



Station Class Surge Arresters

⚠ CAUTION

CAUTION: THE EQUIPMENT COVERED BY THESE INSTRUCTIONS SHOULD BE INSTALLED AND SERVICED ONLY BY COMPETENT PERSONNEL FAMILIAR WITH GOOD SAFETY PRACTICES. THIS INSTRUCTION IS WRITTEN FOR SUCH PERSONNEL AND IS NOT INTENDED AS A SUBSTITUTE FOR ADEQUATE TRAINING AND EXPERIENCE IN SAFE PROCEDURES FOR THIS TYPE OF EQUIPMENT.

WARNING: ARRESTERS APPLIED AT VOLTAGES HIGHER THAN MCOV (Maximum Continuous Operating Voltage) MAY CAUSE DAMAGE AND/OR INJURY. CHECK THE ARRESTER MCOV, MARKED CLEARLY ON THE NAMEPLATE, TO ASSURE CORRECT APPLICATION.



CONTINUOUS OPERATING VOLTAGE

HD surge arresters must be applied where the continuous phase-to-ground power frequency voltage at the arrester location does not exceed the arrester maximum continuous operating voltage capability as indicated on the nameplate.

ALTITUDE AND TEMPERATURE

HD surge arresters can be used from 0 to 1200 m altitude. These arresters can be used in locations where the maximum temperature does not exceed 55 C.

INITIAL INSPECTION

Although it is very unlikely, extraordinarily rough handling can result in damage to the HD surge arrester. Careful inspection of each arrester porcelain housing prior to installation is required to assure that no damage has occurred during shipment. If damage is apparent, do not install arrester. Claims for shipping damage should be registered immediately with the common carrier. The catalog number, rating, and maximum continuous operating voltage (MCOV) are identified on the nameplate attached to the lower end fitting. The nameplate information should be checked against the shipping memorandum. If at any time it is necessary to correspond with Polipar Systems, complete nameplate data should be furnished in order to expedite replies.

INSTALLATION LOCATION

Install the arrester electrically as close as practicable to the equipment to be protected. Keep the arrester connections short and direct. The footings of all outdoor piers or supports should extend below the frost line and be elevated above the ground line sufficiently to meet personnel safety requirements.

ASSEMBLY



STATION TYPE CLAMP TYPE

1-Station Type

Install the base unit vertically on the foundation using care to see that it is perpendicular, shimming under all but one foot if necessary. It is important that all feet rest solidly on the foundation before foundation bolts are drawn down to avoid unnecessary stresses in the end fittings. Tighten the bolts firmly. It must be checked carefully to determine that it is vertical, and shimmed under all but one foot if necessary. This procedure should be repeated as necessary until all the arrester units are assembled. Be sure to install the corona and grading rings at the points called for on the outline drawing.

2-Clamp Type

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 27 and 34 N-m.

- Connect the line lead to the arrester line terminal stud. Torque the hex nut to 27 N-m maximum. If using the eyebolt connector, torque the clamping nut to maximum 27 N-m.
- 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 27 N-m.



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 disconnect, the ground lead must be flexible enough to allow the disconnect to operate properly.

CLEARANCE

The term “clearance” means the actual distance between any parts of the arrester at line potential and any object at ground potential or other phase potential. Clearances listed on the appropriate outline print packed with each arrester are the minimum recommended and were determined such that the operation and capability of the arrester is not significantly affected. These clearances apply for conventional outdoor substations. These values should be used only after it has been determined that any local codes or standard practices do not require larger clearances. The values shown are suitable for altitudes up to 3300 feet (1000 meters). At higher altitudes, add 3 percent for each additional 1000 feet (305 meters) of elevation. The arrangement of the foundation plans if shown on the outlines can be modified if proper clearances are maintained.

LINE AND GROUND CONNECTIONS

Connect the arrester ground to the apparatus ground and the main station ground, utilizing a reliable common ground network of low resistance. Connection to the line should be made through a suitable line connector. Line connections should be made in such a manner that no excessive mechanical stress is placed on the arrester. No more than 25 ft.-lb (34 N-m) of torque should be applied while tightening down any nuts.



ALWAYS BE CERTAIN THAT THE GROUND CONNECTION IS FIRMLY MADE BEFORE CONNECTING THE ARRESTER TO AN ENERGIZED LINE. IF AN INSULATING SUBBASE IS USED AT THE GROUND END TO PERMIT USE OF A DISCHARGE COUNTER, THE DISCHARGE COUNTER MUST BE CONNECTED (OR THE INSULATING SUBBASE SHORTED OUT) BEFORE CONNECTING THE ARRESTER TO AN ENERGIZED LINE.

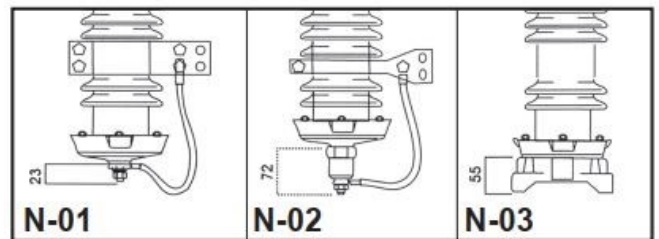
PERIODIC INSPECTION, MAINTENANCE AND REMOVAL

Before inspecting or handling, disconnect the arrester from the line. When a metal-oxide arrester is disconnected from an energized line, it is possible for a small amount of static charge to be retained by the arrester. As a precautionary measure, install a temporary ground on the line end of the arrester after it is disconnected from the line.

This will ensure that any retained charge is discharged to ground. Remove the temporary ground before the arrester is reinstalled. HD surge arresters require no special care. They may be hot-washed, subject to the usual care and techniques used in hot-washing insulation to avoid external flashover. These arresters do not require testing, and no test which applies power voltage in excess of maximum arrester voltage rating should be made without consulting Polipar Systems. There is no single field test which will indicate the complete operating characteristics of the arrester.



To avoid electrical shock when removing an arrester from service, consider it to be fully energized until both the line and ground leads are disconnected.



STORAGE

As all HD surge arresters are designed for outdoor use, they may be stored outdoors if suitable precautions are taken to prevent deterioration of the packing material. The arresters may be covered with a polyethylene or other waterproof covering to keep them dry, clean, and free from litter until used. In climates where outdoor temperature and humidity extremes rapidly deteriorate the packing material, it is recommended that arresters stored outdoors be removed from their packing and be bolted (vertically) to a skid.



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