

VariSTAR porcelain distribution-class MOV arrester installation instructions



Powering Business Worldwide

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Safety for life



Eaton meets or exceeds all applicable industry standards relating to product safety in its Cooper Power™ series products. 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 Eaton 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 arc flash clothing, safety glasses, face shield, hard hat, rubber gloves, clampstick, 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 an imminently hazardous situation which, if not avoided, will result in death or serious injury.

WARNING

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

CAUTION

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

CAUTION

Indicates a potentially hazardous situation which, if not avoided, may 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 hazardous voltage will cause death or severe personal injury. Follow all locally approved safety procedures when working around high- and low-voltage lines and equipment.

G103.3

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.

G101.0

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 can result in death, severe personal injury and equipment damage.

G102.1

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.

G122.3

 **CAUTION**

This arrester should be installed only by personnel familiar with good safety practice and the handling of high-voltage electrical equipment. These instructions are not intended to supersede or replace existing safety and operating procedures. Where applicable, the requirements of national and/or local codes and insurance underwriters must be fulfilled.

 **CAUTION**

Always handle surge arrester – packed or unpacked – very carefully. Do not drop, jar, or handle an arrester roughly. Dropping, jarring, and/or rough handling may damage the arrester internally and/or externally, making it incapable of adequately protecting the apparatus or circuit on which it is to be installed or it may shorten the service life of the arrester significantly.

 **CAUTION**

Never open an arrester. The arrester's internal components are under spring compression and may be expelled with such force as to cause personal injury.

 **CAUTION**

Do not install an arrester if the type, voltage, and MCOV data are not exactly the same on the nameplate and the carton label because the arrester may be incapable of adequately protecting the apparatus or circuit on which it is to be installed. Refer to the appropriate catalog section, as defined in Table 1, for proper system application of the arrester.

 **CAUTION**

Make all electrical connections – ground and line – so that no mechanical stress is applied to the surge arrester. Mechanical stress may damage the arrester in such a manner that its service life is shortened significantly.

 **WARNING**

Never install a damaged arrester. A damaged arrester may misoperate violently, causing severe personal injury and property damage.

Product information

Introduction

Eaton's Cooper Power series VariSTAR® porcelain distribution-class MOV arresters provide overvoltage protection to over-head and underground distribution systems.

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 covered sufficiently for the user's purpose, please contact your Eaton representative.

Acceptance and Initial Inspection

Each arrester is completely assembled, inspected and tested at the factory. It is in good condition when accepted by the carrier for shipment. Upon receipt of an arrester, 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 arrester is to be stored for an appreciable time before installation, provide a clean, dry storage area. Locate the arrester so as to minimize the possibility of physical damage.

Quality Standards

ISO 9001 Certified Quality Management System

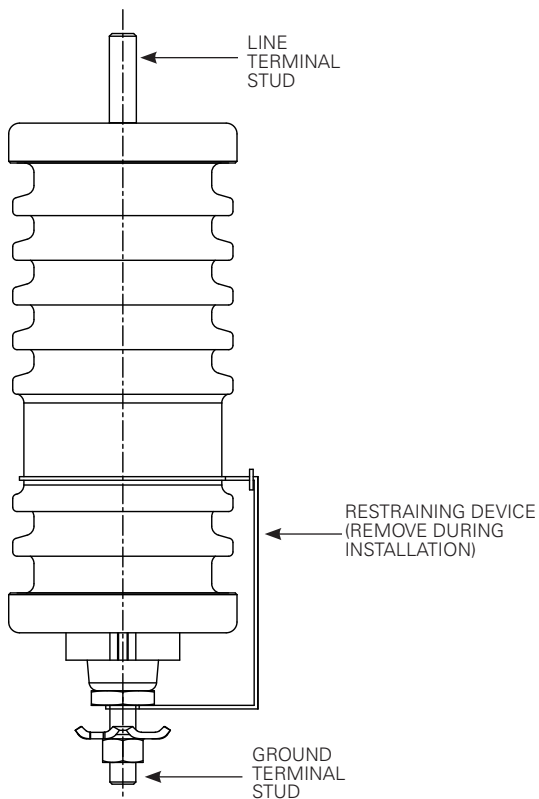


Figure 1. Porcelain distribution-class MOV arrester.

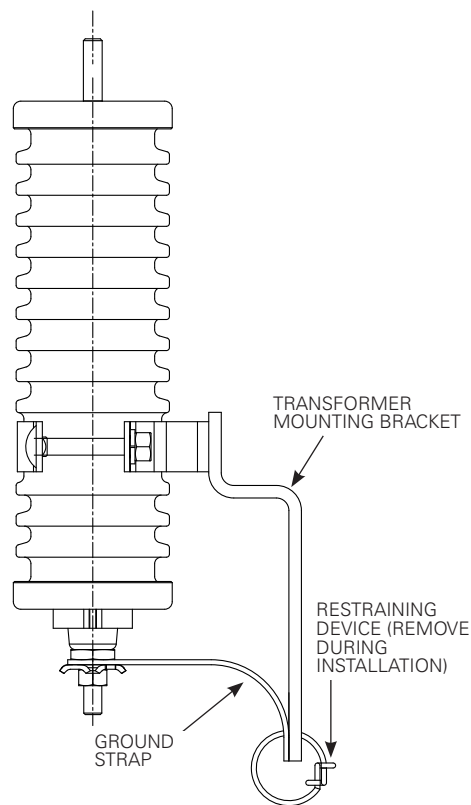


Figure 2. Transformer mounted porcelain distribution-class MOV arrester.

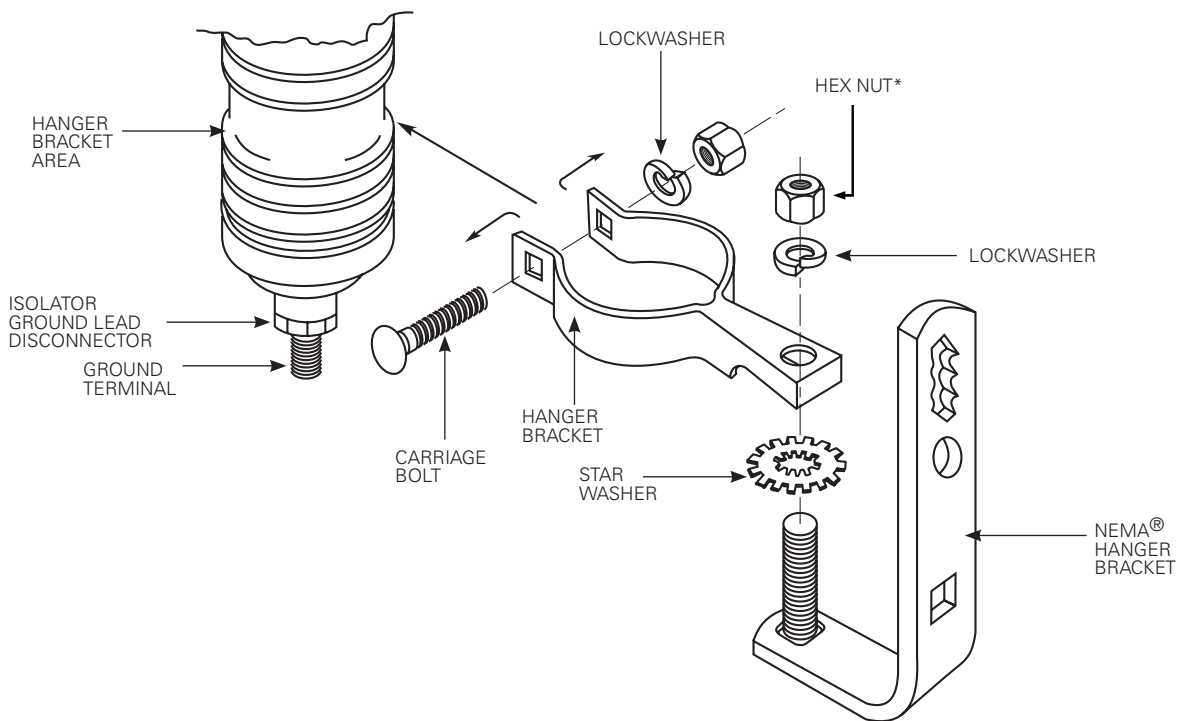


Figure 3. Installation of arrester to hanger bracket.

* Torque hex nuts to 20-25 ft-lbs.

Installation procedure

- Install all mounting hardware on the arrester by spreading the hanger bracket sufficiently to push over the arrester at the hanger location. Do not slide the hanger bracket onto the housing from either end – this can cause cracking/chipping of the porcelain skirts. Torque both hanger bracket hex nuts between 20 and 25 ft-lbs. See Figure 3.
- Connect the line lead to the arrester line terminal stud. Torque the hex nut to 20 ft-lbs maximum. If using the eyebolt connector, torque the clamping nut to maximum 20 ft-lbs.
- Select an installation site as close as possible to the apparatus that the arrester is to protect. Make the line lead as short as possible.
- Remove isolator restraining device.
- Make the electrical connections. Torque the top and bottom terminals to 20 ft-lbs.

Note: The arrester terminals accommodate conductor sizes from AWG No. 10 solid through AWG No. 2/0 stranded.

Note: Make the arrester ground connection as short and direct as possible to a solid, effective, permanent, low-resistance ground. If the arrester has a ground lead disconnecter, the ground lead must be flexible enough to allow the disconnecter to operate properly.

Note: The arrester terminal where the disconnecter is located is the ground terminal.

Arrester Type	Catalog Section
Normal Duty (AZS)	CA235017EN
Heavy Duty (AZL)	CA235006EN

Field testing

All porcelain distribution-class arresters must pass a complete series of production tests prior to shipment; therefore, no field testing of new units is required.

CAUTION

Before performing any test on an arrester, contact your Eaton sales engineer. Some test procedures may damage the arrester externally and/or internally, making it incapable of protecting the apparatus or the circuit on which it is installed or shortening its service life significantly.

Removing an arrester from a circuit

WARNING

Always consider an arrester to be energized until after both the line and the ground leads have been disconnected from the circuit.

- Disconnect the arrester line lead(s) from the circuit.
- Note:** A small amount of static charge may be retained in an arrester when it is removed from an energized circuit.
- Discharge the arrester by attaching the line terminal to a temporary ground.
 - Mark the temporary ground to make sure it is removed before the arrester is reinstalled.
 - Disconnect the arrester ground lead(s) from the circuit.
 - Disconnect the arrester from the hanger bracket.
 - For transportation, the restraining device must be attached to any arrester that has an intact ground lead disconnecter and terminal stud.



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