

# Universal Repair Kit

Quick Deploy Solution



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## Quick Deploy Solution for XLPE-insulated cables

Underground HV cable systems are installed in almost all supply areas. These cable systems often use different voltage levels, different cable types from different manufacturers and, over time, even different cable technologies.

As a result of greater capacity utilization, progressive aging, and especially higher levels of construction activity, there is an increasing likelihood of such lines failing or becoming damaged. At the same time, customer expectations are growing to ensure a 100% energy supply and to minimize downtimes in the event of a fault.

With these pressures, grid operators worldwide need to think about the probability of supply interruptions, repair options and downtimes. Besides the availability of maintenance personnel, the availability of replacement materials is becoming an ever more important factor. However this is made very difficult by the mix of technologies, voltage levels and manufacturers used in the field. It is almost impossible but also uneconomical to keep a stock of suitable spare materials for all cable sections.

### This is where the universal solution from PFISTERER comes in

- First of all, working closely with the cable network operator, an inventory of all relevant cable sections is drawn up. This includes a list of the cable types used and the cable data.
  - PFISTERER then defines a suitable CONNEX plug connector for each of these cable sections, which can be fitted to the corresponding cable in the event of damage. The big advantage here is that CONNEX plug connectors can be designed for almost all cable types and cable manufacturers found in the network.
  - A replacement cable is also defined, which can replace any of these cable sections in terms of load capacity and must be kept in stock. This cable is usually provided by the customer, but can also be selected and provided by PFISTERER if required.
  - If damage occurs, the affected cable section can be cut out and both ends can be fitted with the predefined CONNEX plug connector.
  - The missing section is bridged with the replacement cable, which also has a CONNEX plug connector fitted at both ends.
  - All that remains is to join the transition points with two pluggable CONNEX joints, and the repair is completed within a very short time.
  - This bridging can remain in the network permanently.
- The components used do not differ in terms of approval and reliability from the original components.



# Questionnaire for power supply companies

To make an initial assessment about using the PFISTERER Universal Repair Kit, the following information is required:

- Number of cable sections: Please create a list of the cable sections involved, following the example below. You will find a template on the next page.
- How many simultaneous repairs should the kit be designed for? A "1" means that one phase of one cable section can be repaired.
- In the simplest case, the Universal Repair Kit is designed to bridge cable damage in a plain section of the cable without joints or similar.
- If areas of joints with cross-bonding will also be bridged, please specify these areas in the list too.

In other cases, the shield conductor is connected straight through.

Note: At least 3 kits are required to bridge cross-bonding joints.

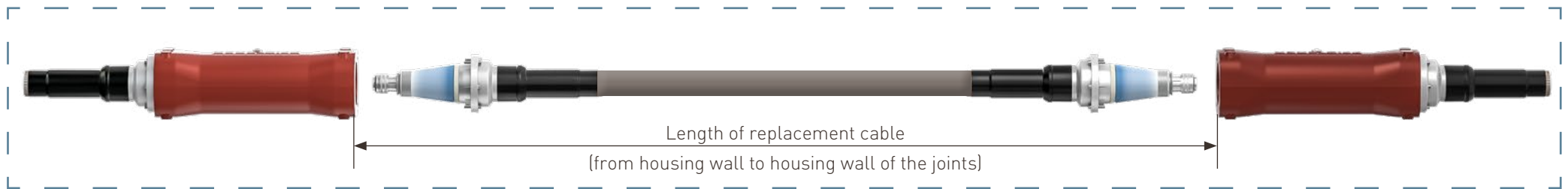
- If the cable section has an optical fiber conductor and if this is also to be repaired using the Universal Repair Kit, please specify this in the list too.

Note: In order to correctly select the components required to connect optical fiber conductors, precise information about the optical fibers is needed.

## Example of a project-specific cable list

| Nr. | Name of the line                     | $U_m$ [kV] | Cable type<br>(incl. conductor and shield cross-section) | Cable manufacturer | Year of manufacture (if known) | Length of replacement cable (5 - 20 m) | Joints | Cross-Bonding | Optical fiber |
|-----|--------------------------------------|------------|--|--------------------|--------------------------------|--|--------|---------------|---------------|
| 1   | Plant A – Substation B               | 123        | 1x2500 RMS/70  | Manufacturer A     | 1985                           | 10 m                                   | yes    | yes           | no            |
| 2   | Substation C – Substation D          | 123        | 1x1000 RM/50   | Manufacturer B     | 1995                           | 10 m                                   | yes    | no            | yes           |
| 3   | Substation E – Transformer Station F | 123        | 1x1000 RE/50   | Manufacturer C     | 2015                           | 10 m                                   | yes    | no            | yes           |
| 4   | etc.                                 |            |  |                    |                                |  |        |               |               |

Please fill in the list on the next page with your details, following the example above, and send it to your PFISTERER Sales Partner. They will then make an initial assessment with the engineering department and prepare an indicative offer. If you require further information or assistance, please contact your PFISTERER Sales Partner.



### A repair kit consists of:

- 2 CONNEX epoxy resin joints
- 4 CONNEX cable connectors
- A defined replacement cable
- Accessories

# Universal Repair Kit – Customer questionnaire

Note:

This questionnaire can be filled out interactively using a suitable PDF reader.

Alternatively, this information can be provided using a separate Excel form.

Customer name: \_\_\_\_\_

Contact person: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

Number of repair kits: \_\_\_\_\_

| Nr. | Name of the line | U <sub>m</sub> [kV] | Cable type<br>(incl. conductor and shield<br>cross-section) | Cable manufacturer | Year of manufac-<br>ture (if known) | Length of<br>replacement<br>cable (5 - 20 m) | Joints*                  | Cross-<br>Bonding*       | Optical<br>fiber*        |
|-----|------------------|---------------------|---|--------------------|-------------------------------------|--|--------------------------|--------------------------|--------------------------|
| 1   |                  |                     |   |                    |                                     |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2   |                  |                     |   |                    |                                     |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3   |                  |                     |   |                    |                                     |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4   |                  |                     |   |                    |                                     |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5   |                  |                     |   |                    |                                     |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6   |                  |                     |   |                    |                                     |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7   |                  |                     |   |                    |                                     |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8   |                  |                     |   |                    |                                     |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9   |                  |                     |   |                    |                                     |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10  |                  |                     |   |                    |                                     |  | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

\* Please mark with a cross if desired/present. Otherwise, please leave the box blank.