

PFISTERER supports TenneT with direct current connection – DoIWin kappa offshore platform successfully installed

Winterbach, Germany – 11 November 2023 – Within TenneT’s DoIWin6 network connection project, the DoIWin kappa offshore platform was successfully installed off the coast of Lower Saxony. In future, it will transform the alternating current (AC) from three wind farms from 155 kV to 362 kV and subsequently to 320 kV direct current (DC) and then transmit it to land almost without losses. For this, the platform is the first to have gas-insulated switchgear (GIS). This was preceded by the successful high voltage testing of the HV installation by PFISTERER in Cádiz, Spain. The transmission network operator TenneT is once again using PFISTERER’s CONNEX inner cone high voltage fittings.

Overall, the DoIWin6 is TenneT’s 13th offshore grid connection in Germany. The transmission network operator is a leader in the offshore sector in the European Union. The new 900 MW connection will supply renewable wind power from the North Sea for, theoretically, over a million households and thus further strengthen supply security in Germany and Europe. PFISTERER has supported the project and SIEMENS Energy, the general contractor responsible for the construction of the platform, from the beginning with extensive engineering and planning services through to the supervision of the installation of the cables. Following this, PFISTERER took over the assembly of the high voltage fittings and the final high voltage testing of the entire HV cabling. Around 200 size 6 CONNEX connectors, epoxy resin joints and link boxes were installed by PFISTERER for power transmission that would be safe in the long term.

First gas insulated switchgear systems for DC transmission

The DoIWin kappa converter platform has two GIS systems for the first time – one for the alternating current (AC) side and one for the direct current (DC) submarine cable connection to the land. This offers considerable space advantages within the platform. For this, PFISTERER initially took over calculation of the current-carrying capacity and the power loading of various different cable connections – from the wind farm connection within the platform via the GIS at the 155 kV to the transformer and from there to the second GIS on the 362 kV DC side. In this way, PFISTERER was able to provide support with the design and selection of the internal cabling, and with the time-optimised planning of all the installation works. PFISTERER monitored and documented the cable installation in situ both in Cádiz and also offshore in the North Sea. After this, the PFISTERER team took over the coordination and execution of the fitting of the CONNEX HV plug connectors and epoxy resin joints. Based on existing project experience in the offshore platform segment, the work sequences for the cable laying were optimised and adapted to the challenges of the project. This allowed the team to deal with the complex logistics and tight project schedule. The building and equipping of the platform, which is around 36 m high and would cover eleven tennis courts, only took three years.

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DoIWin kappa under construction in Cádiz, Spain. For the first time, the converter platform has two GIS systems for AC and DC.



For power transmission that is safe in the long term, PFISTERER installed around 200 CONNEX inner cone connectors, epoxy resin joints and link boxes.



HV testing over night

After completion of all the onshore installations, a final high voltage testing ensured the integrity of the 155 kV and 362 kV voltage level systems. In order not to impede other work on the platform, these tests were carried out at night. To supply the test voltage, a mobile test trailer with PFISTERER bushing and gas-insulated elbow joint was connected to the platform via a test cable. The PFISTERER team also created a suitable connection in the platform's converter room for the 362 kV GIS. In addition, the joints and cables had to be moved several times to test all three phases. The platform was finally handed over in March 2022. In August 2022, it started its journey via Rotterdam to the North Sea, where it was installed 45 km off the coast.

Successful offshore cable connection on the high seas

To increase redundancy and network security, DoIWin kappa is connected at sea to its sister platform, DoIWin beta. As in the DoIWin gamma project, PFISTERER achieved this with a 155 kV Feltoflex bridge connection. For this, around 2 km of cable was pulled between the two platforms and connected with epoxy resin joints and CONNEX plug connectors. Alongside the installation work at sea, PFISTERER once again carried out the final testing of the HV cable connection.

For its offshore projects, Tenne has relied on PFISTERER's safe, reliable CONNEX HV fittings for a long time. They have been used, i.a., in the DoIWin alpha, DoIWin beta, DoIWin gamma and DoIWin epsilon network connections and offshore platforms and in several satellite platforms. Siemens Energy is the general contractor for the construction of the DoIWin kappa platform. The PFISTERER Group provided support with its local teams and branches in Spain, Germany and Switzerland.

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 transmission chain from power generation to consumption. With state-of-the-art manufacturing processes and 1,200 employees at 19 international locations and 5 plants, PFISTERER not only connects the power grids of today and tomorrow, but also makes an important contribution to a sustainable and secure energy infrastructure.