

MATERIAL STANDARD

Accessories, Separable Connector (Elbow), 200 A,
125 kV BIL, Deadbreak

STANDARD NUMBER: **6864.17**

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SUPERSEDING: February 2, 2017

EFFECTIVE DATE: June 2, 2017

3. Industry Standards

Separable connectors (elbows) shall meet the applicable requirements of the following industry standard:

IEEE 386-2006 – Standard for Separable Insulated Connector Systems for Power Distribution Systems Above 600 V

4. General Requirements

Separable connector (elbow) accessories (except bushing well interfaces) shall have the following electrical ratings and attributes:

voltage class	25 kV
maximum voltage rating (ph-g)	15.2 kV RMS
BIL	125 kV crest
continuous current rating	200 A RMS
short-time current rating	10 kA RMS, symmetrical
IEEE 386 interface	Figure 4

Bushing well interfaces shall have the following electrical ratings and attributes:

voltage class	15, 25, and 35 kV
maximum voltage rating (ph-g)	21.1 kV RMS
BIL	150 kV crest
continuous current rating	200 A RMS
short-time current rating	10 kA RMS, symmetrical
IEEE 386 interface	Figure 3

Hold down bails for separable connector (elbow) accessories shall be provided separately, unless stated otherwise.

Brackets and mounting hardware shall be stainless steel or other corrosion-proof alloy. Galvanized parts are not acceptable.

Multi-way junction boxes shall be provided with adjustable angle mounting brackets.

Grounding parking bushing bases shall be marked red, orange, or yellow.

Grounding parking bushings and grounding elbows shall be provided with 5-foot, flexible, covered, 2/0 AWG copper ground leads.

Any accessory that requires permanent grounding shall be equipped with a connector for attaching a #2 AWG, bare, stranded copper grounding conductor.

Insulated caps shall be provided with grounding tab for the purpose of attaching a drain wire lead.

For the purposes of this standard, parking stands designed for use with Elastimold type 151 grounding and insulated parking bushings shall be designated type **151PS**. Parking stands of this design have a nominal horizontal opening of 3/8 inch. Parking stands designed for use with Elastimold type 160 grounding and insulated parking bushings shall be designated type **160PS**. Parking stands of this design have a nominal horizontal opening of 2 inches. IEEE 386 does not differentiate between type 151PS and 160PS parking stands.



Figure 4.0, type 151PS parking stand



Figure 4.1, type 160PS parking stand

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Separable connector (elbow) accessories shall be tested according to the requirements of IEEE 386, Section 7.

Test results shall be provided upon request.

6. Design Changes

Manufacturer shall inform Seattle City Light in writing of all design changes that could affect the product's understood or published capabilities.

7. Marking

Separable connectors (elbows) shall be marked according to the requirements of IEEE 386, Section 6.1.

8. Packaging

Separable connector (elbow) accessories shall be individually packaged in heavy duty, clear plastic bags or cardboard boxes, as appropriate for their size and weight, to prevent damage and/or contamination during shipping, handling, and storage.

Each individual package shall be marked with the following information:

- Manufacturer's identification
- Product description

Each shipping container shall be legibly marked with the following information:

- Manufacturer's identification
- Product description
- Quantity contained
- Seattle City Light's Purchase Order Number
- Seattle City Light's Stock Number

9. Issuance

EA

10. Approved Manufacturers

Stock Number:	686411
Description:	Insulated cap
Application:	An accessory device designed to electrically insulate, electrically shield, and mechanically seal a bushing insert or integral bushing. For 26.4 kV or 5 kV deadbreak, transformer and junction box bushings.
Cooper Power Systems	DRC250
Thomas & Betts (Elastimold)	K150DR



Stock Number:	686469
Description:	Shipping cap
Application:	Replacement shipping cap for instances when original cap is lost. Shipping caps are used to keep the mating surface of the elbow clean during shipping, storage, and handling prior to installation. It has no dielectric properties and is not to be used on energized systems.
Cooper Power Systems	-
Thomas & Betts (Elastimold)	180PPC



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10. Approved Manufacturers, continued

Stock Number:	686732
Description:	Multi-way junction (J-Box) , three-bushing, with type 160PS parking stand each end
Application:	An accessory device with three interconnected bushings. Center-to-center spacing is four inches.

Cooper Power Systems -
 Thomas & Betts (Elastimold) K1501-J3U-8



Stock Number:	686730
Description:	Multi-way junction (J-Box) , four-bushing, with type 160PS parking stand each end
Application:	An accessory device with four interconnected bushings. Center-to-center spacing is four inches.

Cooper Power Systems -
 Thomas & Betts (Elastimold) K1501-J4U-8



Stock Number:	686420
Description:	T-Splice
Application:	A receptacle connector component for connecting a power cable to two in-line bushing interfaces, so designed that the axes of the cable and bushing interfaces are perpendicular. Hold down bails are required, but not included.
Cooper Power Systems Thomas & Betts (Elastimold)	DJ250-T1 K150T



Stock Number:	686432
Description:	Grounding parking bushing , type 151PS
Application:	An accessory device designed to electrically ground and mechanically seal a de-energized power cable terminated with an elbow and to be installed into a type 151PS parking stand.
Cooper Power Systems Thomas & Betts (Elastimold)	DPE250 w/ground lead 151GP



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10. Approved Manufacturers, continued

Stock Number:	686458
Description:	Insulated parking bushing, type 151PS
Application:	An accessory device designed to electrically insulate, electrically shield, and mechanically seal a power cable terminated with an elbow and to be installed into a type 151PS parking stand.

Cooper Power Systems	DPS250
Thomas & Betts (Elastimold)	K151SOP



Stock Number:	686456
Description:	Insulated plug
Application:	An accessory device designed to electrically insulate, electrically shield, and mechanically seal an elbow interface.

Cooper Power Systems	-
Thomas & Betts (Elastimold)	K150DP



Stock Number:	686433
Description:	Bushing well, 4-hole clamp ring, gasket to be field fabricated
Application:	An apparatus bushing having a cavity for insertion of connector component, such as a bushing insert.

Cooper Power Systems	-
Elliot	1101-E200-25A with 1901CR4S clamp ring
Thomas & Betts (Elastimold)	-



MATERIAL STANDARDAccessories, Separable Connector (Elbow), 200 A,
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Cooper Power Systems

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Thomas & Betts (Elastimold)

K1601-PC-T1-R

686434

**Stock Number:** 686435**Description:** Bushing well, 10-1/2-inch shank, 3/8-inch stud**Application:** An apparatus bushing having a cavity for insertion of connector component, such as a bushing insert. Bushing well designed to fit in 2.31 inch hole.

Coltec

702131-52

Cooper Power Systems

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Thomas & Betts (Elastimold)

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686435

**Stock Number:** 686437**Description:** Bushing well, 15-inch shank**Application:** An apparatus bushing having a cavity for insertion of connector component, such as a bushing insert.

Cooper Power Systems

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Thomas & Betts (Elastimold)

K1601-PC-L15

686437

Stock Number: 686430**Description:** Bushing insert**Application:** A connector component intended for insertion into a bushing well designed for use with another connector component, such as an elbow.

Cooper Power Systems

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Thomas & Betts (Elastimold)

K1501A1

**Stock Number:** 686726**Description:** Feed-thru bushing insert**Application:** An accessory device with two electrically interconnected bushing interfaces that can be installed into a bushing well.

Cooper Power Systems

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Thomas & Betts (Elastimold)

K1502A1



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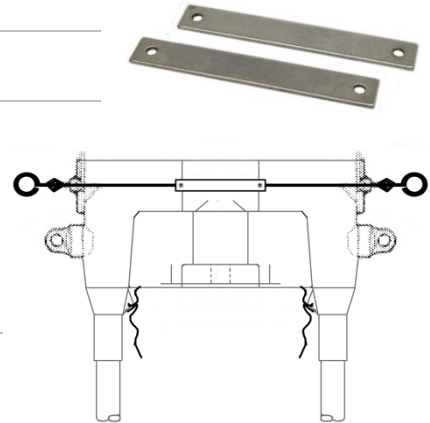
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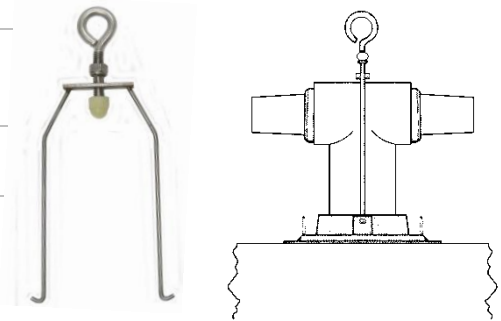
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10. Approved Manufacturers, continued**Stock Number:** 686551**Description:** **Bailing assembly connectors**, special purpose, dual elbow hold down assembly**Application:** Hold down two elbows on inline junction and/or "T" connector. To be used in conjunction with hold down bails provided with elbows.

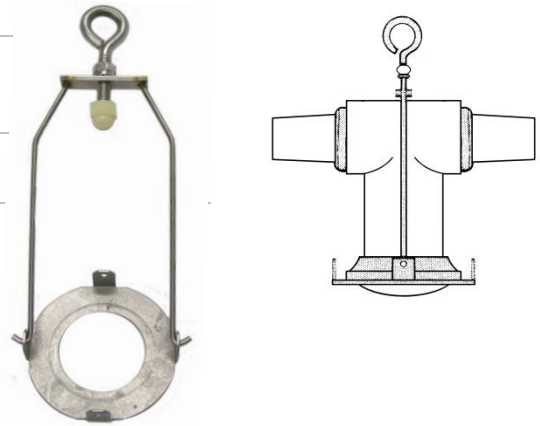
Cooper Power Systems	-
Thomas & Betts (Elastimold)	150TB3

**Stock Number:** 686560**Description:** **Bail**, special purpose, "T" connector hold down assembly**Application:** Hold down "T" connector to apparatus

Cooper Power Systems	-
Thomas & Betts (Elastimold)	150TB1

**Stock Number:** 686561**Description:** **Bail**, special purpose, deadend plug hold down assembly**Application:** Hold down deadend plug inside "T" connector

Cooper Power Systems	-
Thomas & Betts (Elastimold)	150TB2



MATERIAL STANDARDAccessories, Separable Connector (Elbow), 200 A,
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Stock Number:	686562
Description:	Bail, special purpose, elbow hold down assembly
Application:	Hold down deadbreak elbow on J-box or transformer bushing.
Cooper Power Systems	-
Thomas & Betts (Elastimold)	150BA (2)
Wilcor	DPFM-1



Stock Number:	686563
Description:	Bail, special purpose, insulating cap hold down assembly
Application:	Hold down insulating cap, Stock Number 686411.
Cooper Power Systems	-
INWESCO	82A59
Thomas & Betts (Elastimold)	-

**11. References****SCL Material Standard 6864.15;** "Separable Connector (Elbow), 200 A, Deadbreak"**SCL Material Standard 6864.07;** "Accessories, Separable Connector (Elbow), 200 A, 125 kV BIL, Loadbreak"**12. Sources****B100-02024;** *Components Master Catalog; 5 kV-35 kV Electrical Distribution Systems, Specifiers Guide*; Cooper Power Systems*Components & Protective Equipment UD (Underground Distribution) Manual*; Cooper Power Systems; 1993**PG-CA-0506;** *Cable Accessories for 5 kV-35 kV Distribution Systems, Product Selection Guide*; Thomas & Betts (Elastimold)**Shipek, John;** SCL Standards Engineer, subject matter expert and originator of 6864.17 (john.shipek@seattle.gov)