

CONSTRUCTION GUIDELINE**SEPARABLE CONNECTOR (ELBOW), 200 A, DEADBREAK****1. Scope**

This construction guideline identifies the material and tools required to install a 200 A, deadbreak, separable connector (elbow) on the end of a piece of primary cable.

The material list includes all the parts necessary to complete an installation. Optional connector accessories and replacement parts are also identified. The material list has been organized to be cable specific.

Paper-insulated-lead-covered (PILC) cable and sector cable are outside the scope of this guideline.

Cable preparation work procedures and connector installation procedures are outside the scope of this guideline.

For cable technical data, refer to E6-1.0/NGE-70.

For general cable preparation procedures, refer to U5-2.81/NSP-290.

For cutback lengths and connector assembly and installation procedures, refer to the specific instructions that were provided with the connector.

For connector continuous, fault closing, and short-time current ratings and overload capability, refer to IEEE 386.

Deadbreak elbows are a subcategory of separable connectors, which is a subcategory of dead front cable accessories.

2. Application

A separable connector (elbow) is a fully insulated and shielded system for terminating and electrically connecting an insulated power cable to electrical apparatus, other power cables, or both, so designed that the electrical connection can be readily established or broken by engaging or separating the connector at the operating interface.

The separable connectors described in this construction guideline are intended for use on the following three-phase, 60 Hz system: 26.4 kV, 4-wire, solidly-grounded, wye-connected.

Because of high fault duty, connectors rated 200 A continuous are not appropriate for network systems. Network systems should be constructed with connectors rated 600 A (or 900 A) continuous.

Connector is equipped with a capacitive test point.

This guideline may be used by engineers to design connector systems and create bills of material or by field crews when performing actual installations.

Only qualified electrical workers shall install and operate separable connector systems.

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3. General Examples

Example 3.1: 200 A deadbreak elbow installed on tape shielded type cable. Note, for this type of cable, a jacket seal and a metallic shield adapter kit is required.



figure 3.1



Example 3.2: 200 A deadbreak elbow installed on bare, round wire, concentric neutral cable. Note, for this type of cable, neither a jacket seal or a metallic shield adapter kit is required.



figure 3.2



Example 3.3: 200 A deadbreak elbow installed on jacketed, round wire, concentric neutral cable. Note, for this type of cable, a jacket seal is required, but a metallic shield adapter kit is not.



figure 3.3



SEATTLE CITY LIGHT
CONSTRUCTION GUIDELINE

Separable Connector (Elbow), 200 A, Deadbreak

STANDARD NUMBER: **U5-16.05**

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SUPERSEDING: new

EFFECTIVE DATE: January 25, 2008

4. Separable Connector Technical Description:

voltage class	25 kV
common name	200 amp deadbreak elbow
Seattle City Light Material Standard	6864.15
manufacturer(s)	various
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

5. Material List

Table 5.1

Table 5.1 lists the parts necessary to install a 200 A, deadbreak, separable connector (elbow) on cable not assigned a Stock Number.

Cable						Required	Required	Replacement	
Stock Number	Rated Curcuit Voltage, kV	Type	Size, AWG	Shape	Shield Type	Elbow Kit Stock No.	Additional Parts Stock No.	Compression Connector Stock No.	Table 5.1 Notes
1	2	3	4	5	6	7	8	9	10
none	5	1/C	#2	na	na	686412	NR	686421	a
none	5	1/C	1/0	na	na	686413	NR	686417	b
none	15	1/C	1/0	na	na	686414	NR	686417	c

na = not available

NR = not required

Table 5.1 Notes:

- a. Little technical information is known about this cable. It was installed in the Seattle neighborhoods of Laurelhurst, Hillcrest, and/or Edge-O-Town. This elbow was determined to work. Refer to Material Standard 6864.15. Cable is claimed to have XLP insulation with an outside diameter of 0.540 inch.
- b. Little technical information is known about this cable. It was installed in the Seattle neighborhoods of Laurelhurst, Hillcrest, and/or Edge-O-Town. This elbow was determined to work. Refer to Material Standard 6864.15. Cable is claimed to have XLP insulation with an outside diameter of 0.585 inch.
- c. Little technical information is known about this cable. It was installed in the Seattle neighborhoods of Laurelhurst, Hillcrest, and/or Edge-O-Town. This elbow was determined to work. Refer to Material Standard 6864.15. Cable is claimed to have XLP insulation with an outside diameter of 0.765 inch.

Table 5.2 Notes (see next page for table) :

Refer to Figures for information on what parts compose a Stock Number or kit.

- a. Elbow kit Stock Number 623440 does not include a compression connector of the correct size. This extra part, Stock Number 686424, must be called out for separately.
- b. Stock Number 012662 is a shield adapter kit that provides cable jacket-to-accessory sealing and grounding.
- d. Stock Number 012687 is a sealing kit for jacketed, round wire concentric neutral cable.
- e. A sealing/adapter kit is not required when installing an elbow on bare, round wire concentric neutral cable.
- f. Separable connectors are not commercially available for sector cable. Connections must be hand taped.

CONSTRUCTION GUIDELINE

Separable Connector (Elbow), 200 A, Deadbreak

5. Material List, continued

Table 5.2

Stock Number	Rated Circuit Voltage, kV	Type	Size, AWG/kcmil	Shape	Shield Type	Required	Required	Replacement	Table 5.2 Notes
						Elbow Kit Stock No.	Additional Parts Stock No.	Compression Connector Stock No.	
1	2	3	4	5	6	7	8	9	10
613212	5	1/C	#6	compressed	tape				
613222	5	1/C	350	compressed	tape				
601025	5	1/C	500	class B	DW				
613522	15	3/C	#1	compressed	tape				
613523	15	3/C	#1	compressed	tape				
613520	15	3/C	2/0	compressed	tape				
613521	15	3/C	3/0	compressed	tape	<i>blank indicates</i>			
613526	15	3/C	3/0	compressed	tape	<i>not a stock item or not available</i>			
613530	15	3/C	350	compact	tape	<i>from any source</i>			
613531	15	3/C	500	sector	tape				f
010128	15	3/C	500	compact	tape				
613532	15	3/C	500	compact	tape				
623640	15	1/C	500	compact	tape				
012735	15	3-1/C	500	compressed	FS				
613533	15	3/C	750	sector	tape				f
613534	15	3/C	750	compact	tape				
623670	15	3-1/C	1000	compressed	FS				
623650	27	3-1/C+2N	#8	compressed	tape	686440	012662	686424	a b
602027	28	1/C	#1	class B	RW/CN	686416	NR	686417	e
613540	28	3/C+3G	#1	compressed	Tape	686416	012662	686417	b
602025	28	1/C+1N	1/0	solid	RW/CN	686416	NR	686417	e
012098	28	1/C+1N	1/0	solid	RW/CN	686416	012687	686417	d
602044	28	1/C	350	class B	RW/CN				
012099	28	1/C	350	compact	FS				
613613	28	1/C	350	compact	DW				
613543	28	3/C+3G	350	compact	tape				
012100	28	1/C	500	compact	FS				
613615	28	1/C	500	compact	DW				
613645	28	1/C	500	compressed	FS	<i>blank indicates</i>			
602119	28	1/C	750	compact	DW	<i>not a stock item or not available</i>			
613618	28	1/C	750	compact	DW	<i>from any source</i>			
974050	28	3/C	750	sector	tape				f
012101	28	1/C	750	compact	FS				
012102	28	1/C	1000	compact	FS				
613619	28	1/C	1000	compact	DW				
613655	28	1/C	1000	compressed	FS				
none	35	1/C	350	compressed	tape				
623660	35	1/C	750	compact	DW				
623655	35	1/C	1000	compact	tape				

NR = Not required

5. Material List, continued

Elbow kit (body, compression connector for 1/0 AWG, probe contact, probe installation tool, silicone lubricant, hold down bail assembly, and instruction sheet)

Stock No. **686440**

figure 5.1



Elbow kit (body, compression connector, probe contact, probe installation tool, silicone lubricant, hold down bail assembly, and instruction sheet)

Stock No. **686416**

figure 5.2



Jacket sealing/shield adapter kit for tape shielded cable (cold shrink tube, mastic seal strips, 5/8-inch by 3/4-inch diameter constant force spring, preformed ground/bleeder wire, Scotch No. 13 semi-con tape, and instruction sheet)

Stock No. **012662**

figure 5.3



Jacket sealing kit for jacketed concentric neutral cable (cold shrink tube, mastic seal strips, and instruction sheet)

Stock No. **012687**

figure 5.4



5. Material List, continued

Compression connector for #8
AWG stranded copper conductor,
Kerite

figure 5.6



Stock No. **686424**

Compression connector for 1/0
AWG solid aluminum conductor

figure 5.7



Stock No. **686417**

6. Connector Accessories (Optional)

Elbow mud cover

Stock No. **686467**

figure 6

**7. Replacement Parts**

Probe contact. This probe contact
may be used in either Cooper Power
Systems or Thomas & Betts
(Elastimold) elbows.

figure 7.1



Stock No. **686426**

Hold down bail assembly, spring
loaded, for Cooper Power
Systems elbow. This assembly does not work
with Thomas & Betts (Elastimold)
elbows.

figure 7.2



Stock No. **012435**

Hold down bail assembly, spring
loaded, for Thomas & Betts
(Elastimold) elbow. This assembly
does not work with Cooper Power
Systems elbows.

figure 7.3



Stock No. **012587**

8. Tools

Information relating to tool type, die number, and number of crimps is provided with the connector.

9. References

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

6864.15; "Connector (Elbow) Separable, Insulated, Deadbreak, 200-Ampere"; *Material Standards*; SCL

B100-02024; *Components Master Catalog, 5 kV-35 kV Electrical Distribution Systems, Specifiers Guide*; Cooper Power Systems

E6-1.0/NGE-70; "Properties of Medium Voltage Cables"; *Construction Guidelines*; SCL

PG-CA-0506; *Cable Accessories for 5 kV-35 kV Distribution Systems, Product Selection Guide*; Elastimold

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U5-2.81/NSP-290; "Primary Cable Preparation, General"; *Construction Guidelines*; SCL