

PRESS RELEASE

## **b.offshore carries out Door Fan Test for TenneT's offshore converter station**

**Bremerhaven/Germany, July 13, 2018 – Room air-tightness tests for extinguishing gas systems (also known as Door Fan Tests\*) have been routine practice in the area of building engineering for a long time. b.offshore GmbH has now carried out such a test for the first time for approximately twenty rooms of an offshore converter station in the North Sea belonging to TenneT.**

As is the case with many safety-relevant buildings that are equipped with extinguishing gas systems, proof of extinguishing gas retention time is also required. Whether in a museum, server room or military facility, the room air-tightness test – or Door Fan Test – is often carried out to check rooms for their air-tightness, thereby ensuring the safe use of the extinguishing gas system in an emergency.

Gas extinguishing systems can only extinguish fires quickly and reliably if the required concentration of the extinguishing gas can be maintained for at least ten minutes. This inspection must therefore be carried out regularly over the entire life cycle of an offshore converter station to ensure that any leaks are detected and sealed in good time. Once they have been located, leaks can usually be sealed quickly and easily.

The offshore converter stations in the North Sea are large-scale structures with highly complex equipment. They convert the three-phase current generated by the wind turbines into direct current so that it can be efficiently transmitted ashore.

One clear advantage of a Door Fan Test is the minimal impact it has on normal operations at the station, unlike the alternative test method of flooding the rooms with extinguishing gas. The high costs associated with using extinguishing gas are also avoided. The objective of the Door Fan Test is to prove that extinguishing gas systems function safely in the event of a fire.

"The positive test results that we achieved at HelWin beta are a very satisfactory outcome for our first Door Fan Test at an offshore converter station belonging to TenneT. We are confident that our process will enable us to test the functionality of extinguishing gas devices on offshore converter stations quickly, efficiently and with the lowest possible disturbance of work processes on site," said Thomas Pontow, Managing Director of b.offshore GmbH.

*Steel construction, mechanical and electrical engineering for the entire offshore wind farm, starting with the planning, throughout the operational phase and up to periodic inspections in accordance with the BSH standard, reliably from a single source: **b.offshore GmbH!***

*The North German engineering office has extensive offshore experience as well as all necessary offshore certificates in accordance with the GWO standard. **b.offshore** has been active in all areas of the offshore wind industry since 2016. As general contractor, or commissioned for individual work-/service packages, **b.offshore** develops competent solutions for each project phase, realised according to the customer requirements.*

*The **b.offshore team** has more than 12 years of experience in the offshore wind industry and applies its expertise to all new projects. Compliance with occupational safety, health management and environmental protection management are all standard practice for **b.offshore**. [www.boffshore.de](http://www.boffshore.de)*

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**\* Door Fan Test in three phases:**

1. In the first phase, a constant negative pressure is generated and maintained. During this phase, the room enclosure surface is searched for leaks that allow unwanted air to flow in. Large leaks can be felt by hand, but detecting smaller leaks requires the use of an air velocity meter (thermal anemometer).
2. In the second phase, negative pressure is built up and gradually increased. The corresponding air volume flow rate is measured and recorded in relation to the room pressure for each increment.
3. In the third phase, overpressure is generated and the measurement is repeated using the same methods as the negative pressure measurement.

The test is performed by installing a fan in a room opening and ensuring that it has an airtight seal, in this case in a door (see Figure 1 'measuring setup'). The fan generates positive or negative pressure of up to 60 Pascal relative to the ambient pressure in each room in increments of ten Pascal, and this is recorded in a measurement curve. The total leakage of the room and the retention time that needs to be achieved can be calculated based on the measurement results.

The Door Fan Test is a combination of measurements and theoretical models. The measurement is carried out using a Door Fan Test. The results of the measurements are subsequently evaluated and interpreted on the basis of air conditioning and ventilation technology.

**Pictures:**



**Measuring setup – Here is where b.offshore contributes their previous experience and the right equipment. Figure 1 Copyright: b.offshore GmbH**

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**Figure 2 - Extinguishing systems must function correctly to provide optimum protection against fires! – Structures located in the North Sea are no exception. HelWin beta Copyright TenneT**

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