PAGEL®

PAGEL®-GROUT

V1®/50

V1®/10

V1®/160

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,** waterproof, widely resistant to oil and petroleum
- **pumpable** and easy to pour – even at low temperatures
- 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”
- **company is certified according DIN EN ISO 9001:2015**

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**
- **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

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

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

Moisture classes in reference to concrete corrosion caused by alkaline silica reactions				
moisture class	**WO**	**WF**	**WA**	**WS**
	dry	**damp**	**damp** • external alkali supply	**damp** • external alkali supply • strong dynamic stress
PAGEL GROUT	•	•	•	•
All of the aggregates used in PAGEL products are obtained from safe sources and correspond with the alkali sensitivity class E1 as specified under DIN EN 12620.				

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V1®/10

V1®/160

TECHNICAL DATA

TYPE			V1®/10	V1®/50	V1®/160
size		mm	0–1	0–5	0–16
grouting height		mm	5–30	20–120	100–400
amount of water	(min./max.)	%	13	12	11
consumption (dry mortar)		kg/dm³	app. 2.00	app. 2.00	app. 2.10
density of freshly mixed mortar		kg/dm³	app. 2.28	app. 2.30	app. 2.33
processing time	at 20 °C	min.	app. 90	app. 90	app. 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	+ 0.5	+ 0.5
compressive strength*	24 h	N/mm²	≥40	≥40	≥40
V1/10: 4×4×16 cm	7 d	N/mm²	≥60	≥70	≥70
V1/50, V1/160: 15×15×15 cm	28 d	N/mm²	≥80	≥75	≥75
	90 d	N/mm²	≥90	≥90	≥90
bending strength	24 h	N/mm²	≥4	≥4	≥4
	7 d	N/mm²	≥6	≥6	≥6
	28 d	N/mm²	≥8	≥8	≥8
	90 d	N/mm²	≥10	≥10	≥10
e-module (static)	7d	N/mm²	30,000	30,000	30,000
	28 d	N/mm²	35,000	35,000	35,000

All test data are guide values, proofed in our German manufacturing plants, - values from other manufacturing plants may vary.

* DIN EN 196-1-compliant compressive strength testing; DIN EN 12390-3-compliant compressive strength testing
All of the test values provided correspond to DAfStb VeBMR – Directive
Tests of fresh and hardened grout at 20°C ± 2°C, storage of the test pieces after 24 hours until the strength test in water at 20°C ± 2°C. Higher or lower temperatures result in deviating properties and test results of the fresh/hardened grout. Depending on the temperature the consistency can be adapted by a slight reduction of the mixing water.

storage: 12 months. Cool, dry, free from frost. Unopened in its original packaging.
packaging: 25-kg bag, euro-pallet 1,000 kg
hazard class: no dangerous substance follow safety data sheet
giscode: ZP1

Classified in accordance with DAfStb VeBMR Rili			
Product			
	V1/10	V1/50	V1/160
flowability class/ expansion class	f2	a3	a2
shrinkage	SKVM II	SKVB I	SKVB I
early strength class	A	A	A
compressive strength class	C55/67	C60/75	C60/75

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EN 1504-3:2005
V1/50
PAGEL Grout
Product for structural and non structural repair for concrete

Compressive strength	class R4
Chloride ion content	≤ 0.05 %
Adhesive bond	≥ 2.0 MPa
Restrained shrinkage/expansion	≥ 2.0 MPa
Carbonation resistance	NPD
Elastic modulus	≥ 20 GPa
Reaction to fire	A1

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PAGEL Grout
Product for structural and non structural repair for concrete

Compressive strength	class R4
Chloride ion content	≤ 0.05 %
Adhesive bond	≥ 2.0 MPa
Restrained shrinkage/expansion	≥ 2.0 MPa
Carbonation resistance	NPD
Elastic modulus	≥ 20 GPa
Reaction to fire	A1

NPD: „No Performance Determined"

When used for concrete repairs as specified under 1504-3, it will also be necessary to apply a carbonatisation protection system as specified under EN 1504-2.

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V1/10
PAGEL Grout
Anchoring product

Pull-out	≤ 0.6 mm
Chloride ion content	≤ 0.05 %
Reaction to fire	A1

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PAGEL Grout
Anchoring product

Pull-out	≤ 0.6 mm
Chloride ion content	≤ 0.05 %
Reaction to fire	A1

According to the 3rd correction of DAfStb Rili SIB (8) may **V1/50 PAGEL-GROUT** and **V1/160 PAGEL-GROUT** (both SKVB I and early strength class A) be used for reprofiling concrete structures such as concrete after DIN EN 206-1 in conjunction with DIN 1045-2 (maximum permissible Layer thickness 100 mm).

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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/mm²). 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 dry mortar is supplied ready for use and only needs to be mixed with water. Pour most of the specified quantity of water with exception of a small 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. For turbo or quick setting mortar shorter total mixture times and for high-strength mortars longer total mixture times have to be observed (see label on the front-side or technical data sheet). If using a gravity mixer, dampen, and if required, clean the inside of the mixer to remove any incrustations before mixing.

MIXING WATER: Drinking water quality

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, **01 PAGEL-CURING AGENT**). Please refer to and observe the additional specifications listed on the **01 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 a reaction with 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.

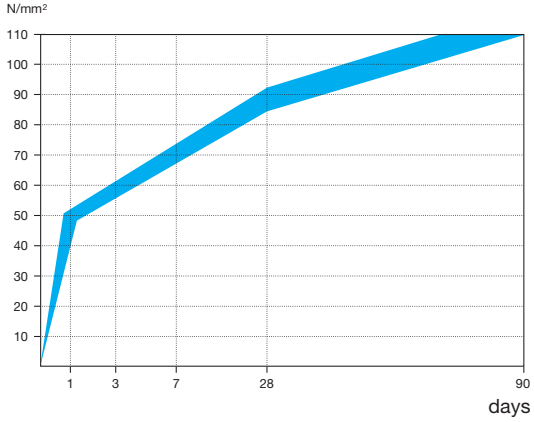
PAGEL-GROUT and technical approvals:

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).

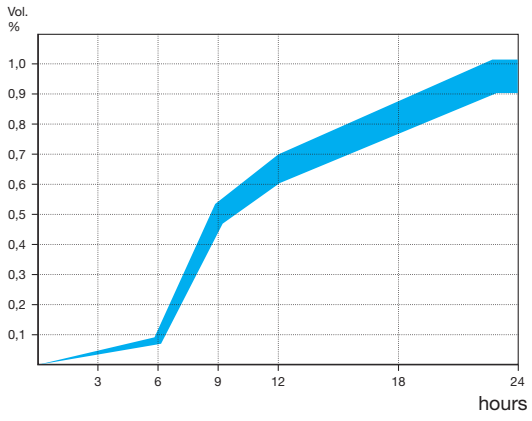
PAGEL-GROUT

cement:	DIN EN 197-1 compliant
aggregates:	EN 12620 compliant
additives:	EN 450, AbZ, EN13263 compliant (quick ash, microsilica etc.)
additional substances:	DIN EN 934-4 compliant

Development of compressive strength (V1/50):



Development of expansion:



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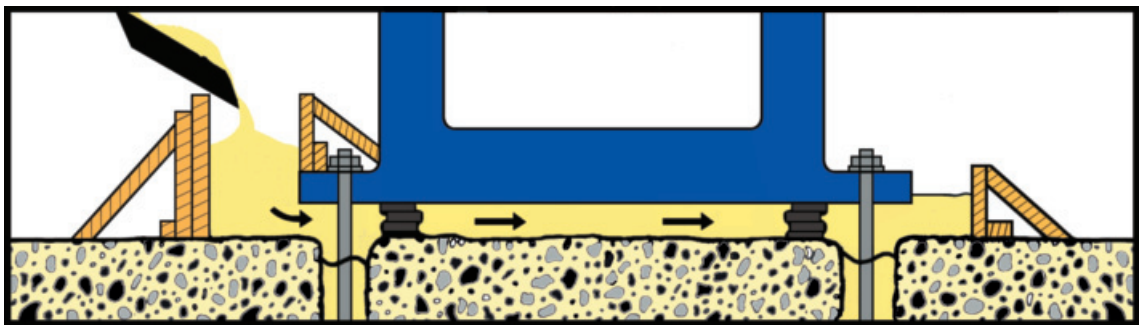
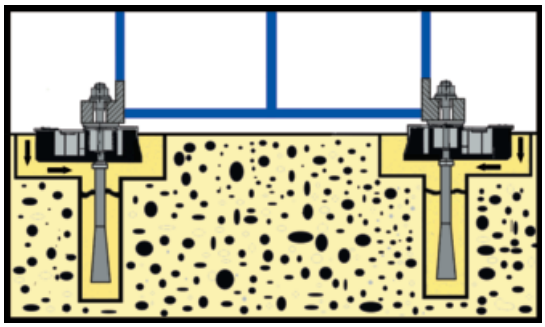
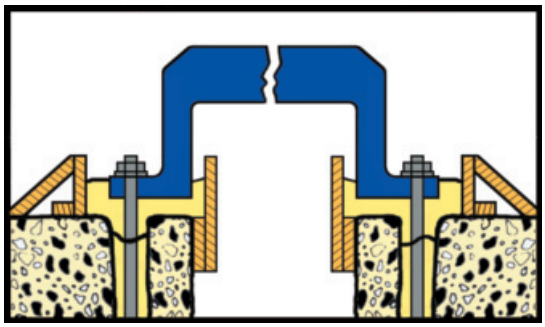
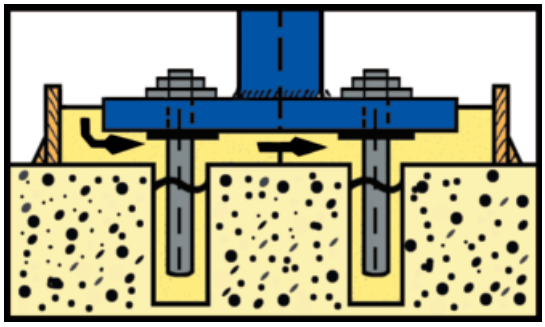
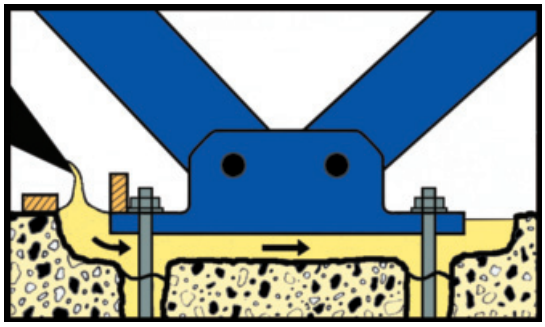
FIELDS OF APPLICATION

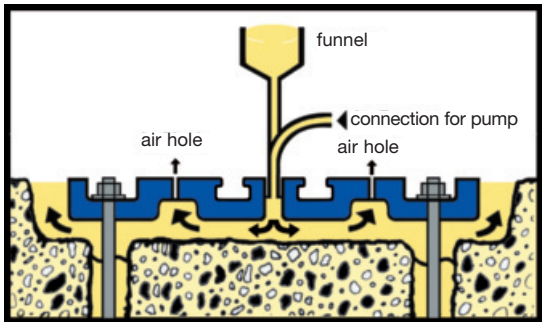


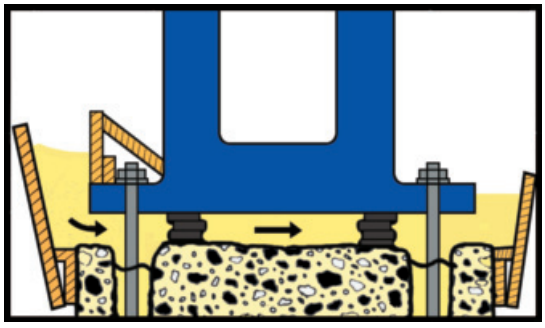












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