

Deadbreak Apparatus Connectors

200 A 15/25 kV Class Elbow Installation Instructions

S550-10-1

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! WARNING:

All associated apparatus must be de-energized during installation, operation and/or maintenance.

PRODUCT INFORMATION

Introduction

The Cooper Power Systems Deadbreak Elbow Connector is a fully-shielded and insulated plug-in termination for connecting underground cable to transformers, switching cabinets and junctions equipped with deadbreak bushings. The elbow connector and bushing comprise the essential components of all deadbreak connections.

Wide cable ranges are sized to accept cables insulated at either 175 mil or 220 mil within a given conductor size. The wider cable ranges increase installation flexibility.

The coppertop (bimetal) compression connector is a standard item to transition from the cable to the deadbreak probe. An aluminum crimp barrel is inertia-welded to a copper lug. The aluminum barrel makes the connector easy to crimp and the copper lug ensures a reliable, tight, cool operating connection with the probe contact.

! CAUTION:

The 200 A Deadbreak Elbow Connector is designed to be operated in accordance with normal safe operating procedures. These instructions are not intended to supersede or replace existing safety and operating procedures. The elbow connector should be installed and serviced only by personnel familiar with good safety practices and the handling of high-voltage electrical equipment.

! Read This Manual First

Read and understand the contents of this manual and follow all locally approved procedures and safety practices before installing or operating this equipment

Additional Information

These instructions cannot cover all details or variations in the equipment, procedures, or process described nor provide directions for meeting every possible contingency during installation, operation, or maintenance. When additional information is desired to satisfy a problem not

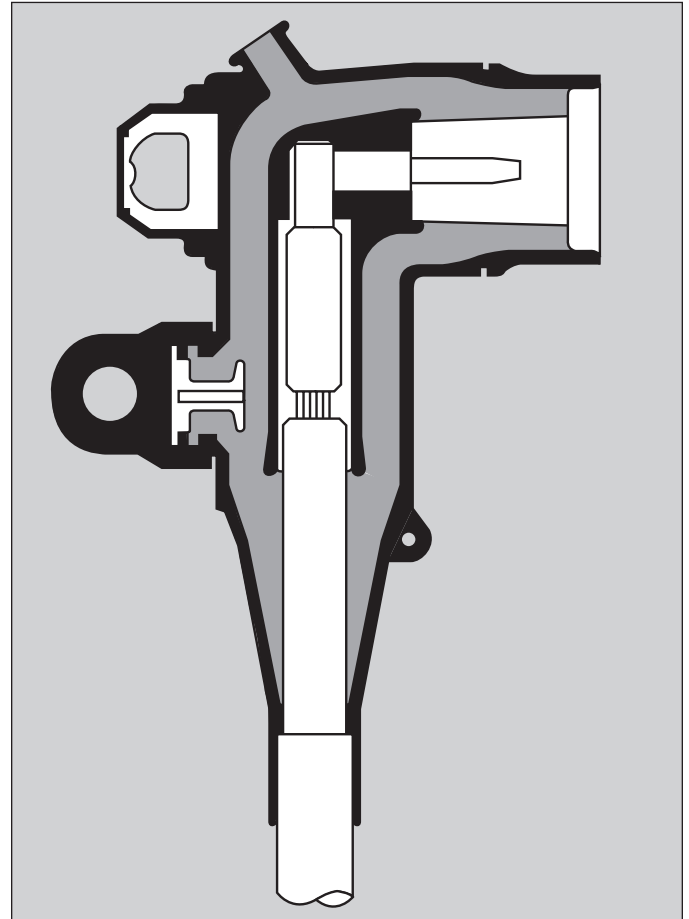


Figure 1.
200 A, 15/25 kV Class DE225 Deadbreak Elbow Connector.

covered sufficiently for the user's purpose, please contact your Cooper Power Systems sales representative.

Acceptance and Initial Inspection

Each deadbreak connector is completely assembled, inspected and tested at the factory. It is in good condition when accepted by the carrier for shipment. Upon receipt of a deadbreak connector, inspect the connector thoroughly for damage and loss of parts incurred during shipment. If damage or loss is discovered, file a claim with the carrier immediately.

Handling and Storage

If the deadbreak connector is to be stored for an appreciable time before installation, provide a clean, dry storage area. Locate the connector so as to minimize the possibility of physical damage.

Quality Standards

ISO 9001:2008-Certified Quality Management System



SAFETY FOR LIFE



Cooper Power Systems products meet or exceed all applicable industry standards relating to product safety. We actively promote safe practices in the use and maintenance of our products through our service literature, instructional training programs, and the continuous efforts of all Cooper Power Systems employees involved in product design, manufacture, marketing and service.

We strongly urge that you always follow all locally approved safety procedures and safety instructions when working around high-voltage lines and equipment and support our “Safety For Life” mission.

SAFETY INFORMATION

The instructions in this manual are not intended as a substitute for proper training or adequate experience in the safe operation of the equipment described. Only competent technicians, who are familiar with this equipment should install, operate and service it.

A competent technician has these qualifications:

- *Is thoroughly familiar with these instructions.*
- *Is trained in industry-accepted high- and low-voltage safe operating practices and procedures.*
- *Is trained and authorized to energize, de-energize, clear, and ground power distribution equipment.*
- *Is trained in the care and use of protective equipment such as flash clothing, safety glasses, face shield, hard hat, rubber gloves, hotstick, etc.*

Following is important safety information. For safe installation and operation of this equipment, be sure to read and understand all cautions and warnings.

Hazard Statement Definitions

This manual may contain four types of hazard statements:

DANGER:

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.

WARNING:

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.

CAUTION:

Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

CAUTION: Indicates a hazardous situation which, if not avoided, could result in equipment damage only.

Safety Instructions

Following are general caution and warning statements that apply to this equipment. Additional statements, related to specific tasks and procedures, are located throughout the manual.

DANGER:

Hazardous voltage. Contact with high voltage will cause death or severe personal injury. Follow all locally approved safety procedures when working around high- and low-voltage lines and equipment.

WARNING:

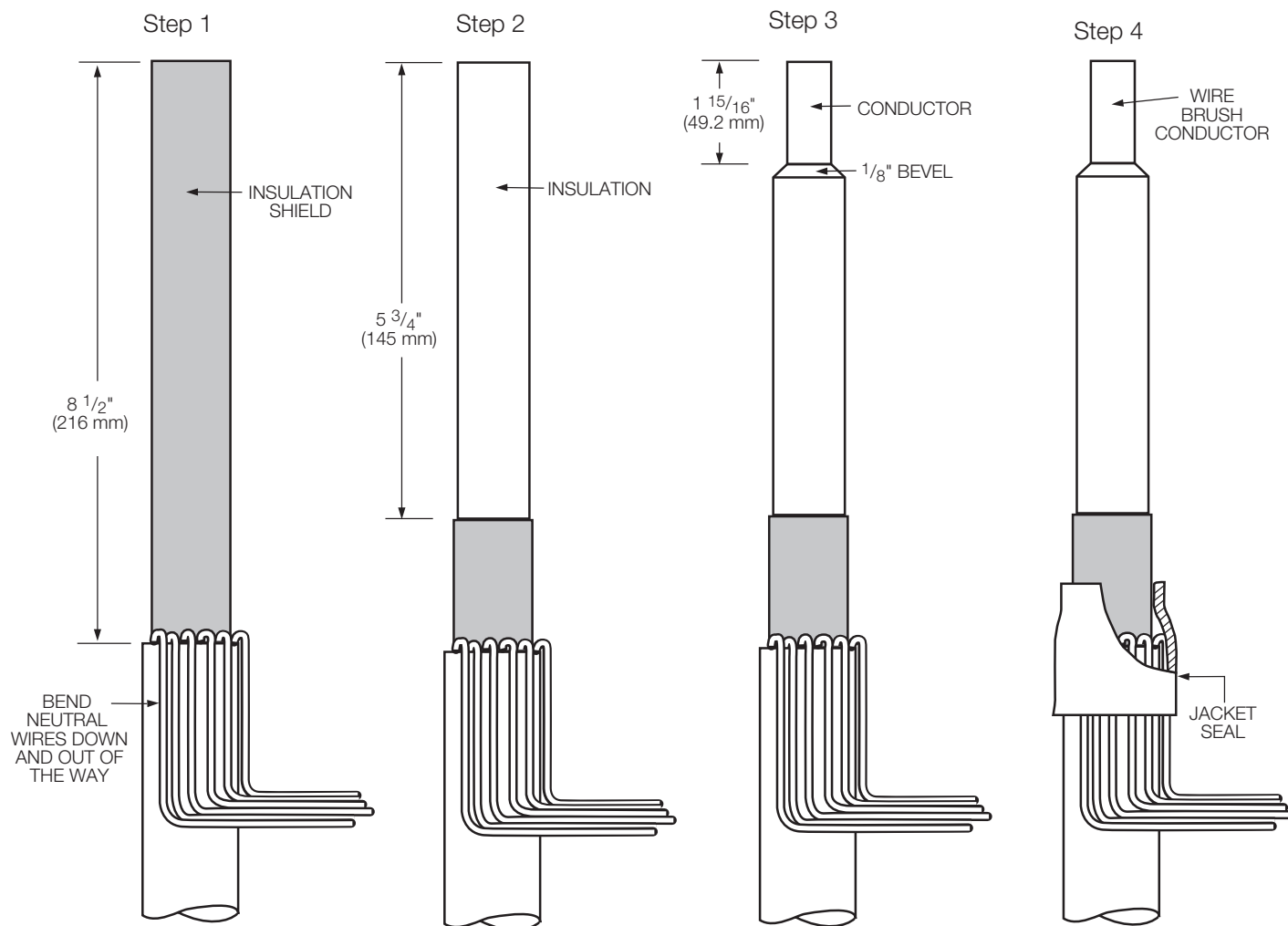
Before installing, operating, maintaining, or testing this equipment, carefully read and understand the contents of this manual. Improper operation, handling or maintenance can result in death, severe personal injury, and equipment damage.

WARNING:

This equipment is not intended to protect human life. Follow all locally approved procedures and safety practices when installing or operating this equipment. Failure to comply may result in death, severe personal injury and equipment damage.

WARNING:

Power distribution and transmission equipment must be properly selected for the intended application. It must be installed and serviced by competent personnel who have been trained and understand proper safety procedures. These instructions are written for such personnel and are not a substitute for adequate training and experience in safety procedures. Failure to properly select, install or maintain power distribution and transmission equipment can result in death, severe personal injury, and equipment damage.



INSTALLATION INSTRUCTIONS

Cable stripping and scoring tools, available from various tool manufacturers, are recommended for use when installing deadbreak elbows. After preparing the cable, the elbow housing is pushed onto the cable. The probe contact is threaded into the coppertop connector using the supplied installation tool or an approved equivalent. Use a hotstick to perform installation and removal operations.

Complete elbow kit includes:

- Elbow Body with Test Point
- Coppertop Compression Connector
- Probe Contact
- Probe Installation Tool
- Bail Assembly
- Silicone Lubricant
- Instruction Sheet

Tools/Accessories needed:

- Tape Measure
- Wire Brush
- Knife
- Cable Stripping Tool
- Crimping Tool
- Cable Cleaner
- Cable Cutters
- Emery Cloth

PREPARATION OF CONCENTRIC NEUTRAL CABLE

Step 1

Measure down from top of the cable a minimum of $8 \frac{1}{2}$ ".

Remove cable jacket (if jacketed cable is used) to expose neutral wires.

Unwind neutral wires.

NOTE: If a Cooper Power Systems jacket seal is used, follow instructions supplied with the jacket seal kit.

Step 2

Measure down from top of the cable $5 \frac{3}{4}$ ".

Remove the insulation shield. Take care not to nick or gouge insulation.

Step 3

Measure down from the top of the cable $1 \frac{15}{16}$ ".

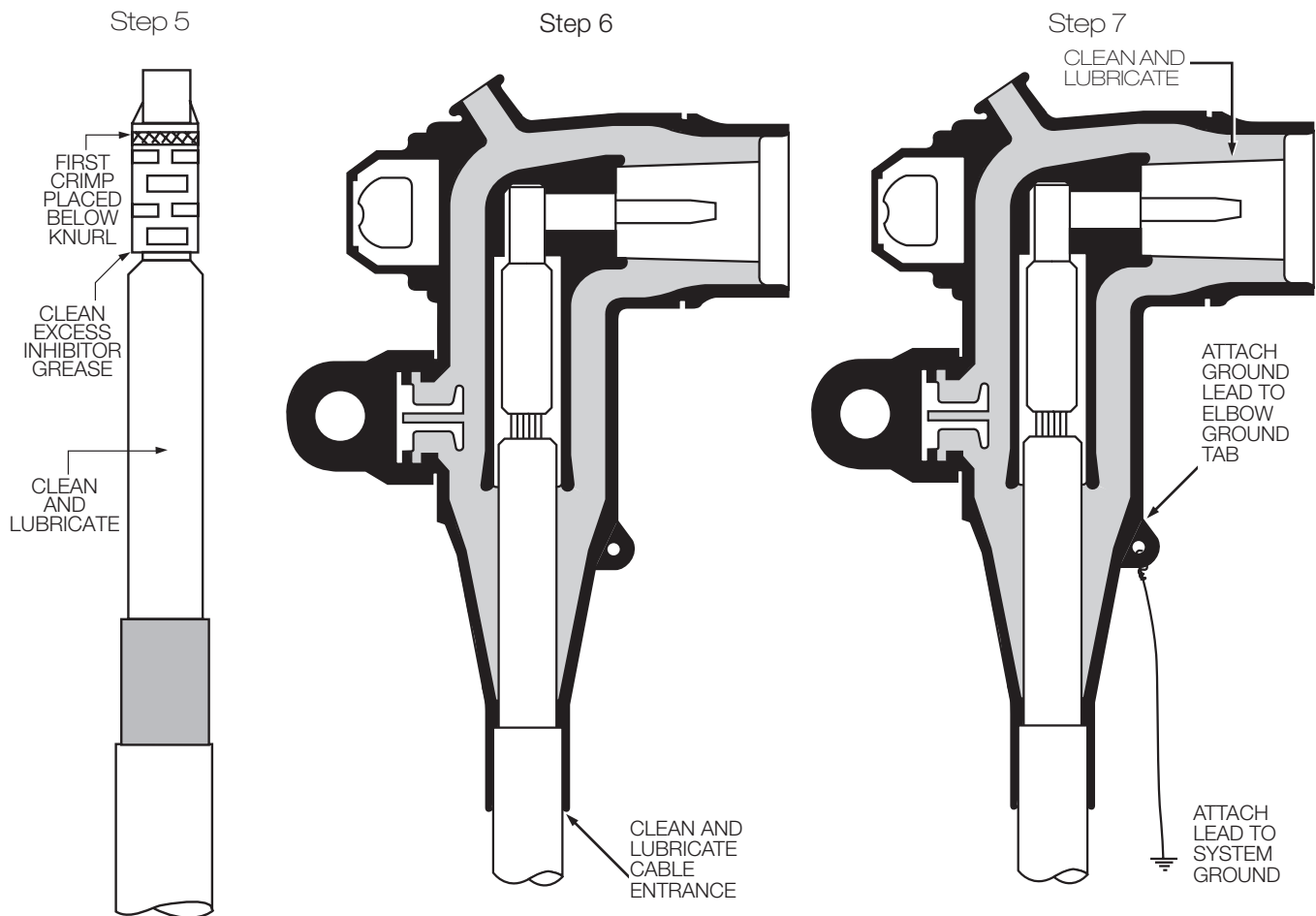
Remove the insulation and conductor shield to expose the bare conductor. Take care not to nick the conductor.

Place a $\frac{1}{8}$ " bevel on the insulation to ease installation.

Step 4

If not already in place, apply a suitable jacket seal over the jacket and exposed neutral wires.

Proceed to Step 5.



ELBOW AND PROBE CONTACT INSTALLATION

Step 5

Clean the exposed conductor using a wire brush.

Place the coppertop (bimetal) connector on the conductor. Make sure threaded hole in connector faces the apparatus bushing.

Crimp the connector in place using a tool and die combination listed in Table 1. Start crimping just below the knurled line and rotate each successive crimp to prevent bowing. Do not overlap crimps. Place as many crimps on the connector as will fit.

Step 6

Clean excess inhibitor grease from coppertop connector by wiping toward threaded eye.

Clean insulation with a lint free cloth saturated with a cleaning solution. Wipe insulation toward insulation shield.

Apply a thin coating of grease to the insulation.

Clean and lubricate the cable entrance of the elbow.

Place elbow on cable. With a twisting motion, push elbow onto cable until threaded eye of coppertop connector is visible in the elbow interface.

Step 7

Use the provided hex-probe installation tool to install probe contact into the compression connector. Take care not to cross-thread probe.

Proper torque is applied when the tool achieves a 180° bend.

NOTE: If a different installation tool is used it must apply a torque of 60-80 in-lbs to achieve proper installation.

Attach a ground lead to the grounding eye of the elbow.

Step 8

Clean the elbow and bushing interface and apply a thin uniform layer of silicone lubricant to both interfaces. Push the elbow onto the bushing until it is fully seated.

Hook the legs of the bail assembly into the tabs of the bushing clamp. Thread the eyebolt of the bail assembly tight against the back of the pulling eye of the elbow. (See Figure 2.)

TABLE 1
Crimp Chart

CONNECTOR		5/8" DIAMETER					3/4" DIAMETER			
CONDUCTOR SIZE		NO. 4 THRU 2/0 STRANDED					3/0 - 4/0 STRANDED			
Burdny®	TOOL	Y34	Y35 OR Y39		MD6		Y34	Y35 OR Y39		MD6
	DIE	A243	U243	UBG	W243	WBG	U247	U247	U467	W247
		A25AR	U25ART	U687	BG NOSE	W687	A27AR	U27ART		
Thomas & Betts®	TOOL	UT-3		UT-5		UT-15		UT-5		UT-15
	DIE	5/8"		TV		54 H		TV		66
Kearney	TOOL	O		WH1, WH2 or WH3			O		WH1, WH2 or WH3	
	DIE	5/8" NOSE	9/16"	9/16"			737	747	737	747
ACA Conductor Accessories (ALCOA)	TOOL	12A					12A			
	DIE	B24 EA					B39 EA			
Anderson® Tool		VC-5, VC-6					VC-5, VC-6			
Edison Electric Institute – Reference		8A					10A			

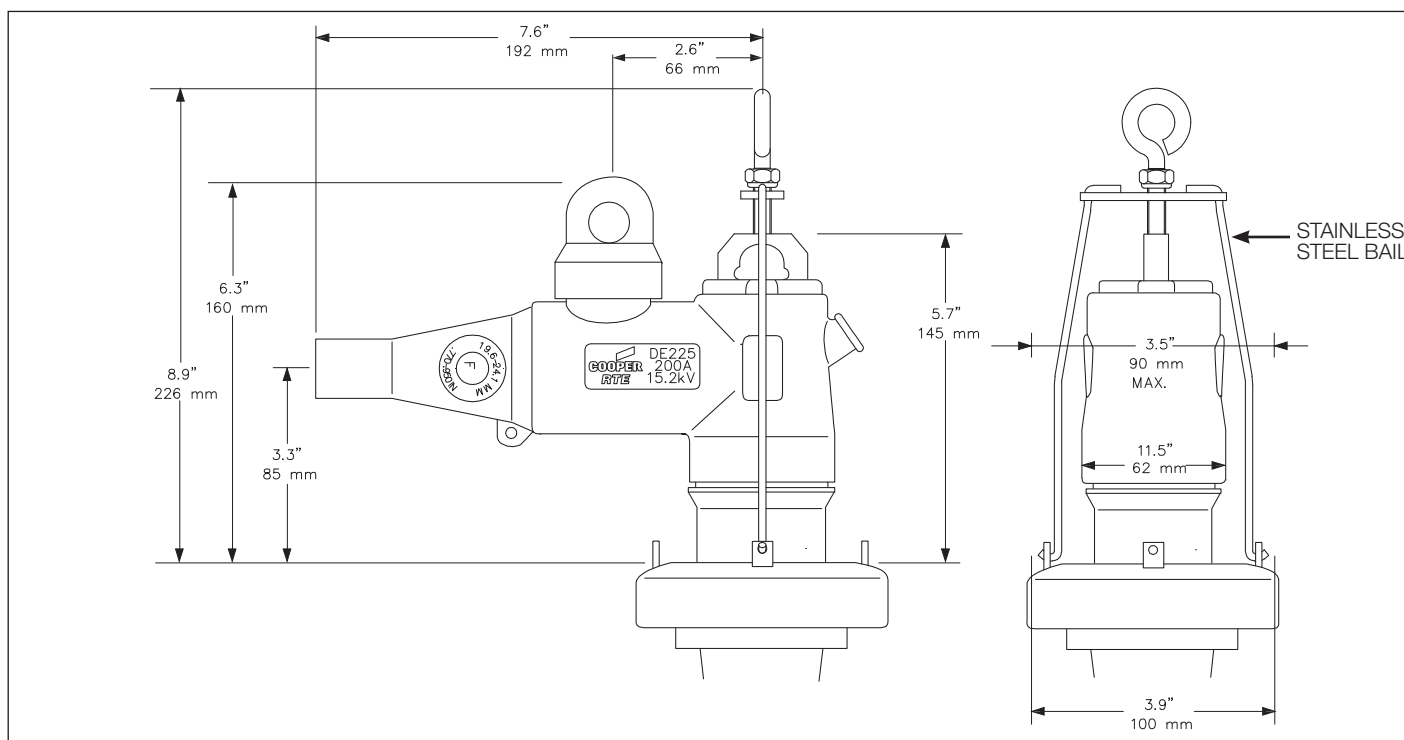


Figure 2.
DE225 Deadbreak Elbow Connector dimensional information.

⚠ WARNING:
This is a Deadbreak Connector System. All associated apparatus must be de-energized before and during installation and/or operation.

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