

## Clamps, Aluminum Deadend, Quadrant Strain



### 1. Scope

This standard covers the requirements for aluminum, quadrant strain, deadend clamps.

Aluminum quadrant strain deadend clamps consist of a body, a keeper (metal piece that sandwiches the conductor to the body of the clamp), a strain socket eye, a cotter pin, and U-bolts with nuts.

This standard applies to the following Seattle City Light (SCL) stock numbers:

Stock No.	Conductor Size Range (kcmil)
693805	397.5-477
693925	477-954

### 2. Application

Aluminum quadrant strain deadend clamps are used to terminate bare conductor on ball-and-socket type strain insulators. These clamps are used for transmission line construction with all aluminum, ACSR, or aluminum alloy conductors; or with Alumoweld® static wire.

Socket eye fittings on deadend clamps may be used with Class 52-3 or 52-5 insulators as described in ANSI C-29.2B.

Recommended torque on U-bolts: 1/2" – 40 in-lb., 5/8" – 60 ft-lb.

Ductile iron strain clamps are used for terminating steel static wires. Aluminum alloy and ductile iron clamps are not interchangeable.

### 3. Industry Standards

Aluminum quadrant strain deadend clamps shall meet the applicable requirements of the following industry standards:

**ANSI/NEMA C29.2B**; American National Standard for Insulators—Wet Process Porcelain and Toughened Glass—Transmission Suspension Type, November 22, 2013

**ASTM A153**; Standard Specification for Zinc Coating (Hot Dip) on Iron and Steel Hardware, 2005 Edition

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### 4. Requirements

Aluminum quadrant strain deadend clamps and keepers shall adhere to the following requirements:

- Be made of 356 T6 cast aluminum alloy or high-strength, heat-treated wrought aluminum alloy,
- Be designed to meet the ultimate strengths shown in Table 4 and Figure 4.
- Have smooth surfaces and all edges rounded to prevent formation of corona or damage to the conductor.
- Have a string, or pulling, eye as an integral part of the clamp body.

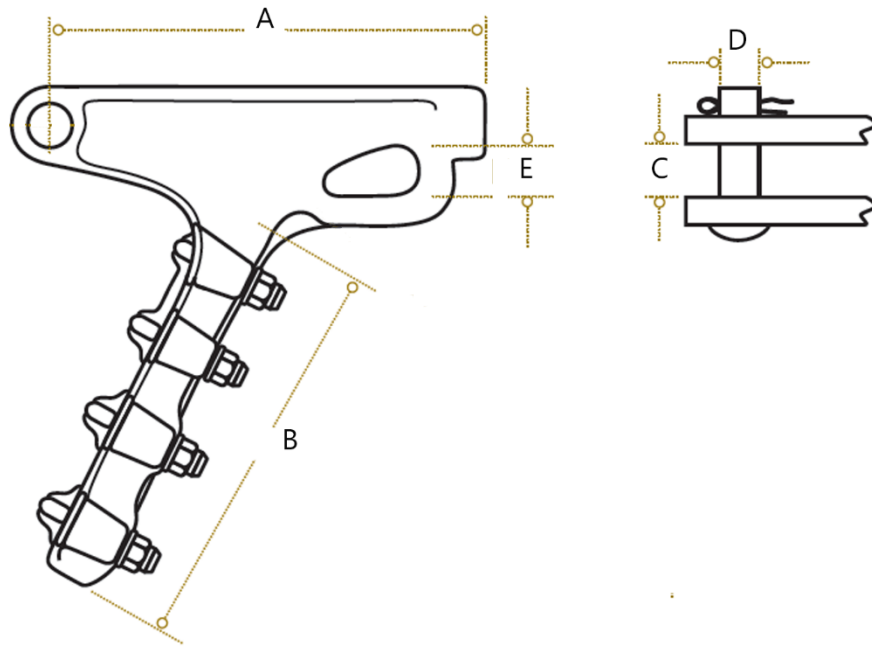
Socket eyes shall adhere to the following requirements:

- Be galvanized in accordance with ASTM specification A 153.
- Meet the requirements of ANSI/NEMA C29.2B as it applies to ball-and-socket gauge for Class 52-3 insulators.
- Be provided with cotter pins meeting the applicable requirements of SCL 5825.90.

**Table 4. Aluminum Quadrant Strain Deadend Clamp Attributes**

Stock No.	Conductor Size Range (kcmil)	Conductor Diameter (in)		Ultimate Strength (lb)	Dimensions, nominal (in)					Qty. (min)	U-Bolts Diameter, nominal (in)
		(min)	(max)		A	B	C	D	E		
693805	397.5-477	0.58	0.94	25,000	11-1/4	7-3/8	1-1/16	5/8	1-1/4	4	1/2
693825	477 - 954	1	1.3	30,000	14	9-1/2	1-7/16	3/4	1-1/2	5	5/8

**Figure 4. Aluminum Quadrant Strain Deadend Clamp**



## 5. Marking

Each fitting shall be permanently and legibly marked in raised or stamped letters. Marking shall include but not be limited to the following information:

- Manufacturer name or symbol
- Manufacturer part number
- Fitting ultimate strength

## 6. Packaging

Product shall be packaged to prevent damage during shipping, handling, and storage.

Standard package quantity shall not exceed 50 per box.

Standard package weight shall not exceed 50 lb.

Individual packages shall be legibly marked with:

- Manufacturer name
- Manufacturer catalog number
- Product description
- SCL stock number

Shipping containers shall be legibly marked with:

- SCL purchase order number
- SCL stock number

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## 7. Issuance

Stock Unit: EA

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## 8. Approved Manufacturers

Stock No.	Hubbell Power Systems/Anderson	MacLean Power Systems
693805	SD-86-S	ADE-24-S ADE-120-S AQDH-94-S
693825	SD-130-S	ADE-2526-S ADE-26-S ADE-140-S

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## 9. References

**SCL Material Standard 5825.90**; "Cotter Pin, Humpback, Stainless Steel"

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## 10. Sources

**ANSI H35.1/H35.1(M)-2013**; American National Standard Alloy and Temper Designation Systems for Aluminum

**ASTM B179-14**; Standard Specification for Aluminum Alloys in Ingot and Molten Forms for Castings from All Casting Processes

**ASTM B686/B686M-14**; Standard Specification for Aluminum Alloy Castings, High-Strength

**ASTM B308/B308M-10**; Standard Specification for Aluminum-Alloy 6061-T6 Standard Structural Profiles

**SCL Material Standard 6937.1 (canceled)**; "Clamps, Aluminum Deadend Quadrant Strain"

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