

## Schleswig-Holstein Netz AG deploys universal fault reserve system for 110 kV XLPE cables – the Universal Repair Kit from PFISTERER

**Winterbach, Germany – 24 March 2021 – The Universal Repair Kit from PFISTERER offers grid operators a universal solution for repairing damage to cable systems. It is suitable for all XLPE-insulated cables, regardless of the cross-section, structure or manufacturer. And it provides a permanent repair, not a temporary stopgap. The concept was developed and successfully implemented in close collaboration with Schleswig-Holstein Netz AG (SH Netz). Energy suppliers can now repair damage to cable systems within a very short time, even in historically evolved networks. At the same time, their need to stock reserve cables is reduced to a minimum.**

For energy suppliers like Schleswig-Holstein Netz AG, fault-free grid operation is essential for customer satisfaction and meeting grid availability requirements. But damage to conductors caused by construction work, ageing or water ingress can never be completely prevented. When it happens, the damaged cable system has to be replaced quickly. Yet preventive inventory holding for historically evolved networks is extremely cost-intensive, given the large number of installed cable types and cable cross-sections. Schleswig-Holstein Netz AG is the largest electricity network operator in the state of Schleswig-Holstein. As partner to some 900 municipalities, it is responsible for 2,600 km of 110 kV lines. Of this total, around 80 km is 110 kV XLPE cable, with 12 different cable types and cross-sections ranging from 240 to 2,500 mm<sup>2</sup>. Preparing for emergencies can seem a Herculean task. "We wanted to find a universally applicable fault reserve system for 110 kV cables that could cover all cable types in the network with just a few components," explains Torsten Kröger, head of operation and service for 110 kV overhead lines and cable networks at Schleswig-Holstein Netz AG. "And PFISTERER – the cable-independent manufacturer of the CONNEX cable connection system – was able to provide us with a rapidly deployable solution in a very short time. By minimising both downtime and storage needs, it cuts our costs as a grid operator."

### Replace – plug in – finished

The Universal Repair Kit from PFISTERER enables selective and fast repairs to damaged sections of installed cables. It features the PFISTERER universal pluggable inner cone cable connection system, comprising connection joints, cable plugs and pluggable terminations. These allow cables with different conductor shapes, materials and structures to be connected. From its existing range, PFISTERER also developed a universal epoxy resin joint suitable for underground use, for voltages up to 170 kV. In combination with just one defined reserve cable – for example the cable with the largest cross-section in the network – universal connecting cables can now be preassembled for faulty cable sections. Thanks to the CONNEX epoxy resin joint, the pluggable replacement part fits all 110 kV XLPE cable types in the network.

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With the PFISTERER Universal Repair Kit, SH Netz will now always replace faulty cable sections using universal reserve cables. These are simply connected using joints and pluggable connectors. The expense of holding stock is reduced to a minimum.



PFISTERER provided advance training to fitters at SH Netz in how to use the repair kit. As a result, the kit was deployed successfully first time, and future installations will be easier too.



### **Less stock, less outlay**

Consequently, Schleswig-Holstein Netz AG no longer needs to hold a stock of all cable types. At the same time, the separation of cable connectors into common parts and cable-specific parts also reduces costs. All parts are supplied in aluminium boxes to ensure lasting quality. They also keep parts organised to facilitate selection of the required components. "It really simplifies things and saves around three-quarters of the conventional costs," says Torsten Kröger of Schleswig-Holstein Netz AG. "Another key point is that the repair is a permanent solution and not a temporary stopgap that would have to be replaced again after a period of time, despite the high costs involved. It meets all our expectations."

"The kit also simplifies installation for the fitters, as only one universal system needs to be used. We provide our customers with additional support by training cable fitters to handle high-voltage cables, joints and connectors," states Paul Bausch, Sales Director North Germany at PFISTERER. As part of a training and certification course for fitters, three connecting cables were assembled. These are intended to save installation time when a fault occurs. And Schleswig-Holstein Netz AG soon carried out its first successful deployment of the Universal Repair Kit: a wind farm had a cable joint fault and the conventional joint was cut out. Two cable connectors were fitted to the cut cable ends and, using the prepared connecting cable and two epoxy resin joints, the cable section was quickly brought back into service. "The actual installation time of two days under Covid restrictions was a great achievement, since only half of the trained fitters could be on site at any one time," says Paul Bausch.

### **Equipped for all fault scenarios – including pluggable terminations**

With this solution, Schleswig-Holstein Netz AG is now equipped for all kinds of emergencies – from faulty cables to faulty joints to a faulty termination. Because here too, PFISTERER has developed a pluggable version. "Our pluggable termination is suitable both for rapid replacement in the event of a substation fault, and for preliminary testing of preassembled Universal Repair Kit connecting cables," Bausch concludes. Type testing for the kit has recently been successfully completed.

### **Ready-to-use: Quick Deploy Solutions**

The PFISTERER fittings are oil and gas-free and therefore ready to use immediately. The new Universal Repair Kit is part of a whole series of rapidly deployable solutions – the Quick Deploy Solutions – which PFISTERER provides to assist its customers with repair, installation, maintenance or overhaul activities. These include interim cable systems and a universal kit for bridging system components in substations, as well as pluggable connection solutions for easily transportable emergency transformers.

### **About PFISTERER**

PFISTERER is a leading independent manufacturer of cable fittings, insulators and overhead line accessories for sensitive interfaces in energy networks. The Group is headquartered in Winterbach, near Stuttgart in southern Germany. PFISTERER

develops, produces, and sells internationally successful solutions for voltage levels up to 1,100 kV. With its end-to-end range of products for application in energy networks, consulting, installation, and training, PFISTERER is a valued partner to companies specialising in power supply, plant construction, and electrified rail transport around the world. PFISTERER operates production plants in Europe, North America and South America, as well as sales offices in 18 countries across Europe, Asia, South America, and the USA. The Group employs around 2,100 people.