

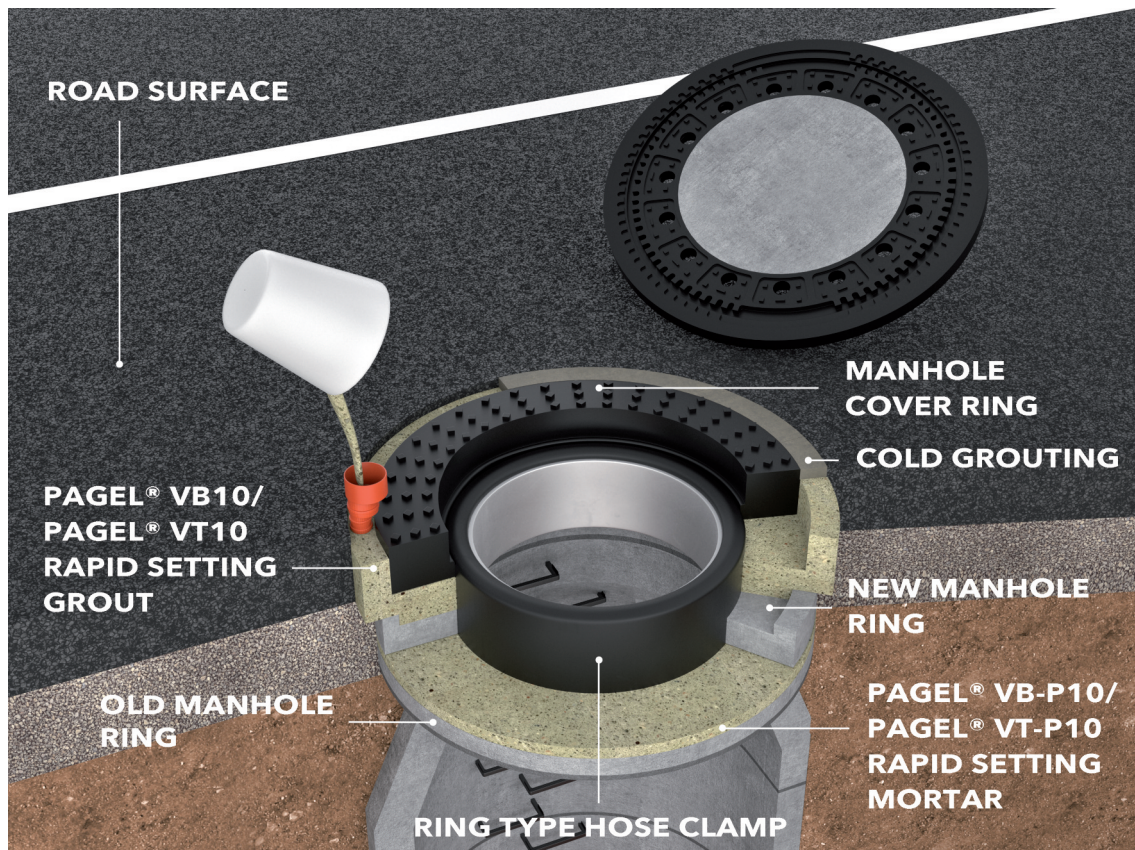
# RAPID-SETTING GROUT

## VB10 RAPID-SETTING GROUT VB40 RAPID-SETTING GROUT

### TEST CERTIFICATES AND SUPPORTING DOCUMENTS

- › Product for the anchoring of reinforcing bars acc. to DIN EN 1504-6 "Verankerung von Bewehrungsstäben" (Anchoring of reinforcing bars)
- › High frost-deicing salt resistance - Verification by CDF procedure (**VB10**)
- › High sulfate resistance - Verification by testing acc. to DIN 19573 (**VB10**)
- › Factory production control acc. to DIN EN 1504-6
- › Company certification acc. to DIN EN ISO 9001:2015

### APPLICATION EXAMPLE



## PROPERTIES

- › Easy to process
- › High flowability
- › Non-shrink
- › After 30 minutes already loadable
- › High frost and frost-deicing salt resistance
- › Impermeable to water
- › Easy to process at temperatures of between +5 °C and +35 °C
- › Building material class A1 acc. to decision 2000/605/EC of the European Commission dated September 26, 2000
- › High profitability due to a fast work progress

## AREAS OF APPLICATION

- › Manhole cover grouting
- › Grouting of service connections
- › Pipe feedthroughs
- › Portal and container railway systems
- › Grouting columns and prefabricated parts
- › Repairing minor damage on concrete
- › Grouting rail supports
- › Grouting tracks

PAGEL® SHAFT HEAD MORTAR ACCORDING TO DIN 19573				
TEST		VB10	Requirement acc. to DIN 19573	
Fresh mortar raw density	kg/m <sup>3</sup>	appr. 2.140	-	
Consistency	mm	≥ 650	≥ 650	
Compressive strength	2 h (5 °C)	N/mm <sup>2</sup>	≥ 2	≥ 2
	2 h (20 °C)	N/mm <sup>2</sup>	≥ 10	≥ 10
	1 d	N/mm <sup>2</sup>	≥ 35	≥ 25
	28 d	N/mm <sup>2</sup>	≥ 60	≥ 50
Shrinkage*	Es, m 91 d	‰	1.17	≤ 1.5
	Es, i 91 d	‰	1.18	≤ 2.0
Frost-deicing salt resistance*	g/m <sup>2</sup>	297	1.500	
CDF method			after 28 cycles	
Sulfate resistance*	mm/m	0.09	≤ 0.8	

\* Test results from the initial test

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

Moisture class	WO	WF	WA	WS
<b>VB</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
	1 2 3 4	1 2 3	1 2 3	1 2 3	1 2 3 4	1 2 3**	1 2 3
<b>VB10</b>	•	••••	•••	•••	••••	•••	•
<b>VB40</b>	•	••••	•••	•••	•••	•••	•

\* **VB40**: Having sulfate attack up to 600 mg/l

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

## TECHNICAL DATA

TYPE			VB10	VB40
Grain size		mm	0-1	0-4
Undergrouting height		mm	10-50	30-60
Amount of water		max. %	14	13
Consumption (dry mortar) approx.		kg/m <sup>3</sup>	1,900	1,900
Fresh mortar raw density approx.		kg/m <sup>3</sup>	2,150	2,200
Processing time approx.	+ 20 °C	min	10	10
Slump flow		mm	≥ 650	≥ 650
Swelling	24 h	Vol.-%	≥ 0.1	≥ 0.1
Compressive strength*	30 min	N/mm <sup>2</sup>	≥ 5	≥ 5
	1 h	N/mm <sup>2</sup>	≥ 8	≥ 8
	2 h	N/mm <sup>2</sup>	≥ 10	≥ 10
	1 d	N/mm <sup>2</sup>	≥ 35	≥ 35
	7 d	N/mm <sup>2</sup>	≥ 50	≥ 50
	28 d	N/mm <sup>2</sup>	≥ 60	≥ 60
Bending tensile strength*	30 min	N/mm <sup>2</sup>	≥ 1	≥ 1
	1 h	N/mm <sup>2</sup>	≥ 2	≥ 2
	2 h	N/mm <sup>2</sup>	≥ 3	≥ 3
	1 d	N/mm <sup>2</sup>	≥ 4	≥ 4
	7 d	N/mm <sup>2</sup>	≥ 8	≥ 8
	28 d	N/mm <sup>2</sup>	≥ 9	≥ 9
E-Module (static)	7 d	N/mm <sup>2</sup>	≥ 20,000	≥ 20,000
	28 d	N/mm <sup>2</sup>	≥ 24,000	≥ 24,000

\* Testing of bending tensile and compressive strength in accordance with DIN EN 196-1

**Note:** All fresh and solid mortars are tested 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:** 6 months. Cool, dry, free from frost. Unopened in its original container.  
**Delivery form:** 25-kg bag, Euro pallet 1,000 kg  
**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.)

## 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 ( $\geq 1.5 \text{ N/mm}^2$ ,  $\text{KEW} \geq 1.0 \text{ N/mm}^2$ ) must be ensured.

### Prewetting:

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

### Reinforcing steel:

Blast all rust off exposed reinforcement bars until the underlying metal has been exposed acc. to purity grade Sa 2 ½ in accordance with DIN EN ISO 12944-4.

### 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 2 minutes. Add the remaining water and mix for another minute until it forms a homogeneous mass.

### 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.

**Temperature range:** + 5 °C to + 35 °C

**Mixing water:** Drinking water quality

### 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.