

# TECHNICAL BULLETIN

## STEIN TEC®

### JOINT REPAIR MORTAR SF 02 - 1K

MÖRTEL FÜR PROFIS

# STEIN TEC

## PRODUCT DESCRIPTION

STEIN TEC® Joint Repair Mortar SF 02 – 1K is a hydraulically extremely-fast binding work dry mortar with application-specific mineral and organic additives.

Its high setting and hardening time rate enables early initial use of the surface and enhances the suitability for processing at cold weather from 5° C on – if night frost is not to be expected. Of course, it is frost and de-icing agent resistant.

Due to its specific compound, STEIN TEC® Joint Repair Mortar SF 02 – 1K is characterised by high flowability at coincident very good demixing stability and by high self-deaeration ability. Therefore, it is self-compacting and it is not necessary to compact it by machines. In association with its fast defined setting behaviour, the mentioned properties effect excellent processability and simplest cleaning of the grouted surfaces.

STEIN TEC® Joint Repair Mortar SF 02 – 1K meets resp. surpasses in its properties the requirements of the FSGV-Arbeitspapier No. 618/2 (working paper for surface pavements with pavings and slabs using bonded construction).

### Properties

- highly accelerated setting/ hardening
- very early loadable
- high compressive strength
- high adhesive tensile strength
- water-impermeable
- frost and de-icing agent resistant
- low-shrinkage and low-stress
- polymer-modified
- very good processability
- self-compacting
- easy cleaning of the surface after grouting
- pumpable

If early loading of new pavings is required, please utilise STEIN TEC® Bedding Mortar BM 04 S.

### Range of application

STEIN TEC® Joint Repair Mortar SF 02 – 1K is suited for jointing or joint repair of all paved and slabbed surfaces made of natural stone, concrete blocks and clinker bricks.

STEIN TEC® Joint Repair Mortar SF 02 – 1K is especially suited for joint repair, if soon use of repaired surfaces is required. Important is a sufficiently stable and faultless

superstructure suited to the expected loads. The laying of paving elements on non-bonded bedding is only maintainable in areas with little loads. In cases of joint repair of paved surfaces laid on non-bonded bedding, please contact our technology department.

For new pavings, STEIN TEC® Bedding Mortar BM 04 S shall be used for the bedding.

### Delivery form

Bag ware 40 kg  
(1 euro-pallet = 30 bags)

Standard colours:

Light grey, medium grey and dark grey

On demand, further technically feasible colours can be delivered.

Minimum purchase of non-standard colours 2,4 t.

### Storage

In closed bags storable for 6 months in dry cool rooms.

## PROCESSING

### Preparation

Control the surface to be grouted before jointing:

For joint repair, the required joint depth of at least 3 cm, better 5 cm shall be attained by e.g. raking-out, air-cleaning, washing-out or cutting. Remaining "old" mortar in the joints must be faultless and feature sufficient mechanical properties.

Set loose elements firmly in correct height. Clean joints from soiling and loose components.

Close open joint endings or working stages to prevent escaping of jointing mortar.

Close emergency de-watering ports at road gulleys in the surface to be grouted.

Road gulleys in the processing section must be protected against ingressing of jointing mortar/slurry.

Wet the surface to be grouted completely saturated and keep it wet permanently. Stagnant water in joint spaces must be avoided.

### Mixing

Mix bag ware in the positive mixer, by horizontal flow mixer or by suited stirring device with clear cold water (no further additions) in required flowability. Lumping must be avoided.

Using positive mixer or stirring device, fill in water first.

Complete water requirements, depending on required flowability: 7,5 – 9 litres per bag.

Attention shall be paid to evenly good mixing.

### Building-in

New pavings:

The grouting should take place, depending on weather conditions, on the next day, at the latest 48 hours after laying of the elements. If the grouting is only possible later, please contact our technology department.

The works can be carried out at temperatures above 5° C, as far as night frost is not to be expected, also during slight rainfall. If the surrounding temperature is lower than 20° C, longer setting and hardening time must be considered. Surrounding temperatures above 20° C will shorten the setting and hardening time.

Spread the flowably mixed jointing mortar immediately on to the surface to be grouted and bring it into the joints slowly and carefully by a rubber slider.

Check the joints of complete filling after a few minutes and if applicable post-grout immediately, because sufficient bond of the jointing mortar is only guaranteed if processed "fresh-in-fresh". After the beginning hardening of the jointing mortar, post-grouting is not permissible.

Keep the grouted surface permanently wet by a soft water jet/atomised spray until its cleaning.

Clean the grouted surface, depending on weather conditions, after approx. 20 minutes to 2 hours at the latest, by a soft water jet, high-pressure cleaner (inclined lance position, from wide distance) or by a belt cleaning machine. Foam mortar residues in element slots by short- hair brush, spray-wash it and remove spare mortar. Repeat cleaning process until the surface is completely clean and clear water is flowing off. Attention: wet surface often seem clean although there are still mortar residues. Mortar/mortar residues must not reach the sewerage system.

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Due to the cleaning, a slightly lower joint filling (2 – 4 mm) in comparison to the paved or slabbed surface will occur. These joints are classified as completely filled. If paving blocks or slabs with chamfered and rounded edges are used, please attend that the joint space shall only be filled up to the bottom edge of the chamfer/rounding.

If partly filled joints occur at the end of the construction section, the surrounding paving blocks must be removed after hardening of the mortar. It is recommended to protect the joint space behind the working section against ingressing of jointing mortar by closing the joint space there, see also chapter preparation.

The grouted surface must not be loaded, walked or driven on until sufficient hardening of the mortar, see initial use.

#### Finishing treatment

After sufficient hardening of the jointing mortar, the grouted surface must be after-treated; depending on weather conditions, by covering, keeping wet, repeated thoroughly watering etc. for a few days. Thereby, the formation of shrinkage cracks can considerably be reduced or even avoided. Protect non-set jointing mortar against heavy rainfall.

#### Initial use

Joint repair:

Please consult our technology department for the initial use of repaired surfaces.

New pavings:

The enabling of the paved or slabbed area to loads is based upon the stage of the strength development of bedding and jointing mortar.

This primarily depends on the conditions of temperature during the processing and hardening of both mortars and it cannot be generally forecasted, therefore. All time data listed below concern to a temperature of 20° C and apply – because of the relevant required strength level of the bedding mortar – only in combination with STEIN TEC® Bedding Mortar BM 04 S and if applicable STEIN TEC® Bond Adhesive "Haftfix".

The surface is walkable one day after the grouting. Light traffic (passenger cars) is possible after 3 days at the earliest. Full loading can only take place after completed hardening (7 days as a general rule). Please refer to the particular table "Technical specifications" for strength development at a constant surrounding temperature of 20° C. If early loading is required we recommend the combination with STEIN TEC® Bedding Mortar BM 04 S.

#### Important information

Paving blocks and slabs must be clean, i.e. free from dust, grease, oil, adhesions and impurities (e.g. cutting or grinding slurry).

Joint repair:

The free joint depth to be newly filled with mortar must be at least 3 cm, better 5 cm. The joint space must be completely filled up with STEIN TEC® Joint Repair Mortar SF 02 – 1K in one process.

New pavings:

The bedding must be made of drainable mortar and meet the requirements of strength class C 25/30, at least. Considerably more suitable is water-permeable STEIN TEC® Bedding Mortar BM 04 S (quick-setting) because of its adapted shrinking and deforming behaviour and unlimited frost-resistance. If concrete blocks, slabs and, in general, elements with smooth and even (e.g. sawn) underneaths are used, STEIN TEC® Bond Adhesive Haftfix should be applied additionally.

**The joint space remaining after the setting of the elements must be completely filled up with STEIN TEC® Joint Repair Mortar SF 02 – 1K in one process.**

**For mosaic sett pavings, the joint depth must be 3 cm at least. The non-compressed bedding material risen in the joints by the setting of the elements, must be bound force-fit with the jointing mortar.**

**Pre-filling of the joints with mortar or other joint fillings is not permissible.**

During the grouting of new pavings, the day/processing stage of the laying shall be overlapped with the day/processing stage of the jointing in at least 1,0 m, rather 1,5 m distance.

For the laying and grouting of paving blocks and slabs in bonded construction method, respective regulations and generally accepted codes of practice do apply, like DIN 18318, ZTV Pflaster-StB (about pavings) and the bulletin M FP as far as applicable to bonded construction method and to the FSGV-Arbeitspapier Nr. 618/2 (working paper for surface pavements with pavings and slabs using bonded construction). Especially important is a sufficiently stable superstructure suited to the expected loads. For traffic areas where heavy traffic is expected, the requirements in terms of design and sustainability should be set for the panel 3 (Construction Classification III according RStO 01) or Load Classification 3.2 according RStO 12.

#### Security advice

Product contains cement, pay attention to the material safety data sheet.

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## TECHNICAL SPECIFICATION

JOINT REPAIR MORTAR SF 02 – 1K	<b>Patent Nr. DE 198 37 326 B4</b>
Binding agent base	hydraulically binding specialty cements
Colours	Standard: light grey, medium grey, dark grey on demand, from 2,4 t (bag ware) resp. 3 t (Big Bag) on in further technically feasible colours
Minimum processing temperature	5° C, night-frost free
Processing time	Grouting: up to approx. 40 min at 20° C Cleaning: after approx. 1,5 hours at 20° C Grouted surface must be kept wet permanently till cleaning
Requirements	approx. 1,6 kg dry mortar / litre joint space
Joint width	5 mm minimum (6 mm minimum according to FGSV working paper no. 618/2)
Joint depth	Full remaining joint depth after setting of the elements Mosaic sett pavements 3 cm minimum Pre-filling of joints is not permissible.
Compressive strength after 1 day (20° C) *	> 20 N/mm <sup>2</sup>
Compressive strength after 7 days (20° C) *	> 30 N/mm <sup>2</sup>
Compressive strength after 28 days (20°C).*	> 50 N/mm <sup>2</sup>
Adhesive tensile strength <sup>1)</sup>	> 1,5 N/mm <sup>2</sup>
Gross density of hardened mortar	2.000 kg/m <sup>3</sup>
E-module	< 25.000 N/mm <sup>2</sup>
Water im-permeability	yes
Frost an de-icing agent resistance	proved
Reduction of sound run-time after CIF test CIF Testing fluid 3 % solution of NaCl	< 5 %
All values determined on the basis of lab-body blocks in build-in density at 20° C at the specified testing age resp. after 28 days. 1) Determination of adhesive tensile strength on slab base-body according to DAfStb-guideline "Schutz und Instandsetzung von Betonbauteilen, Teil 4 (= Protection and reinstatement work of concrete elements, part 4) with "Haftfix". Subject to technical modifications.	
<b>Important information</b>	
Suitability for storage 6 months in dry cool rooms. * The decrease of temperature down to 10° C doubles the needed time for hardening. At the decrease down to 5° C it will be quadrupled.	

For the processing of STEIN TEC® products, respective guidelines and recommendations, engineer standards, applicable technical bulletins, generally accepted codes of practice and technology and our technical bulletins and material safety data sheets are to be considered. Technical bulletins and material safety data sheets are available and can be sent on request. We guarantee perfect quality of our products. The information given in this bulletin is based on the present technical knowledge and experience. Due to the diversity of possible influences for the processing and the application of our products which are outside of our control, it does not exempt the processor from own testing and trials, and it represents general guidelines, only. A legally binding assurance of specific properties or of the suitability for a particular application cannot be derived from that. It is the processors own responsibility to always observe possible property rights and existing laws and regulations.

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