

## V1<sup>®</sup>/30HF PAGEL<sup>®</sup> Ultra High Performance Concrete Offshore Wind Foundations

V1<sup>®</sup>/30HF PAGEL<sup>®</sup> Ultra High Performance Concrete is used in wind turbines, in oil and gas systems, both onshore and offshore.

A very fast strength development in connection with a very high final strength and high modulus of elasticity characterizes our high-strength concrete line and ensures a secure concrete connection for offshore support structures.

### TEST CERTIFICATES AND SUPPORTING DOCUMENTS

- › DNV certified according to DNV-OS-C502, DNV-TAC certifying process ongoing
- › Certificate of conformity according to DAfStb guideline (VeBMR) " Production and use of cement-bound grouting concrete and grouting mortar" (QDB)
- › High resistance to fatigue stress tested according to offshore standard DNV-OS-C502 - tested at +0.5 °C, +20 °C and +35 °C
- › Confirmation of the voluntary external monitoring by the QDB
- › In-house production control in accordance with DIN EN 1504-6
- › Company certification acc. to DIN EN ISO 9001:2015

### PROPERTIES

- › Very high early and final strength
- › High fatigue resistance
- › Resistant to sedimentation
- › Pumpable over long distances
- › Long processing time
- › Controlled sources

TYPE		V1/30HF	
Grain size	mm	0-3	
Undergrouting height	mm	30-75 (300)**	
Water quantity	%	max.	8-9
Consumption (dry mortar) appr.	kg/m <sup>3</sup>	2,300	
Fresh mortar raw density appr.	kg/m <sup>3</sup>	2,450	
Processing time appr. 20 °C	min	60	
Slump	5 min	mm	≥ 550
	30 min	mm	≥ 450
Swelling	24 h	Vol.-%	≥ 0.1
Compressive strength*	24 h	N/mm <sup>2</sup>	≥ 70
	7 d	N/mm <sup>2</sup>	≥ 90
	28 d	N/mm <sup>2</sup>	≥ 120
	56 d	N/mm <sup>2</sup>	≥ 135
	91 d	N/mm <sup>2</sup>	≥ 135
E-modul (static)	28 d	N/mm <sup>2</sup>	≥ 40,000

\* DIN EN 196-1-compliant mortar compressive strength testing  
DIN EN 12390-3-compliant concrete compressive strength testing

\*\* according to E DIN 18088-5:2017-12



The information provided in this leaflet, application instructions and other recommendations are based on extensive research and experience. They are, however, not binding, in particular with regard to third party proprietary rights, and do not relieve the customer of his responsibility to verify that the products and processes are suitable for the intended application. The indicated test data are mean values and average analyses. Deviations are possible when delivery takes place. Recommendations that differ from those provided in this leaflet require written confirmation. Planners and operators are responsible for ensuring that this leaflet is the latest edition and for obtaining information on the latest technological developments. Our customer service staff will be happy to answer your questions at any time. Many thanks for your interest in our products. This technical data sheet supersedes all previously issued product information. Please visit our website for the latest valid version of this brochure at [www.pagel.com](http://www.pagel.com).

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