FOUNDATION STRUCTURE OF AN OFFSHORE PLANT, IN PARTICULAR AN OFFSHORE WIND TURBINE, WHICH FOUNDATION STRUCTURE IS TO BE INSTALLED AT A LOW NOISE LEVEL, AND INSTALLATION METHOD THEREFOR

Description

Foundation structure, which can be installed with a low level of noise, for an offshore plant, in particular an offshore wind energy plant, and assembly method therefor.

The present invention relates to a foundation structure for an offshore plant, in particular an offshore wind energy plant, having at least one foundation element which can be anchored to the sea floor, precluding a gravity foundation and precluding a floating foundation, and a support structure which can be attached thereto to fix the offshore plant. The invention also relates to a method for assembling this foundation structure on a sea floor.

In the context of the present invention, the term 'offshore plants' encompass offshore platforms and offshore wind energy plants. Offshore platforms also include so called drilling islands. Generally known foundations for offshore plants, in particular offshore wind energy plants (OWEPs), can be divided into two construction areas. The first construction area is a support structure which is highly subject to fatigue and which begins on the sea floor and has its end reaching the tower of the OWEP at a flange connection. The flange connection supports the tower and a turbine of the OWEP and dissipates the loads and effects produced thereby. The second construction area is a foundation element which receives the loads arising from the support structure, the tower and the wind turbine, dissipates them into the floor and is located in the sea floor below the support structure. The OWEP as a whole therefore consists of the foundation with the foundation element and the support structure and the tower and the turbine.

In order to provide a foundation for an OWEP in the sea floor the use of so-called piles as foundation elements is known from DE 20 2010 010 094 U1, these foundation elements having a diameter of about 1.5m to about 6 m depending on the construction. The number of piles used is dependent on the support structure concerned. According to the current state of the art, various steel constructions are known as support structures, being provided with a foundation of piles: monopile, jacket, tripile and tripod.

A jacket support structure known from EP 2 067 913 A2 is attached to the sea floor by