



# PAGEL®-GROUT

## PROPERTIES

- V1\*/50 (0– 5 mm) grout
- V1\*/10 (0– 1 mm) grout
- V1\*/160 (0–16 mm) grout
- **high flowability**, up to 90 minutes
- cementitious and **chloride-free**
- **Controlled and even expansion** with a rigid bond between concrete foundation and machine base plate
- **high early and final strength**
- **low modulus of elasticity** in connection with high bending strength
- **low w/c-value (0.35)**
- **Frost and deicing-salt resistant**, water-proof, widely resistant to oil and petroleum
- **pumpable** and easy to pour – even at low temperatures
- **Externally tested** and factory quality controlled in compliance with international standards and directives. **ISO 9001** certified production
- Certified to fire protection class A1 as specified by **EN 13501** and **DIN 4102**
- **Approved** for use in drinking water areas in accordance with the DVGW Work Sheets W270 and W347
- **Complies** with the DafStb Code of Practice (VeBMR) "Manufacture and use of cement-bound grout and mortar"

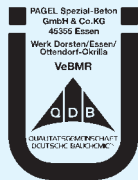
## FIELDS OF APPLICATION

- **Universal mortar and grout** for precision machines of any kind
- **Turbines, generators, compressors, diesel engines** and other power equipment operating under heavy vibration
- **Anchor screws** and sole plates
- **Steel and concrete columns**
- **Prefabricated concrete units** and structural steelworks
- **Bridge bearings** and construction joints
- **Crane rails** and radio telescopes
- **Steel and blast furnace plants** as well as mines
- **Paper plants, chemical plants and refineries**
- Pipe ducts in sewer systems, sewage works and drinking water storage systems, gas and water pressure sealing

- V1\*/50
- V1\*/10
- V1\*/160

Assigning to expositioncategory according to:  
DIN 1045-2 / EN 206-1  
PAGEL – GROUT

	XO 0	XC 1 2 3 4	XD 1 2 3	XS 1 2 3	XF 1 2 3 4	XA 1 2 3	XM 1 2 3
V1*/10	•	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •
V1*/50	•	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •
V1*/160	•	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •	• • • • •



V1®/50

V1®/10

V1®/160

TECHNICAL DATA			V1®/10	V1®/50	V1®/160	
TYPE						
Size	mm		0-1	0-5	0-16	
Grouting height	mm		5-30	20-120	100-400	
Amount of water (min./max.)	%		12-13	12	11	
Consumption (dry mortar)	app. kg/dm <sup>3</sup>		2.00	2.00	2.10	
Density of freshly mixed mortar	app. kg/dm <sup>3</sup>		2.28	2.30	2.33	
Processing time at 20°C	Min.		≥ 90	≥ 90	≥ 90	
Flowability (channel)	imi.	cm	≥ 65	-	-	
	30 min.	cm	≥ 55	-	-	
Measure of extension (DIN 1048)	imi.	cm	-	≥ 70	≥ 60	
	30 min.	cm	-	≥ 62	≥ 52	
Expansion	24 h	Vol. %	+ 0.5	+ 1.0	+ 1.0	
	28 d	Vol. %	+ 0.5	+ 1.0	+ 1.0	
Compressive strength	24 h	N/mm <sup>2</sup>	≥ 40	≥ 40	≥ 40	
	V1/10: 4×4×16 cm	7 d	N/mm <sup>2</sup>	≥ 70	≥ 70	
	V1/50, V1/160: 15×15×15 cm	28 d	N/mm <sup>2</sup>	≥ 80	≥ 80	≥ 80
		90 d	N/mm <sup>2</sup>	≥ 100	≥ 100	≥ 100
Bending strength	24 h	N/mm <sup>2</sup>	≥ 5	≥ 6	≥ 6	
	7 d	N/mm <sup>2</sup>	≥ 8	≥ 8	≥ 8	
	28 d	N/mm <sup>2</sup>	≥ 10	≥ 10	≥ 10	
	90 d	N/mm <sup>2</sup>	≥ 10	≥ 10	≥ 10	
E-Module (static)	7d	N/mm <sup>2</sup>	33,800	33,000	34,500	
	90 d	N/mm <sup>2</sup>	39,800	39,300	40,100	

All test data are guide values only.

**Storage:** For 12 month in dry and tightly sealed bags  
**Packaging:** 25-kg bag  
**Hazard class:** Non-dangerous goods, observe information on packaging  
**GISCODE:** ZP1



CE Mark and EC conformity according to EN 934-4:2001/A1:2004  
 Reg.-No.: 0921-BPR-2010  
 EN 934-4 compliant grout additive

Classified in accordance with DafStb-Rili, manufacture and use of cement-bound grout and mortar VeBMR						
	V1/10		V1/50		V1/160	
	Test value	Categorisation	Test value	Categorisation	Test value	Categorisation
Flowability class	710 mm	f2 (650-740 mm)	-	-	-	-
Expansion class	-	-	770 mm	a <sub>3</sub> (≥700 mm)	695 mm	a <sub>2</sub> (600-690 mm)
Shrinkage	ε <sub>S, m91</sub> = 1.2 mm/m	SKVM II ε <sub>S, m91</sub> ≤ 1.2 mm/m	ε <sub>S, m91</sub> = 0.9 mm/m	SKVB II ε <sub>S, m91</sub> ≤ 1.5 mm/m	ε <sub>S, m91</sub> = 0.6 mm/m	SKVB I ε <sub>S, m91</sub> ≤ 0.8 mm/m
	ε <sub>S, i91</sub> = 1.3 mm/m	ε <sub>S, i91</sub> ≤ 1.4 mm/m	ε <sub>S, i91</sub> = 1.0 mm/m	ε <sub>S, i91</sub> ≤ 2.0 mm/m	ε <sub>S, i91</sub> = 0.6 mm/m	ε <sub>S, i91</sub> ≤ 1.0 mm/m
Early strength class	f <sub>c</sub> , cube, 24 h = 40 N/mm <sup>2</sup>	A (≥ 40 N/mm <sup>2</sup> )	f <sub>c</sub> , cube, 24 h = 49 N/mm <sup>2</sup>	A (≥ 40 N/mm <sup>2</sup> )	f <sub>c</sub> , cube, 24 h = 57 N/mm <sup>2</sup>	A (≥ 40 N/mm <sup>2</sup> )
Compressive strength class	f <sub>c</sub> , i, cube, 28 d = 79 N/mm <sup>2</sup>	C60/75	f <sub>c</sub> , i, cube, 28 d = 88 N/mm <sup>2</sup>	C60/75	f <sub>c</sub> , i, cube, 28 d = 84 N/mm <sup>2</sup>	C60/75
	f <sub>c</sub> , m, cube, 28 d = 81 N/mm <sup>2</sup>		f <sub>c</sub> , m, cube, 28 d = 89 N/mm <sup>2</sup>		f <sub>c</sub> , m, cube, 28 d = 86 N/mm <sup>2</sup>	

## APPLICATION

**SURFACE:** Clean thoroughly, remove all loose and unsound material, as well as any cement slurry, oil, grease, etc. using high-pressure water blasting equipment or similar until the grain structure that will be capable of bearing the grout has been fully exposed; make sure the substrate is of sufficient density and strength (generally 1.5 N/mm<sup>2</sup>). Wet surface continuously until saturation for approx. 6-24 hours before grouting.

**FORMWORK:** Must be of rigid construction; carefully seal around concrete base using sand or dry mortar.

**MIXING:** The grout is supplied ready for use and only needs to be mixed with water. Please refer to the instructions provided on the bag for the correct quantity of water and then pour 2/3 of that quantity into a clean and suitable mixing device (e.g. compulsory mixer).

Add the dry mortar and mix for approx. 3 minutes. Add the remaining water and mix for another 2 minutes. Pour the mixture immediately. If you are using a gravity mixer, dampen and, if required, clean the inside of the mixer to remove any dry material before mixing the mortar.

**GROUTING:** The mixture should be poured from one side or corner only in one continuous pour. When grouting large areas, we recommend pouring the grout starting at the centre of the base using a funnel and/or a hose. Always grout anchor holes first (up to just below the top edge of the anchor hole) and then proceed to grouting the machine base etc.

**CAUTION:** Exposed areas: must be protected from wind, drafts and rapid evaporation of water (using foils, jute insulation, O1 PAGEL-CURING AGENT). Please refer to and observe the additional specifications listed on the O1 PAGEL-CURING AGENT technical data sheet if the grout will be exposed to extremely high or low temperatures, direct sunlight or wind.

**Grouting edge:** The edge of the grouting must not exceed a height of 50 – 70 mm. Grouting under machines that bear highly dynamic loads and with highly preloaded anchors and corresponding compression stress should be flush to the bearing plate, provided with a 45° stop end or cut off flush with the bearing plate immediately after pouring and before setting. This will prevent any superposition and annihilation of stress (requires stress analyst's approval).

**Temperature:** Can be applied at temperatures of between +5°C and +35 °C, low temperatures and cold mixing water will delay strength development and reduce flowability, while high temperatures accelerate these processes.

**Non-Iron-Metals:** Cement and all cement-bound building materials may, under certain conditions, cause non-iron-metals within the area of application area (e.g. aluminium, copper, zinc) to loosen or come off.

Please contact us for technical advice.

V1®/50

V1®/10

V1®/160

## PAGEL-GROUT and technical approvals:

PAGEL MORTAR and PAGEL GROUT are externally and factory controlled in accordance with the DAfStb directive:

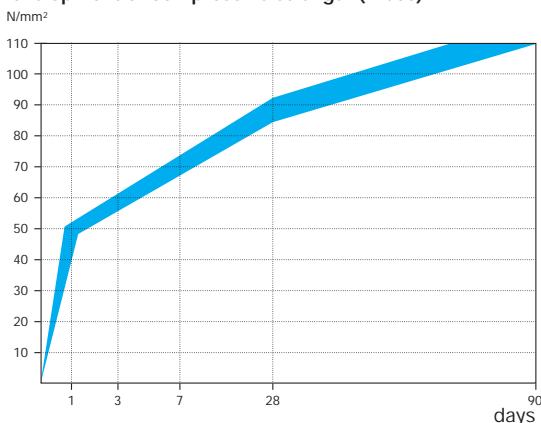
Manufacture and use of cement-bound grout and mortar, from June 2006.

PAGEL GROUT is highly resistant to the effects generally associated with damage to cement and reinforcement corrosion, listed in EN 206 under "Stability requirements of cement in relation to the exposure classes specified by DIN 1045-2:2001-7 (table 1).

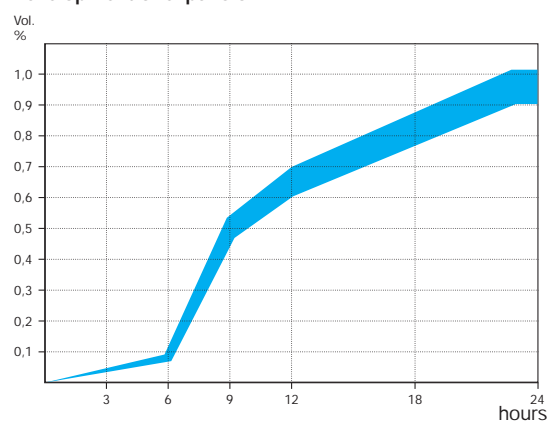
### PAGEL-GROUT COMPOSITION:

Cement	Complies with EN 197-1 and DIN 1164
Aggregate:	Complies with EN 12620:2002, CE Marked
Additional substances:	Comply with EN 934-4:2002-02, PAGEL GROUTING AID CE Marked
Additives:	Comply with DIN EN 450 and DIN 1045-2

Development of compressive strength (V1/50):



Development of expansion:

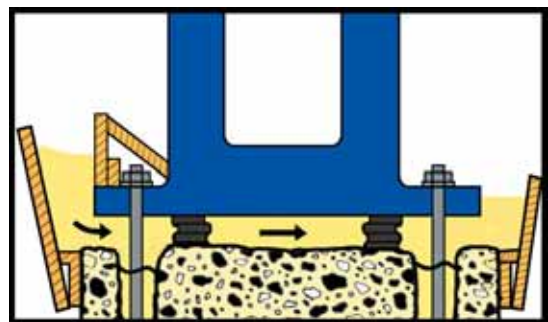
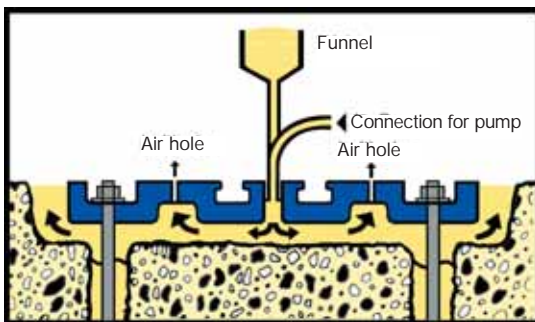
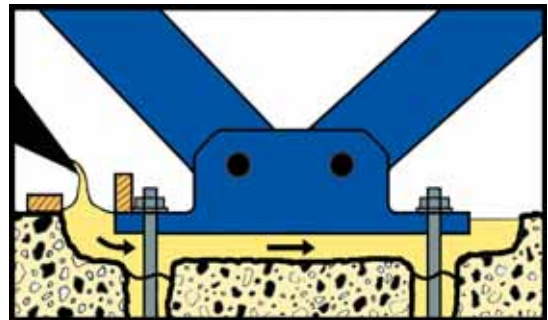
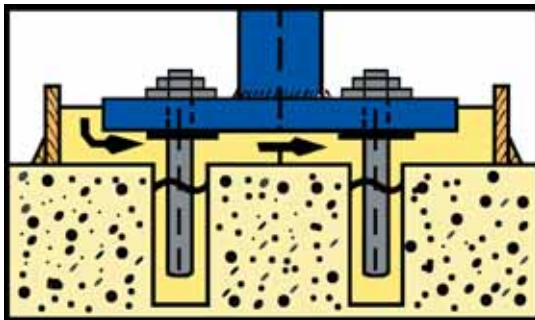
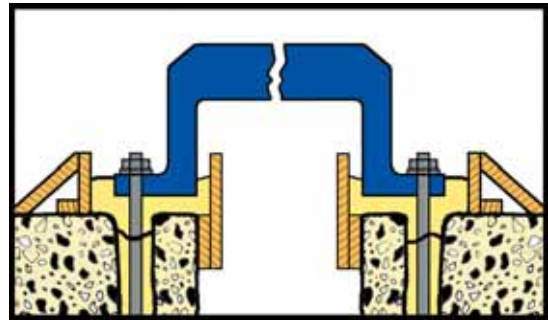
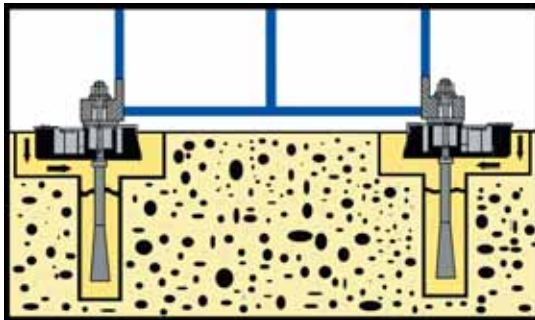
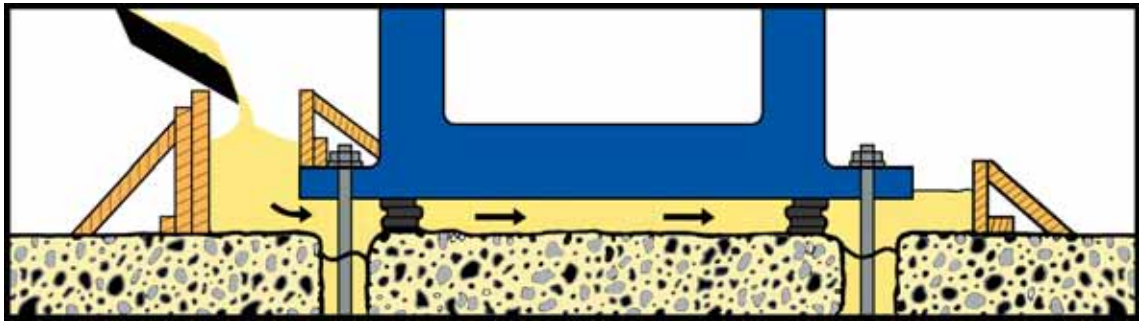


V1®/50

V1®/10

V1®/160

## FIELDS OF APPLICATION



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