

PFISTERER develops the world's first universal pluggable repair solution for submarine cables up to 170 kV for TenneT

Winterbach, Germany – 26 September 2023 – TenneT, a transmission network operator, tasked PFISTERER with developing a universal repair joint for submarine cables. The one-size-fits-all solution is designed to fix cable faults quickly and efficiently with minimal inventory costs – whatever the cable type or manufacturer. This is the first time in the world that a solution of this scope will be realised. For the transmission network operator, it creates completely new opportunities for inventory management and submarine cable repairs.

TenneT operates more than thirty 155 kV and 220 kV AC submarine cable platform grid connections in the North Sea off the German and Dutch coasts which transport renewable energy from offshore wind farms to the mainland. Over the past 15 years, numerous different cable types with different conductor cross-sections and from various cable manufacturers have been used for the submarine cable connections. To enable repairs for any cable faults that may occur, spare cables, repair joints and spare parts specific to the cable used must be kept in stock for each specific connection. This requires a lot of storage space, and material handling is extremely complex and time-consuming.

Safety when damage occurs, with simplified inventory management

To minimise storage and material handling complexity, and at the same time be optimally equipped to execute a repair, TenneT approached PFISTERER to develop a universal repair joint. It allows different cables to be connected, regardless of the cable manufacturer, materials used and conductor cross-section. As a result, submarine cable faults can be repaired quickly and efficiently. "The universal design means we can use a single repair joint for all submarine cables with a minimal need for spare parts. This means that we can significantly improve our inventory management and are well prepared to deal with any damage that occurs," says Dirk Hansen, project manager for cable repairs at TenneT.

The universal submarine cable repair solution up to 170 kV from PFISTERER

The solution is based on the pluggable epoxy resin joint up to 170 kV from PFISTERER's Connex product family. This technology is already in use on many offshore wind and oil platforms as a connection between the platform cables and the export cable. It is also widely used onshore by energy suppliers as a universal cable repair system. Aside from its compact and robust design, it is particularly attractive because it is quick and easy to install. To date, PFISTERER is the only manufacturer of pluggable epoxy resin joints up to 170 kV. "We are a pioneer in developing the world's first repair concept for offshore AC submarine cable connections as a pluggable solution. Our epoxy resin joints are the key component. Thanks to their plug-in technology, they enable fast and efficient repairs to all different kinds of cables," explains Vukašin Basara, Senior Product Manager and project manager for this project. In addition to the development and production of

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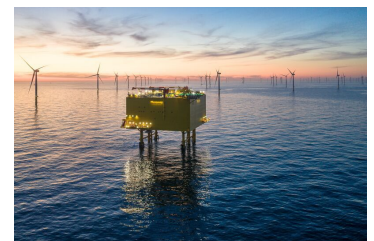
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With the world's first universal pluggable submarine cable solution up to 170 kV, transmission network operator TenneT optimises inventory management and material handling in the event of damage to submarine cable connections in offshore wind farms (photo: © TenneT TSO GmbH)

the repair joints, the contract scope includes type tests for mechanical and electrical product qualification.

“As a pioneer in the offshore market, with the Connex product portfolio we have demonstrated how quick and simple it is to connect offshore platforms using pluggable high voltage cable accessories. Our aim now is to use this concept specifically for subsea applications,” says Vukašin Basara about the project.

Universal submarine cable repair joint up to 245 kV

In addition to the solution up to 170 kV, PFISTERER is also developing a universal repair joint up to 245 kV for TenneT. The concept envisages using the same components as for the 170 kV solution as far as possible. Here too, the focus is on a central joint body for all cable types that can connect different conductor cross-sections and geometries. This project for the development and prototype construction is scheduled for completion by the end of 2024.

About PFISTERER

In 1921 Karl Pfisterer founded his factory for special electrical products in Stuttgart with the aim of improving the world of power transmission. The PFISTERER Group has pursued this goal of quality and technological leadership for more than 100 years. Today, PFISTERER is one of the world’s leading specialists and system suppliers for energy infrastructure with a complete range of cable accessories, overhead line technology and components along the entire energy transmission and distribution chain from power generation to consumption. With state-of-the-art manufacturing processes and 1,200 employees at 19 international locations, PFISTERER not only connects the power grids of today and tomorrow, but is also making an important contribution to a sustainable and secure energy infrastructure.

About TenneT

TenneT is a leading European grid operator. We are committed to providing a secure and reliable supply of electricity 24 hours a day, 365 days a year, while helping to drive the energy transition – for a more sustainable, reliable and affordable energy future. In our role as the first cross-border transmission system operator (TSO), we design, build and operate over 25,000 kilometres of high voltage and extra high voltage networks in the Netherlands and large parts of Germany. With our 17 interconnectors to neighbouring countries, we facilitate the European energy market. With a turnover of EUR 9.8 billion and a total asset value of EUR 41 billion, we are one of the largest investors in national and international onshore and offshore electricity grids. Every day, our 7,400 employees take ownership, show courage and make and maintain connections to ensure that the supply and demand of electricity is balanced for over 43 million people. **Lighting the way ahead together**



The one-fits-all submarine cable repair solution up to 170 kV is based on the pluggable Connex epoxy resin joint by PFISTERER. It enables completely different cables to be connected, regardless of characteristics such as the manufacturer, materials or cross-section.