CONCRETE GROUT

V80C45 CONCRETE GROUT (0-8 mm)
V160C45 CONCRETE GROUT (0-16 mm)

TEST CERTIFICATES AND SUPPORTING DOCUMENTS

› Concrete replacement product for statically relevant and irrelevant repair acc. to DIN EN 1504-3
› Cement screed for wearing layers acc. to DIN EN 13813
› High frost and frost-deicing salt resistance - Verification by CIF and CDF procedure
› High resistance to chloride penetration - Verification by testing of the chloride migration coefficient (V80C45)
› High sulfate resistance - Verification by testing acc. to DIN 19573 (V160C45)
› Verification of the creep behaviour acc. to the DAfStb directive “Schutz und Instandsetzung von Betonbauteilen” (Protection and repair of concrete parts) for V80C45
› Factory production control acc. to DIN EN 1504-3 and DIN EN 13813
› Company certification acc. to DIN EN ISO 9001:2015
PROPERTIES

- Low shrinkage
- Low development of hydration heat
- Low modulus of elasticity
- Controlled swelling
- Impermeable to water and largely resistant to mineral oils and fuels
- High abrasion resistance
- High frost and frost-deicing salt resistance
- High resistance to chloride penetration
- High sulfate resistance
- Concrete grout for concrete substrates starting from concrete strength class C20/25
- Building material class A1 acc. to decision 2000/605/EC of the European Commission dated September 26, 2000 (published in the official journal L258)

AREAS OF APPLICATION

- Grouting of columns and machinery
- Hydraulic structures, lock constructions and weirs
- Construction of hydraulic steelworks
- Grouting of great volumes with a simultaneous lowering of the hydration temperatures
- Concrete grout acc. to secondary concrete directive of the BAW (Federal Waterways Engineering and Research Institute)
- Noise barriers
- Building underpinnings
- Repair grouting for constructive repair works of concrete acc. to the 3rd correction of the DAfStb directive

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

<table>
<thead>
<tr>
<th>Moisture class</th>
<th>WO</th>
<th>WF</th>
<th>WA</th>
<th>WS</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONCRETE GROUT</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Exposure class</th>
<th>XO</th>
<th>XC</th>
<th>XD</th>
<th>XS</th>
<th>XF</th>
<th>XA</th>
<th>XM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>123</td>
<td>123</td>
<td>123</td>
<td>123</td>
<td>123*</td>
<td>123</td>
<td></td>
</tr>
<tr>
<td>V80C45</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
<tr>
<td>V160C45</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td>●</td>
<td></td>
</tr>
</tbody>
</table>

* Having sulfate attack up to 600 mg/l
With protective measures according to DIN 1045-2

Classification acc. to the DAfStb VeBMR directive:

<table>
<thead>
<tr>
<th>Classification</th>
<th>Flowability class</th>
<th>Slump flow class</th>
<th>Shrinkage class</th>
<th>Early strength class</th>
<th>Compressive strength class</th>
</tr>
</thead>
<tbody>
<tr>
<td>V80C45</td>
<td>Categorisation</td>
<td>–</td>
<td>a2</td>
<td>SKVB 0</td>
<td>C</td>
</tr>
<tr>
<td>V160C45</td>
<td>Categorisation</td>
<td>–</td>
<td>a2</td>
<td>SKVB 0</td>
<td>C</td>
</tr>
</tbody>
</table>

According to the 3rd correction of the DAfStb directive SIB, V80C45 PAGEL GROUT and V160C45 PAGEL GROUT (all SKVB 0 and early strength class C) may be used for the reprofiling of concrete parts as concrete according to DIN EN 206-1 in connection with DIN 1045-2 (maximum permissible layer thickness 25 x maximum aggregate size)
## TECHNICAL DATA

<table>
<thead>
<tr>
<th>TYPE</th>
<th>V80C45</th>
<th>V160C45</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grain size</td>
<td>mm</td>
<td>0–8</td>
</tr>
<tr>
<td>Undergrouting height</td>
<td>mm</td>
<td>60–200 (320)**</td>
</tr>
<tr>
<td>Amount of water</td>
<td>max. %</td>
<td>10</td>
</tr>
<tr>
<td>Consumption approx.</td>
<td>kg/m³</td>
<td>2,100</td>
</tr>
<tr>
<td>Processing time approx.</td>
<td>20 °C min</td>
<td>60</td>
</tr>
<tr>
<td>Measure of extension</td>
<td>5 min mm</td>
<td>≥ 600</td>
</tr>
<tr>
<td>Swelling</td>
<td>≤ 24 h Vol.-%</td>
<td>≤ 0.1</td>
</tr>
<tr>
<td>Compressive strength*</td>
<td>1 d N/mm²</td>
<td>≥ 15</td>
</tr>
<tr>
<td></td>
<td>7 d N/mm²</td>
<td>≥ 40</td>
</tr>
<tr>
<td></td>
<td>28 d N/mm²</td>
<td>≥ 60</td>
</tr>
<tr>
<td></td>
<td>56 d N/mm²</td>
<td>≥ 65</td>
</tr>
<tr>
<td></td>
<td>91 d N/mm²</td>
<td>≥ 70</td>
</tr>
<tr>
<td>Bending tensile strength**</td>
<td>1 d N/mm²</td>
<td>≥ 1.5</td>
</tr>
<tr>
<td></td>
<td>7 d N/mm²</td>
<td>≥ 3.5</td>
</tr>
<tr>
<td></td>
<td>28 d N/mm²</td>
<td>≥ 5.0</td>
</tr>
<tr>
<td></td>
<td>56 d N/mm²</td>
<td>≥ 6.0</td>
</tr>
<tr>
<td></td>
<td>91 d N/mm²</td>
<td>≥ 7.0</td>
</tr>
<tr>
<td>E-Module (static)</td>
<td>7 d N/mm²</td>
<td>≥ 25,000</td>
</tr>
<tr>
<td></td>
<td>28 d N/mm²</td>
<td>≥ 29,000</td>
</tr>
</tbody>
</table>

* DIN EN 12390-3-compliant compressive strength testing
** DIN EN 12390-5-compliant bending tensile strength testing
*** According to DAfStb VeBMR-Rili July 2019

Note: All stated test values correspond to the DAfStb VeBMR directive.
Testing of fresh and solid mortars at 20 °C ± 2 °C, storage of the test specimen after 24 hours until the strength test in water 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 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
APPLICATION

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 (≥ 1.5 N/mm², KEW ≥ 1.0 N/mm²) 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.

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 apart from a 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.

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.