

TURBO GROUT

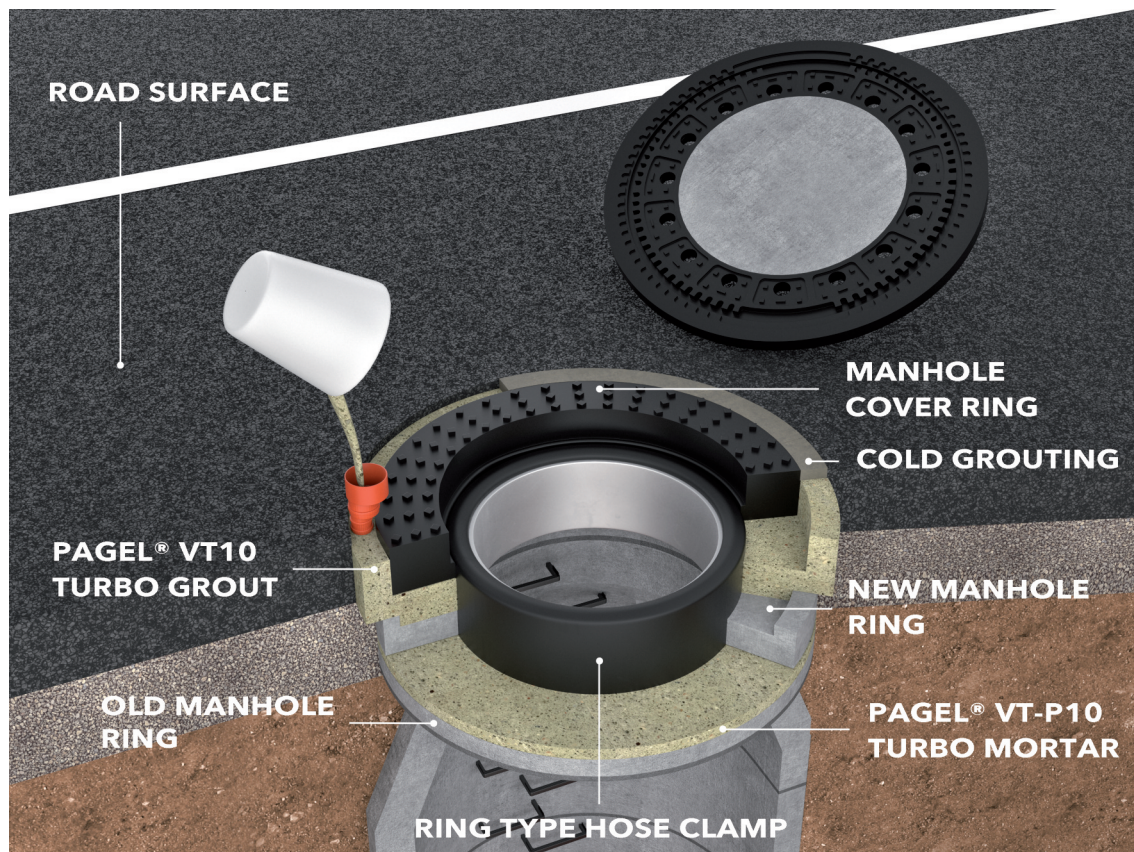
VT05 TURBO GROUT
VT10 TURBO GROUT

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® VT turbo grout and PAGEL® 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 ³	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 ² ≥ 2	≥ 2	≥ 2
	2 h (20 °C)	N/mm ² ≥ 10	≥ 10	≥ 10
	1 d	N/mm ² ≥ 25	≥ 45	≥ 25
	28 d	N/mm ² ≥ 55	≥ 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 ²	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 4	1 2 3**	1 2 3
VT05	•	••••	••••	••••	••••	••••	•
VT10	•	••••	••••	••••	••••	••••	•

* Classification of the sulfate resistance according to DIN 19573

** With protective measures according to DIN 1045-2

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 ³	1,900	1,900
Fresh mortar raw density approx.		kg/m ³	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 ²	≥ 5	≥ 5
	1 h	N/mm ²	≥ 8	≥ 8
	2 h	N/mm ²	≥ 10	≥ 10
	1 d	N/mm ²	≥ 25	≥ 45
	7 d	N/mm ²	≥ 40	≥ 60
	28 d	N/mm ²	≥ 55	≥ 70
Bending tensile strength*	30 min	N/mm ²	≥ 2	≥ 2
	1 h	N/mm ²	≥ 2	≥ 2
	2 h	N/mm ²	≥ 2	≥ 2
	1 d	N/mm ²	≥ 4	≥ 5
	7 d	N/mm ²	≥ 6	≥ 6
	28 d	N/mm ²	≥ 8	≥ 8

* 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 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.

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

GROUTING:

The mixture must be poured from one side or corner only in one continuous pour.

Temperature range: +1 °C to + 30 °C

Mixing water: Drinking water quality

FOLLOW-UP TREATMENT:

Fresh mortar 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.