Offshore wind parks

Filtration for Cooling of the Converter Platform BorWin Beta

Customer:

Nordic Yards Warnemünde GmbH on behalf of the Siemens AG and TenneT TSO GmbH

Fig. 1: BorWin 2
(Source www.siemens.com)

Background:

The converter platform BorWin beta is located in the North Sea about 100 km from the coast. Its task is to feed the offshore generated electricity into the German power grid. The wind parks "Veja Mate", "Deutsche Bucht" and "Albatros" work together and generate a total power output of about 800 MW. The BorWin beta is the core piece of the *offshore* power generation and has the function of converting the power, generated by the connected wind parks, from alternating current (AC) into high voltage direct current (DC). This is then transferred with low losses to the mainland using high-voltage direct current (HVDC) transmission. The cooling of the converters and other systems on the platform is done using water from the North Sea. The plate heat exchangers used are the connection to the fresh cooling water system.

Fig. 2: Wind park BorWin beta
(Source: www.tennet.eu)

Description of the solution:

The BOLLFILTER automatic type 6.18 filters the used North Sea water with a fineness of 500 µm.

Applying this technical solution, the plate heat exchangers are protected against blockage and a decreasing heat transfer from soiling is prevented.
Since the platform operates without personnel and is controlled and checked from land, a 100% redundancy is required. Only in this way, a fault-free cooling of the converter is ensured, even in extreme weather conditions.
BOLLFILTERs are used in this application on the following platforms:
BorWin 3, HelWin 2, DolWin 4, SylWin 1, BorkumWest 2 (all North Sea), Baltic 2 (Baltic Sea)

Fig. 3: BOLLFILTER type 6.18 DN500

Advantages and added value for customers:

The filters have been in use since their installation in 2014 and the start of regular operation in 2015. Since this commissioning, the filter systems have been working flawlessly, protecting the plate heat exchangers from blockage and thereby contributing to a smooth operation of the North Sea platform.

System in application:

Filter :	6.18 GR 400 DN 500 (2 pieces)
Housing:	C-steel, rubber-lined inside
Internal parts:	SuperDuplex
Filter fineness:	500 µm
Capacity:	1,300 m³/h (per filter unit)

BOLLFILTER Protection Systems

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