Onshore Wind Foundation Grouting Solutions

Onshore wind turbine foundations must withstand intense dynamic loads and harsh environmental conditions without cracking. The grout used at the base of a wind turbine plays a critical role in transferring loads from the tower to the concrete foundation. High-performance grouting materials provide the ultra-high compressive strength and shrinkage compensation needed to maintain a solid, long-lasting connection between the turbine tower and its foundation. They also offer excellent fatigue resistance to endure constant vibration and cyclic loading over the turbine's service life.

In addition to strength and durability, wind foundation grouts are designed for practical workability on site. They are highly flowable for efficient pouring or pumping, allowing complete filling of base plate cavities and anchor bolt sleeves without voids. Formulations with extended work time and cold-weather curing capability ensure reliable installation in various climates, enabling year-round construction. Specialized onshore wind grouts secure turbine bases, ensuring strength, precision, and longevity.

Kuaizhuang Assembled Grout for Wind Power

Kuaizhuang Assembled Grout for Wind Power is a fast-assembly grout designed specifically for precast wind turbine tower bases, enabling rapid installation with durable bonding between segments. It quickly develops high early strength, allowing large precast concrete tower sections to be joined and secured in a short time frame. This accelerated strength gain allows subsequent tower construction or tensioning steps to proceed sooner than with conventional grouting materials, significantly speeding up installation.

Despite its rapid set and early strength, Kuaizhuang Assembled Grout does not sacrifice long-term performance. It achieves a high final compressive strength and forms a solid, monolithic connection that behaves like continuous concrete under operational loads. The grout's formulation is non-shrink (using micro-expansive additives), ensuring tight contact with no gaps between precast elements. Its high flowability also enables full filling of narrow joints, creating a dense, void-free interface that withstands turbine vibrations and temperature fluctuations.

CBGM Onshore High-Strength Non-Shrink Grout

CBGM Onshore High-Strength Non-Shrink Grout is a pumpable, high-flow cementitious grout developed for wind turbine base plates and anchor bolt grouting. It achieves ultra-high compressive strength (80–130 MPa range) and early strength gain, supporting rapid construction. The grout's controlled micro-expansion eliminates shrinkage gaps, maintaining continuous contact with steel baseplates and concrete foundations to ensure efficient load transfer and structural stability.

CBGM grout offers long-term durability, high fatigue resistance, and zero bleeding or segregation during placement. Once cured, it provides a tough, crack-resistant layer capable of absorbing cyclic turbine loads over millions of cycles. The formulation is chloride-free, non-metallic, and resistant to frost and thermal variation, making it ideal for harsh climates. CBGM grout ensures reliable tower anchorage that meets international ISO and ASTM performance standards for precision grouting.

By employing these advanced grouting solutions, wind farm engineers achieve stronger, more durable onshore foundations that maintain integrity under long-term fatigue loading and environmental exposure. ZRETE’s high-performance cementitious grouts – Kuaizhuang Assembled Grout and CBGM Non-Shrink Grout – offer rapid construction, superior stability, and guaranteed foundation performance for decades.