



Increase system reliability and safety with the 35 kV, 200 kV BIL deadbreak system

Eaton offers the industry first complete 200 kV BIL deadbreak connector system including tee bodies, insulating plugs, junctions and caps—reducing tap plugs and transformer bushings. Combining the 200 kV BIL deadbreak system with Eaton's Cooper Power™ series 200 kV nameplate rated transformer means no longer sacrificing system protection due to limited component ratings.

Medium-voltage collector systems (MVCS) on large underground circuits such as wind and solar farms have standardized on using 35 kV products to carry the load from generation to the substation based on the low-loss and high-capacity of the products. Until now, the weak link in the system has been terminations and under-oil transformer components. The 35 kV 200 kV basic impulse level (BIL) deadbreak system allows the collector system to operate at full strength.

Eaton's Cooper Power series 200 kV BIL deadbreak system can reduce the damage done by high-voltage transient events. The use of 200 kV BIL-rated transformer core and coils is becoming more prevalent due to the impact of overvoltage occurrences.

Even though 35 kV underground cable and livefront terminations have already been available with 200 kV BIL ratings for years, deadbreak connector systems were preventing the MVCS from being rated at 200 kV BIL. By installing components with a BIL rating that matches your transformers, you increase reliability and potentially extend the life of your collector system. The 200 kV BIL rated deadbreak system reduces the footprint of the transformer and increases overall safety when compared with a live-front system.

You can build a complete 35 kV, 600 A, 200 kV BIL medium-voltage collector system—from the transformer core and coil and underground cable—to everything needed to terminate the cable and equipment. Protection against damaging overvoltages is increased by using the 200 kV BIL deadbreak system.

Increased reliability

- 200 kV BIL exceeds 150 kV BIL IEEE® standard
- Higher ratings for 35 kV and 600 A or 900 A systems
- Heavier insulation system
- Can withstand spikes in power
- Better margin of protection during overvoltage conditions
- In-house blend of EPDM rubber insulation to ensure quality control procedures and testing standards

Increased safety

- 200 kV BIL rated systems available in a deadfront as opposed to livefront systems
- Can be used with transformers, switchgear and junction boxes
- Reduced total ownership cost
- Reduced footprint when compared to live-front equipment

Applications

- Renewable energy such as wind and solar farms
- Data centers
- Mining
- Oil and gas

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Powering Business Worldwide

Protect your entire system with 35 kV, 200 kV BIL ratings. Customers can build a complete 35 kV, 600 A, 200 kV BIL system that doesn't just include the core and coil—it also includes the bushing and the tee that are connected on-site, strengthening collection system dielectric properties. This added dielectric strength means the system is less likely to fail in the event of a high-voltage surge.

EPDM rubber

Eaton mixes and blends its EPDM rubber insulation formula in-house to exceed IEEE Std 386-2016. We offer more than 40 years of experience molding and designing underground EPDM separable connectors.

Tee bodies

- Completely encapsulated live parts to ensure deadfront construction
- Available with test point
- Insulation rubber formulated and mixed in-house

Deadbreak junctions

- Available in 2-, 3- or 4-way configurations
- Available in both copper and aluminum configurations
- Junctions can be mounted with U-straps or adjustable steel brackets

Load reducing tap plug (L RTP)

- Hotstick operable 600 A connector system
- Adds 200 A bushing interface to T-OP II connector

BOL-T loadbreak reducing tap plug (BL RTP)

- The component of a BT-TAP connector that allows connection to a 200 A interface
- Can be used to retrofit a BOL-T connector to add a 200 A interface



Red stamp indicating 200 kV BIL rating is color coordinated with the 200 kV BIL bushing.

Connector plugs

- Allow for an additional 600 A interface after installation of tee-body
- Available in both aluminum and copper

Deadbreak insulating plugs

- Secure the termination to equipment with a bolted connection
- Available in both aluminum and copper

Bushing extender

- Contains two 600 A interfaces that can extend the 600 A bushing when used with a connecting plug
- Allows for conversion of 600 A interface to 200 A interface when used with LRTP

200 A loadbreak protective cap

- Insulated cap allows for the capping of unused 200 A bushings

600 A protective cap

- Insulated cap allows for the capping of unused 600 A bushings

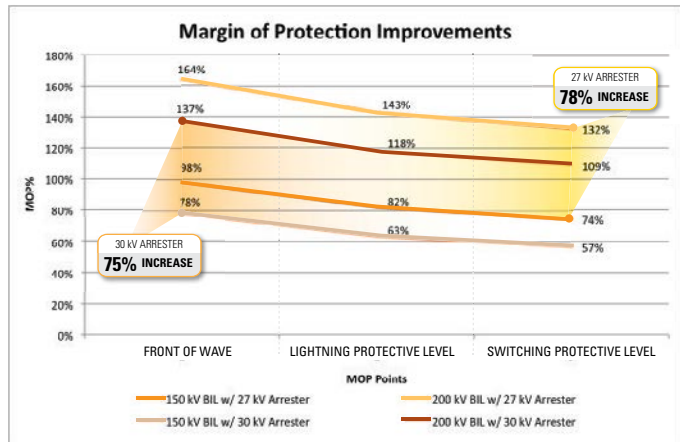
Transformer bushings

- Transformer and tee connection point
- Uses a unique epoxy composition with red color
- Available in 35 kV, 600 A (aluminum rod) and 900 A (copper rod)
- 200 kV BIL bushings must be specified in transformer specifications.

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Margin of protection improvements

Increasing the Basic Impulse Level (BIL) of a medium voltage collector system is one way of improving its reliability and longevity. Higher BIL ratings effectively increase the margin of protection for the system which extends its lifecycle.

Voltage ratings and characteristics

Description	kV
Standard voltage class	35
Maximum rating phase-to-ground	21.1
ac 60 Hz 1 minute withstand	70
dc 15 minute withstand	103
BIL and full wave crest	200
Minimum partial discharge extinction voltage	26

Specify your transformer with 200 kV BIL bushings, core and components to achieve a complete 200 kV BIL system.

SOLUTION SUPPORT

Eaton's Electrical Services & Systems (EES) provides a full suite of services including:

- Startup and commissioning equipment
- Perform planned maintenance
- Monitor performance
- Coordination studies
- Arc-flash studies
- Turnkey projects

For Eaton's Cooper Power series product information, visit Eaton.com/cooperpowerseries



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