

Energy Park Fife

Grouting the Samsung 7MW Offshore Turbine

The world's largest turbine



FoundOcean secured the 500 tonne, four-legged steel jacket foundation for Samsung's 7MW offshore turbine, the world's largest turbine, in 2013. Each blade measures over 80m, longer than the wingspan of an Airbus A380, making them the longest ever installed to date.

The steel jacket structure was secured to the seabed using a technique known as rock socket grouting. Piles were inserted into 30m deep pre-drilled rock sockets, FoundOcean then deployed its Super Pan Mixer, which is proven to double current grout output rates when compared with other high strength grout mixers on the market. A pump delivered Masterflow® 9500 Exagrout down a flexible hose and injected it into the annulus. Grouting continued until good quality grout returns were observed from each rock socket.

The second stage involved grouting the annuli between the jackets stab in legs and piles, forming the connection. The grout was again, pumped down a flexible high pressure grout hose into the annuli via the primary inlet. Grouting continued until good quality grout returns were observed overflowing from the top of the pile. All grout mixing took place onshore with grout pumped directly to the jacket, 35m offshore.

The 187m tall turbine is connected to shore via a Walkway to enable visitors to get up close to the structure, which was also grouted by FoundOcean. In total 909 tonnes of Masterflow® 9500 Exagrout was delivered to the foundations.



The Samsung 7MW turbine jacket installed at Energy Park Fife

PROJECT FACTS

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|------------------------|----------------------------|
| Industry | Offshore Wind |
| Region | Europe |
| Services | Pile grouting |
| Project year | 2013 |
| Operator | Samsung Heavy Industries |
| Contractor | Graham Construction |
| Water depth | 30 m |
| Material type | BASF Masterflow® 9500 |
| Total material | 909 tonnes |
| Mixer type | Super Pan Mixer |
| Material specification | 130 MPa |
| Mixing rate | Up to 12m ³ /hr |

TYPICAL PAN MIXER DECK PLAN

