

## DISTRIBUTION CUTOUTS

# LBU-II

## Outdoor loadbreak cutout



### Product features

- 7.8/15 kV, 15 kV, 15/27 kV, 20/34.5 kV, and 27 kV
- 110, 125, 150, and 170 kV BIL
- 100 A, 200 A fused
- 300 A disconnect blade
- Porcelain, polymer concrete, or silicone insulators available
- Cutout/arrester combo

### Description

The LBU-II cutout performs as an outdoor loadbreak switch, as well as a fused cutout for distribution systems. Loadbreak interruption is accomplished by means of a self-contained loadbreak arc chute which confines the arc and provides a deionizing action.

Conventional operation loadbreak is accomplished by normal opening of the cutout by a hookstick. There are no parts to replace and the loadbreak feature lasts the life of the cutout. The self-contained loadbreak concept enables the line worker to interrupt load current with a simple hook-stick operation. Silicone or polymer concrete insulators and cutout/arrester combinations are available on certain models.

The LBU-II can successfully switch currents as high as 300 A at 15 kV and 50 A at 27 kV. It has fault-

LBU-II loadbreak cutouts are used on overhead distribution systems to provide overcurrent protection, visible indication of fuse operation, and outdoor loadbreak switching.

interrupting (not loadbreak) capacities as high as 20,000 A RMS asymmetrical.

### Capacitor banks

The LBU-II provides over-current protection for capacitor banks and gives visible indication that the equipment is de-energized. It also provides a convenient and inexpensive switch capable of interrupting capacitor currents.

### Transformer bank switching

The LBU-II can be used for switching the magnetizing currents of both single-phase and three-phase transformer banks.

### Sectionalizing

The LBU-II provides a convenient method of sectionalizing single and three-phase, loop, or lateral lines during maintenance or under contingency conditions.

### Riser pole

The LBU-II provides a way to switch the capacitive currents associated with the underground feeder cables at the riser pole.

**Standards and design testing**

The LBU-II cutout meets or exceeds all applicable requirements of EEI, NEMA SG-2, and IEEE C37.41 and C37.42 standards.

**Silicone rubber**

Utilized for more than 30 years as an outdoor insulation material, silicone rubber is the most commonly used polymeric material for medium and high voltage outdoor insulation. Silicone is used for its superior performance, durability, and insulation properties. It has the unique ability to maintain its hydrophobicity and offers greater stability against heat and ultraviolet radiation compared to other polymers. In addition, silicone cutouts are 30% - 50% lighter than porcelain units.

**Polymer concrete**

Available in 110 and 125 kV BIL ratings, polymer concrete provides a safe, shatter-proof design with molded-in rods to prevent moisture penetration. Because it resists damage from freeze/thaw cycles, the material is an excellent alternative to porcelain in colder climates. Polymer concrete is a field-proven material that provides excellent electrical properties and dielectric strengths, as well as superior mechanical durability.

**Arrester combinations**

ABB offers a combination LBU-II cutout with an arrester option. This combination unit is pre-assembled at the factory and provides overall savings by reducing installation time and accumulated costs that result from independently purchased parts.

LBU-II combination units are available with various mounting brackets to fulfill industry requirements. The combo units are equipped with normal duty, heavy duty, and riser pole duty polymer metal oxide arresters.

**Fuse tube construction**

The LBU-II cutouts utilize two different types of fuse tubes: a moisture-proof fuse tube or a high-strength glass fuse tube. The moisture-proof fuse tube is available on most 100 A designs and reduces swelling that can create problems with interruption.

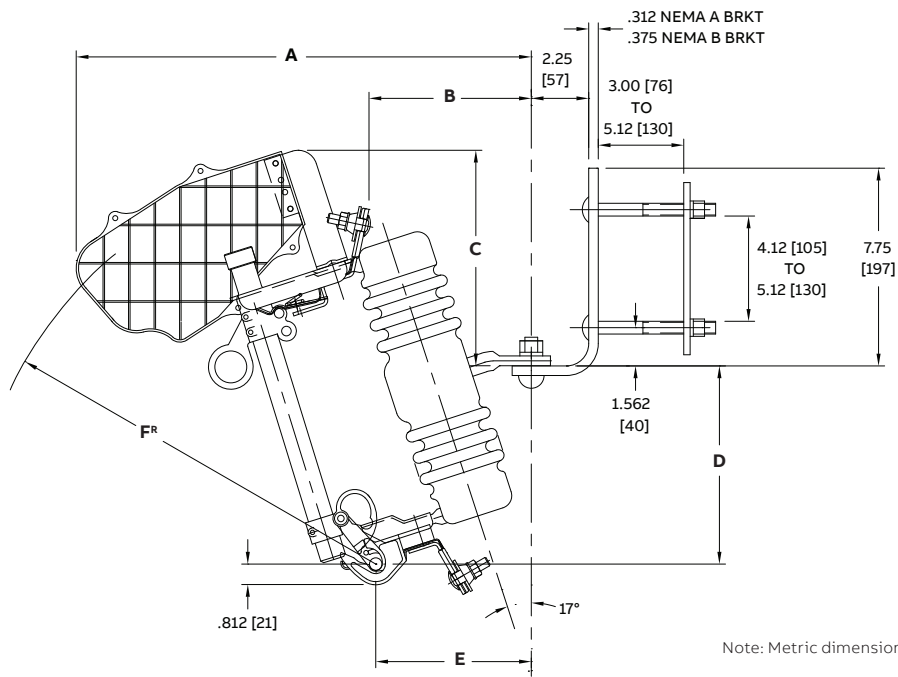
The 200 A design utilizes a high-strength glass fuse tube. This fuse tube is composed of a horn fiber liner surrounded by a glass filament wound outer shell. Both designs have a durable tube that can withstand the rigors of high fault current interruptions. In addition, the tube is applied with electrostatic powder paint to provide protection against the effects of ultraviolet rays.

**Voltage levels**

Single voltage rated cutouts can be applied on any single or three-phase system where the line-to-line voltage does not exceed the cutout rating. Dual voltage rated cutouts are suitable on single-phase circuits where maximum line-to-ground voltage does not exceed the value shown to the left of the slash (for example, does not exceed 15 kV in 15/27kV).

LBU-II cutouts may be used on three-phase circuits that are solidly grounded and the maximum line-to-line voltage does not exceed the value shown to the right of the slash (for example, does not exceed 27 kV in 15/27 kV).

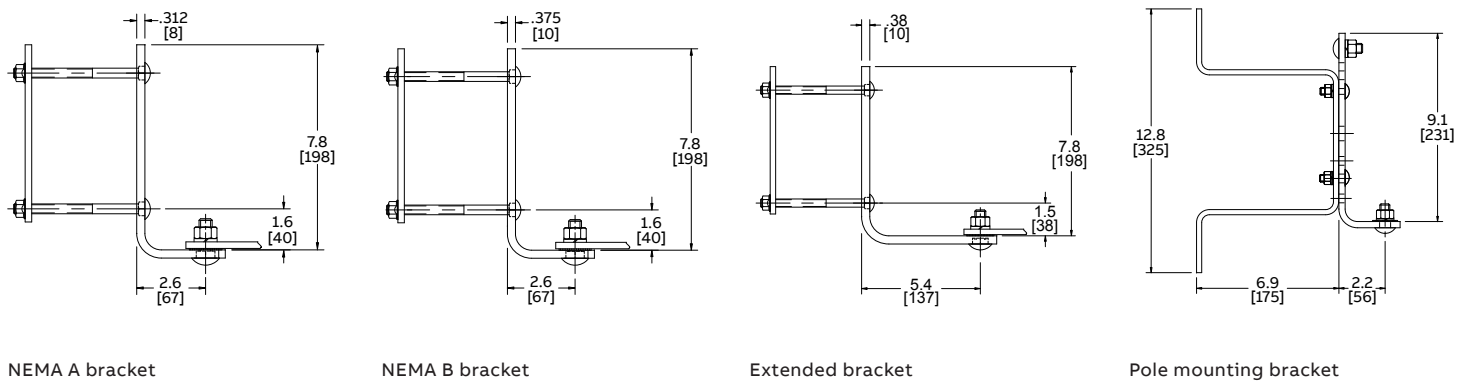
Unit dimensions



| kV Class     | BIL (kV) | Unit dimensions (in) |      |       |       |      |                | Creep (in) |          | Weight (lb) |          |
|--------------|----------|----------------------|------|-------|-------|------|----------------|------------|----------|-------------|----------|
|              |          | A                    | B    | C     | D     | E    | F <sup>R</sup> | Porcelain  | Silicone | Porcelain   | Silicone |
| 7.8/15 or 15 | 110      | 17.75                | 6.88 | 8.63  | 7.84  | 6.03 | 15.88          | 9.10       | 14.96    | 13.04       | 10.14    |
| 15/27 or 27  | 125      | 18.50                | 7.06 | 10.63 | 9.44  | 5.31 | 19.50          | 12.80      | 18.90    | 16.50       | 10.98    |
| 15/27 or 27  | 150      | 18.50                | 7.06 | 10.63 | 9.44  | 5.31 | 19.50          | 18.00      | 18.90    | 24.28       | 11.08    |
| 20/34.5      | 150      | 18.50                | 7.06 | 10.63 | 9.44  | 5.31 | 19.50          | 18.00      | 18.90    | 24.28       | 11.08    |
| 27           | 170      | 18.90                | 7.20 | 13.08 | 11.62 | 5.50 | 21.50          | 26.00      | -        | 18.60       | -        |

| kV Class     | BIL (kV) | Unit dimensions (mm) |        |        |        |        |                | Creep (mm) |          | Weight (kg) |          |
|--------------|----------|----------------------|--------|--------|--------|--------|----------------|------------|----------|-------------|----------|
|              |          | A                    | B      | C      | D      | E      | F <sup>R</sup> | Porcelain  | Silicone | Porcelain   | Silicone |
| 7.8/15 or 15 | 110      | 450.85               | 174.75 | 219.20 | 199.14 | 153.16 | 403.35         | 231.14     | 379.98   | 5.91        | 4.60     |
| 15/27 or 27  | 125      | 469.90               | 179.32 | 270.00 | 239.78 | 134.87 | 495.30         | 325.12     | 480.06   | 7.48        | 4.98     |
| 15/27 or 27  | 150      | 469.90               | 179.32 | 270.00 | 239.78 | 134.87 | 495.30         | 457.20     | 480.06   | 11.01       | 5.03     |
| 20/34.5      | 150      | 469.90               | 179.32 | 270.00 | 239.78 | 134.87 | 495.30         | 457.20     | 480.06   | 11.01       | 5.03     |
| 27           | 170      | 480.06               | 182.88 | 332.23 | 295.15 | 139.70 | 546.10         | 660.40     | -        | 8.44        | -        |

Bracket dimensions



NEMA A bracket

NEMA B bracket

Extended bracket

Pole mounting bracket

## Ordering instructions for LBU-II cutouts

### 7.8/15 kV and 15 kV LBU-II

| Digit | Description         | Code | Definition                                             |
|-------|---------------------|------|--------------------------------------------------------|
| 1     | LBU-II cutout       | Y    | 7.8/15 kV and 15 kV                                    |
| 2     | Insulator BIL       | 1    | 110 kV BIL                                             |
|       |                     | N    | Porcelain                                              |
|       |                     | J    | Silicone                                               |
| 3     | Fuse supports       | Z    | Polymer concrete                                       |
|       |                     | C    | Clamshell                                              |
|       |                     | E    | Eyebolt                                                |
| 4     | Terminal connectors | N    | None                                                   |
|       |                     | N    | No bracket                                             |
|       |                     | A    | NEMA A                                                 |
|       |                     | B    | NEMA B                                                 |
|       |                     | L    | Extended                                               |
| 5     | Bracket             | C    | Universal Combo                                        |
| 6     | Special options     | N    | None                                                   |
|       |                     | AM11 | 100 A, 12 kAIC, solid cap (rated 7.8/15 kV only)       |
|       |                     | NA11 | 100 A, 20 kAIC, barrel exp. cap (rated 7.8/15 kV only) |
|       |                     | DA21 | 200 A, 12 kAIC, solid cap (rated 7.8/15 kV only)       |
|       |                     | PA21 | 200 A, 20 kAIC, barrel exp. cap (rated 7.8/15 kV only) |
|       |                     | BM11 | 100 A, 10 kAIC, solid cap (rated 15 kV)                |
|       |                     | QA11 | 100 A, 16 kAIC, barrel exp. cap (rated 15 kV only)     |
|       |                     | EA21 | 200 A, 8 kAIC, solid cap (rated 15 kV)                 |
|       |                     | GA21 | 200 A, 10 kAIC, link extender (rated 15 kV)            |
|       |                     | UA21 | 200 A, 12 kAIC, barrel exp. cap (rated 15 kV only)     |
|       |                     | VA31 | 300 A, solid blade (rated for 7.8/15 kV and 15 kV)     |
| 7-10  | Fuseholder          | 0000 | Fuse support only (no tube)                            |

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**15/27 kV and 27 kV LBU-II**

| Digit | Description         | Code | Definition                                                                 |
|-------|---------------------|------|----------------------------------------------------------------------------|
| 1     | LBU-II cutout       | Y    | 15/27 kV and 27 kV                                                         |
|       |                     | 2    | 125 kV BIL                                                                 |
|       |                     | 4    | 150 kV BIL, 600 mm creep (silicone only)                                   |
| 2     | Insulator BIL       | 5    | 150 kV BIL                                                                 |
|       |                     | N    | Porcelain                                                                  |
|       |                     | J    | Silicone                                                                   |
| 3     | Fuse supports       | Z    | Polymer concrete (110 kV and 125 kV BIL only)                              |
|       |                     | C    | Clamshell                                                                  |
|       |                     | E    | Eyebolt                                                                    |
| 4     | Terminal connectors | N    | None                                                                       |
|       |                     | N    | No bracket                                                                 |
|       |                     | B    | NEMA B                                                                     |
| 5     | Bracket             | L    | Extended                                                                   |
|       |                     | C    | Universal combo                                                            |
|       |                     | N    | None                                                                       |
| 6     | Special options     | V    | 125 kV silicone insulator for CSA (rated 27 kV, 125 kV BIL, silicone only) |
|       |                     | BM12 | 100 A, 10 kAIC, solid cap (rated 15/27 kV only)                            |
|       |                     | QA12 | 100 A, 16 kAIC, barrel exp. cap (rated 15/27 kV only)                      |
|       |                     | FA22 | 200 A, 10 kAIC, solid cap (rated 15/27 kV only)                            |
|       |                     | HA22 | 200 A, 16 kAIC, link extender (rated 15/27 kV only)                        |
|       |                     | CM12 | 100 A, 6 kAIC, solid cap (rated 27 kV)                                     |
|       |                     | SA12 | 100 A, 12 kAIC, barrel exp. cap (rated 27 kV)                              |
|       |                     | KM12 | 100 A, 12 kAIC, link extender (rated 27 kV)                                |
| 7-10  | Fuseholder          | VA32 | 300 A, solid blade (rated 15/27 kV and 27 kV)                              |
|       |                     | 0000 | Fuse support only (no tube)                                                |

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**20/34.5 kV LBU-II**

| Digit | Description         | Code | Definition                                    |
|-------|---------------------|------|-----------------------------------------------|
| 1     | LBU-II cutout       | Y    | 20/34.5 kV                                    |
| 2     | Insulator BIL       | 4    | 150 kV BIL, 600 mm creep (silicone only)      |
|       |                     | 5    | 150 kV BIL                                    |
|       |                     | N    | Porcelain                                     |
| 3     | Fuse supports       | J    | Silicone                                      |
|       |                     | C    | Clamshell                                     |
|       |                     | E    | Eyebolt                                       |
| 4     | Terminal connectors | N    | None                                          |
|       |                     | N    | No bracket                                    |
|       |                     | B    | NEMA B                                        |
| 5     | Bracket             | L    | Extended                                      |
|       |                     | C    | Universal Combo                               |
|       |                     | N    | None                                          |
| 6     | Special options     | CM12 | 100 A, 6 kAIC, solid cap                      |
|       |                     | TA12 | 100 A, 12 kAIC, barrel exp. cap               |
|       |                     | KM12 | 100 A, 12 kAIC, link extender                 |
|       |                     | VA32 | 300 A, solid blade (rated 15/27 kV and 27 kV) |
| 7-10  | Fuseholder          | 0000 | Fuse support only (no tube)                   |

**LBU-II cutout arrester combination**

| Digit | Description                     | Code  | Definition                                               |
|-------|---------------------------------|-------|----------------------------------------------------------|
| 1     | LBU cutout arrester combination | L     | Combo                                                    |
|       |                                 | 1     | 15 kV                                                    |
|       |                                 | 2     | 27 kV                                                    |
|       |                                 | 8     | 15/27 kV                                                 |
| 2     | Voltage level                   | 9     | 20/34.5 kV                                               |
|       |                                 | 1     | 110 kV BIL                                               |
|       |                                 | 2     | 125 kV BIL                                               |
| 3     | Insulator BIL                   | 5     | 150 kV BIL                                               |
|       |                                 | S     | 100 A solid cap                                          |
|       |                                 | B     | 100 A barrel exp. cap                                    |
|       |                                 | L     | 100 A link extender (only for 27 kV or 20/34.5 kV units) |
|       |                                 | T     | 200 A solid cap                                          |
| 4     | Cutout cap                      | C     | 200 A barrel exp. cap                                    |
|       |                                 | A     | Short combo                                              |
| 5     | Bracket                         | U     | Long combo (contact factory for other options)           |
|       |                                 | C     | Polymer normal duty                                      |
|       |                                 | H     | Polymer heavy duty                                       |
| 6     | Arrester type                   | R     | Polymer riser pole                                       |
|       |                                 | 03    | 3 kV                                                     |
|       |                                 | 06    | 6 kV                                                     |
|       |                                 | 09    | 9 kV                                                     |
|       |                                 | 10    | 10 kV                                                    |
|       |                                 | 12    | 12 kV                                                    |
|       |                                 | 15    | 15 kV                                                    |
|       |                                 | 18    | 18 kV                                                    |
|       |                                 | 21    | 21 kV                                                    |
|       |                                 | 24    | 24 kV                                                    |
|       |                                 | 27    | 27 kV                                                    |
| 9     | Cutout terminals                | 1     | Clamshell                                                |
|       |                                 | 2     | Eyebolt                                                  |
|       |                                 | 1     | None                                                     |
|       |                                 | 8     | 12" lead                                                 |
| 10    | Special options                 | B     | Arrester bird guard                                      |
|       |                                 | X     | No arrester but in combo box                             |
|       |                                 | Blank | Porcelain                                                |
|       |                                 | J     | Silicone                                                 |
| 11    | Cutout insulator material       | Z     | Polymer concrete (110 kV and 125 kV BIL only)            |

## Optional parts and accessories

### Replacement fuseholders

| Style number | Voltage rating (kV) | BIL (kV)   | Current rating (A) | Loadbreak current (A) | Interrupting rating (kA) | Cap type               |
|--------------|---------------------|------------|--------------------|-----------------------|--------------------------|------------------------|
| 278C310A03MP | 7.8/15              | 110        | 100                | 100                   | 12                       | Solid                  |
| 278C310A04   | 7.8/15              | 110        | 100                | 100                   | 20                       | Barrel expendable      |
| 278C310A05   | 7.8/15              | 110        | 200                | 200                   | 12                       | Solid                  |
| 278C310A06   | 7.8/15              | 110        | 200                | 200                   | 20                       | Barrel expendable      |
| 278C310A10MP | 15                  | 110        | 100                | 100                   | 10                       | Solid                  |
| 278C310A11   | 15                  | 110        | 100                | 100                   | 16                       | Barrel expendable      |
| 278C310A12   | 15                  | 110        | 200                | 200                   | 8                        | Solid                  |
| 278C310A30   | 15                  | 110        | 200                | 200                   | 10                       | Link extender          |
| 278C310A13   | 15                  | 110        | 200                | 200                   | 12                       | Barrel expendable      |
| 278C310A14   | 15                  | 110        | 300                | 300                   | -                        | Solid disconnect blade |
| 278C310A17MP | 15/27               | 125 or 150 | 100                | 100                   | 10                       | Solid                  |
| 278C310A18   | 15/27               | 125 or 150 | 100                | 100                   | 16                       | Barrel expendable      |
| 278C310A19   | 15/27               | 125 or 150 | 200                | 200                   | 10                       | Solid                  |
| 278C310A48   | 15/27               | 125 or 150 | 200                | 200                   | 16                       | Link extender          |
| 278C310A21   | 15/27               | 125 or 150 | 300                | 300                   | -                        | Solid disconnect blade |
| 278C310A49MP | 15/27               | 170        | 100                | 100                   | 10                       | Link extender          |
| 278C310A50   | 15/27               | 170        | 100                | 100                   | 10                       | Barrel expendable      |
| 278C310A22MP | 20/34.5             | 150        | 100                | 100                   | 6                        | Solid                  |
| 278C310A23   | 20/34.5             | 150        | 100                | 100                   | 12                       | Barrel expendable      |
| 278C310A31MP | 20/34.5             | 150        | 100                | 100                   | 12                       | Link extender          |
| 278C310A32MP | 20/34.5             | 170        | 100                | 100                   | 12                       | Link extender          |
| 278C310A33   | 20/34.5             | 150        | 300                | 100                   | -                        | Solid disconnect blade |
| 278C310A24MP | 27                  | 125 or 150 | 100                | 50                    | 6                        | Solid                  |
| 278C310A53   | 27                  | 125 or 150 | 100                | 50                    | 12                       | Barrel expendable      |
| 278C310A26MP | 27                  | 125 or 150 | 100                | 50                    | 12                       | Link extender          |
| 278C310A27MP | 27                  | 170        | 100                | 50                    | 12                       | Link extender          |
| 278C310A34   | 27                  | 125 or 150 | 300                | 50                    | -                        | Solid disconnect blade |

### Replacement fuseholder caps

| Style number | Current rating (A) | Cap type                                      |
|--------------|--------------------|-----------------------------------------------|
| 775H01       | 100                | Solid                                         |
| 162A775H03   | 200                | Solid                                         |
| 3A09870G05   | 200                | Link ext. (110 kV BIL only)                   |
| 3A09870G01   | 100                | Link ext. (27 kV, 125 or 150 kV BIL only)     |
| 3A09870G06   | 200                | Link ext. (15/27 kV, 200 kV BIL only)         |
| 3A309870G02  | 100                | Link ext. (15 or 20/34.5 kV, 200 kV BIL only) |
| 3A09870G04   | 100                | Link ext. (27 kV, 200 kV BIL only)            |
| 12A00128H01  | 100                | Barrel expendable cap                         |
| 403A062G03   | 200                | Barrel expendable cap                         |

### Brackets

| Style number | Type          |
|--------------|---------------|
| 367C723G05   | NEMA A        |
| 403A101G03   | NEMA B        |
| 367C802G05   | Extended      |
| 791C890G16   | Pole mounting |