

# TURBO GROUT

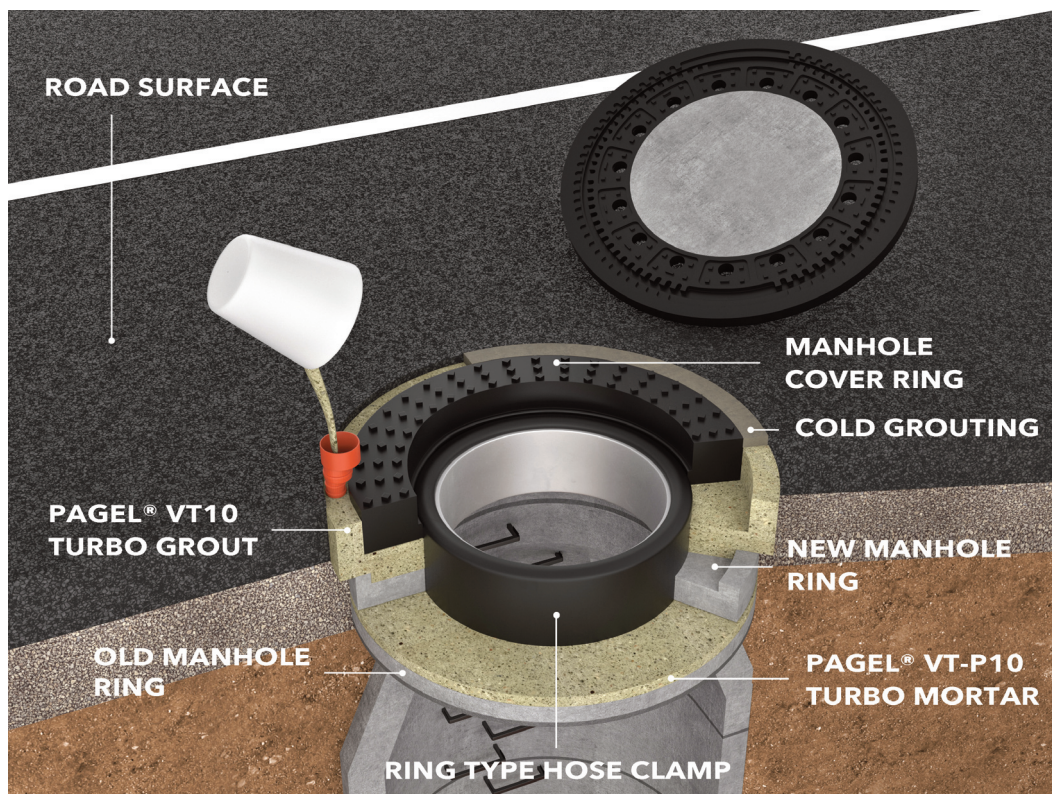
VT05 TURBO GROUT  
VT10 TURBO GROUT

## TEST CERTIFICATES AND SUPPORTING DOCUMENTS

- › Tested in accordance with the DAfStb directive (VeBMR) "Herstellung und Verwendung von zementgebundenem Vergussbeton und Vergussmörtel" (Manufacture and use of cement-bonded concrete grout and grout)
- › Concrete replacement product for statically relevant and irrelevant repair acc. to DIN EN 1504-6
- › High frost-deicing salt resistance - Verification by CDF procedure
- › High sulfate resistance - Verification by testing according to DIN 19573
- › Factory production control acc. to DIN EN 1504-6
- › Company certification acc. to DIN EN ISO 9001:2015

## APPLICATION EXAMPLE

Shaft restoration with PAGEL<sup>®</sup> VT turbo grout and PAGEL<sup>®</sup> VT-P turbo mortar



## PROPERTIES

- › After 30 minutes already loadable
- › Easy to process
- › High flowability
- › Non-shrink
- › Impermeable to water
- › Frost resistant after 2 hours
- › Easy to process at temperatures of between +1 °C and +30 °C
- › Building material class A1 acc. to decision 2000/605/EC of the European Commission dated September 26, 2000 (published in the official journal L258)
- › High profitability due to a fast work progress

## AREAS OF APPLICATION

- › Shaft restoration
- › Grouting of inspection openings, gate valves and street caps, signalling equipment (road construction)
- › Grouting of feedthroughs for gas and water installations

PAGEL® SHAFT HEAD MORTAR ACCORDING TO DIN 19573					
TEST		VT05	VT10	Requirement acc. to DIN 19573	
Fresh mortar raw density	kg/m <sup>3</sup>	2,100	2,200	-	
Consistency	mm	≥ 780 (≥ 30 cm)	≥ 850 (≥ 30 cm)	≥ 650 mm (≥ 250 mm without ramping)	
Compressive strength	2 h (5 °C)	N/mm <sup>2</sup> ≥ 2	≥ 2	≥ 2	
	2 h (20 °C)	N/mm <sup>2</sup> ≥ 10	≥ 10	≥ 10	
	1 d	N/mm <sup>2</sup> ≥ 30	≥ 45	≥ 25	
	28 d	N/mm <sup>2</sup> ≥ 60	≥ 70	≥ 50	
Shrinkage*	Es, m 91 d	% 1.34	0.95	≤ 1.5	
	Es, i 91 d	% 1.37	0.98	≤ 2.0	
Frost-deicing salt resistance* (CDF-Method)	g/m <sup>2</sup>	56	29	1,500 after 28 cycles	
Sulfate resistance*	mm/m	0.4	0.08	≤ 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
VT	•	•	•	•

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
VT05	•	••••	•••	•••	••••	•••	•
VT10	•	••••	•••	•••	••••	•••	•

\* Having sulfate attack up to 600 mg/l

\*\* With protective measures according to DIN 1045-2, Classification of the sulfate resistance according to DIN 19573

## TECHNICAL DATA

TYPE			VT05	VT10
Grain size		mm	0-0.5	0-1
Undergrouting height		mm	10-30	10-50
Amount of water	max.	%	18	16-18
Consumption (dry mortar) approx.		kg/m <sup>3</sup>	1,900	1,900
Fresh mortar raw density approx.		kg/m <sup>3</sup>	2,100	2,200
Processing time approx.	+ 20 °C	min	5	1-3
Measure of extension		mm	≥ 300	≥ 300
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>	≥ 30	≥ 30
	7 d	N/mm <sup>2</sup>	≥ 40	≥ 40
	28 d	N/mm <sup>2</sup>	≥ 60	≥ 60
Bending tensile strength*	30 min	N/mm <sup>2</sup>	≥ 2	≥ 2
	1 h	N/mm <sup>2</sup>	≥ 2	≥ 2
	2 h	N/mm <sup>2</sup>	≥ 2	≥ 2
	1 d	N/mm <sup>2</sup>	≥ 4	≥ 4
	7 d	N/mm <sup>2</sup>	≥ 5	≥ 5
	28 d	N/mm <sup>2</sup>	≥ 8	≥ 8

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

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

**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:** 12 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.)

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 into a clean and suitable mixing device (e.g. compulsory mixer). Add the dry mortar and mix for approx. **60 - 90 seconds**, pour immediately.

### Mixing water:

Drinking water quality

### Temperature range:

+1 °C to + 30 °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, **01** Evaporation protection.

The technical data sheet must be observed when using **01** Evaporation protection.