



TPC Changhua Offshore Wind Farm in Taiwan uses Densit[®] Ducorit[®] S5R

The offshore wind farm in Changhua County is a 109.2 MW project, approximately 10km off the coast of Fangyuan, that encounters the highest wind power in all of Taiwan. Ducorit S5R was chosen because of its high strength, helping to protect the turbines from the frequent typhoons the area is known for experiencing.

Ducorit S5R is a pumpable, DNV-GL certified Ultra-High Performance Cementitious (UHPC) material especially developed for grouted structural connections. The extremely high strength and outstanding fatigue properties made it an excellent solution for this project.

The long-term stability and sustainability of the featured 21 Hitachi 5.2 MW turbines, each (four legged) jacket connecting to the turbine, relies on the Ducorit S5R as part of the total system. The Ducorit S5R system was critical to connect all 21 jackets with approximately 1,100 metric tonnes for the site.



The installation period started August 6, 2020 extending through September 18, 2020.



ITW Performance Polymers offered the turnkey solution, handling all logistics including the loading of containers directly from the factory onshore, managing delivery (including freight on board delivery terms) of the Ducorit S5R. Additionally, offshore and onshore workforce to truck transport and crane assistance, warehouse handling, Customs, recycling and EQ services through office crew and logistics at the Taichung port were managed by the same team.

The extensive offshore experience enabled the Densit supervisory team to avoid a more time-consuming jack-up method by working directly from a DP2 vessel. Planning procedures were easier and there was increased flexibility in installation throughput using the floating vessel.

The team maintained a high pumping rate to successfully complete the grouting through a 24/7 operation schedule. The average mixing and pumping rate was around 40 T/H (tons per hour). The high pumping volume ensured maximum installation speed was achieved; two jackets at a time were able to be grouted within a 24 hour time span.

Ducorit S5R grout is approved for installations up to 40 °C, which makes it ideal for grouting in warm climates. Changhua's hot ambient temperature ranged from 27-38°C. The third party testing was done in Japan for unbiased and subjective results. This offshore project will improve Taiwan's power generation capacity and increase the usage of renewable energy.



For information about Densit offshore or onshore grouting solutions, please **contact us at mail@itwpp.com**