INSTRUCTION MANUAL

ST-E Earthing switch
24 kV

- Safety
- Reliability
- Flexibility
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Safety always comes first!

That’s why our instruction manual begins with these recommendations.

- Only install switchgear in enclosed rooms suitable for electrical equipment
- Ensure that installation, operation and maintenance are carried out by specialist electricians only
- Fully comply with the legally recognized standards, the connection conditions of the local electrical utility and the relevant safety at work regulations
- Observe the relevant information in the instruction manual for all actions involving switchgear

⚠️ Danger!

- Pay special attention to the hazard notes in the instruction manual marked with this warning symbol
- Make sure that the specified criteria are not exceeded under switchgear operation and maintenance
- Ensure the instruction manual is accessible to all personnel involved in installation, operation and maintenance
- The user’s personnel must act responsibly in all matters relating to safety at work and correct handling of the switchgear

If you have any further questions on this instruction manual, the members of our field organization will be pleased to provide the required information.
1 Summary

1.1 General
Earthing switches of series ST-E are determined for indoor installation and conform to the requirements of GB/T 1985 and IEC 62271-102. They are fitted with snap-action operating mechanisms for positive high-speed closing and sufficiently dimensioned to conduct the rated short-circuit making current when closed under load. This mechanism is capable of achieving up to 2,000 mechanical operations.

The earthing switches are supplied as kits with a pre-assembled active part and corresponding earthing contacts supplied loose. Correct installation of these parts in a switchgear panel results in a functioning earthing switch.

Routine tests to GB/T 1985 or IEC 62271-102 are to be carried out at assembling site accordingly.

2 Technical data

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3 Structure and function

Earthing switches of series ST-E have three pairs of earthing blades which are located on the operating shaft and are able to move freely. The pairs of earthing blades are electrically connected to each other by a short-circuiting bridge and to earth potential at the bearing brackets by two stranded copper conductors. Driver levers and toggle springs located between the bearing brackets are used to transmit the force during the switching process. Fixing the active part on a torsionally rigid switchgear panel wall or crossbeam provides it with the necessary stability.

The earthing contacts designed to suit the relevant switch type are to be bolted to the conductor bars supported on suitable insulating parts, e.g. pintype insulators, on the opposite side and parallel to each other, and the position adjusted until it conforms to that show in the dimensional drawings.

The earthing switch has a snap action closing mechanism which functions independently of the rotation of the drive shaft. The switching speed and torque achieved in this process are independent of the actions of the operating mechanism.

In the opening process, in contrast, the toggle springs have no effect on the speed of contact separation.

A ring lever or suitable manual or motorized operating mechanism with the necessary torque for the type of switch and an operating angle 90° can be fitted for operation of the switch.

Note:
Always open earthing switches by turning until the stop is reached.

The earthing switches can also be fitted with an auxiliary switch for indication purposes.
Figure 2: Example of an earthing switch mounted in a switchgear panel, shown in the closed position.

6 Earthing blade
7 Fixed earthing contact
4 Maintenance

Closing of the switch several times under load conditions (maximum two closing operations at 100 % of the rated short-circuit making current) makes inspection and possibly maintenance necessary. The electrical and mechanical functions of the switch must not be adversely affected, and only slight contact welding is permissible. The pairs of earthing blades and the earthing contacts should be replaced if necessary.

Otherwise, it is advisable to carry out inspection and maintenance of the earthing switches at appropriate intervals together with the switchgear, particularly in exceptional operating conditions and/or under adverse environmental influences such as pollution and aggressive air.

- Check whether the operating mechanism functions smoothly and easily
- Carry out general visual examination for the condition of mechanical fasteners, dirt, moisture and corrosion
- Remove any dust deposits on insulating parts with a dry, soft cloth (do not use cleaning wool)
- Regrease the mechanically movable parts and contacts (applying grease thinly) using Isoflex Topas NB 52 lubricant
5 Drawings