KPB Intra
Instrument Transformers

Instructions for Replacing the High-Voltage Fuse Cartridge in the External Horizontal Epoxy Fuse Holder KPB 25

1. General Requirements:

1.1. General requirements for the installation of the fuse holder

High-voltage fuses are electrical devices that may only be inspected and installed by qualified personnel meeting the requirements of the ČSN EN 50110-1 standard, as well as related and cited technical standards, local laws, decrees, internal company regulations, and directives, together with applicable safety rules.

If national legislation does not specify qualification requirements for personnel, the following safety criteria must be met to assess competency:

- Electrical engineering education;
- Experience in working with electrical equipment;
- Knowledge of the device on which the work will be performed, and practical experience with such work;
- Awareness of possible hazards that may occur during the work process;
- Ability to assess, under all circumstances, whether it is safe to continue the work.

Before starting any work activity, a complexity analysis must be performed to ensure that a suitable qualified, instructed, or informed person is assigned to perform the task.

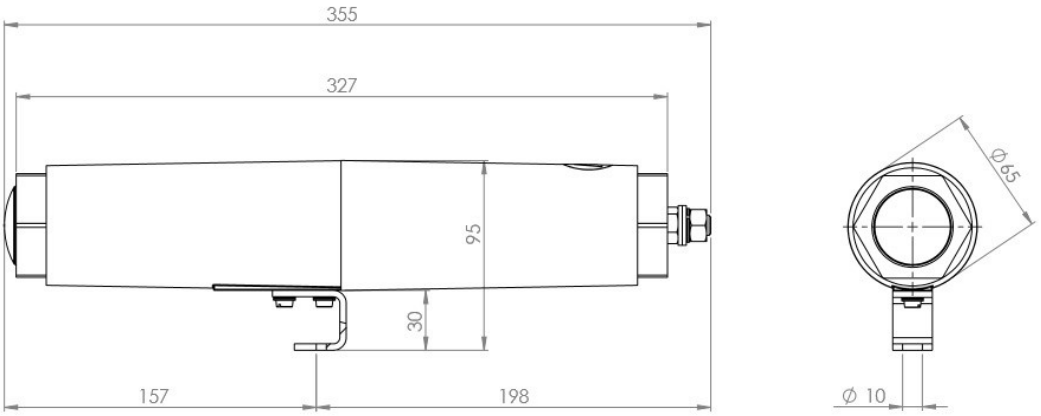
Before commencing any activity on electrical equipment, an electrical risk assessment must be conducted, and based on its outcome, the method of performing such activities and the necessary safety measures must be determined to ensure safety.

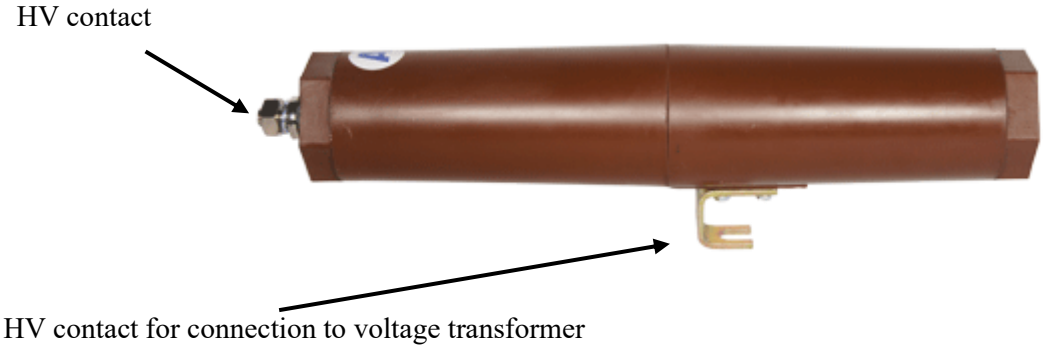
All tools, equipment, and instruments used for assembly, testing, operation, maintenance, and dismantling of high-voltage fuses must comply with the relevant international, European, or national standards, where applicable. The connections shown are manufacturer recommendations unless otherwise specified by a professional designer.

All activities related to replacing the fuse holder must not be performed by personnel under the influence of alcohol or other intoxicating substances. Responsibility for the safety of all persons involved in the work activity, and those who may be affected by it, must comply with national legislation.

Any handling, inspection, or other work involving high-voltage fuses must be carried out only on de-energized equipment or lines and in a workplace secured against electric shock hazards!

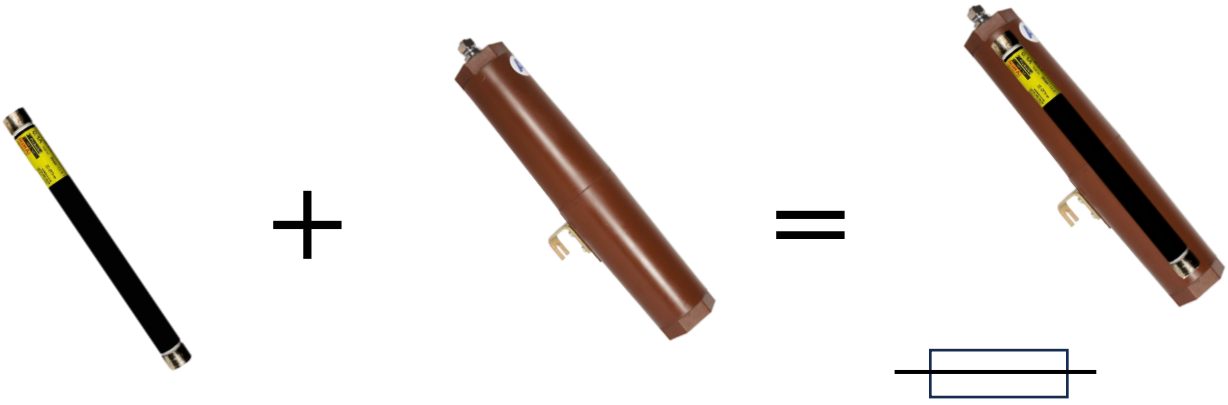
1.2. External horizontal epoxy fuse holder KPB 25





1.3. High voltage fuse

Fuse = fuse case + HV fuse holder



2. Installation and Assembly

2.1. Required Materials

Before replacing the fuse cartridge in the fuse holder, the following must be known:

- The type of fuse holder currently installed in the holder;
- The type of new fuse holder to be installed.

If the types are identical, no additional material is required.

If the fuse holder contains a different type of fuse cartridge than a SIBA fuse cartridge, it is necessary to order high-voltage contacts suitable for SIBA cartridges or to order a new fuse holder.

Figure 1: SIBA fuse

2.2. Starting the Replacement

Before any manipulation with the high-voltage fuse, ensure that the workplace is de-energized and properly secured against hazards.

Next, perform a visual inspection of the fuse and transformer connection. Clean the fuse and the voltage transformer to check for any visible damage (e.g., cracks of any type, burned or blackened areas caused by arcing).

Any mechanically or electrically damaged, corroded, or oxidized parts must be replaced with new ones before reactivation. If transformer damage is detected, it must be decommissioned and subjected to individual testing to verify further operational suitability.

2.3. Replacing the fuse link with disconnection of the HV fuse contact that is not connected to the PTN

Any manipulation, inspection, or similar activity involving high-voltage fuses must only be performed on de-energized equipment and at a secured workplace!

2.3.1. Disconnecting the HV part from the fuse

To disconnect the high-voltage part from the fuse, use appropriate tools (e.g., wrenches) to avoid damaging the fuse holder or voltage transformer.

Figure 2: Marking the location of the HV part disconnection

Figure 5: Loose parts after dismantling the MV connection

Keep or reattach all disassembled parts to the fuse holder.

2.3.2. Release of the fuse case tube

Loosen the fuse holder tube by holding the part marked with label "A" using the left hand and the lower part of the fuse holder with the right hand. Loosen the upper part counterclockwise until the removable portion of the fuse holder is unscrewed completely.

Figure 8: Procedure for removing the fuse insert (cartridge) from the fuse case

2.3.3. Removing the fuse cartridge from the fuse case

When the fuse holder is released, remove the upper part by a circular upward motion along the axis of the holder to prevent damage to the internal contact. Then remove the fuse cartridge from the lower part, maintaining alignment with the holder axis during extraction.

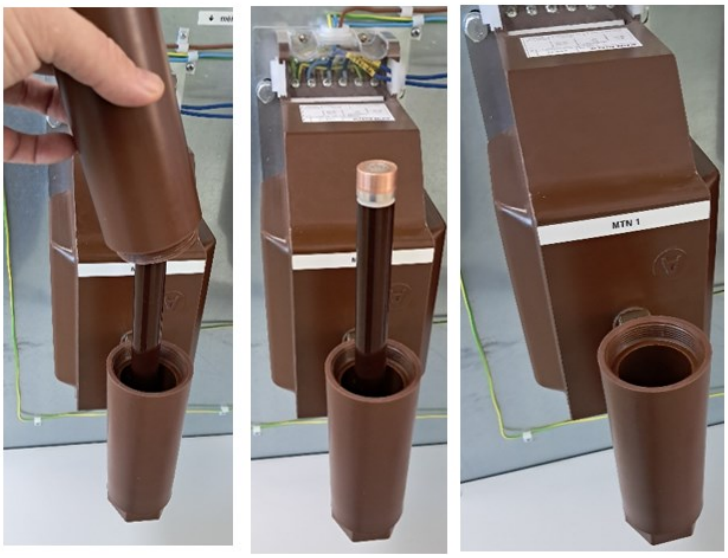


Figure 8: Procedure for removing a fuse from a fuse holder

2.3.4. Checking the internal parts of the fuse case

Once the fuse cartridge has been removed, dispose of the defective high-voltage fuse cartridge in accordance with applicable legal regulations.

Before proceeding further, inspect the internal parts of the fuse holder. Replace any oxidized, burned, or otherwise degraded parts before recommissioning. At this stage, continuity testing of individual parts of the fuse holder is recommended.

If changing the fuse cartridge type, replace the old (different diameter) fuse cap, which is screwed inside the holder, with a fuse cap suitable for SIBA-type cartridges.

2.3.5. Implementation of the fuse insert (cartridge) into the fuse case

Insert the new fuse cartridge into the part of the holder still mounted on the transformer, ensuring that the conductive end of the cartridge fits into the fuse cap. Insertion must be coaxial with the cap axis. Off-axis insertion may damage both the cap and the cartridge or the holder.

Then fit the removable part of the fuse holder onto the fuse cartridge and screw the holder together tightly.

This step should be verified by a continuity test between the high-voltage contact of the fuse holder and the terminal of the voltage transformer to which the fuse is connected.

2.3.6. Connecting the High-Voltage Side

This step is performed in the reverse order of disconnection. Tighten the high-voltage contact of the fuse holder using a torque wrench with a tightening torque of 10 Nm.

Finally, perform a visual inspection of the replaced part and the transformer to which the fuse is attached. Verify that the fuse does not make unintended contact with the transformer, that the primary terminal screw is properly tightened, and that the fuse holder is firmly fixed in place.

Referenced Documents:

ČSN EN 50110-1 ED. 3: Operation of Electrical Installations – Part 1: General Requirements. 2015.
ČSN 34 3278: Operation and Maintenance of Instrument Transformers. 1964.

This document serves as a manufacturer's recommendation for transformer maintenance. During installation, commissioning, operation, maintenance, and disposal, compliance with local legislative requirements and company procedures must always be ensured.