



KEIM Concretal®-Mörtel (mortar)

1. Product description

Coarse mortar for the KEIM Concretal® concrete repair system for ZTV-SIB 90 applications:
PCC I, PCC II, PCC III

2. Field of application

Concrete substitute for concrete repairs in civil engineering and bridge building in accordance with ZTV-SIB 90 for the following applications:

- PCC I: Surfaces fit for traffic, dynamic stress (e.g. underneath bridge surfaces)
- PCC II: Surfaces not fit for traffic, dynamic stress (e.g. undersides of bridges).
- PCC III: Surfaces not fit for traffic, no dynamic stress (e.g. bulkheads, abutments).

KEIM Concretal®-Mörtel can be applied in layer thicknesses of 5 mm to 50 mm in multiple layers as required (minimum layer thickness 10 mm according to ZTV-SIB 90).

3. Product properties

Low shrinkage and crack-free hardening even if there is exposure to dynamic stress during application and setting time, frost-resistant, resistant to de-icing salt, impermeable to water, permeable to water vapour, high level of resistance to carbonation, wear-resistant and bitumen-resistant.

Material base

Portland cement to DIN 1164, silica sand, aggregates and organic additives.

4. Application instructions

Application methods

Float, shovel, wooden slat

Substrate preparation

The substrate must be clean, solid, porous and absorbent. Concrete substrates must be at least of quality B25. Roughen smooth or dense substrates. Remove dirt, laitance and unsound layers by means of sand blasting or scabbling.

Surfaces which have been treated with water-repellent sealants or evaporation protection agents are not suitable (for further details, see ZTV-SIB 90, table 2, preparation of concrete substrate). The surfaces must be pre-treated in a suitable manner (e.g. peening, sand blasting or high pressure water jetting).

The cleaned surface must be prewetted and kept moist, if possible for 24 hours, but at least for 2 hours before applying KEIM Concretal®-Haftbrücke. The surface must be moist but not wet.

Carefully work KEIM Concretal®-Haftbrücke into the substrate with a hard broom or brush and immediately apply KEIM Concretal®-Mörtel fresh-on-fresh.

Application

Mix KEIM Concretal®-Mörtel with clean (mains) water.

Mixing ratio

A 25 kg sack of Concretal®-Mörtel is mixed with
W_{min} = 2.6 l of water
W_{max} = 2.9 l of water.*

Initially introduce 2/3 of the quantity of water to wet the interior of the mixing container, then add 25 kg of KEIM Concretal®-Mörtel and mix for 4 minutes to form a lump-free, stiff-plastic mortar. The remainder of the water is added once mixing has begun.

Quantities up to 25 kg can be mixed with a slow mixer (approx. 400 rpm). Larger quantities should be mixed in a compulsory mixer. Mixing by hand is not permissible.

When the product is applied as a concrete substitute system in accordance with ZTV-SIB 90, only a compulsory mixer and only whole bags should be used. Only mix as much mortar as can be applied during the processing time (see "Technical data" table). Hardened mortar may not be thinned with water or mixed with fresh mortar. Apply the mixed KEIM Concretal®-Mörtel fresh-on-fresh onto the surface which has been prepa-

red with KEIM Concretal®-Haftbrücke and distribute with a float, shovel or wooden slat. Layer thickness 5–50 mm.

Then compact with a vibrating beam, shovel or trowel, level, abrade with a wooden slat and, if necessary, smooth with a steel float.

Thickness per application approx. 25 mm. The possible thickness per application depends on the size and nature of the defective area and its location (floor, wall, ceiling). For more information on installation conditions in accordance with ZTV-SIB 90, see implementing instructions.

If several layers are required, subsequent layers may be applied onto the stably set, but still moist first layer. Mortar which has already dried must be prewetted again and pretreated with KEIM Concretal®-Haftbrücke. Fresh KEIM Concretal®-Haftbrücke must always be used around the edges of existing concrete.

* Water is added depending on the desired consistency and temperature conditions (low temperature = lower water requirement; high temperature = higher water requirement).

Application conditions

KEIM Concretal®-Mörtel should not be applied at substrate and mortar temperatures of below +5°C and above +30°C or when the substrate is exposed to high temperatures or strong wind.

Consumption

Consumption is approx. 20 kg/m² per 10 mm layer thickness, or 0.51 dm³ of fresh mortar per 1 kg of dry mortar.

Layer-thickness	Consumption	Yield 25 kg sack
10 mm	approx. 20.0 kg/m ²	approx. 1.25 m ²
30 mm	approx. 60.0 kg/m ²	approx. 0.40 m ²
50 mm	approx. 100.0 kg/m ²	approx. 0.25 m ²

Cleaning of tools

Clean tools, machinery and mixers with water immediately after use. After hardening, mechanical removal is the only option.

Special comments

After-treatment of KEIM Concretal®-Mörtel is performed in accordance with ZTV-SIB 90 and the implementing instructions, for example by direct covering (masking with film) or keeping moist by laying mats and spraying with water. An after-treatment time of at least 5 days must be observed.

KEIM Concretal®-Mörtel has been tested to ZTV-SIB 90 and is quality assured according to TL/TP BE-PCC. See implementing instructions for further details.

5. Packaging

25 kg kraft paper sack

6. Storage

6 months under cool, dry conditions.

7. Hazardous Substances Ordinance class

- Xi Irritant, contains cement (low chromate content to TRGS (German Technical Rules for Hazardous Substances) 613)
- R36/38: Irritating to eyes and skin.
- S2: Keep out of reach of children.
- S24/25: Avoid contact with skin and eyes.
- S26: In case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
- S27: Take off immediately all contaminated clothing.
- S28: After contact with skin, wash immediately with plenty of soap and water.
- S37/39: Wear suitable gloves and eye/face protection.

8. Disposal

EC Waste Code no. 10 13 99

Any residues must be emptied out of containers before recycling.

9. Safety instructions

Provide appropriate protection for surfaces which are not to be coated (e.g. glass, natural stone, ceramics etc.). Any splashes on surrounding surfaces or traffic areas must be rinsed off immediately with plenty of water. Protect the eyes and skin from splashes. Keep out of reach of children.



Application data/ technical data

Consumption	approx.. 2,0 kg/m ² at 1 mm layer thickness
Quantity of make-up water	
1 kg dry mortar	
- min	105 ml
- max	115 ml
25 kg dry mortar	
- min	2,6 ltr
- max	2,9 ltr
Mixing period	4 min
Maturing period	none
Density of mixed mortar (bulk density)	2,17 kg/dm ³
Slump à 15 t =15	12,7 cm
Layer thickness	5/10 mm bis 50 mm
Workingtime	
at + 5°C	approx. 120 min
at + 20°C	approx. 60 min
at+ 30°C	approx. 30 min
Application temperature	+5°C bis +30°C
Grain size	0-4 mm
Compressive strength	
after 1 day	30,6 N/mm ²
after 7 days	46,7 N/mm ²
after 28 days	56,8 N/mm ²
Bending tensile strength	
after 1 day	6,5 N/mm ²
after 7 days	8,7 N/mm ²
after 28 days	12,9 N/mm ²
Shrinkage 28d	0,92 mm/m
Pull-off strength 28d	2,30 N/mm ²
Dyn. modulus of elasticity 28d	26,90 kN/mm ²

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