APPLICATION OF SURGE ARRESTERS

LOVOS surge arresters with nominal discharge current either 5kA or 10kA, with continuous operating voltage \( U_c = 280, 440, 500 \) or 660 V are intended for protection of low voltage power engineering equipment in AC networks with frequency from 48 to 62 Hz, against destructive effects of lightning and switching overvoltages. LOVOS can be connected to all kinds of overhead lines including overhead lines with conductors in insulation. It has indoor application as well.

DESIGN OF SURGE ARRESTERS

It is gapless surge arrester with metal-oxide block, having screw type line outlet and earthing outlet of flat fin version with a hole. ZnO block and outlets contact parts are encapsulated, without air-gap, in UV resistant polyamide housing.

The housing ensures ZnO block protection against weather conditions, proper contact force between ZnO block and its outlets and suitable level of insulation.

Surge arrester is designed in version with or without disconnecting device.

Surge arrester has a big variety of top (line) and bottom (earthing) accessories.

INSTALLATION OF SURGE ARRESTERS

After unpacking, one should check if technical data on the rating plate of surge arrester correspond to project’s specification and whether surge arrester is to be connected in between phase and earth or between phases.

The installation should be carried out with voltage switched off or under normal work of the network according to rules “Works under the voltage technology”.

WARNING! It is necessary to obey local regulations in this matter in a country, where surge arresters are installed.

Ms=10Nm

Top accessories (line) No cat.1701, 1702, 1703, 1704, 1705 and 1706

Bottom accessories (earthing) No cat. 2711 – 2719.

Ms=10Nm
The arrester with selected accessories should be installed possibly nearest to protected device, ensuring lowest earthing impedance $R_{\text{max}}=10\ \Omega$.

Top accessories are mounted on screw outlet of surge arrester. Accessories No cat. 1701, 1702, 1704 and 1706 are mounted by screwing directly on an outlet (without any additional coupling elements), accessory No cat. 1703 – using washer and nut (included in the kit), and No cat. 1705 after screwing the sleeve (included in the kit).

Bottom accessories (earthing) are mounted to the hole of the earthing outlet of surge arrester using the kit: bolt, washer and nut. Earthing conductors of surge arresters with disconnecting device should be shaped in a form of letter “U” – they should facilitate the operation of an arrester (throwing away the earthing outlet from the housing).

The arrester should be mounted in vertical position. If project requires other (than vertical) position it is not allowed to exceed 90° inclination angle of arrester to horizon. The manufacturer recommends not to exceed 45° inclination angle. It is indispensable to leave 10 cm free space around earthing outlet in all directions – see fig. 1 & 2.

![Figure 1. Normal condition](image1)

![Figure 2. Damaged arrester - activated disconnecting device](image2)

**MAINTENANCE**

Surge arresters LOVOS do not require special maintenance. It is recommended to check surge arresters visually after big storms with atmospheric discharges. The best way to do it is to use binoculars. Damaged surge arresters and these with engaged disconnecting devices should be replaced with new ones. Engaged disconnecting devices are visible - earthing outlet is outside the housing and it is marked with red colour.

**WARNING!** It is necessary to obey local regulations in this matter in a country where surge arresters are installed.

**RECYCLING**

During normal operating conditions (routine operation, overvoltage stresses) there are no risks for health and environment.

After a normal lifetime cycle the metallic components, the metal – oxide varistor, the other inorganic and organic materials may, of course, be recycled or disposed. Please refer to the corresponding EU Safety Data Sheet for the above mentioned material. We recommend that you contact either the authorities in charge or approved waste disposal companies who will advise you on how to dispose or recycle special waste.
Any hazardous substance that constitutes a risk to health or the environment have to be considered as "toxic and dangerous waste" in accordance with the EEC Directive and dealt with accordingly. The substances of the sintered metal – oxide varistors exist in an oxidized state. A leaching test according to EPA specifications (Federal Register / vol. 45, No 98 / Rules and regulation), has shown that the sintered bodies may be disposed of without violating the EEC Directive.

PACKING, TRANSPORT AND STORAGE

Surge arresters are packed in cardboard boxes (3 arresters in a box); accessories are packed separately in foil bags (3 pieces in a bag) and next – in a bulk package. The arresters do not require special transport conditions but they should be protected against rain. Neither storage requires special conditions (ensure protection against rain). Transport and storage issues to be considered: 1) exhaust gases emission during transport 2) cardboard boxes and foil bags recycling.

SPARE PARTS

Deliveries of spare parts and repairs of surge arresters are not foreseen.

CONFORMITY

Surge arresters type LOVOS conform to Polish standard PN-EN 61643-11 and to international standard IEC 61643-11 as well as to Amendment 2 to IEC 60099-4 in relevant range.

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