



200 AMP 35 kV LOADBREAK PRODUCTS

35 kV LOADBREAK PRODUCTS RATINGS & SPECIFICATIONS

GENERAL INFORMATION

Hubbell 21.1/36.6 kV Underground Elbow Connectors provide utilities with products having high reliability and low maintenance expense.

These connectors provide:

- 10,000 ampere fault-closing capability
- Standard elbow and bushing loadbreak principle
- Molded shields
- Peroxide-cured EPDM compounds
- Full compliance with IEEE Standard 386
 - 35kV Large Interface - Figure 8
- Purple cuffs for quick 35kV identification

The Hubbell Separable Elbow Connector is designed for use with single-conductor, concentric neutral power cable having extruded insulation shielding. With shield adapter products, the Hubbell Elbow can be used with cables having a metallic tape shield, wire shield, or lead sheath with tape or extruded insulation shielding.

All insulating and conducting rubber components are made of a special formulation of an EPDM elastomer using a peroxide curing process. The material and curing process provide's superior elastomer stress relaxation characteristics under high ambient temperatures and contributes to reliable, long-time operation in either above-ground or subsurface installations.

Elbow connector/integral bushing combinations are suitable for energized loadmake/loadbreak operations by a qualified lineman using an 8' shotgun-type hot stick.

All elbow/integral bushing combinations are designed for use with subsurface (submersible to 10 feet of water) or pad-mounted installations.

Where To Use

Hubbell 35 kV Loadbreak Elbows are designed for operation on and connection to 35 kV class, 150 kV BIL systems where the voltage ratings listed on this page are not exceeded.

RATINGS

Max. Continuous Voltage.....	21.1 kV phase-to-ground 36.6 kV phase-to-phase
Continuous Current	200 ampere rms

SHORT-TIME CURRENT RATINGS

0.17-Second Duration.....	10,000 amperes rms symmetrical
3.00-Second Duration.....	3500 amperes rms symmetrical

INSULATION WITHSTAND VOLTAGES

Basic Impulse Level.....	150 kV crest (1.2 x 50 microsec. wave)
60 Hertz (one minute).....	50 kV rms
DC (15 minutes)	103 kV
Corona Extinction Voltage	26 kV rms (3 picocoulombs)

DESIGN TESTS - SWITCHING

1-phase and 3-phase circuits, 21.1 kV phase-to-ground, 36.6 kV maximum across the open contacts.	10 loadmake/loadbreak operations at 200 amperes with 90% parallel and 10% series resistance — reactance load at 0.8 power factor.
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DESIGN TESTS - FAULT CLOSURE

One fault-close operation at 21,1 kV phase-to-ground, or 36.6 kV phase-to-phase; 10,000 amperes rms symmetrical, 10 cycles, (0.17 seconds).

PRODUCTION TESTS

100% factory test for partial discharge and AC Hi-Pot (50kV for 60 seconds).

<http://www.hubbellpowersystems.com>

NOTE: Because Hubbell has a policy of continuous product improvement, we reserve the right to change design and specifications without notice.



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35 kV LOADBREAK ELBOW

Hubbell 35 kV Loadbreak Elbows provide utilities with products having high reliability and low maintenance expense.

The elbow, when mated with a loadbreak bushing product meeting the requirements of IEEE Standard 386, is suitable for energized loadmake/loadbreak operations by a qualified lineman using an 8' shotgun-type hot stick.

PRODUCT FEATURES

1. Molded External Shield

— conductive, abrasion resistant 1/8-inch thick shield of peroxide cured EPDM.

2. EPDM Insulation

— cured with peroxide process provides superior stress relaxation characteristics and assures long life under high ambient temperatures. Compatible with polyethylene, crosslink polyethylene, and EPR insulations.

3. Molded Conductive Insert

— guards against high electrical stress from corners of crimped connector.

4. Hot-Stick Operating Eye

— reinforced with stainless steel ring. Withstands 500-pound pull and 10 foot-pound torque. Permits energized loadmake-loadbreak operation with hot-stick tool.

5. Compression Connector

— meets requirements of ANSI C119.4 NEMA CC3 for Class A connectors.

6. Test Point — allows voltage indication when readout is made with suitable high-impedance devices. Elbows are available with or without this feature.

7. Cable Entrance — has conductive rubber stress relief area which contacts extruded cable insulation shield. Elbow model selected to assure interference fit along cable insulation surface providing proper creep distance and water-tight fit.

8. Ground Tab — designed so that two #14 awg copper wire can be inserted into the hole. Use of separate wires is recommended.

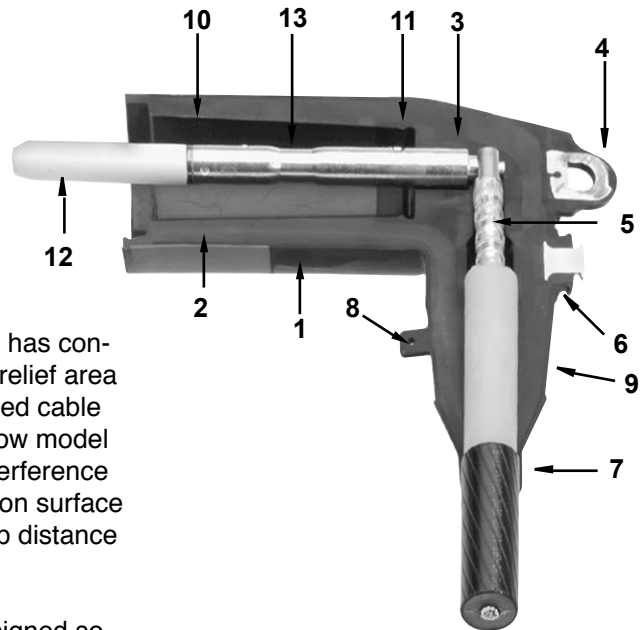
9. White-Black-White Band — identifies elbow as having phase-to-ground and phase-to-phase voltage rating. Both the black and white bands are individually removable.

10. Interface — to allow interference-fit seal when installed on mating component designed to IEEE Standard 386 interface. Provides proper creep distance and watertight fit, yet permits unplugging of elbow after years of service.

11. Locking Ring — is a part of IEEE Standard 386 requirement. Provides positive gripping. Initial pull-off force to unseat from mating groove in mating part produces fast break necessary for loadbreak switching.

12. Probe — mates with pinch-finger contacts in integrated bushing. Inner end has threads with pilot to aid installation in crimped connector without thread stripping. Outer end is made of ARCMATE™ ablative material that produces gas when exposed to loadbreak arc, permitting reliable interruption even with close ground spacing.

13. Undercut — mates with the rubber seal in the bushing insert.





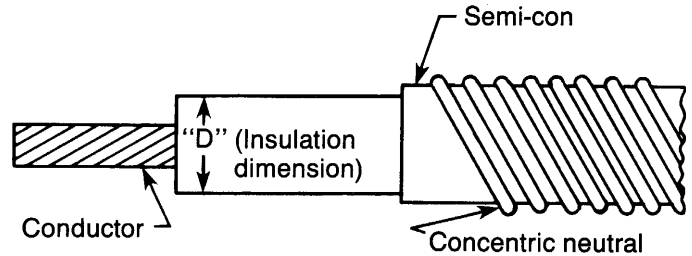
35 kV Loadbreak Elbow

SELECTION AND ORDERING

Elbow must be sized to the cable insulation diameter. Cable manufacturers' catalogs show the nominal insulation diameter, plus tolerance. Select the elbow component so that the cable dimension is within the "D" dimension listed in the following tables.

In the event the cable diameter information is not available, take several insulation measurements along a length of cable to be used with the elbow.

Fig 3. Cable dimension reference



Cable dimension reference

Cable "D" Dimension (Inches)		Conductor Size Copper or Aluminum		Mode Numbers*	
Minimum	Maximum	Stranded or Compressed	Solid or Compact	With Test Point	Without Test Point
1.020	1.160	1	1/0	9U01DAD654	9U01DBD654
		1/0	2/0	9U01DAD655	9U01DBD655
1.120	1.260	2/0	3/0	9U01DAD666	9U01DBD666
		3/0	4/0	9U01DAD667	9U01DBD667

*Model numbers listed are for elbows with the long bimetal conductor crimp connector. To specify elbow with PROBELOK® (Catalog Page C3-4) add a P before the last 3 numbers - example 9U01DADP655.

SELECTION AND ORDERING*

235LBP Probe Kit (Includes torque wrench)

NOTE: For the last two digits of Catalog Number, refer to Selection and Ordering chart above.

Elbow Crimp Connectors



Long Bimetal Connector



PROBELOK® Long Connector

Crimp Connector Ordering Information

Conductor Size		Model Number	
Stranded Or Compressed	Solid Or Compact	Bimetal Long	PROBELOK® Long
1	1/0	200LUGB4	200LUGP4
1/0	2/0	200LUGB5	200LUGP5
2/0	3/0	200LUGB6	200LUGP6
3/0	4/0	200LUGB7	200LUGP7

NOTE: Nominal overall length for either connectors is 2.88 inches.

PROBELOK® Connector Prevent Elbow from Overheating



Applications

PROBELOK® Connectors prevent elbows from overheating in 15, 25 and 35kV applications. A special insert in the connection holds the threaded connection tight, even if flexing causes it to turn. A conventional elbow uses a simple threaded connection between the cable connector and probe. When a lineman twists an elbow to put it on or pull it off, the connection loosens. Even a slight quarter turn can cause the connection to wobble slightly. The wobble creates hot spots that can cause elbow overheating and failure. PROBELOK® Connectors help stop the problem and unnecessary service calls that can cost hundreds of dollars to repair overheating elbows.

Ordering Information

Modify the standard 15, 25 and 35 kV elbow catalog number by adding a "P" to the number. For example, Catalog Number 9U01DAD655 is ordered as a PROBELOK® Connector by inserting a "P" in the number, 9U01DADP655.



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