QD-F120

Offshore Wind Grouting Material

ultra-high performance · fatigue-resistant · marine-grade

1 · Product Introduction

Offshore Wind Grout – a specialized, ultra-high-performance cementitious composite material designed for the construction of offshore wind farms. It is primarily used to fill the annular gap (grout sleeve connection) between the wind turbine foundation (such as monopiles, jackets, or suction buckets) and the transition piece or tower.

Because offshore wind turbines operate in extreme maritime environments—facing continuous wave actions, tidal forces, high salt spray—the grout must deliver exceptional durability, high early strength, and outstanding fatigue resistance to ensure long-term service life under dynamic loading.

2 · Key Features

① High fluidity, non-segregating, and non-bleeding;

② High early strength, ultra-high ultimate strength, and excellent fatigue resistance;

③ Ultra-high elastic modulus, resulting in superior hardened-state performance;

④ Contains built-in pump-lubricating components to prevent pump clogging and reduce wear;

⑤ Rapid strength gain under low-temperature conditions, shortening installation time and reducing installation costs;

⑥ Enables the quick removal of temporary supports, allowing equipment to be put into operation as soon as possible.

3 · Technical Performance

Test Items	Performance Specifications
Flow / mm (Initial)	**≥ 300**
Flow / mm (30 min)	**≥ 260**
Flow / mm (60 min)	**≥ 230**

Test Items	Performance Specifications
Compressive Strength / MPa (1d)	**≥ 50**
Compressive Strength / MPa (3d)	**≥ 80**
Compressive Strength / MPa (28d)	**≥ 120**
Flexural Strength (MPa) 28d	**≥ 18**
Vertical Expansion Rate (%) 3h	**0.02 – 2.0**
Vertical Expansion Rate (%) 24h-3h diff	**0.02 – 0.40**
Static Compressive Elastic Modulus (GPa) 1d	**≥ 12**
Static Compressive Elastic Modulus (GPa) 28d	**≥ 45**
Chloride Ion Content (%)	**≤ 0.03**
Bleeding Rate (%)	**0**

4 · Scope of Application

- Grouting for Monopile Transition Pieces of Offshore Wind Turbines;
- Grouting for Jacket Foundations of Offshore Wind Turbine Substations;
- Annular gap filling in grout-sleeve connections for offshore structures.

5 · Usage Instructions (Offshore Grouting Procedure)

1. After driving the tubular piles and installing the jacket structure offshore, the jacket's leg columns are sleeved over the tubular piles, thereby creating an annular space between the leg columns and the piles;
2. The bottom of the aforementioned annular space is sealed, and a grouting pipeline connecting to this space is installed;
3. Grout slurry is then pumped through the grouting pipeline to fill the annular space;
4. Once the annular space is completely filled with grout, the assembly is left to rest for a period of time to undergo pressure grouting;
5. Following the pressure grouting phase, the grouting process is concluded, and the structure undergoes curing.

MIXING Use forced-action mixer, add clean water and mix 4-5 minutes until uniform. Do not add any cement, sand or other additives.

6 · Packaging & Storage

- **Packaging:** moisture-proof composite bags, available in 25 kg or 50 kg units.
- **Storage:** store in a dry, well-ventilated area, raised off the ground on pallets, covered with plastic sheeting to prevent direct sunlight or rain.
- **Shelf life:** 3 months; products exceeding this period must be re-tested and verified compliant before use.

Hubei Qiandao New Materials Co., Ltd. · Technical Data Sheet · QD-F120 (v2.0)

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