

# SUPER HIGH STRENGTH GROUT C100/115

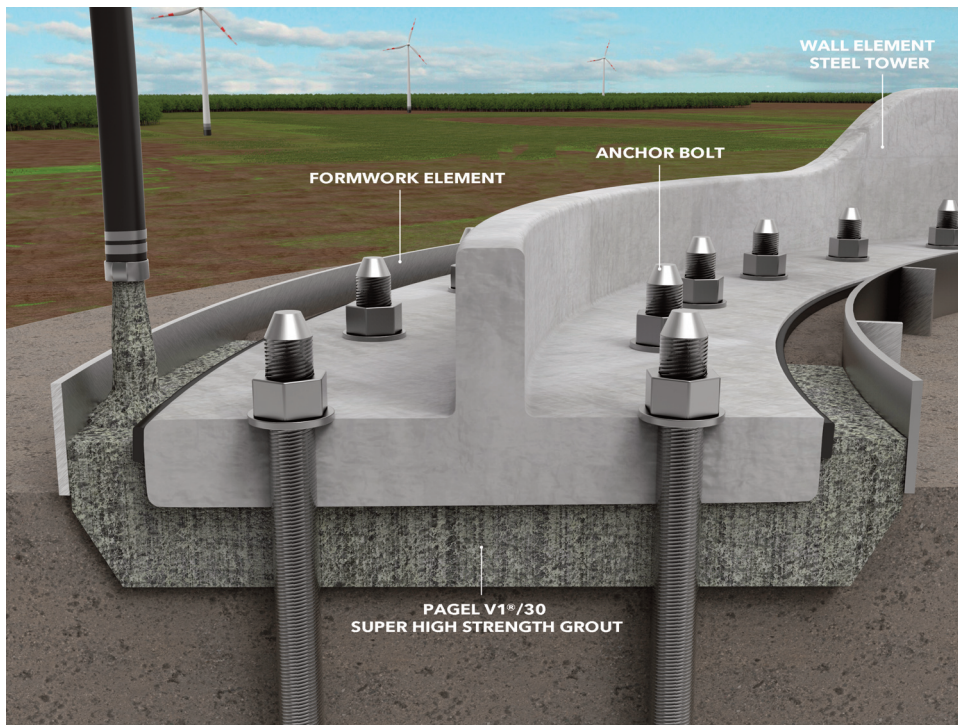
V1<sup>®</sup>/30HF SUPER HIGH STRENGTH GROUT  
V1<sup>®</sup>/60HF SUPER HIGH STRENGTH GROUT  
V1<sup>®</sup>/0HF SUPER HIGH STRENGTH GROUT

## TEST CERTIFICATES AND SUPPORTING DOCUMENTS

- › Certificate of conformity DAfStb Directive (VeBMR) „Herstellung und Verwendung von zementgebundenem Vergussbeton und Vergussmörtel“ (Manufacture and use of cementitious concrete grout and grout) (QDB)
- › High frost-deicing salt resistance - Verification by CDF procedure
- › High resistance against fatigue loading
- › Long processing time
- › Factory production control acc. to DIN EN 1504-6
- › Company certification acc. to DIN EN ISO 9001:2015

## APPLICATION EXAMPLE

Grouting of a steel tower segment of a wind turbine (WTG) with **V1<sup>®</sup>/30HF** high-strength grout



**PROPERTIES**

- › High strength after 24 h
- › High fatigue resistance
- › Sedimentation stability
- › Pumpable
- › Long processing time
- › Controlled swelling
- › High frost and frost-deicing salt resistance
- › Building material class A1 acc. to decision 2000/605/EC of the European Commission dated September 26, 2000 (published in the official journal L258)

**AREAS OF APPLICATION**

- › Onshore grouting: Hybrid tower, steel, reinforced concrete, and prestressed concrete towers
- › Portal and container railway systems
- › **V1®/0HF**: Forerun mixture for the lubrication of conveying hoses

**MOISTURE CLASSES BASED ON CONCRETE CORROSION FROM ALKALI-SILICIC ACID REACTIONS**

Moisture class	WO	WF	WA	WS
<b>V1®/30HF, V1®/60HF</b>	•	•	•	•

The aggregates in PAGEL®'s products comply with the requirements of alkali sensitivity class E1 from non-hazardous sources specified under DIN EN 12620.

**EXPOSURE CLASS ALLOCATION ACC. TO: DIN EN 206-1 / DIN 1045-2**

	XO	XC	XD	XS	XF	XA*	XM
	1234	123	123	1234	123**	123	
<b>V1®/30HF</b>	•	••••	•••	•••	••••	•••	•
<b>V1®/60HF</b>	•	••••	•••	•••	••••	•••	•

\* Having sulfate attack up to 600 mg/l

\*\* With protective measures according to DIN 1045-2

**Classification acc. to the DAfStb VeBMR directive:**

		Flowability class	Slump flow class	Shrinkage class	Early strength class	Compressive strength class
<b>V1®/30HF</b>	Categorisation	f1	-	SKVM 0	A	C100/115
<b>V1®/60HF</b>	Categorisation	-	a2	SKVB 0	A	C100/115



## TECHNICAL DATA

TYPE			V1/30HF	V1/60HF	V1/0HF
Grain size		mm	0-3	0-6	0
Undergrouting height		mm	30-75 (300)**	40-150 (300)**	-
Water quantity	%	max.	9	9	20
Consumption (dry mortar) approx.		kg/m <sup>3</sup>	2,300	2,300	1,850
Fresh mortar raw density approx.		kg/m <sup>3</sup>	2,450	2,450	2,200
Processing time approx.	20 °C	min	90	90	60
Slump	5 min	mm	≥ 550	n. d.	≥ 800
	30 min	mm	≥ 450	n. d.	n. d.
Measure of extension	5 min	mm	n. d.	≥ 600	n. d.
	30 min	mm	n. d.	≥ 520	n. d.
Swelling	24 h	Vol.-%	≥ 0.1	≥ 0.1	≥ 0.1
Compressive strength*	24 h	N/mm <sup>2</sup>	≥ 60	≥ 60	≥ 60
	7 d	N/mm <sup>2</sup>	≥ 90	≥ 90	≥ 85
	28 d	N/mm <sup>2</sup>	≥ 120	≥ 120	≥ 100
E-Modul (static)	28 d	N/mm <sup>2</sup>	≥ 40,000	≥ 37,000	n. d.

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

\*\* DIN 18088-5:2020-10

n. d. = not determined

The specified maximum amount of mixing water is valid for the predefined application temperature range and must not be exceeded.

**Note:** All stated test values correspond to the DAfStb VeBMR directive.

Testing of fresh and solid mortars at 20 °C ± 2 °C, storage of the test specimen after 24 hours until the strength test in water at 20 °C ± 2 °C. Higher or lower temperatures result in deviating properties of fresh respectively solid mortars and test results. Depending on the temperature, the consistency can be adapted with a slight reduction of the mixing water.

**Storage:** 12 months. Cool, dry, free from frost. Unopened in its original container.

**Delivery form:** 20-kg bag, Euro pallet 960 kg, 1.000-kg Big-Bag

**Hazard class:** Non-hazardous material, observe information on packaging.

**GISCODE:** ZP1

### PAGEL<sup>®</sup> PRODUCT COMPOSITION:

Cement: acc. to DIN EN 197-1

Aggregate: acc. to DIN EN 12620

Additions: acc. to DIN EN 450, general building inspection approval (abZ), DIN EN 13263  
(fly ash, microsilica, etc.)

Admixtures: acc. to DIN EN 934-4

## PROCESSING

### SUBSTRATE PREPARATION:

Remove loose and unsound material such as cement slurry and dirt etc. using suitable methods, e.g. shot-blasting or similar until the underlying solid grain structure has been exposed. A sufficient average tear strength ( $\geq 1.5 \text{ N/mm}^2$ , KEW  $\geq 1.0 \text{ N/mm}^2$ ) must be ensured.

### Prewetting:

Prewet the concrete substrate to capillary saturation for approx. 6-24 hours.

### Reinforced concrete:

The grade of surface preparation of reinforcement as well as other metallic parts is based on the requirements of the current applicable regulations and must be ensured before the application.

### Non-iron metals:

Cement and cement-bound building materials may cause non-iron-metals in the transitional area of the contact surface (e.g. aluminium, copper, zinc) to loosen. Please contact us for technical advice.

### FORMWORK:

Attach in such a way that it is leak-proof and robust. Seal on the concrete substrate. Use non-absorbent formwork.

### Protruding grout:

Do not exceed the specified 50 mm when allowing grout to protrude and observe the structural specifications.

When grouting dynamically stressed and prestressed base plates and machine foundations that are subject to high compression strengths at the edges, the grout should ideally be applied to be flush with the bearing plate, provided with a 45° edge using formwork or cut off flush with the bearing plate before it has set. This will prevent any stresses from becoming superimposed on one another and from becoming annihilated (observe static and structural specifications).

### MIXING:

The dry mortar is supplied ready to use and only needs to be mixed with water. Fill the specified amount of water apart from a residual amount into a clean and suitable mixing device (e.g. compulsory mixer).

Add the dry mortar and mix for at least 3 minutes. Add the remaining water and mix for at least another 2 minutes until it forms a homogeneous mass.

### Mixing water:

Drinking water quality

### Temperature range:

+0,5 °C to + 35 °C

Low temperatures and cold mixing water reduce strength development, require intensive forced mixing and reduce flowability. Higher temperatures accelerate strength development and can also reduce the flowability.

### GROUTING:

The mixture must be poured from one side or corner only in one continuous pour. When grouting large areas, we recommend to pour the grout starting in the centre of the foundation plate, using a funnel or filling hose. Cavities should be filled first (up to around just below the top edge) and then the machine plate or similar.

### FOLLOW-UP TREATMENT:

Exposed grout areas must be protected from premature water evaporation (from wind, draughts, direct exposure to sun, etc.) immediately on completion of the work for a period of 3-5 days.

### Suitable curing methods:

Water spray, foil covers with jute sheets, thermofoils or moisture-retaining covering sheets, **O1** Evaporation protection.

The technical data sheet must be observed when using **O1** Evaporation protection.