

Thornton Bank Offshore Wind Farm Grouting 49 jackets for the first offshore wind farm in the Belgian North Sea



Thornton Bank Offshore Wind Farm has a total capacity of 326MW and is installed 30 km off the Belgian coast. The turbine foundations sit in water depths ranging from 12 to 27 metres.

The wind farm was installed in three phases: phase one (the pilot phase) has six 5MW turbines on concrete gravity-based structures and phases two and three (the industrial phases) used 48 steel jackets with 6.15MW turbines. FoundOcean was contracted to grout the jacket foundations for phases two and three.

The 49 four-legged Quattropod® foundations were designed by OWEC Tower. They were secured to the seabed by grouting the annuli between the stab-in legs and pre-driven piles.

Each leg was equipped with a primary and secondary grout line terminating on the mid-section deck for ease of access, and connection of the grout hose. A tertiary grout line was provided as a backup connection in the event that contingency grouting was necessary. This was fitted with a FoundOcean ROV male subsea grout connector terminating above the pile stopper.

3,826t of cement was used during the course of the project, and approximately 3,000 grout cubes, each weighing 850g, were manufactured to carry out characteristic strength tests at 24 hours, 3 days and 28 days.



Laying out grout hoses on deck before grouting commences

PROJECT FACTS

Industry	Offshore Wind
Region	Belgian North Sea
Services	Pre-driven pile grouting
Project year	2010
Operator	C-Power
Contractor	GeoSea
Water depth	15 - 21 m
Cement type	OPC CEM I 52.5N
Total cement	3,826 tonnes
Mixer type	Recirculating Jet Mixer
Grout specification	60 MPa
Mixing rate	25m ³ /hr

TYPICAL RJM DECK PLAN

