



Güntner FLAT Vario cool converter stations

The British-Dutch joint venture BritNed, which provides the infrastructure for swiftly transmitting electricity between the Dutch mainland and the United Kingdom, cools its converters in Maasvlakte, the Netherlands, with Güntner flat bed fluid coolers. Here, four Güntner GFH-type FLAT Vario fluid coolers with a total of 40 fans have, since 2011, been responsible for dissipating heat into the environment from the converter stations, which work in continuous operation. Recently retrofitted Ziehl-Abegg fans save 450,000 kWh a year compared to the previous models used and boast a particularly quiet operating mode.

The British-Dutch (50-50) joint venture BritNed, consisting of both transmission system operators National Grid plc. and TenneT TSO, operates a converter station in Maasvlakte in the Netherlands and a second one was constructed on the Isle of Grain in Kent. Both plants, which measure around 5 hectares each, were constructed “at the ends” of two parallel-running 256-km long submarine high-voltage direct current cables.

BritNed’s North Sea submarine cable connects the North European power grids with each other and softens any capacity fluctuations they may have. Increasingly irregular feed-in of photovoltaic and wind turbine power results in volatility across the entire power grid, and the power supply becomes increasingly prone to capacity fluctuations. However, the interconnection of power grids by BritNed enables electric power to be exchanged at international level and hence the irregular feed-in peaks caused by renewable power can be offset to a certain degree.

Swift direct current power superhighway

Inverters at these converter stations ensure in each case that high-voltage Direct Current is converted into Alternating Current and rectifiers convert Alternating Current into Direct Current for transmission on the seabed. The high-voltage direct current transmission system (also referred to as the “power superhighway”) is a more cost-effective way of transmitting electrical energy across long distances and suffers lower losses than the alternating current system. The capacity of the cables is 1,000 MW, and its bi-polar voltage is ± 450 kV DC.

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▲ The 40 fans on the Güntner GFH-type FLAT Vario flat bed coolers were replaced in two stages. Thanks to the easy-to-maintain design, on account of the modification the maintenance time of two weeks has also been reduced to one day meaning that only four days of maintenance are required each year instead of the previous 80.



▲ With the help of the new fans from Ziehl-Abegg, power consumption at the converter station in Maasvlakte has been reduced by 450,000 kWh a year and therefore the converter stations' carbon footprint has improved by 51 tonnes of CO₂ equivalent a year.

Güntner GFH-type FLAT Vario flat bed coolers

The inverters and rectifiers at the converter stations operate 24 hours a day, seven days a week. The conversion of high-voltage direct current into alternating current and vice versa produces heat which needs to be dissipated into the environment. In order to cool this process as energy-efficiently as possible, the Güntner GFH-type FLAT Vario flat bed coolers which have been in operation since 2011 were retrofitted in 2018 with new ZPlus fans from Ziehl-Abegg. The fans' EC motors are exceptionally energy-efficient and quiet.

With the help of these new fans, power consumption in Maasvlakte has been reduced by 450,000 kWh a year and therefore the converter stations' carbon footprint has improved by 510 tonnes of CO₂ equivalent a year.

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Overview

Business line:	Energy & Process Cooling
Branch:	Energy
Application:	Energy Conversion
Country/city:	Netherlands/Maasvlakte
Fluid:	Water/glycol mixture
Products:	Güntner GFH-type FLAT Vario