| 009660   | BOLT, MACH SQ HEAD, GALV, 5/8" X 36" W/ SQ NUT    |
|          |                                                   |
| 009700   | BOLT, MACH SQ HEAD, GALV, 3/4" X 10" W/ SQ NUT    |
| 009720   | BOLT, MACH SQ HEAD, GALV, 3/4" X 12" W/ SQ NUT    |
| 009740   | BOLT, MACH SQ HEAD, GALV, 3/4" X 14" W/ SQ NUT    |
| 009760   | BOLT, MACH SQ HEAD, GALV, 3/4" X 16" W/ SQ NUT    |
| 009780   | BOLT, MACH SQ HEAD, GALV, 3/4" X 18" W/ SQ NUT    |
| 009800   | BOLT, MACH SQ HEAD, GALV, 3/4" X 20" W/ SQ NUT    |
| 009820   | BOLT, MACH SQ HEAD, GALV, 3/4" X 22" W/ SQ NUT    |
| 009840   | BOLT, MACH SQ HEAD, GALV, 3/4" X 24" W/ SQ NUT    |
| 009840   | BOLT, MACH SQ HEAD, GALV, 3/4" X 24" W/ SQ NUT    |
| 009860   | BOLT, MACH SQ HEAD, GALV, 3/4" X 26" W/ SQ NUT    |
| 009880   | BOLT, MACH SQ HEAD, GALV, 3/4" X 28" W/ SQ NUT    |
| 009900   | BOLT, MACH SQ HEAD, GALV, 3/4" X 30" W/ SQ NUT    |
|          |                                                   |
| 082420   | BOLT, MACH SQ HEAD, GALV, 7/8" X 2" W/ SQ NUT     |
| 082420   | BOLT, MACH SQ HEAD, GALV, 7/8" X 2" W/ SQ NUT     |
| 082440   | BOLT, MACH SQ HEAD, GALV, 7/8" X 4" W/ SQ NUT     |



**- Material Catalog -****FASTENERS****5010.04**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



**BOLT, MACHINE  
SQUARE HEAD With NUT  
Galvanized**

Originator: DSmith

Date: 7/9/2007

Approval: J Mitchell

Date: 1/17/2013

Page 3 of 3

Revision: **Added vendor**

Std's Committee Approval:  
**Approved**

| ITEM NUM | DESCRIPTION                                    |
|----------|------------------------------------------------|
| 082450   | BOLT, MACH SQ HEAD, GALV, 7/8" X 10" W/ SQ NUT |
| 082520   | BOLT, MACH SQ HEAD, GALV, 7/8" X 12" W/ SQ NUT |
| 082540   | BOLT, MACH SQ HEAD, GALV, 7/8" X 14" W/ SQ NUT |
| 082560   | BOLT, MACH SQ HEAD, GALV, 7/8" X 16" W/ SQ NUT |
| 082560   | BOLT, MACH SQ HEAD, GALV, 7/8" X 16" W/ SQ NUT |
| 082580   | BOLT, MACH SQ HEAD, GALV, 7/8" X 18" W/ SQ NUT |
| 082600   | BOLT, MACH SQ HEAD, GALV, 7/8" X 20" W/ SQ NUT |
| 082620   | BOLT, MACH SQ HEAD, GALV, 7/8" X 22" W/ SQ NUT |
| 082640   | BOLT, MACH SQ HEAD, GALV, 7/8" X 24" W/ SQ NUT |
| 082640   | BOLT, MACH SQ HEAD, GALV, 7/8" X 24" W/ SQ NUT |
| 082660   | BOLT, MACH SQ HEAD, GALV, 7/8" X 26" W/ SQ NUT |
| 082680   | BOLT, MACH SQ HEAD, GALV, 7/8" X 28" W/ SQ NUT |
| 082700   | BOLT, MACH SQ HEAD, GALV, 7/8" X 30" W/ SQ NUT |
| 082702   | BOLT, MACH SQ HEAD, GALV, 7/8" X 32" W/ SQ NUT |
| 082704   | BOLT, MACH SQ HEAD, GALV, 7/8" X 34" W/ SQ NUT |
| 082706   | BOLT, MACH SQ HEAD, GALV, 7/8" X 36" W/ SQ NUT |

**SINGLE UPSET BOLT**

Originator: DSmith

Date: 5/3/2016

Approval: J Mitchell

Date: 05/03/2016

Page 1 of 1

Revision: **Add 16" Bolt**

Stds Committee Approval:

**Approved**

**Application:** Single upset bolt is used to support spool insulator on wood structures.

**Ordering Description:** 5/8" x ( ) single upset bolt. Upset bolt shall be supplied with one round washer and two nuts and cotter key. Upset bolt and nuts shall conform to ANSI B18.2.1, B18.2.2, ANSI C135.31 (latest revision).

Bolt: Bolt shall have 4 inches of thread. Threads shall be machine rolled prior to galvanizing. Bolt shall meet tolerances as specified per ANSI B1.1 Series UNC, Class 2B.

Nut: Threads shall be tapped to meet tolerances as specified per ANSI B1.1, Series UNC, Class 2B.

Cotter Key: Shall be commercial grade brass, bronze, or stainless steel and be self-locking.

Material: Hot rolled carbon steel bar per latest revision of ASTM A307.

Finish: Upset bolt shall be galvanized per latest revision of ASTM A153.

Strength: Minimum tensile strength shall be 12,400 lbs.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on its packaging.

**Approved Manufacturers**

| <b>PUD Identification</b>       |                  | <b>Manufacturer Catalog Number</b> |                |
|---------------------------------|------------------|------------------------------------|----------------|
| <b>Stock Description</b>        | <b>Stock No.</b> | <b>Hubbell</b>                     | <b>MacLean</b> |
| BOLT, INSUL, SGL UPSET 5/8"x10" | 011250           | 7742                               | J2344-1/2      |
| BOLT, INSUL, SGL UPSET 5/8"x12" | 011270           | 7743                               | J2346-1/2      |
| BOLT, INSUL, SGL UPSET 5/8"x14" | 011290           | 7744                               | J2348-1/2      |
| BOLT, INSUL, SGL UPSET 5/8"x16" | 011292           | PS7745                             |                |

**NUT, EYE, GALVANIZED**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/19/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Eye nuts are used for attaching deadend clamps for primary, secondary, service and neutral conductors on double arming bolts.

**Specifications:**

**Threads:** Shall be tapped to meet tolerances as specified per ANSI B1.1 Series UNC, Class 2B.

**Material:** Shall be forged steel per ASTM A-576 (latest revision).

**Finish:** Shall be hot dipped galvanized per ASTM A-153 (latest revision).

**Strength:** Shall be 12,500 pounds.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and its packaging.

**Approved Manufacturers: HUBBELL, JOSLYN, HUGHES**

| <b>Stock No.</b> | <b>Stock Description</b>            |
|------------------|-------------------------------------|
| 024900           | NUT, OVAL EYE (PLAIN), 5/8" HD GALV |
| 024920           | NUT, OVAL EYE (PLAIN), 3/4" HD GALV |
| 060047           | NUT, OVAL EYE (PLAIN), 7/8" HD GALV |



## LAG SCREWS

Originator: DSmith

Date: 7/13/2006

Approval: DSmith

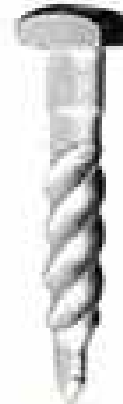
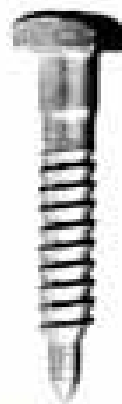
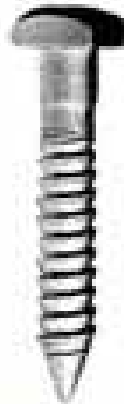
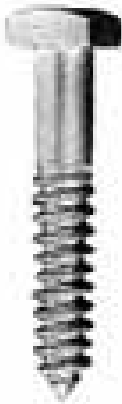
Date: 7/27/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**



GIMLET POINT   FETTER DRIVE REGULAR POINT   FETTER DRIVE POINT   TWIST DRIVE POINT

**Application:** Lag screws are used to mount pole line hardware on wood structures.

**Specifications:** Lag screws with upset shoulder for tighter fit. Hot dip galvanized.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on its packaging.

| PUD IDENTIFICATION |                                                                                             | MANUFACTURER CATALOG NUMBER |         |  |
|--------------------|---------------------------------------------------------------------------------------------|-----------------------------|---------|--|
| Stock Number       | Stock Description                                                                           | Hubbell                     | MacLean |  |
| 028500             | SCREW, LAG 1/2" X 4", (MINIMUM THREAD LENGTH 2 5/8") HD GALV TWIST DRIVE POINT, Square Head | 508500                      | J8754TP |  |
| 028510             | SCREW, LAG 1/2" X 5", Fetter Drive Pilot-Point Lag Screw                                    | 508755                      |         |  |
|                    |                                                                                             |                             |         |  |
|                    |                                                                                             |                             |         |  |

**TEK SCREWS, SELF-TAPPING**

Originator: DSmith

07/09/2007

Approval: J Mitchell

Date: 12/01/2015

Page 1 of 1

Revision: Corrected packaging notes and specifications

Std's Committee Approval:

**Approved**

**Application:** These screws are used for attaching location ID nameplates to equipment.

**Specifications:** Hex washer head self-tapping screw

**Finish:** Zinc plated

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on its packaging.

| PUD IDENTIFICATION |                                                  | Manufacturer Catalog Number |         |
|--------------------|--------------------------------------------------|-----------------------------|---------|
| Item Number        | Description                                      | FASTENERS                   | Stellar |
| 028498             | SCREW, TEK SELF TAPPING, (8-18X5/8"), Box of 100 | 1305.0818.0062.20           | 7808    |
|                    |                                                  |                             |         |
|                    |                                                  |                             |         |

**WASHER, BELLEVILLE, STAINLESS STEEL**

Originator: DSmith

Date: 5/3/2016

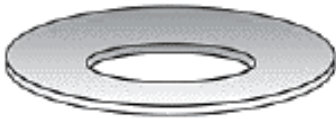
Approval: J. Mitchell

Date: 03/30/2016

Page 1 of 1

Revision: **Minor updates to descriptions**

Stds Committee Approval:

**Approved**

**Application:** A **Belleville washer**, also known as a cupped spring washer, is a type of non-flat washer. It has a slight conical shape which gives the washer a spring characteristic. Belleville washers are typically used as springs, or to apply a pre-load or flexible quality to a bolted joint.

**Approved Manufacturers**

| PUD IDENTIFICATION |                                                               | MANUFACTURER CATALOG NUMBER |                |
|--------------------|---------------------------------------------------------------|-----------------------------|----------------|
| Stock No           | Stock Description                                             | Mt. Hood                    | Hubbell        |
| 007084             | Washer, Belleville, 5/8", SS, 1.34 Od, .644 Id, .078 H        |                             |                |
| 034054             | Washer, Belleville, 1/2", SS, Outside Dia, 1", Hole Dia, 5/8" | K1063-E-100-S               | BY DESCRIPTION |
| 147794             | Washer 1/4" Belleville SS                                     |                             |                |
| 160216             | Washer 1/2" Belleville SS                                     |                             |                |

**WASHER, DOUBLE COIL SPRING, GLAVANIZED**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/19/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Coil Spring washers are used to keep hardware tight as wood dries.

**Specifications:**

**Material:** Washers shall be made of Class A carbon steel of rectangular cross section.

**Finish:** Washers shall be galvanized per ASTM A123 and A153.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or its packaging.

| PUD IDENTIFICATION |                                                 | MANUFACTURER CATALOG NUMBER |           |          |
|--------------------|-------------------------------------------------|-----------------------------|-----------|----------|
| ITEMNUM            | DESCRIPTION                                     | JOSYLN                      | HUBBELL   | HUGHES   |
| 034040             | WASHER, DOUBLE COIL, 3/8", SPRING LOCK, HD GALV | J-175                       | C205-0188 | SLW2-30  |
| 034055             | WASHER, DOUBLE COIL, 1/2", SPRING LOCK, HD GALV | J-176                       | C205-0185 | SLW2-50  |
| 034062             | WASHER, DOUBLE COIL, 5/8", SPRING LOCK, HD GALV | J-177                       | C205-0186 | SLW2-60  |
| 034067             | WASHER, DOUBLE COIL, 3/4", SPRING LOCK, HD GALV | J-178                       | C205-0187 | SLW2-70  |
| 088330             | WASHER, DOUBLE COIL, 7/8", SPRING LOCK, HD GALV |                             |           | SLW-2-80 |



**WASHERS, SQUARE, FLAT AND CURVED**

Originator: D. Plinski

Date: 01/18/17

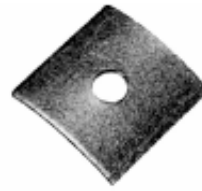
Approval: J.Mitchell

Date: 01/18/17

Page 1 of 1

Revision: **Added 034001**

Stds Committee Approval:

**Approved**

**Application:** The flat and curved square washers are placed against wood surfaces when mounting hardware on wood structures.

**Specifications:**

**Material:** Washer shall be fabricated from hot or cold rolled steel, with a maximum carbon content of 0.33%, and be free of rough or uneven surfaces and edges.

**Finish:** Hot-dip galvanized per latest revision of ASTM A-153.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on its packaging.

| PUD IDENTIFICATION |                                                               | MANUFACTURER CATALOG NUMBER |         |          |
|--------------------|---------------------------------------------------------------|-----------------------------|---------|----------|
| Stock No.          | Stock Description                                             | Joslyn                      | Hughes  | Hubbell  |
| 034000             | WASHER, SQUARE FLAT, 5/8, HD GALV, 2 1/4" X 2 1/4" X 3/16"    | J1075                       | -----   | 6813     |
| 034020             | WASHER, SQUARE FLAT, 3/4", HD GALV, 3" X 3" X 3/16"           | J1078                       | -----   | 6816     |
| 034030             | WASHER, SQUARE FLAT, 7/8", HD GALV, 4" X 4" X 1/4"            | ----                        | SW4-80  | 6819     |
| 034090             | WASHER, SQUARE CURVED, 3/4", HD GALV, 3" X 3" X 1/4"          | J6823                       | -----   | 6822-1/2 |
| 034100             | WASHER, SQUARE CURVED, 7/8", HD GALV 4" X 4" X 1/4"           | J6829                       | SCW4-80 | -----    |
| 165328             | WASHER, FLAT, 5/8", SQ. BEVELED, GALVANIZED                   | -----                       | -----   | -----    |
| 034001             | WASHER, SQUARE CURVED, 5/8", HD GALV, 2 1/4" X 2 1/4" X 3/16" | J6821                       |         | 681012   |

**Staples, Wire**

Originator: DSmith

Date: 6/19/2007

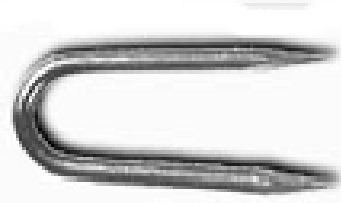
Approval: DSmith

Date: 6/19/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved****Application**

Wire staples are used to attach ground wire to wooden poles.

**Specifications:** All staples and finishes must meet or exceed the following Standards.

- Federal Specifications FF-N-105A, type 111, style 1
- ANSI standards for rolled or Slashed points
- EEI-NEMA standards for rolled or slashed points with serrated edge

**Packaging & Marking:** Items shall be suitably packaged to prevent damage.

The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on its packaging.

| PUD IDENTIFICATION |                                                       | Manufacturer Catalog Number |  |
|--------------------|-------------------------------------------------------|-----------------------------|--|
| Item Number        | Description                                           | L & J Industrial Staples    |  |
| 031900             | STAPLE, GALV, 1 3/4" X 3/8" X 0.148" - SERRATED POINT | J7487HDG                    |  |
| 031905             | STAPLE, WIRE, GALV, (2 1/2" WIDE X 4" LONG)           |                             |  |
|                    |                                                       |                             |  |



**TAPE**  
**Vinyl Or Rubber**

Originator: DSmith

Date: 7/9/2007

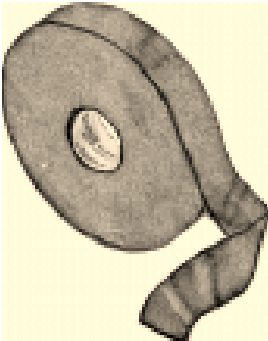
Approval: DSmith

Date: 6/19/2007

Page 1 of 2

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** This tape is used to insulate low voltage electrical wires and connections. The tape is to be used for most installations including cold weather (0 deg. F) applications.

**Specifications:** Black, all-weather, polyvinyl chloride plastic insulating tape with a rubber based pressure-sensitive adhesive. Tape shall meet the electrical, physical and test requirements of ANSI/UL 510, CSA-22.2, ASTM D150, and ASTM D1000 latest

revisions.

**Packaging & Marking:** Each roll shall be on a core of not less than one inch inside diameter, and enclosed in an individual container. The core shall be marked with the manufacturer's name or trademark and type of tape. Each roll-container shall be marked with the core information plus width and length of the tape and date of manufacture.

| PUD IDENTIFICATION |                                   | MANUFACTURER CATALOG NUMBER                                                                                                                                                                                     |          |
|--------------------|-----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Stock No.          | Stock Description                 | 3M                                                                                                                                                                                                              | Plymouth |
| 032757             | TAPE, RED MARKING, 1/2" X 20'     | UPC 1022435 COLOR CODING.35 RED                                                                                                                                                                                 |          |
| 032758             | TAPE, WHITE MARKING, 1/2"X20'     | UPC 1023235 COLOR CODING.35 WHITE                                                                                                                                                                               |          |
| 032759             | TAPE, BLUE MARKING, 1/2" X 20'    | UPC 1024035 COLOR CODING.35 BLUE                                                                                                                                                                                |          |
| 032760             | TAPE, ORANGE MARKING, 1/2" X 20'  | UPC 1027335 COLOR CODING.35 ORANGE                                                                                                                                                                              |          |
| 032761             | TAPE 1/2" X 20' 3M PHASING YELLOW | UPC 1025735 COLOR CODING.35 YELLOW                                                                                                                                                                              |          |
| 032762             | TAPE 1/2" X 20' 3M PHASING BROWN  | UPC 1029935 COLOR CODING.35 BROWN UPC 10299                                                                                                                                                                     |          |
| 032763             | TAPE 1/2" X 20' 3M PHASING GREEN  | 3M ELECTRICAL PRODUCTS DIVISION3-M (MINN. MINEING & MFGING) UPC 1026535 SCOTCH BRAND 3M VINYL ELECTRICAL TAPE FORCOLOR CODING.35 GREEN UPC 10265 1/2" X 20' (6.6 YDS.)INNER UNIT PACK 10/CTN PACKAGING 100/CASE |          |



**TAPE**  
**Vinyl Or Rubber**

Originator: DSmith

Date: 7/9/2007

Approval: DSmith

Date: 6/19/2007

Page 2 of 2

Revision: **NEW**

Stds Committee Approval:

**Approved**

| Stock No. | Stock Description                                                                                                                                           | 3M                                                                                                                                                                                                                    | Plymouth |
|-----------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| 032764    | TAPE, GRAY MARKING, 1/2" X 20'                                                                                                                              | 3M ELECTRICAL PRODUCTS<br>DIVISION 3-M (MINN. MINEING & MFGING) UPC 1028135 SCOTCH BRAND 3M VINYL ELECTRICAL TAPE FOR COLOR CODING. 35 GRAY UPC 10281 1/2" X 20' (6.6 YDS.) INNER UNIT PACK 10/CTN PACKAGING 100/CASE |          |
| 032800    | TAPE, BLACK VINYL, PREMIUM 85CW, 1.5" CORE, 3/4" X 66'                                                                                                      | 37                                                                                                                                                                                                                    | 4243     |
| 032820    | TAPE, 1 1/2" VINYL, PREMIUM 85CW, 1.5 CORE, 108' LONG                                                                                                       | 37                                                                                                                                                                                                                    | 4273     |
| 032830    | TAPE BUS BAR INSULATING SUB.                                                                                                                                | RAYCHEM #HVBT-2-R                                                                                                                                                                                                     |          |
| 049520    | TAPE CU SHIELDING 3M24                                                                                                                                      | G.E. #3M-24                                                                                                                                                                                                           |          |
| 049620    | TAPE, WARNING (4 MILS) 6" WIDE- 1000' LONG- RED WITH BLACK - INSCRIBED WITH "CHELAN COUNTY POWER" AND TELEPHONE (509) 663-8121. MUST BE IN DISPENSER BOXES. | TERRATAPE (REEF INDUSTRIES, HOUSTON, TX ALLEN SYSTEMS THOR ENTERPRISES, INC. (TAPE ITEM NUMBER 22002 AND DISPENSER NUMBER 49005)                                                                                      |          |
| 143002    | TAPE, DUCT, SILVER, 2" X 60 YDS.                                                                                                                            | P                                                                                                                                                                                                                     |          |
| 143002    | TAPE, DUCT, SILVER, 2" X 60 YDS.                                                                                                                            | NASHUA 357 SURE TAPE PC622 UNITED TAPE COMPANY #110-2 3M "SCOTCH" BRAND 50254 3-M (MINN. MINEING & MFGING) 50254                                                                                                      |          |
| 148863    | TAPE, SPLICING, RUBBER, LINERLESS, 1" X 30'                                                                                                                 | 3-M (MINN. MINEING & MFGING) 130C                                                                                                                                                                                     |          |
| 160312    | TAPE, FLAGGING, ENGINEER, 1 3/16" X 150 FEET, GLOW ORANGE, SURVEY                                                                                           |                                                                                                                                                                                                                       |          |



**NYLON TIE CABLES**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

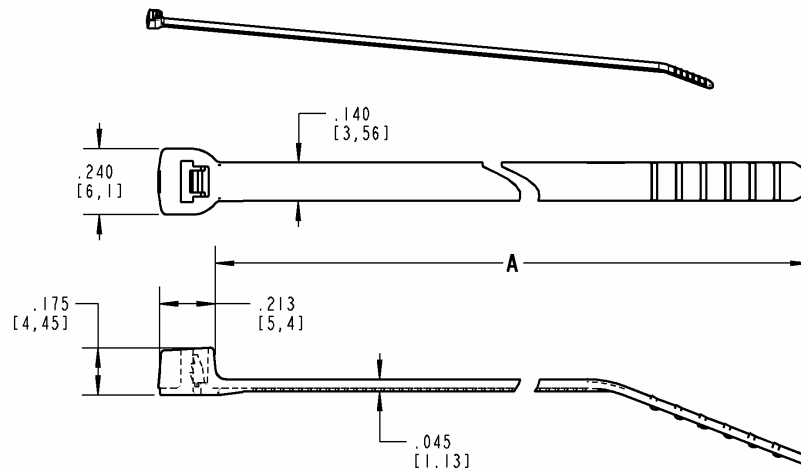
Date: 6/19/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**



**Application:** fastening, bundling, clamping and managing wires.

**Common Name:** Zip Tie

**Approved Manufacturers:**

| PUD IDENTIFICATION            |         | MANUFACTURERS CATALOG NUMBER |
|-------------------------------|---------|------------------------------|
| Stock Description             | Stock # | Thomas & Betts               |
| Tie Cable Black Miniature     | 060700  | TY100-18X                    |
| Tie Cable 8.5" x .13" Black   | 058001  | L-8-40-0-D                   |
| Tie Cable 8.5" x .13" Natural | 058002  | L-8-40-9-D                   |
| Tie Cable 8.5" x .13" Brown   | 058003  | L-8-40-1-D                   |
| Tie Cable 8.5" x .13" Red     | 058004  | L-8-40-2-D                   |
| Tie Cable 8.5" x .13" Orange  | 058005  | L-8-40-3-D                   |
| Tie Cable 8.5" x .13" Yellow  | 058006  | L-8-40-4-D                   |
| Tie Cable 8.5" x .13" Green   | 058007  | L-8-40-5-D                   |
| Tie Cable 8.5" x .13" Blue    | 058008  | L-8-40-6-D                   |
| Tie Cable 8.5" x .13" Purple  | 058009  | L-8-40-7-D                   |
| Tie Cable 8.5" x .13" Gray    | 058010  | L-8-40-8-D                   |
| Tie Cable 27"                 | 058061  | L-28-120-9-L                 |



# CONDUCTOR

Originator: DSmith

Date: 7/9/2007

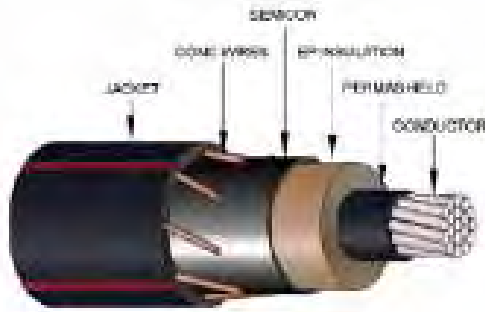
Approval: DSmith

Date: 7/9/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



# CONDUCTOR





**Cable UG,  
EPR Insulated - 15kV**

Originator: DSmith

Date 9/29/2021

Approval: J. Mitchell

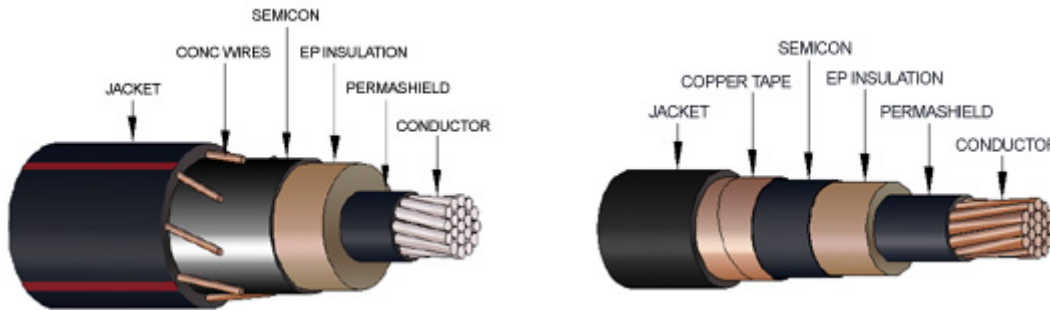
Date: 9/20/2019

Page 1 of 1

Revision: **Added 1100 compact**

Stds Committee Approval:

**Approved**



**Application:**

15kV, EPR underground jacketed cable with concentric neutral is used on multi-grounded distribution systems. This cable may be installed above or below ground in conduit, direct buried, or underwater.

**Detail Specification: Refer to the following**

- #2 & 4/0 Aluminum, 15kV Concentric Neutral Cable - 5110.0101
- 1000kcm Copper, 15kV Tape Shield Cable - 5110.0102
- 1000kcm Aluminum, 15kV Tape Shield Cable - 5110.0103
- 1100kcm Aluminum Compact, 15kV Concentric Neutral Cable - 5110.0104

Reel dimensions are = Reel Outside Diameter (**D**) X Drum Width (**W**) X Drum Diameter (**d**)

\*All cable larger than 4/0 must be supplied on metal reels, designed to be stored long term outdoors. Conductor on reels must be covered with a protective cover to keep cable safe from moisture and UV damage. Reels shall be free of foreign objects (nails, etc.) sharp edges and burrs that could damage the conductor during transit or while dispensing. Reel size shall be a minimum of 1 ½" larger than wound conductor.

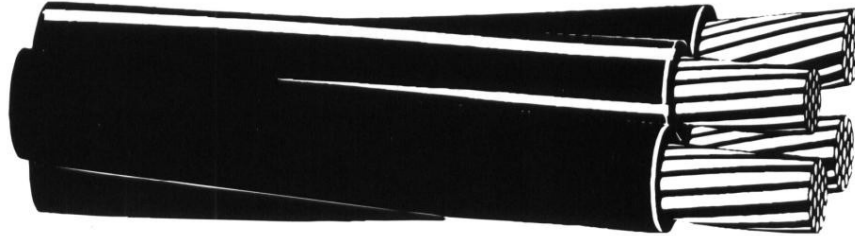
**Approved Manufacturers: Kerite & Okonite**

**Details: All values are approximate.**

| Description                                                                      | Item No. | Diameter Over Insulation (Inches) | Diameter Over Jacket (Inches) | Cable Weight (lbs/kft) | Ampacity In Separate Conduits | Reel Size (in.) DxWxd Arbor = 3.125" | Reel Length +5% - 0% |
|----------------------------------------------------------------------------------|----------|-----------------------------------|-------------------------------|------------------------|-------------------------------|--------------------------------------|----------------------|
| Cable, #2 AL,15KV, Jacketed, 175 MIL EPR Insulation, Full Concentric Neutral     | 051160   | 0.71                              | 1.01                          | 536                    | 125                           | 50X32X24                             | 2500                 |
| Cable, #2 AL,15KV, Jacketed, 220 MIL EPR Insulation, Full Concentric Neutral     | 051175   | 0.80                              | 1.11                          | 617                    | 125                           | 50X32X24                             | 2500                 |
| Cable, 4/0 AL,15KV, Jacketed, 175 MIL EPR Insulation, 1/3 Concentric Neutral     | 051170   | 0.93                              | 1.24                          | 814                    | 245                           | 58X32X24                             | 2500                 |
| Cable, 4/0 AL,15KV, Jacketed, 220 MIL EPR Insulation, 1/3 Concentric Neutral     | 051173   | 1.03                              | 1.34                          | 913                    | 245                           | 58X32X24                             | 2500                 |
| Cable, 1000kcm AL,15KV, Jacketed, 175 MIL EPR Insulation, Tape Shield            | 051180   | 1.58                              | 1.96                          | 1,990                  | 565                           | 82X37X32                             | 2000                 |
| Cable, 1000kcm CU, 15kV, Jacketed, 175 MIL EPR Insulation, Tape Shield           | 050826   | 1.58                              | 1.96                          | 3,960                  | 690                           | 82X37X32                             | 2000                 |
| Cable, 1100kcm AL,15KV, Jacketed, 220 MIL EPR Insulation, 1/6 Concentric Neutral | 051185   | 1.61                              | 2.01                          | 2,550                  |                               | 82X37X32                             | 2000                 |



|                                                                                                                                                                          |                  |                                                                  |                                              |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------|----------------------------------------------|
| <b>- Material Catalog -</b>                                                                                                                                              |                  | <b>CONDUCTOR</b>                                                 | <b>5110.03</b>                               |
| CHELAN COUNTY<br><b>PUBLIC UTILITY DISTRICT</b><br><i>Owned By The People We Serve</i>  |                  | <b>CABLE UG, ALUMINUM AND<br/>COPPER, 600V XLP<br/>INSULATED</b> |                                              |
| Originator: DSmith                                                                                                                                                       | Date: 7/10/2006  | Page 1 of 3                                                      |                                              |
| Approval: Daniel Scott                                                                                                                                                   | Date: 08/02/2022 |                                                                  |                                              |
| Revision: #1 -Revised descriptions to match Maximo. #2 Changed Approved Manufacturers. #3 Added Nexans to approved manufacturer list. #4 Added copper cable.             |                  |                                                                  | Std's Committee Approval:<br><b>Approved</b> |



**Application:** 600 volt underground service cable shall be used for secondaries and services in conduit or direct buried, in wet or dry locations.

**Specification:**

This 600 volt secondary URD cable shall meet or exceed the following applicable ASTM specifications:

**Aluminum**

- B-230 Aluminum 1350-H19 Wire for Electrical Purposes.
- B-231 Aluminum 1350 Conductors, Concentric-Lay-Stranded.
- B-609 Aluminum 1350 Round Wire, Annealed and Intermediate Tempers, for Electrical Purposes.
- B-901 Compressed Round Stranded Aluminum Conductors Using Single Input Wire.

**Copper:**

- B-1 Hard-Drawn Copper Wire.
- B-3 Soft or Annealed Copper Wire.
- B-8 Concentric-Lay-Stranded Copper Conductors, Hard, Medium-Hard, or Soft.

In addition, this 600 volt secondary URD cable shall meets or exceeds all applicable requirements of ICEA S-105-692 for cross-linked polyethylene insulated conductors and UL Standard 854 for Type USE-2.

**Cable Assembly:** The conductors of multiple conductor cables shall be twisted together with a lay of not greater than 60 times the outside diameter of an insulated phase conductor. Each conductor of a cable shall have a permanent continuous marking, identifying it from other conductors of the cable, and showing the manufacturer's name or trademark, year of manufacture, voltage rating, conductor size, type of insulation and NEC type "USE-2."

As a minimum, triplex cables shall have one phase conductor marked with "Phase A" identification. Footage markers on the conductor insulation is required. Sequential footage markers may be located on either phase conductor or neutral.

|                                                                                                                                                                          |                  |                                                                  |                                                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------|------------------------------------------------------------------|-------------------------------------------------------------|
| <b>- Material Catalog -</b>                                                                                                                                              |                  | <b>CONDUCTOR</b>                                                 | <b>5110.03</b>                                              |
| CHELAN COUNTY<br><b>PUBLIC UTILITY DISTRICT</b><br><i>Owned By The People We Serve</i>  |                  | <b>CABLE UG, ALUMINUM AND<br/>COPPER, 600V XLP<br/>INSULATED</b> |                                                             |
| Originator: DSmith                                                                                                                                                       | Date: 7/10/2006  |                                                                  |                                                             |
| Approval: Daniel Scott                                                                                                                                                   | Date: 08/02/2022 |                                                                  |                                                             |
| Revision: #1 -Revised descriptions to match Maximo. #2 Changed Approved Manufacturers. #3 Added Nexans to approved manufacturer list. #4 Added copper cable.             |                  |                                                                  | Page 2 of 3<br>Std's Committee Approval:<br><b>Approved</b> |

As a minimum, quadraplex cables shall have one phase conductor marked with "Phase A" identification, a second phase conductor marked with "Phase B" identification. Sequential footage markers may be located on any phase conductor or the neutral.

**Packaging and Marking:** Cable shall be shipped on nonreturnable reels of NEMA WC26 dimensions with in either "cut to order" or standard lengths as specified. Conductor shall be level wound on reel. Both ends of the wire shall be fastened to the reel. Conductor shall be protected by heavy wrapping, either heavy fiberboard or 10 mil. plastic. The net weight, length, conductor size and kind, stranding, voltage class, purchaser's order number, and manufacturer's name, address, starting footage of the cable (at the hub), and serial number shall be marked on a durable label or tag and securely fastened to the outside of the reel.

Reels shall be free of foreign objects (nails, etc.) that could damage the conductor during transit or while dispensing. Reel size shall be a minimum of 1-1/2" larger than wound conductor. Reels shall not exceed maximum flange diameter of 66 inches nor a maximum outside width of 32-1/2 inches. The arbor hole shall have a diameter of 2-1/2 inches.

**Shipping:** All cable shall be shipped on an open flatbed truck. Reel flanges shall be vertical and positioned to be unloaded from the side. The cable shall be protected by heavy wrapping, either heavy fiberboard or 10 mil plastic. All cable ends shall be sealed with approved end caps to prevent the entrance of moisture during shipping and storage.

**Tests:** The cable shall be tested in accordance with the applicable requirements of ICEA Publication No. S-105-692 (latest revision) except "sparking testing" shall not be permitted. Results of these tests shall be supplied to the Standards Engineer prior to shipping if requested.

**Inspection:** Inspection may be made at the manufacturer's plant or upon receipt, at the option of the purchaser. Failure to meet any of the requirements of this specification will be cause for rejection.

|                                                                                                                                                                                                  |                                                                                      |                                                                  |                                 |                                             |                             |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|------------------------------------------------------------------|---------------------------------|---------------------------------------------|-----------------------------|
| <b>- Material Catalog -</b>                                                                                                                                                                      |                                                                                      | <b>CONDUCTOR</b>                                                 | <b>5110.03</b>                  |                                             |                             |
| <div>CHELAN COUNTY<br/><b>PUBLIC UTILITY DISTRICT</b><br/><i>Owned By The People We Serve</i></div> <div></div> |                                                                                      | <b>CABLE UG, ALUMINUM AND<br/>COPPER, 600V XLP<br/>INSULATED</b> |                                 |                                             |                             |
| Originator: DSmith                                                                                                                                                                               |                                                                                      | Date: 7/10/2006                                                  |                                 |                                             |                             |
| Approval: Daniel Scott                                                                                                                                                                           |                                                                                      | Date: 08/02/2022                                                 |                                 | Page 3 of 3                                 |                             |
| Revision: #1 -Revised descriptions to match Maximo. #2 Changed Approved Manufacturers. #3 Added Nexans to approved manufacturer list. #4 Added copper cable.                                     |                                                                                      |                                                                  |                                 | Stds Committee Approval:<br><b>Approved</b> |                             |
| <b>Approved Manufacturers: CME, Southwire, BICC General (Formerly Alcan), &amp; Nexans</b>                                                                                                       |                                                                                      |                                                                  |                                 |                                             |                             |
| Stock No                                                                                                                                                                                         | Description                                                                          | Dia.<br>(inches)                                                 | *Amps/<br>Phase<br>(IN<br>DUCT) | Wt.<br>Per<br>1000<br>Ft<br>(lbs)           | Reel<br>Feet<br>- 0<br>+10% |
| 051750                                                                                                                                                                                           | CABLE, UG, 600V, 1/0 AL, SGL COND, "HARVARD", 1000' REEL                             | .512                                                             | 150                             | 146                                         | 1000                        |
| 052000                                                                                                                                                                                           | CABLE, UG, 600V, #4/0 AL, SGL COND, "BELOIT", 1000' REEL                             | .658                                                             | 225                             | 263                                         | 1000                        |
| 052300                                                                                                                                                                                           | CABLE, UG, 600V, 350KCM AL, SGL COND, "RUTGERS", 2000' REEL                          | .831                                                             | 305                             | 422                                         | 2000                        |
| 052350                                                                                                                                                                                           | CABLE, UG, 600V, 500KCM AL, SGL COND, "EMORY", 1000' REEL                            | .980                                                             | 370                             | 580                                         | 1000                        |
| 052400                                                                                                                                                                                           | CABLE, UG, 600V, 750KCM AL, SGL COND, "SEWANEE", 500' REEL                           | 1.188                                                            | 470                             | 854                                         | 500                         |
| 055000                                                                                                                                                                                           | CABLE, UG, 600V, AL, 1/0-2-1/0 AL, TRIPLEX, "BRUNEAU", 1000' REEL                    | 1.106                                                            | 160                             | 387                                         | 1000                        |
| 055150                                                                                                                                                                                           | CABLE, UG, 600V, #4/0-2/0-4/0 AL, TRIPLEX, "SWEETBRIAR", 1000' REEL                  | 1.421                                                            | 240                             | 709                                         | 1000                        |
| 055300                                                                                                                                                                                           | CABLE, UG, 600V, AL, 350-4/0-350, TRIPLEX, "WESLEYAN", 1000' REEL                    | 1.795                                                            | 320                             | 1118                                        | 1000                        |
| 055330                                                                                                                                                                                           | CABLE, UG, 600V, CU, 350-4/0-350, TRIPLEX, 500' REEL                                 | 2.17                                                             | 350                             | 3170                                        | 500                         |
| 055160                                                                                                                                                                                           | CABLE, UG, 600V, #4/0-4/0-4/0-2/0 AL, QUADRAPLEX, "WAKE FOREST ORLANDER", 1000' REEL | 1.588                                                            | 225                             | 974                                         | 1000                        |
| 055320                                                                                                                                                                                           | CABLE, UG, 600V, AL, 350-350-350-4/0, XLP, QUADRAPLEX, "SLIPPERY ROCK", 1100' REEL   | 2.006                                                            | 305                             | 1544                                        | 1100                        |
| *Ampacity: 90°C conductor temperature, 20°C ambient, RHO 90, 100% load factor for three conductor triplex with neutral carrying only unbalanced load.                                            |                                                                                      |                                                                  |                                 |                                             |                             |



# CABLE, COPPER, 600V INSULATED Underground or Jumpers

Originator: DSmith

Date: 6/18/2007

Approval: J. Nieborsky

Date: 1/26/2016

Page 1 of 1

Revision: **include footage marking**

Stds Committee Approval:

**Approved**



**Application:** This type of cable is suitable for use in general purpose wiring applications and may be installed in raceway, conduit, direct burial and aerial installations (Jumper wires). It is gasoline, oil and sunlight resistant.

**Jumper Wires:** The maximum rated circuit voltage is 600 volts. Although not treated as insulation, the covering on jumper riser wire does reduce faults due to atmospheric conditions, shorts caused by excessive vibrations, and faulting caused by objects crossing the leads.

## Specifications:

**Conductor:** Stranded conductor, uncoated soft-drawn or annealed copper per ASTM B3 and B8.

**Insulation:** The insulation shall be rated 600 volt, flame retardant, cross-linked polyethylene (XLPE) insulated, NEC Type RHH-RHW-2-USE-2, The insulation shall be a black cross-linked polyethylene compound rated 90 degrees C for dry or damp locations and 75°C for wet locations per ASTM D470 and UL 44. Black pigment shall be uniformly dispersed carbon black particles for sunlight resistance.

**Marking:** Wire shall be marked at regular intervals with the manufacturer's name or symbol, wire size, conductor material, NEC type, voltage rating, sequential footage marking, and UL symbol.

**Packaging:** The cable shall be one continuous length and wound on a non-returnable plywood or solid wood reel that meets the requirements of NEMA WC 26 Binational Wire and Cable Packaging standard, or is equivalent. The reels shall be shipped with their flanges vertical or on pallets suitable for handling by a forklift. Individual reels shall be marked with manufacturer's name or symbol, catalog number, and name of the item, and the Districts purchase order number. A packing slip shall be included with each shipment.

## Approved Manufacturers: All

| Stock No | Description                                              | Dia. (inches) | *Amps/P hase<br>Free Air | *Amps/Ph ase<br>(IN DUCT) | Wt. Per 1000 Ft (lbs) | Reel Feet - 0 +10% |
|----------|----------------------------------------------------------|---------------|--------------------------|---------------------------|-----------------------|--------------------|
| 041652   | CABLE, #2 AWG 7 Strand CU, 600V XLP, TYPE USE-2, BLACK   | 0.292         | 190                      | 130                       | NA                    | 1000               |
| 054450   | CABLE, #4 AWG 7 Strand CU, 600V XLP, TYPE USE-2, BLACK   | 0.358         | 140                      | 95                        | 161                   | 1000               |
| 054455   | CABLE, 2/0 AWG 19 Strand CU, 600V XLP, TYPE USE-2, BLACK | 0.568         | 300                      | 195                       | 481                   | 500                |
| 054460   | CABLE, 4/0 AWG 19 Strand CU, 600V XLP, TYPE USE-2, BLACK | 0.638         | 405                      | 260                       | NA                    | 500                |
| 054500   | CABLE, 350KCM 37 Strand CU, 600V XLP, TYPE USE-2, BLACK  | 0.80          | 570                      | 350                       | 1170                  | 500                |
| 052500   | CABLE, 500KCM 37 Strand CU, 600V XLP, TYPE USE-2, BLACK  | 0.93          | 700                      | 430                       | 1648                  | 500                |

\* NEC Ampacity Rating for a single conductor in free air, ambient temperature of 30 °C, wet or dry locations, 75 °C conductor temperature for USE-2 insulation



**WIRE, ACSR, BARE STRANDED**  
(Aluminum Conductor, Steel Reinforced)

Originator: DSmith

Date: 7/10/2012

Approval: D. Scott

Date: 04/26/2023

Page 1 of 1

Revision: Maximized footage on reels. Reel dimensions. Approved manufacturers change.

Std's Committee Approval:  
**25April2023**



**Application:** Used as bare overhead transmission and distribution cable. ACSR offers optimal strength for line design. Variable steel core stranding enables desired strength to be achieved without sacrificing ampacity.

**Common Name:** ACSR Overhead Wire, non-specular finish

**Specification:**

The ACSR bare conductor shall meet or exceeds the following ASTM specifications for right hand lay stranding.

- B-230 Aluminum Wire, 1350-H19 for Electrical Purposes
- B-231 Aluminum Conductors, Concentric-Lay-Stranded
- B-232 Aluminum Conductors, Concentric-Lay-Stranded, Coated Steel Reinforced (ACSR)
- B-341 Aluminum-Coated Steel Core Wire for Aluminum Conductors, Steel Reinforced (ACSR/AZ)
- B-498 Zinc-Coated Steel Core Wire for Aluminum Conductors, Steel Reinforced (ACSR)
- ANSI C7.69 Non-Specular Finish (**All ACSR must have non specular finish**)

Actual lengths shall conform to wood reels supplied by the manufacturer and shall be **minus 10 % or plus 10%**. All wire shall have a non specular surface finish.

**Packaging and Marking:** The net weight, length, conductor size and name, purchaser's order number and manufacturer's name, address, and serial number shall be marked on a durable label and securely fastened to the outside of the reel or coil. \*Reels shall be of NEMA WC26 dimensions and free of foreign objects (nails, etc.) that could damage the conductor during transit or while dispensing. See table for reel sizes and wire lengths. **38" Maximum overall width of cable reel and 60" maximum flange diameter.**

**Shipping:** All cable shall be shipped on an open flatbed truck. Reel flanges shall be vertical and positioned to be unloaded from the side. All reels shall have a protective wrap. Wire shall be shipped on nonreturnable reels with one continuous length. **DO NOT LAY REELS ON THEIR SIDES.**

**Approved Manufacturers:** Southwire, General Cable, Nehring (4/0 and smaller)

| Item No | Maximo Description                      | Wire<br>Lbs/Kft | REEL Information |         |                 |
|---------|-----------------------------------------|-----------------|------------------|---------|-----------------|
|         |                                         |                 | Size*            | Footage | Weight<br>(lbs) |
| 035040  | WIRE, ACSR, #4, 6/1, "SWAN"             | 57              | NR 30.22         | 12,100  | 755             |
| 035060  | WIRE, ACSR, #2, 6/1, "SPARROW"          | 91              | NR 30.22         | 12,600  | 1,227           |
| 035100  | WIRE, ACSR, #2/0, 6/1, "QUAIL"          | 183             | NR 42.28         | 10,500  | 2,089           |
| 035140  | WIRE, ACSR, #4/0, 6/1, "PENGUIN"        | 291             | NR 42.28         | 6,400   | 2,030           |
| 035180  | WIRE, ACSR, 266.8KCM, 26/7, "PARTRIDGE" | 367             | NR 66.28         | 13,700  | 5,425           |
| 035190  | WIRE, ACSR, 336.4KCM 30/7, "ORIOLE"     | 526             | NR 66.28         | 9,900   | 5,605           |
| 035200  | WIRE, ACSR, 336.4KCM, 26/7, "LINNET"    | 462             | NR 66.28         | 10,700  | 5,341           |
|         |                                         |                 |                  |         |                 |
|         |                                         |                 |                  |         |                 |
| 035220  | WIRE, ACSR, 636KCM, 26/7, "GROSBEAK"    | 874             | NR 66.28         | 5,400   | 5,117           |
| 035300  | WIRE, ACSR, 795KCM, 26/7, "DRAKE"       | 1093            | NR 66.28**       | 4,400   | 5,207           |
| 034960  | WIRE, ACSR, 954KCM, 54/7, "CARDINAL"    | 1227            | NR 66.28**       | 3,800   | 5,060           |
| 035310  | WIRE, ACSR, 1272KCM, 45/7, "BITTERN"    | 1432            | NR 66.28**       | 2,800   | 4,407           |
| 035315  | WIRE, ACSR, 1780KCM, 84/19, "CHUKAR"    | 2071            | NR 66.28**       | 1,900   | 4,332           |

\*NR = Non-Returnable Wooden Reel; RMT = Returnable, Steel Reels, Deposit Required.

NR 66.28\*\* Only for maintenance repairs, normally ordered on RMT reels on a project basis.

**- Material Catalog -****CONDUCTOR****5111.02**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*

**WIRE, AAC, BARE-STRANDED  
(All Aluminum Conductor)**

Originator: DSmith

Date: 7/7/06

Approval: J. Mitchell

Date: 04/26/2023

Page 1 of 1

Revision: Removed item #'s 034800, 034820 &amp; 034920

Stds Committee Approval:  
**25April2023****Application:**

AAC Wire is used primarily for overhead distribution, where Ampacity must be maintained and a lighter conductor (compared to ACSR) is desired, when conductor strength is not a critical factor.

**Common Name:** AAC Overhead Wire**Specification:**

The AAC bare conductor shall meet or exceeds the following ASTM specifications for right hand lay stranding.

- B-230 Aluminum Wire, 1350-H19 for Electrical Purposes.
- B-231 Aluminum Conductors, Concentric-Lay-Stranded.
- C7.69 Non-Specular Surface Finish. **(All AAC must have non specular finish)**

**Construction:**

Aluminum alloy 1350-H19 wires, concentrically stranded, non-specular finish.

Actual lengths shall conform to wood reels supplied by the manufacturer and shall be **minus 10% or plus 10%**.

**Packaging and Marking:** The net weight, length, conductor size and name, purchaser's order number and manufacturer's name, address, and serial number shall be marked on a durable label and securely fastened to the outside of the reel or coil. \*Reels shall be of NEMA WC26 dimensions and free of foreign objects (nails, etc.) that could damage the conductor during transit or while dispensing. See table for reel sizes and wire lengths. **38" Maximum overall width of cable reel and 60" maximum flange diameter.**

**Shipping:** All cable shall be shipped on an open flatbed truck. Reel flanges shall be vertical and positioned to be unloaded from the side. All reels shall have a protective wrap. Wire shall be shipped on nonreturnable reels with one continuous length. **DO NOT LAY REELS ON THEIR SIDES.**

**Approved Manufacturers: Southwire, Nexans, General Cable, Nehring**

| Item No | Maximo Description                         | Wire Lbs/Kft | REEL Information |         |          |
|---------|--------------------------------------------|--------------|------------------|---------|----------|
|         |                                            |              | Size*            | Footage | Wt (lbs) |
| 034730  | Wire, AAC, #2/0, 7 strand, Bare, "Aster"   | 125          | NR 42.28         | 12,400  | 1722     |
| 034760  | Wire, AAC, #4/0, 19 Strand, "Sunflower"    | 198          | NR 42.28         | 7,700   | 1690     |
| 034850  | Wire, AAC, #336.4 kcm, 19 Strand, "Tulip"  | 315          | NR 66.28         | 12,900  | 4453     |
| 034840  | Wire, AAC, #477 kcm, 19 Strand, "Cosmos"   | 447          | NR 66.28         | 8,500   | 4179     |
| 034923  | Wire, AAC, #636 kcm, 37 Strand, "Orchid"   | 596          | NR 66.28         | 6,100   | 4056     |
| 034954  | Wire, AAC, #954 kcm, 37 Strand, "Magnolia" | 894          | NR 66.28**       | 4,200   | 4181     |

\*NR = Non-Returnable Wooden Reel; RMT = Returnable, Steel Reels, Deposit Required.

NR 66.28\*\* Only for maintenance repairs, normally ordered on RMT reels on a project basis.



**ALUMINUM TIE WIRE**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 7/7/06

Page 1 of 1

Revision: **NEW**Std's Committee Approval:  
**Approved**

**Application:** Generally used in overhead transmission and distribution line construction to mechanically secure components such as conductors to pin insulators. Also used for grounding applications in line construction.

**Specifications:** The tie and ground wire meets or exceeds ASTM specification:

- B-609 Soft Aluminum Wire. 1350-0 for Electrical Purposes.

The wire shall be made of solid, soft drawn 1350-0 aluminum wire.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

10 lbs. Reels

Spools shall be 12" flange x 4" traverse x 8" drum with a 2" diameter arbor hole.

**Approved Manufacturers:** Southwire, NEHRING, TIPPER TIE

| PUD IDENTIFICATION     |           |                  |                     |
|------------------------|-----------|------------------|---------------------|
| Stock Description      | Stock No. | Reel size (feet) | WT / 1000Feet (Lbs) |
| WIRE, ALUMINUM TIE, #6 | 034600    | 1050             | 24.1                |
| WIRE, ALUMINUM TIE, #4 | 034620    | 325              | 38.4                |
| WIRE, ALUMINUM TIE, #2 | 034640    | 1000             | 61                  |





**WIRE, COPPER, BARE SOLID  
SOFT DRAWN ANNEALED**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

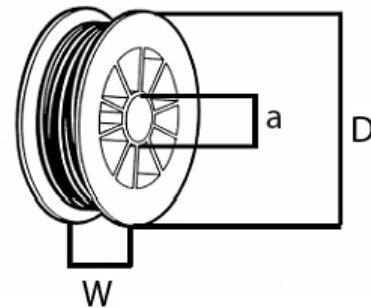
Date: 6/6/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**



**Application:** Bare solid soft-drawn annealed copper conductor is used for jumpers, tie wires, grounds etc.

**Common Name:** Copper Jumper or "Mousing" Wire

**Specification:**

Conductor shall be bare copper cable that meets or exceeds the following ASTM specifications.

- B-3 Soft or Annealed Copper Wire.

**Packaging and Marking:** The net weight, length, conductor size and name, purchaser's order number and manufacturer's name, address, and serial number shall be marked on a durable label and securely fastened to the outside of the reel or coil. \*Reels shall be of NEMA WC26 dimensions and free of foreign objects (nails, etc.) that could damage the conductor during transit or while dispensing. See table for reel sizes and wire lengths.

Spool dimensions are = Outside Diameter (**D**) X Drum Width (**W**) X Arbor Size (**a**)

**Shipping:** No special shipping Instructions

**Approved Manufacturers: SouthWire, Republic Wire, Service Wire, Nehring**

| Item No | Description                                                           | Package Type | Reel Size DxWxa | Length (ft) | Weight Pounds |
|---------|-----------------------------------------------------------------------|--------------|-----------------|-------------|---------------|
| 036085  | Wire, Copper, #14, Bare Solid, Soft Drawn, "Mousing Wire", 2000' Reel | Spool        | 12" x 4" x 2"   | 2000        | 25            |
| 035920  | Wire, Copper, #6, Bare Solid, Soft Drawn                              | Spool        | 12" x 4" x 2"   | 315         | 25            |
| 035960  | Wire, Copper, #4, Bare Solid, Soft Drawn                              | Spool        | 12" x 4" x 2"   | 198         | 25            |

**COPPER, BARE STRANDED, SOFT DRAWN**

Originator: DSmith

Date: 7/7/06

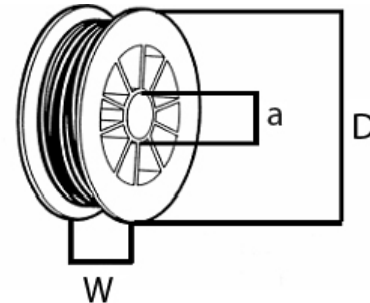
Approval: DSmith

Date: 6/15/2007

Page 1 of 2

Revision: Reduced Spool sizes

Stds Committee Approval:

**Approved**

**Application:** Bare stranded soft-drawn (annealed) copper cable are suitable for overhead transmission and distribution applications such as uninsulated hook up, jumpers, and grounds in electrical construction.

**Specification:**

Conductor shall be bare copper cable that meets or exceeds the following ASTM specifications.

- B-3 Soft or Annealed Copper Wire.
- B-787 19 Wire Combination Unilay-Stranded Soft copper wire.
- B-8 Concentric-Lay-Stranded Hard, Medium-Hard or Soft Copper Conductor.

**Packaging and Marking:** The net weight, length, conductor size and name, purchaser's order number and manufacturer's name, address, and serial number shall be marked on a durable label and securely fastened to the outside of the reel, spool, or coil. See table for spool sizes and wire lengths.

**Shipping:** No special shipping Instructions

**Approved Manufacturers: Southwire, Republic Wire, Service Wire, Nehring**

Spool dimensions are = Outside Diameter (**D**) X Drum Width (**W**) X Arbor Size (**a**)

| Item No | Description                                 | Wire<br>Lbs/kft | Spool Size<br>DxWxa | Length<br>(ft) | Weight<br>Pounds |
|---------|---------------------------------------------|-----------------|---------------------|----------------|------------------|
| 036080  | WIRE, COPPER, #2, 7 STRAND, SOFT DRAWN      | 204.9           | 12" X 8" X 2"       | 250            | 50               |
| 036130  | WIRE, COPPER, #2/0, 19 STRAND, SOFT DRAWN   | 410.9           | 18"X14" X2"         | 500            | 205              |
| 036180  | WIRE, COPPER, #4/0, 19 STRAND, SOFT DRAWN   | 653.3           | 24"X12"X3"          | 500            | 327              |
| 036230  | WIRE, COPPER, 250KCM, 19 STRAND, SOFT DRAWN | 771.9           | 27"X15X3"           | 500            | 385              |
| 036290  | WIRE, COPPER, 500KCM, 37 STRAND, SOFT DRAWN | 1543.8          | 30"X22"X3"          | 500            | 772              |

**- Material Catalog -**

**CONDUCTOR**

**5111.05**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



**COPPER, BARE STRANDED, SOFT DRAWN**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

Date: 6/15/2007

Page 2 of 2

Revision: Reduced Spool sizes

Std's Committee Approval:

**Approved**



**COPPER, BARE SOLID  
HARD DRAWN / MEDIUM HARD DRAWN**

Originator: DSmith

Date: 7/7/06

Approval: DSmith

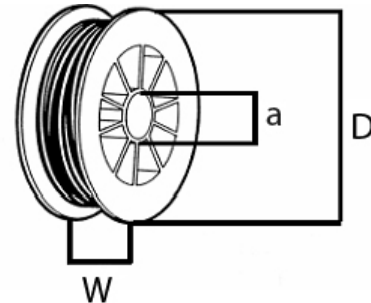
Date: 6/6/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:

**Approved**



**Application:** Bare solid hard-drawn copper conductor for maintenance of existing lines and adding a phase to existing spans. **Do not use these conductors for new construction.**

**Specification:**

Conductor shall be bare copper cable that meets or exceeds the following ASTM specifications.

- B-1 Hard-Drawn Copper Wire.
- B-2 Medium-Hard Copper Wire.

**Packaging and Marking:** The net weight, length, conductor size and name, purchaser's order number and manufacturer's name, address, and serial number shall be marked on a durable label and securely fastened to the outside of the reel or coil. \*Reels shall be of NEMA WC26 dimensions and free of foreign objects (nails, etc.) that could damage the conductor during transit or while dispensing. See table for reel sizes and wire lengths.

Spool dimensions are = Outside Diameter (**D**) X Drum Width (**W**) X Arbor Size (**a**)

**Shipping:** No special shipping Instructions

**Approved Manufacturers:** BICC, Southwire, Nehring, Service Wire, Republic Wire

| Item No | Description                                | Wire<br>Lbs/kft | Spool Size<br>DxWxa | Length<br>(ft) | Weight<br>Pounds |
|---------|--------------------------------------------|-----------------|---------------------|----------------|------------------|
| 035900  | WIRE, COPPER, #6, SOLID, HARD DRAWN        | 79.4            | 12" x 4" x 2"       | 315            | 25               |
| 035940  | WIRE, COPPER, #4, SOLID, HARD DRAWN        | 126.3           | 12" x 4" x 2"       | 198            | 25               |
| 035980  | WIRE, COPPER, #2, SOLID, MEDIUM-HARD DRAWN | 200.9           | 12" x 4" x 2"       | 124            | 25               |

**COPPER, BARE STRANDED, HARD DRAWN**

Originator: DSmith

Date: 7/10/2006

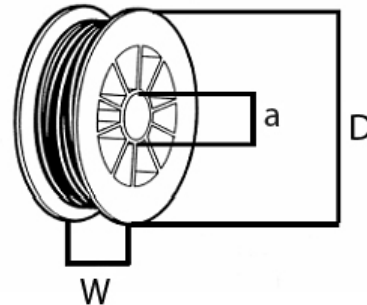
Approval: DSmith

Date: 6/18/2007

Page 1 of 1

Revision: Added Spool Sizes

Stds Committee Approval:

**Approved**

**Application:** Conductor shall be bare stranded hard-drawn copper wire for substation overhead bus use and maintenance of existing overhead lines.

**Specification:**

Conductor shall be bare copper cable that meets or exceeds the following ASTM specifications.

- B-1 Hard-Drawn Copper Wire.
- B-8 Concentric-Lay-Stranded Hard, Medium-Hard or Soft Copper Conductor.

**Packaging and Marking:** The net weight, length, conductor size and name, purchaser's order number and manufacturer's name, address, and serial number shall be marked on a durable label and securely fastened to the outside of the reel or coil. See table for spool sizes and wire lengths.

Spool dimensions are = Outside Diameter (**D**) X Drum Width (**W**) X Arbor Size (**a**)

**Shipping:** No special shipping Instructions

**Approved Manufacturers: BICC, REPUBLIC WIRE, SERVICE WIRE, NEHRING**

| Item No | Description                              | Wire<br>Lbs/kft | Spool Size<br>DxWxa | Length<br>(ft) | Weight<br>Pounds |
|---------|------------------------------------------|-----------------|---------------------|----------------|------------------|
| 036050  | WIRE, COPPER, #2, 7 STRAND, HARD DRAWN   | 204.9           | 24"X12"X3"          | 500            | 103              |
| 036140  | WIRE, COPPER, #2/0, 7 STRAND, HARD DRAWN | 410.9           | 24"X12"X3"          | 500            | 206              |
| 036170  | WIRE, COPPER, #4/0, 7 STRAND, HARD DRAWN | 653.3           | 24"X12"X3"          | 500            | 327              |



**CABLE, OH ALUMINUM  
600V INSULATED MULTIPLEX**

Originator: D Scott

Date: 1/23/2018

Approval: D Scott

Date: 1/23/2018

Page 1 of 1

Revision: **Updated Description & Amps/Phase**

Stds Committee Approval:

**Approved****Application:**

600 volt overhead aluminum service cable shall be used for secondaries and services to serve electric loads.

**Common Name:** Overhead Secondary Wire

**Specification:** 600 volt overhead concentric or compressed aluminum XLPE insulated cable, shall meet the following requirements.

**Material:** Cable shall be manufactured per latest revision of ICEA S-61-402 and shall consist of one or more insulated conductors twisted around a bare ACSR neutral supporting conductor. Cable shall be suitable for normal continuous operation at 75 degrees C without damage.

**Packaging and Marking:** The net weight, length, conductor size and name, voltage class, purchaser's order number and manufacturer's name, address, and serial number shall be marked on a durable label and securely fastened to the outside of the reel or coil. \*Reels shall be of NEMA WC26 dimensions and free of foreign objects (nails, etc.) that could damage the conductor during transit or while dispensing. Quadraplex conductor must have extruded ridge for phase identification. The cable assemblies shall bear the following surface markings at intervals not to exceed 24 inches: Manufacturers Name, Plant of Manufacture, XLPE, Year of Manufacture, and cable footage.

**Shipping:** All cable shall be shipped on an open flatbed truck. Reel flanges shall be vertical and positioned to be unloaded from the side. The cable shall be tarped or each reel shall be individually wrapped during shipment. Cable shall be shipped (on nonreturnable reels/in coils) with one continuous length.

**Approved Manufacturers: CME, NEXANS, SOUTHWIRE & BICC GENERAL (Formerly Alcan)**

| Item No | Description                                                     | Wt<br>(lbs<br>/1000ft) | Amps/<br>Phase | Reel Size      | Reel<br>Wt.<br>(Lbs) | Reel<br>(Ft.) |
|---------|-----------------------------------------------------------------|------------------------|----------------|----------------|----------------------|---------------|
| 034400  | CABLE, OH, 600V, #4 ACSR, DUPLEX,<br>"TERRIER", HAND COIL, XLPE | 115                    | 115            | Coil Only      | 60                   | 500           |
| 034500  | CABLE, OH, 600V, #2 AL, TRIPLEX,<br>"COCKLE", HAND COIL, XLPE   | 228                    | 150            | Coil Only      | 114                  | 500           |
| 034420  | CABLE, OH, 600V, #2 AL, TRIPLEX,<br>"COCKLE" XLPE               | 228                    | 150            | 36"X27.5"x1.5" | 420                  | 1800          |
| 034440  | CABLE, OH, 600V, #2/0 AL, TRIPLEX,<br>"CAVOLINIA", 1500, XLPE   | 453                    | 235            | 42"X30"X1.5    | 698                  | 1500          |
| 034470  | CABLE, OH, 600V, #4/0 AL, TRIPLEX,<br>"CERAPUS", XLPE           | 681                    | 315            | 50"X36.5X2"    | 704                  | 1000          |
| 034490  | CABLE, OH, 600V, #2 AL, QUADRAPLEX,<br>"PALOMINO", XLPE         | 347                    | 135            | 42"X30"X2"     | 660                  | 1800          |
| 034540  | CABLE, OH, 600V, #2/0 AL, QUADRAPLEX,<br>"GRULLO", XLPE         | 677                    | 210            | 49"X36"X2"     | 1060                 | 1500          |
| 034550  | CABLE, OH, 600V, #4/0 AL, QUADRAPLEX,<br>"APPALOOSA", XLPE      | 1038                   | 280            | 50"X36"X2"     | 1070                 | 1000          |

**GALVANIZED GUY WIRE**

Originator: DSmith

Date: 2/26/2018

Approval: DSmith

Date: 7/5/2007

Page 1 of 1

Revision: J Mitchell

Date: 02/22/2018

Std's Committee Approval:

**Approved**

**Application:** This is an aluminum-clad steel wire that provides corrosion resistance similar to solid aluminum and eight times the strength. It is used for down guys to anchor angle poles and deadends on distribution & transmission lines.

**Material:** ER 3008 Alumoweld Type M Guy Strand

| Designation | Number & Diameter of Individual Strands | Nominal Dia of Strand | Breaking Load Lbs | LBS/1000 ft | Ohms/ 1000 Ft |
|-------------|-----------------------------------------|-----------------------|-------------------|-------------|---------------|
| 6M          | 7 X .081"                               | 0.242                 | 6000              | 104         | 1.13          |
| 12.5M       | 7 X .114"                               | 0.343                 | 12,500            | 208         | 0.56          |
| 25M         | 7 x .173"                               | 0.519                 | 25,000            | 475         | 0.25          |

**Packaging and Marking:** The steel wire strand shall be shipped in (compact coils or non-returnable reels). Compact hand coils shall have a maximum outside diameter of 29", a minimum outside diameter of 28" and a maximum width of 3-3/4". The reels shall be free of foreign objects (nails, etc.) that could damage the conductor during transit or while dispensing. The marking tags shall include GROSS, TARE, AND NET WEIGHTS. Manufacturer's name or symbol and catalog number shall be on each part and/or its packaging.

**Approved Manufacturers:** ALFL and CONEX CABLE

| Item No. | Description                                | Code      | Reel Size DxWxdxa | Length (feet) | Weight (lbs) |
|----------|--------------------------------------------|-----------|-------------------|---------------|--------------|
| 034300   | WIRE, GUY, 6M, 7 STRAND, 500' HAND COIL    | 6M-AW7    | Hand Coil         | 500           | 52LB         |
| 034320   | WIRE, GUY, 12.5M, 7 STRAND, 250' HAND COIL | 12.5M-AW7 | Hand Coil         | 250           | 52LB         |
| 034325   | WIRE, GUY, 12.5M, 7 STRAND, 10,000' REEL   | 12.5M-AW  | 40x24x30          | 10,000        | 2,080        |
| 034330   | WIRE, GUY, 25M, 7 STRAND, 5000' REEL       | 25M-AW7   | 40x24x18          | 5,000         | 2,375        |
| 034340   | WIRE, GUY, 25M, 7 STRAND, 150' HAND COIL   | 25M-AW7   | Hand Coil         | 150           | 525LB        |





**WIRE, COPPER, COVERED, SOLID  
SOFT DRAWN, 600V**

Originator: J. Mitchell

Date: 01/28/2020

Approval: J. Mitchell

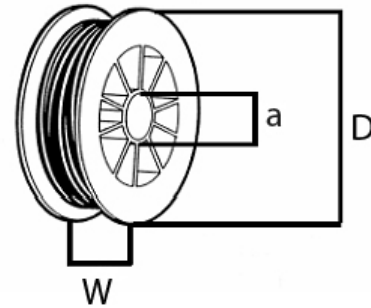
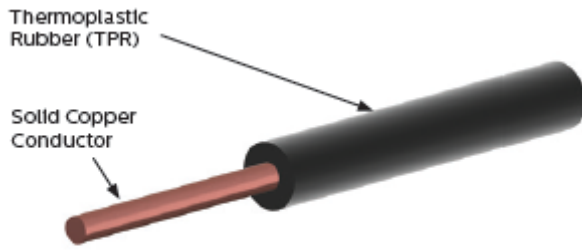
Date: 01/28/2020

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**



**Application:** Used for jumpers, taps and ground wire; insulation reduces wildlife-caused outages.

**Common Name:** Copper Jumper Wire; Tap wire

**Specification:**

Conductor shall be covered copper cable that meets or exceeds the following ASTM specifications.

- B-3 Soft or Annealed Copper Wire.

**Insulation:** The insulation shall be rated 600 volt, flame retardant, UV resistant and outdoor rated.

**Packaging and Marking:** The net weight, length, conductor size and name, purchaser's order number and manufacturer's name, address, and serial number shall be marked on a durable label and securely fastened to the outside of the reel or coil. \*Reels shall be of NEMA WC26 dimensions and free of foreign objects (nails, etc.) that could damage the conductor during transit or while dispensing. See table for reel sizes and wire lengths.

Spool dimensions are = Outside Diameter (**D**) x Flange (**F**) x Drum Width (**W**) x Arbor Size (**a**)

**Shipping:** No special shipping Instructions

**Approved Manufacturers: Hendrix**

| Stock Item # | Description                                        | Package Type | Reel Size DxFxWxa  | Length (ft) | Weight Pounds | Manufacturer Catalog # |
|--------------|----------------------------------------------------|--------------|--------------------|-------------|---------------|------------------------|
| 035925       | Wire, Copper, #6, Solid, Soft Drawn, Covered, 600V | Spool        | 12" x 4" x 8" x 2" | 200         | 29            | TAP06CUSOL-08          |
|              |                                                    |              |                    |             |               |                        |

**TREE WIRE, AAC**

Originator: DSmith

Date: 10/17/2018

Approval: Jmitchell

Date: 03/08/2018

Page 1 of 1

Revision: **Updated descriptions**

Std's Committee Approval:

**Approved**

**Application:** Used primarily for, but not limited to, overhead distribution lines in areas of heavy tree congestion to reduce number of nuisance tripping of protective devices. Installed on insulators, otherwise treated as a bare conductor. Requires engineering approval to use.

**Specifications:** The wire shall meet or exceed the following ASTM specifications:

- B-230 Aluminum Wire, 1350-H19 for Electrical Purposes.
- B-231 Aluminum Conductors, Concentric-Lay-Stranded.
- B-232 Aluminum Conductors, Concentric-Lay-Stranded, Coated Steel Reinforced (ACSR).
- B-399 Concentric-Lay-Stranded 6201-T81 Aluminum Alloy Conductors.

It shall also meet all applicable requirements of ANSI/ICEA S-70-547.

It shall be constructed of Aluminum alloy 1350-H19, 6201, or ACSR conductors, concentrically stranded and covered with crosslinked polyethylene (XLP) as specified below.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Shipping:** Must be delivered on a flatbed truck

**Approved Manufacturers:** Southwire, ALCOA

**PUD IDENTIFICATION**

| Stock Description                                               | Stock No. | Lbs / 1000' | Reel Size (Feet) | Amps | Rated Strength (lbs) |
|-----------------------------------------------------------------|-----------|-------------|------------------|------|----------------------|
| Wire, Tree, #2 7STR AAC, 45Mil XLP Covering, "Peach"            | 035400    | 84          | 7500             | 180  | 1210                 |
| Wire, Tree #2/0 7STR AAC, 60Mil XLP Covering, "Orange"          | 035440    | 172         | 3500             | 280  | 2260                 |
| Wire, Tree, #4/0 19STR AAC, 60Mil XLP Covering, "Pomegranate"   | 035460    | 260         | 3800             | 370  | 3620                 |
| Wire, Tree, 336kcm 19STR AAC, 60Mil XLP Covering, "Anona"       | 035500    | 390         | 2500             | 495  | 5530                 |
| Wire, Tree, 477kcm 37STR AAC, 60Mil XLP Covering, "Huckleberry" | 035520    | 565         | 3300             | 610  | 7820                 |

**GROUND ROD, COPPER CLAD**

Originator: DSmith

Date: 7/12/2006

Approval: DSmith

Date: 7/5/2007

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**APPROVED**

**Application:** Copper clad ground rods provide grounding for overhead and underground distribution and transmission and for substation ground grids.

**Ordering Description:** Copper clad ground rod shall meet the requirements of ANSI/UL 467, latest revision the requirements listed below.

**Copper Jacket:** A 0.01" thick uniform layer of electrolyte copper shall be metallurgically bonded to the rigid steel core.

**Rod Ends:** One end shall be chamfered to resist mushrooming when driving. The other end shall be a blunt 45 degree conical point.

**Marking:** Each rod shall be clearly stamped with the manufacturer's name or trademark within 12" of the chamfered end.

**Packaging:** Ground rods shall be securely bound in bundles of five and protected from damage during shipment.

**Approved Manufacturers**

| PUD IDENTIFICATION                               |           | MANUFACTURER CATALOG NUMBER |           |         |  |
|--------------------------------------------------|-----------|-----------------------------|-----------|---------|--|
| Stock Description                                | Stock No. | Joslyn                      | Blackburn | Eritech |  |
| GROUND ROD, 8' X 3/4", STEEL CORE, COPPER BONDED | 028320    | J8348                       | T&B 7508  | 613480  |  |
| ROD, GROUNDING, 5/8" X 8', GALV.                 | 165612    |                             |           |         |  |

**COPPER GROUNDING PLATE  
For Pole Butts & Fiberglass Sleeves**

Originator: DSmith

Date: **11/13/2007**

Approval: DSmith

Date: **11/13/2007**

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**APPROVED****Figure 1****Figure 2**

**Application:** Copper ground plates can be attached to a pole butt or buried in a hole having a minimum depth of 5 ft. They are considered a made electrode without the addition of a ground rod. They are used in areas where standard ground rods are impossible to drive. The larger plate must be used if only one side of the plate is exposed to the earth. The smaller plate may be used if both sides are exposed to the earth.

**Specification:** Each plate consists of a 0.06" thick solid copper plate with a captive integral copper connector.

**Marking:** Each plate shall be clearly stamped with the manufacturer's name or trademark.

**Packaging:** Plates shall be securely bound in bundles of five and protected from damage during shipment.

**Approved Manufacturers**

| <b>PUD IDENTIFICATION</b>                                                                                           |                  |               | <b>MANUFACTURER<br/>CATALOG NUMBER</b> |              |
|---------------------------------------------------------------------------------------------------------------------|------------------|---------------|----------------------------------------|--------------|
| <b>Stock Description</b>                                                                                            | <b>Stock No.</b> | <b>Figure</b> | <b>ERICO</b>                           | <b>Homac</b> |
| PLATE, GROUND, UG CU .06" THICK 7.5" X 19.25" 144 SQ IN SURFACE WITH AN INTEGRAL COPPER CONNECTOR FOR #12-1/0 WIRE. | 025882           | 1             | UGP719                                 | GG144E1/0    |
| PLATE, GROUND, POLE CU .06" THICK 7.5" X 38.5" 288 SQ IN SURFACE WITH AN INTEGRAL COPPER CONNECTOR FOR #12-#2 WIRE. | 025883           | 2             | UGP738                                 | GG288-E3-V1  |



**COPPER-CLAD, BARE STRANDED, 40%  
CONDUCTIVITY**

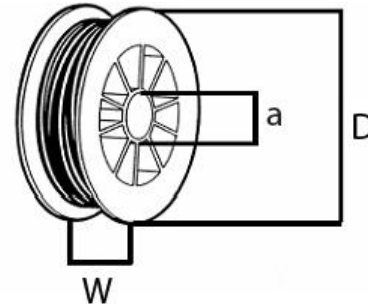
Originator: J. NIEBORSKY Date: 1/8/2013

Approval: J. NIEBORSKY Date: 1/25/2013

Page 1 of 1

Revision: 25 lb spools instead of 50 lb coils

Stds Committee Approval:  
**PENDING**



**Application:** Bare stranded, Dead Soft Annealed Copper-clad Stranded Steel Wire, 40% electrical conductivity, are suitable for overhead transmission and distribution applications such as uninsulated hook up, jumpers, and grounds in electrical construction.

**Specification:**

Conductor shall be bare copper-clad cable that meets or exceeds the following specifications.

- ASTM B228-11a
- Grade 40DSA
- IEEE Standard 80

**Packaging and Marking:** The net weight, length, conductor size and name, purchaser's order number and manufacturer's name, address, and serial number shall be marked on a durable label and securely fastened to the outside of the reel, spool, or coil. See table for spool sizes and wire lengths. Reels/spools shall be painted, stained, or otherwise manufactured to be green in color.

**Shipping:** No special shipping Instructions

**Approved Manufacturers: Commscope, AFL**

Spool dimensions are = Outside Diameter (**D**) X Drum Width (**W**) X Arbor Size (**a**)

| Item No | Description                       | Commcope # | AFL #     | Wire Lbs/kft | Spool Size DxWxa | Length (ft) | Weight Pounds |
|---------|-----------------------------------|------------|-----------|--------------|------------------|-------------|---------------|
| 036055  | WIRE, 7#/10 CCS, 40% CONDUCTIVITY | M47101F    | CCS07104D | 205.8        | 12" X 8" X 2"    | 125         | 25            |
|         |                                   |            |           |              |                  |             |               |
|         |                                   |            |           |              |                  |             |               |



# LABELS & SIGNS

Originator: DSmith

Date: 2/8/2007

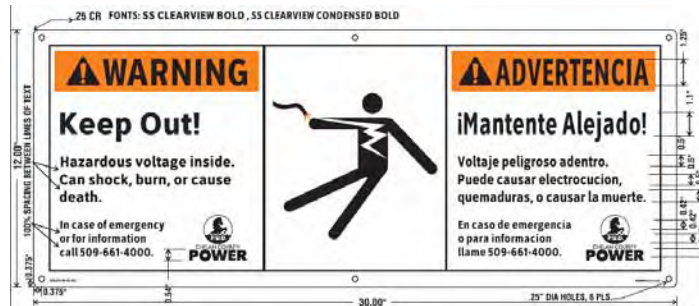
Approval: DSmith

Date: 2/8/2007

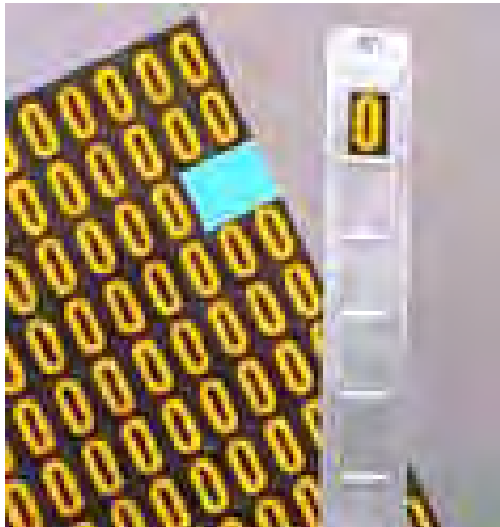
Page 1 of 1

Revision: **NEW**

Stds Committee Approval:  
**Approved**



# LABELS & SIGNS





## High Voltage Equipment Warning Peel & Stick

Originator: dsmith

Date: 1/14/2008

Approval: dsmith

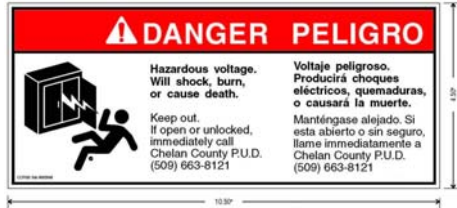
Date: 1/17/2008

Page 1 of 3

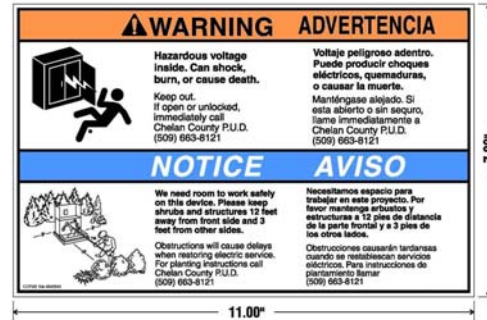
Revision: **NEW**

Std's Committee Approval:

**Approved**



**Figure 1**  
“Danger Label”



**Figure 2**  
“Warning Label”

**Application:** This specification covers High Voltage Equipment Peel & Stick Labels. The “Warning Label “ is placed on the outside of equipment while the “Danger” label is placed on the inside.

### **Specifications:**

Material: .002" tamperproof, UV-resistant and heat-resistant **Acrylic** film with permanent adhesive, Screen printed colors per Drawings shown, .002" clear **Acrylic** lamination, sizes per Drawings shown, slit liner for ease of installation.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The Districts Stock number and the Manufacturer's name or symbol and catalog number shall be on each part and its packaging.

### **Approved Manufacturers:**

| PUD IDENTIFICATION |                                                                          |          | MANUFACTURER CATALOG NUMBER |        |
|--------------------|--------------------------------------------------------------------------|----------|-----------------------------|--------|
| Stock No.          | Stock Description                                                        | Figure # | Electromark                 | MFG #2 |
| 045940             | Label, Danger, High Voltage Equipment, Bilingual, 4.5" X 10.5"           | 1        | CHL018-W-A2-C52             |        |
| 045945             | Label, Warning & Clearances, High Voltage Equipment, Bilingual, 7" X 11" | 2        | CHL017-W-A2-TV3             |        |





**High Voltage Equipment Warning  
Peel & Stick**

Originator: dsmith

Date: 1/14/2008

Approval: dsmith

Date: 1/17/2008

Page 2 of 3

Revision: **NEW**

Stds Committee Approval:

**Approved**

Figure 1, Stock #045940

***"Danger Label"***





**High Voltage Equipment Warning  
Peel & Stick**

Originator: dsmith

Date: 1/14/2008

Approval: dsmith

Date: 1/17/2008

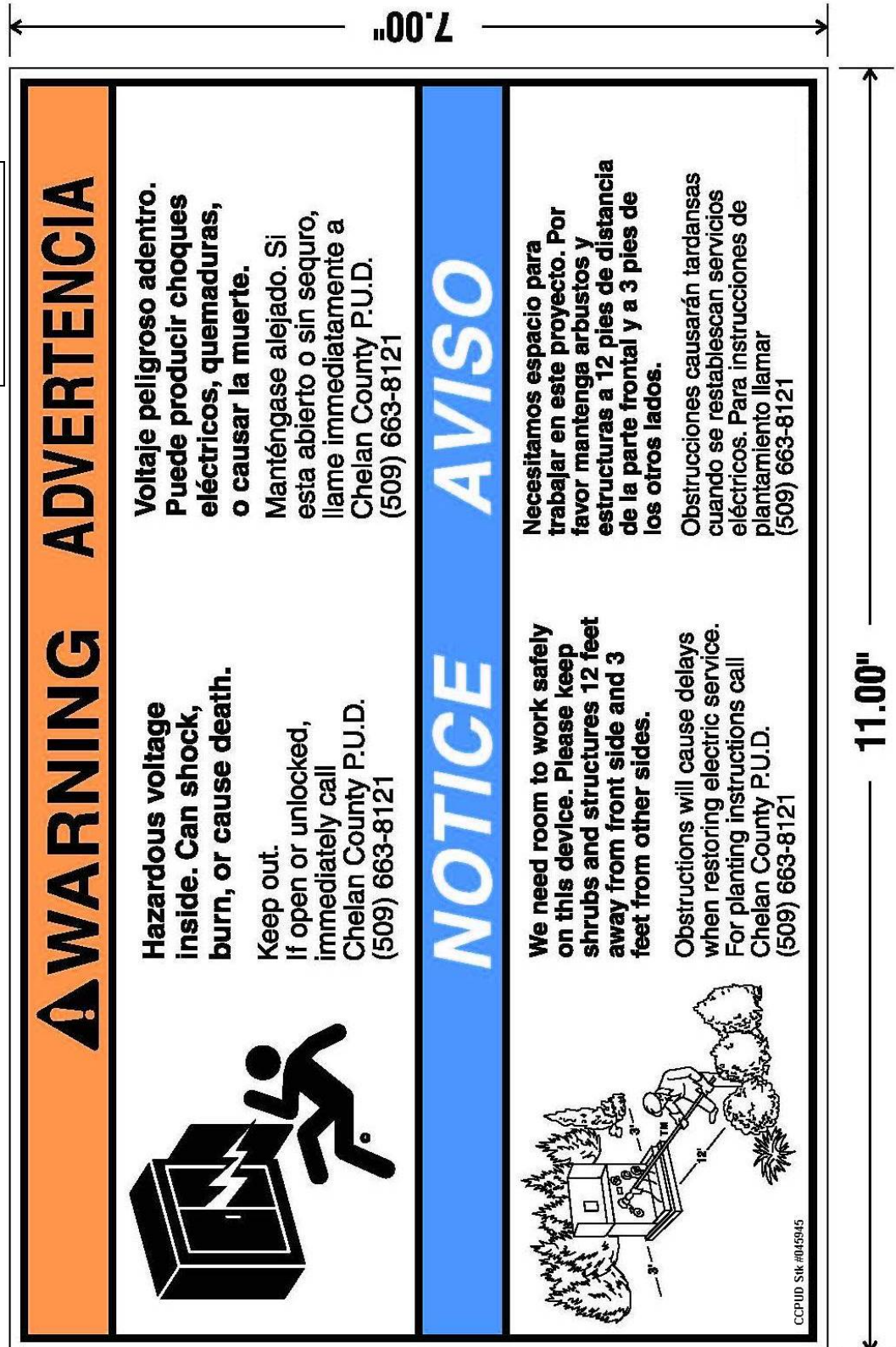
Page 3 of 3

Revision: **NEW**

Stds Committee Approval:

**Approved**

Figure 2 -  
Stock # 045945  
**"Warning Label"**





## SNOW FLAGS

Originator: DSmith

Date: 12/15/2017

Approval: J. Mitchell/D.Scott

Date: 12/3/2020

Page 1 of 1

Revision: Replaced old version w/ new item for better visibility & longevity

Stds Committee: **Approved**

**Application (Electrical Equipment):** These units can be bolted to the side of the cabinet. Fiberglass rod with red and reflective white alternating stripes provide 360 degree visibility day or night to identify snow or vegetation covered equipment.

**Specification (Electrical Equipment):** Each unit consists of a 3/8" diameter 7' or 10' fiberglass rod with a vertical coil on one end and 5/8" x 1" inch galvanized steel mounting hardware.

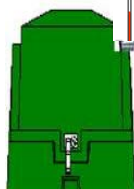
**Application (Hydrants):** These units can be bolted to the side of the hydrant. The red flag can be seen above the snow covered hydrant.

**Specification (Hydrants)** Each unit consists of a 72" steel rod with either a vertical or horizontal coil on one end, a single 6" hard plastic flag at the top, with 5/8" x 2" galvanized steel mounting hardware.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

| Stock # | DESCRIPTION                                                                                                                                                                      | RoDon Corp.  | Nordic |
|---------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|--------|
| 045485  | Marker, Flag, Snow, 72" Steel Rod w/ Vertical Coil On End, Hard Plastic Flag At Top, 6" and 5/8" X 2" Galvanized Steel Mounting Hardware.<br>Used For Marking Fire Hydrants Only | -            | FF2    |
| 045487  | Marker, Snow, Utility Pedestal, w/ Spring & "L" Bracket, Red Tape Rings<br>Used For Marking Padmounted Equipment                                                                 | PED-7-S-RED  | -      |
| 045489  | Marker, Utility Pedestal, 10', w/ Spring & "L" Bracket, Red Tape Rings                                                                                                           | PED-10-S-RED |        |

7' or 10' Fiberglass  
Rod



72" Steel Rod  
w/ Flag



**MARKER, CONDUIT**

Originator: Daniel Scott

Date: 7/23/2024

Approval: Daniel Scott

Date: 03/14/2025

Page 1 of 1

Revision: New item

Std's Committee Approval:  
**22 October 2024**

**Specification:** Self-leveling coil marker that is easily locatable using District standard underground locating equipment. Units shall be a passive design with no hazardous materials. Locating frequency of 169.8 kHz.

**Application:** Locatable marker for empty stubbed out conduit, road crossing ends, feeder getaways, and other difficult to locate conduit locations.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and its packaging.

**Chelan PUD Stock Number:**  
**055550**

**Approved Manufacturers:**  
Tempo Omni Marker II, Part Number 52085011



**Sign – Fiberglass  
Substation Fence - Warning  
12" X 30"**

Originator: dsmith

Date: 5/3/2007

Approval: dsmith

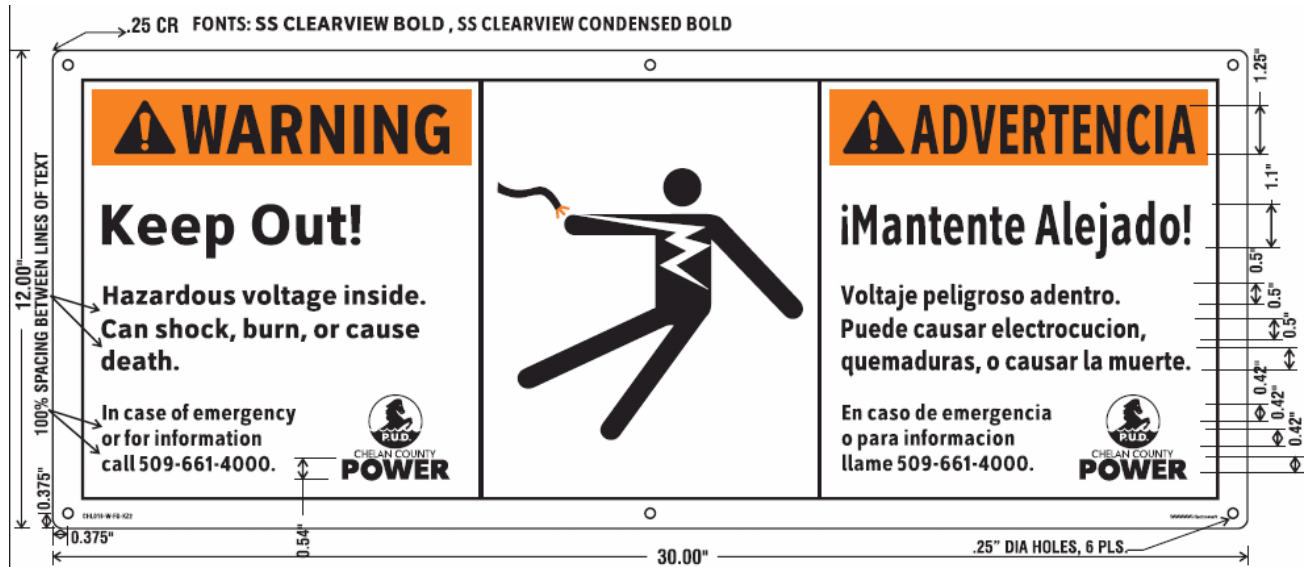
Date: 7/5/2007

Page 1 of 2

Revision: **NEW**

Stds Committee Approval:

**Approved**



**Application:** This specification covers embedded fiberglass signs used as warning signs on substation fences per Construction Standard 810.002 "Substation Perimeter Fence Safety Sign Placement"

**Specifications:**

1. The signs shall be manufactured using acrylic modified polyester resin reinforced with chopped strand fiberglass, minimum of 28%. The images are embedded subsurface in the material to protect them on both the front as well as the backside.
2. The nominal thickness of a standard sign is .090" thick. The material shall resist deterioration from exposure to chemicals using DIN 42 115 Part 2 as listed in the following table.

| <b><u>Chemical</u></b> | <b><u>Rating</u></b> |
|------------------------|----------------------|
| Mild Acids             | Excellent            |
| Water                  | Excellent            |
| Mild Alkaline & Salt   | Excellent            |
| Solvents               | Excellent            |

3. The sign shall not be defaceable by spraying with aerosol paint, or brushing and splashing paint. It may be wiped clean without marring or damaging the surface by using mineral spirits, soap and water, or mild solvents.
4. **Corners, holes and edges:** The signs shall have ¼" radius rounded corners or as specified. The signs shall have a clean, routed edge as opposed to a shear-cut edge.
5. **Dimensions:** The overall size of the sign shall be as specified with a +/- .03125" tolerance.
6. **Flatness & Bubbles:** The sign shall lay flat and have an even, non-rippled finish. A wavy surface or trapped air bubbles will not be acceptable. Finished signs shall have a maximum variation of 1/8" in the convex or concave direction when measured perpendicular to the nominal plane of the sign face.





**Sign – Fiberglass  
Substation Fence - Warning  
12" X 30"**

**Originator:** dsmith**Date:** 5/3/2007**Approval:** dsmith**Date:** 7/5/2007

Page 2 of 2

**Revision:** NEW**Stds Committee Approval:****Approved**

7. Mounting Holes and Fence Clips: The sign shall be provided with six aluminum fence clips. The holes in the sign shall be spaced so that the fence clips will properly align themselves to the standard diamond repeat of the chain-link fence, including allowable deviations. The fence clip shall be fabricated from 0.090" thick aluminum and a 1/4-20 locking PEM insert. A tamper-proof or other suitable bolt shall be provided for each hole.
8. Packaging: Signs shall be packaged in a polyethylene bag or shrink packing. Each bag or box shall be identified with the date, quantity and part number. Bag or packages shall then be packaged in a corrugated carton. The outside of each carton shall be labeled with the District Item number as shown below.
9. UV Stability: The sign shall be remain readable and have little fading after 17,000 hours of exposure in a QUV weathering. Sample of weathered and printed sign shall remain on file at the manufacturer and is available for review by the District.
10. Workmanship and quality shall be such that all lettering is sharp, legible, straight and aligned properly. Smudges, misalignment, incorrect wording, misspelling, crooked letters, incorrect color, incorrect materials, or any other problems that show poor quality and workmanship will give sufficient cause to reject any marker. The products are to be guaranteed by the vendor to be free of workmanship or material defect for 12 years against chipping, fading, peeling and de-lamination.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                    |           | MANUFACTURER CATALOG NUMBER |        |
|-------------------------------------------------------|-----------|-----------------------------|--------|
| Stock Description                                     | Stock No. | Electromark                 | MFG #3 |
| Sign, Fiberglass, Substation Fence Warning, 12" X 30" | 100550    | CHL-16-W-FG-KZ2             | XXXXXX |



## Tags – Write-On Plastic with Black UV Resistant Plastic Ties

Originator: D. Smith

Date: 5/4/2007

Approval: D. Smith

Date: 2/1/2008

Page 1 of 6

Revision: Revised Equipment Return Tag

Stds Committee Approval:

**Approved**

**Application:** This specification covers colored Write-on Plastic Tags with black ultraviolet resistant ties. They are used to track inventory during issues and returns.

### Material and Construction:

1. Base material: high tensile .010" thick abrasion and tear resistant plastic with UV inhibitors, Matte finish.
2. Corners: Unspecified
3. Grommet: 3/8" Brass with UV resistant black plastic tie as specified.
4. Dimensions, Lettering and Color: per attached drawings

### Performance:

1. Average Outdoor Durability: 3-5 years
2. At 100 Degrees F, No Blistering, Color Change Or Other Material Degradation.
3. No Effect When Immersed In Diesel Fuel, Motor Oil, Antifreeze, 2% Detergent, Kerosene, Acetic Acid, or Acetone and Water.
4. Service temperature range: -40 to + 200 degrees F

### Identification and Packaging:

1. 25 tags shall be packaged in a .004" polyethylene resalable bag with UV resistant black plastic tie specified, they can be loose.
2. Each carton marked with name of manufacturer, PO number, date of manufacture, qty, sample and customers stock code number.

**Approved Manufacturers:** (Artwork Proofs must be on file or submitted before PO approval.)

| Stock No. | Stock Description                                                                                             | Fig # |
|-----------|---------------------------------------------------------------------------------------------------------------|-------|
| 015346    | Tag, <b>Equipment Return</b> , Black on Light Blue, Write-On Plastic with UV Black Plastic 7" Tie, 5.75" X 3" | 1     |
| 015370    | Tag, <b>Equipment Issue</b> , Black on Green, Write-On Plastic with UV Black Plastic 7" Tie, 3" X 3"          | 3     |
| 018276    | Tag, <b>Cable Reel Issue</b> , Black on Yellow, Write-On Plastic with UV Black Plastic 7" Tie, 5.75" X 3"     | 4     |
| 018277    | Tag, <b>Cable Reel Issue Tracking</b> , Black on Yellow, Write-On Plastic with Four Grommets, 6" X 8"         | 5     |
| 017950    | Tag, Trench Inspection <b>NOT APPROVED</b> , Black on Red, Write-On Plastic with 14 inch plastic Tie, 7"X4"   | 6     |
| 015368    | Tag, Trench Inspection <b>APPROVED</b> , Black on Green, Write-On Plastic with 14 inch plastic Tie, 7"X4"     | 7     |





## Tags – Write-On Plastic with Black UV Resistant Plastic Ties

Originator: D. Smith

Date: 5/4/2007

Approval: D. Smith

Date: 2/1/2008

Page 2 of 6

Revision: Revised Equipment Return Tag

Stds Committee Approval:

**Approved**

**Equipment Return**

Equipment # \_\_\_\_\_

**CHECK ALL THAT APPLY**

|                                                      |                                    |
|------------------------------------------------------|------------------------------------|
| <input type="checkbox"/> Bad/No Voltage              | <input type="checkbox"/> Lightning |
| <input type="checkbox"/> Physical Damage             | <input type="checkbox"/> Corrosion |
| <input type="checkbox"/> Change Out /<br>Remove Only | <input type="checkbox"/> Oil Leak  |

**Comments On Back:**

----- Test Off -----

Field Loc ID \_\_\_\_\_

WO# \_\_\_\_\_

Date: \_\_\_\_\_ Initials \_\_\_\_\_

----- Electric Shop Use -----

Stock # \_\_\_\_\_

Equipment # \_\_\_\_\_

Serial # \_\_\_\_\_

PCB Test# \_\_\_\_\_ Results \_\_\_\_\_ ppm

|                                 |                                  |
|---------------------------------|----------------------------------|
| <input type="checkbox"/> Repair | <input type="checkbox"/> Dispose |
|---------------------------------|----------------------------------|

Chelan County PUD Stock #015294

**Item 015346****Figure 1****5.75" X 3"****With 7 inch****Black Plastic Tie**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



## Tags – Write-On Plastic with Black UV Resistant Plastic Ties

Originator: D. Smith

Date: 5/4/2007

Approval: D. Smith

Date: 2/1/2008

Page 3 of 6

Revision: Revised Equipment Return Tag

Stds Committee Approval:

**Approved**

**Equipment Issue**

Equipment # \_\_\_\_\_

WO# \_\_\_\_\_

Date: \_\_\_\_\_

Initials \_\_\_\_\_

**Comments On Back:**

Chelan County PUD Stock #015370

**Item 015370****Figure 3****3" X 3"****With 7 inch****Black Plastic Tie**

**Cable Reel Issue**

Stock # \_\_\_\_\_

Reel # \_\_\_\_\_

WO# \_\_\_\_\_

**Comments:**

Printed  
Foremen  
Initials: \_\_\_\_\_ Date \_\_\_\_\_

Chelan County PUD Stock #018276

**Item 018276****Figure 4****5.75" X 3"****With 7 inch****Black Plastic Tie**



CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



## Tags – Write-On Plastic with Black UV Resistant Plastic Ties

Originator: D. Smith

Date: 5/4/2007

Approval: D. Smith

Date: 2/1/2008

Page 5 of 6

Revision: Revised Equipment Return Tag

Stds Committee Approval:

**Approved**

**PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY  
UNDERGROUND DITCH INSPECTION**

**SERVICE****ADDRESS:** \_\_\_\_\_**CUSTOMER:** \_\_\_\_\_

# Not Approved

Call (509) 661-4325

**Employees****Initials:** \_\_\_\_\_ **Date:** \_\_\_\_\_ **Time:** \_\_\_\_\_**Not approved because:**

- ☐ Trench too shallow
- ☐ Improper bedding material
- ☐ Improper sweep size used (Requirement : 36")
- ☐ More than 3-90° bends in conduit run
- ☐ Lack of warning tape
- ☐ Improper conduit (Requirement: SCH 40 PVC)
- ☐ Other: \_\_\_\_\_

This inspection is for compliance of P.U.D. standards only. Final inspection must be made by Department of Labor and Industries Electrical Inspection Division.

**NO BUILDING MATERIAL REFUSE IS  
TO BE DISCARDED INTO DITCH.**

Stock #017950

**Item 017950**  
**Figure 6**  
**7" X 4"**  
**With 14 inch**  
**Plastic Tie**

CHELAN COUNTY  
**PUBLIC UTILITY DISTRICT**  
*Owned By The People We Serve*



## Tags – Write-On Plastic with Black UV Resistant Plastic Ties

Originator: D. Smith

Date:5/4/2007

Approval: D. smith

Date:2/1/2008

Page 6 of 6

Revision: Revised Equipment Return Tag

Stds Committee Approval:

**Approved**

PUBLIC UTILITY DISTRICT NO. 1 OF CHELAN COUNTY  
UNDERGROUND DITCH INSPECTION

SERVICE  
ADDRESS: \_\_\_\_\_

CUSTOMER: \_\_\_\_\_

**Approved**

Employees  
Initials: \_\_\_\_\_ Date: \_\_\_\_\_ Time: \_\_\_\_\_

Other: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

This inspection is for compliance of P.U.D. standards only. Final inspection must be made by Department of Labor and Industries Electrical Inspection Division.

**NO BUILDING MATERIAL REFUSE IS  
TO BE DISCARDED INTO DITCH.**

Stock #015368

**Item 015368**  
**Figure 7**  
**7" X 4"**  
**With 14 inch**  
**Plastic Tie**



# CHEMICALS

Originator: DSmith

Date: 7/9/2007

Approval: DSmith

Date: 7/9/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



# CHEMICALS



**- Lubricant -  
Cable Pulling**

Originator: DSMITH

Date: 1/23/2007

Approval: J Mitchell

Date: 06/10/2011

Page 1 of 1

Revision: **NEW**

Stds Committee Approval:

**Approved**

**Application:** Cable pulling lubricant shall be suitable for use as a lubricant to reduce pulling tension on all insulated power cables. Lubricity shall be < 0.15 for PE Jacketed cable on PVC conduit at 200lbs/ft.

**Compatibility:** Lubricant shall be compatible with and not damage polyethylene, PVC, lead, rubber, or neoprene cable insulations, jacket, and semi-conductor shields. Lubricant shall be non-staining, non-toxic, water soluble and nonflammable.

**Calculation Of Quantities:**

When ½ gallon bags are used, the number of packs for a pull is:  $N = 0.003 \times L \times D$

Where: N = Number of packs required  
L = Length of pull in feet  
D = Nominal I.D. of conduit in inches

The quantity appropriate for a difficult pull may be up to +50% above this average, depending on conduit fill, conduit type and condition, number of bends, and pulling environment.

**Temperature Range:** -20°F - 140°F (Winter Mix)

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling or storage. Manufacturer's name or symbol and catalog number shall be on each part or its packaging.

**MSDS:** Each shipment shall include a copy of the current Material Safety Data Sheet.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                           |           | MANUFACTURER CATALOG NUMBER |                    |
|------------------------------------------------------------------------------|-----------|-----------------------------|--------------------|
| Stock Description                                                            | Stock No. | American Polywater          | Rainbow Technology |
| Lube, Cable Pulling, Ten ½ Gallon Bags in Bucket, Winter Mix, -20°F to 140°F | 046012    | WJ-110                      |                    |
| Lube, Cable Pulling, 5 Gal Pail, Winter Mix, -20°F to 140°F                  | 046015    | WJ-640                      | 8293               |



|                                                                                        |               |                                                                                   |                |
|----------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------|----------------|
| <b>- Material Catalog -</b>                                                            |               | <b>CHEMICALS</b>                                                                  | <b>5312.02</b> |
| CHELAN COUNTY<br><b>PUBLIC UTILITY DISTRICT</b><br><i>Owned By The People We Serve</i> |               |  |                |
| Originator: J. FLADER                                                                  | Date: 2/15/18 | <b>FOAM POLE PATCH<br/>TWO PART URETHANE</b>                                      |                |
| Approval: J. FLADER                                                                    | Date: 2/15/18 |                                                                                   |                |
| Revision: <b>NEW</b>                                                                   |               | Page 1 of 1<br>Stds Committee Approval:<br><b>Approved</b>                        |                |



**Application:** Utility Pole Repair makes it easy to repair woodpecker, pole line hardware, and other types of holes on utility poles. UPR-NF uses a two-part urethane structural foam that completely fills irregular shaped cavities.

| Depth<br>(inches) | Product<br>Quantity | Diameter (inches) |     |     |      |      |
|-------------------|---------------------|-------------------|-----|-----|------|------|
|                   |                     | 4                 | 6   | 8   | 10   | 12   |
| 6                 | Cartridge(s)        | 1.5               | 3.5 | 5.5 | 9    | 13   |
| 8                 | Cartridge(s)        | 2                 | 4   | 7.5 | 11.5 | 16.5 |

**Common Name:** Wood Pecker Patch. **Temperature range:** From to 20°F to 100°F.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or its packaging.

**MSDS:** Each shipment shall include a copy of the current Material Safety Data Sheet.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                | Stock No. | MANUFACTURER CATALOG NUMBER      |
|-------------------------------------------------------------------|-----------|----------------------------------|
| POLE PATCH, (WOODPECKER DAMAGE) UTILITY POLE RESTORATION, NO FLOW | 011311    | American Polywater - UPR-NFKIT12 |

|                                                                                        |               |                                                                                   |                |
|----------------------------------------------------------------------------------------|---------------|-----------------------------------------------------------------------------------|----------------|
| <b>- Material Catalog -</b>                                                            |               | <b>CHEMICALS</b>                                                                  | <b>5312.02</b> |
| CHELAN COUNTY<br><b>PUBLIC UTILITY DISTRICT</b><br><i>Owned By The People We Serve</i> |               |  |                |
| Originator: J. FLADER                                                                  | Date: 2/15/18 | <b>FOAM POLE PATCH<br/>TWO PART URETHANE</b>                                      |                |
| Approval: J. FLADER                                                                    | Date: 2/15/18 |                                                                                   |                |
| Revision: <b>NEW</b>                                                                   |               | Page 1 of 1<br>Stds Committee Approval:<br><b>Approved</b>                        |                |



**Application:** Utility Pole Repair makes it easy to repair woodpecker, pole line hardware, and other types of holes on utility poles. UPR-NF uses a two-part urethane structural foam that completely fills irregular shaped cavities.

| Depth<br>(inches) | Product<br>Quantity | Diameter (inches) |     |     |      |      |
|-------------------|---------------------|-------------------|-----|-----|------|------|
|                   |                     | 4                 | 6   | 8   | 10   | 12   |
| 6                 | Cartridge(s)        | 1.5               | 3.5 | 5.5 | 9    | 13   |
| 8                 | Cartridge(s)        | 2                 | 4   | 7.5 | 11.5 | 16.5 |

**Common Name:** Wood Pecker Patch. **Temperature range:** From to 20°F to 100°F.

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or its packaging.

**MSDS:** Each shipment shall include a copy of the current Material Safety Data Sheet.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                | Stock No. | MANUFACTURER CATALOG NUMBER      |
|-------------------------------------------------------------------|-----------|----------------------------------|
| POLE PATCH, (WOODPECKER DAMAGE) UTILITY POLE RESTORATION, NO FLOW | 011311    | American Polywater - UPR-NFKIT12 |

**Pole Setting Foam**

Originator: Randy Kono      Date: 7/7/2008

Approval: Standards      Date: 7/7/2008

Page 1 of 1

Revision: **NEW**Stds Committee Approval:  
**Approved**

**Application:** A hydrophobic two-part polyurethane, expanding foam designed to rapidly provide intermediate backfill for setting utility poles. It forms a low-density, high-strength foam that can structurally support the pole, and maintain its upright positions. Hardware may be strung after 15 minutes. Serves as a barrier impeding the migration of preservation materials into the surrounding soil and ground water. Displays excellent adhesion to wood and manufactured poles and does not require the use of primers.

**Common Name:** Pole Setting Foam

**Packaging and Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:**

| PUD IDENTIFICATION                                                       |           | MANUFACTURER<br>CATALOG<br>NUMBER |
|--------------------------------------------------------------------------|-----------|-----------------------------------|
| Stock Description                                                        | Stock No. | Rainbow<br>Technology             |
| POLE SETTING FOAM, BACK FILL, 2 PART, MIXTURE,<br>COVERAGE, 2 CUBIC FEET | 042401    | 79702                             |

**Notes:** This product has a one-year shelf life.

**Cement - PVC Solvent – All Weather – Clear  
Fast Setting**

Originator: DSMITH

Date: 9/25/06

Approval: DSMITH

Date: 9/25/06

Page 1 of 1

Revision: **NEW**Std's Committee Approval:  
**9/25/06**

**Application:** Medium-bodied cement for use on Schedule 40 & Schedule 80 PVC pipe and fittings, up to 6" diameter. The cement is supplied with a swab attached to the cap. No primer needed for non-pressure applications. Complies with NEMA and UL specifications. Twenty-four 16 oz cans per carton.

**SETUP TIME (Evaporation Rate):**

| Air Temperature | Approximate Setup Time |
|-----------------|------------------------|
| 10°- 30°F       | 4-5 minutes            |
| 30°- 50°F       | 3-4 minutes            |
| 50°- 70°F       | 1-2 minutes            |
| 70°- 90°F       | 1/2-1 1/2 minutes      |

**Health & Safety:** The cement is flammable and must not be stored or used near open flame. PVC Solvent is extremely flammable and harmful or fatal if swallowed. The vapor is harmful and may irritate eyes and skin. Adequate ventilation is required when using PVC Solvent. Shelf Life is approximately 3 years.

**Disposal:** Return empty cans to stores for disposal.

**Packaging & Marking:** Items shall be suitably packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part and/or its packaging.

**Approved Manufactures**

| PUD IDENTIFICATION                                                                    |           | MANUFACTURER CATALOG NUMBER |        |                   |
|---------------------------------------------------------------------------------------|-----------|-----------------------------|--------|-------------------|
| Stock Description                                                                     | Stock No. | Oatey                       | Carlon | IPS<br>WELD_ON    |
| Cement - PVC Solvent – All Weather - Clear<br>10°F to 100°F – FAST SETTING – Pint Can | 042210    | 31132                       | VC9983 | DUIT 413<br>12086 |



# RAW MATERIALS

Originator: DSmith

Date: 2/8/2007

Approval: DSmith

Date: 2/8/2007

Page 1 of 1

Revision: **NEW**

Std's Committee Approval:  
**Approved**



# RAW MATERIALS





## Light Emitting Diode Luminaire

Originator: D Scott

Date: 3/13/2017

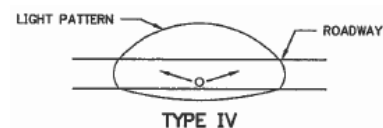
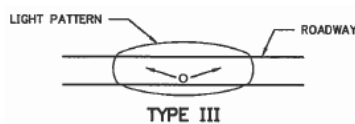
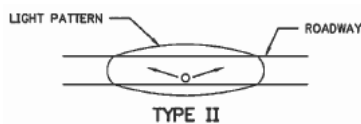
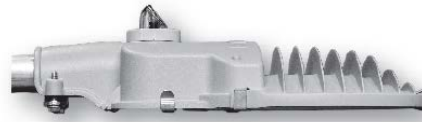
Approval: Stds Committee

Date: 9/6/2022

Page 1 of 1

Rev: added dark sky compliance

Stds Committee Approved



**Application:** General roadway lighting luminaires for intersection and highways as well as luminaires for underpasses, bridges, parking lots, and rural locations.

**Specification:**

- All components (LED, driver, photocell, etc.) must be rated 100,000-hour lifetime rating.
- 7 pin photocell receptacle, 360° with LED rated long-life photocell packaged in box with light.
- Rated for ambient temperature from -40C to +50C.
- Light trespass shield from all sides must be available option.
- Corrosion resistant housing; enclosure constructed with cast aluminum, including door. Hinges and bolts can be aluminum, 300 series stainless steel, or silicone bronze.
- 2,700k - 3000k light color.
- Operating voltage range 120v-277v.
- BUG requirements: backlight max 2, up light 0, glare max 2 for 50 watt or less.
- Dark Sky compliant.
- Discrete LED chips required, COB or high-density module unacceptable.
- Minimum efficacy 110 lumens per watt.
- Test reports required: LM79, LM80, TM21, UL Listed, DLC Listed, Driver Spec Sheet.

**Packaging and Marking:** Each Item shall be individually packaged to prevent damage. The container shall be convenient for handling and storage. Manufacturer's name or symbol and catalog number shall be on each part or (and) its packaging.

**Approved Manufacturers:** Leotek, Phillips, Eaton, and AEL

| PUD IDENTIFICATION                                      |           |
|---------------------------------------------------------|-----------|
| Stock Description                                       | Stock No. |
| 2500-3500 Lumens Type 2: Residential, Rural             | 024533    |
| 2500-3500 Lumens Type 4: Residential, Rural, Area light | 024532    |
| 4000-6000 Lumens Type 2: Road, Collector                | 024531    |
| 8500-10000 Lumens Type 3: Arterial Road                 | 024530    |