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Installation of the prototype offshore wind energy plant Alstom Haliade 150-6 MW

In March 2012, the French technology group Alstom installed the world's largest wind turbine in Carnet near Saint-Nazaire, not far from the Loire estuary at the French Atlantic coast.

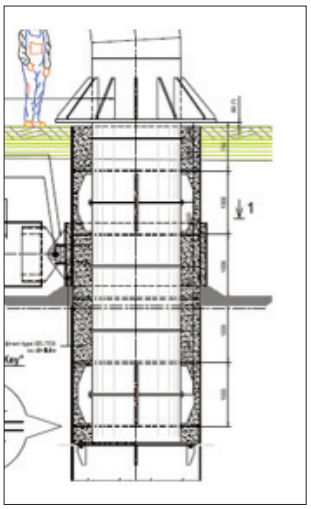
Alstom Haliade 150-6 MW

The prototype plant with 6 MW has a rotor diameter of 150 m on a tower with a height of 100 m.
The rotor of the plant with the name Haliade 150-6-MW scans an area of 17,670 m² and exceeds by this the two previously largest wind turbines worldwide by Gamesa and Enercon.
The tower consists of a lattice mast (jacket) with a height of 25 m and a steel tube with a height of 75 m.
The total weight is 1,500 tons.

Lattice mast (jacket)

The location Carnet was chosen on the basis of its soil geological conditions, as these are very much similar to those of the seabed on which the plants shall be built at a later date.

The lattice mast (jacket) was placed on steel pipes, that were previously rammed into the ground up to a depth of 30 m.



Sketch: Foundation of the tower lattice

To absorb the tremendous forces, that exert their influence on the construction of the plant as a whole, the remaining annular gaps between the steel pipe and the lattice tower step have to be grouted with a super high strength grout/grouting mortar.

The super high strength grouts by an American group, the construction chemistry division of the largest German chemical group and the **PAGEL SPEZIAL-BETON** were offered.

Although our competitors offered dramatic price reductions for their products in the course of the negotiations, by the end of 2011, we were able to convince the project managers at Alstom of the efficiency of our **PAGEL V1/60 HF** and of our processing concept, which was developed in co-operation with our partner, the company Baumaschinen Beckschulte from Siegburg, Germany.

Technical Data PAGEL V1/60 HF		
Fresh mortar raw density	2,450	Kg/m²
Slump flow after 5 / 30 minutes	> 60 / > 52	cm
Compressive strength after 24h / 7 / 28 / 91 d	> 70 / > 90 / > 115 / > 120	N/mm²

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In February 2012 we and Baumaschinen Beckschulte were jointly commissioned to deliver 80 tons of **PAGEL V1/60 HF** super high strength grout in big bags and to pour them.

In March 2012, the pouring of the 80 tons of **PAGEL V1/60 HF** took place on time within 2 days.
The pouring rate was 6-8 t/h (3-4 m³/h).

As a result of the successful grouting works we have been signalled by Alstom that the jackets of the additional prototype in the North Sea off the Belgian coast planned in spring 2013 shall also be grouted with **PAGEL V1/60 HF**.

Hans-Ferdinand Flottmeier
Geschäftsführer (Managing Director)
PAGEL Spezial-Beton GmbH & Co. KG

Filling of
PABEC II mixing and delivery pump


Slump flow of the PAGEL V1/60 HF


Grouting of the annular gap (grouted joint) with PAGEL V1/60 HF super high strength grout

REFERENCES REFERENCES REFERENCES REFERENCES

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