

## PRODUCT DESCRIPTION

STEIN TEC® Bedding Mortar BM 04 is a hydraulically binding work dry mortar with application-specific mineral and organic additives. Due to its high adhesive tensile strength, it is suited for paved and slabbed surfaces used with up to heaviest loads. STEIN TEC® Bedding Mortar BM 04 features high water permeability and frost resistance. It meets resp. surpasses in its properties the requirements according to the FSGV-Arbeitspapier Nr. 618/2 (working paper for surface pavements with pavings and slabs using bonded construction). Furthermore, STEIN TEC® Bedding Mortar BM 04 S meets resp. surpasses in its properties the requirements according to the FSGV-Arbeitspapier No. 618/2 (working paper for surface pavements with pavings and slabs using bonded construction). STEIN TEC® Bedding Mortar BM 04 is optimally adapted with its material properties, like shrinkage and deformation characteristics, to STEIN TEC® jointing mortars.

### Properties

- high compressive strength
- high adhesive tensile strength
- high water-permeability
- frost-resistant
- low-shrinkage and low-stress
- polymer modified
- very good processability

### Range of application

STEIN TEC® Bedding Mortar BM 04 is applicable for bonded laying of paved and slabbed surfaces of natural stone, concrete blocks and clinker bricks used with up to heaviest loads. It is particularly suited if paved or slabbed surfaces with high adhesive tensile strength are required.

If concrete blocks, slabs and, in general, elements with smooth and even (e.g. sawn) underneath are used, STEIN TEC® Bond Adhesive Hafffix should be applied additionally.

For required early loading, we recommend to combine STEIN TEC® Bedding Mortar BM 04 S with STEIN TEC® Jointing Mortar HD 02 S – 1 K or SF 02 – 1 K.

### Delivery form

Silo with mixing device  
(15 t minimum purchase)

Big Bag 1.000 kg  
(for optional Big-Bag Rack BBR with mixing device)

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

### Storage

Storable for 6 months in the silo.  
Big Bag and bag ware in closed packs storable for 6 months in dry cool rooms

## PROCESSING

### Preparation of the subsoil

The superstructure must meet the requirements of the expected loads according to the respective valid rules and standards. If you have any questions, please contact our technology department.

Check superstructure and base layer according to rules and standards.

The base course must be free of soiling and shall be pre-wet (no stagnant water).

### Mixing

The processing of the bedding mortar must be carried out in earth-moist texture with water content of approx. 10% (only clear cold water), i.e. water addition approx. 4 l water per 40 kg bedding mortar.

Using silo ware and Big-Bag Rack (BBR), mix the mortar in suited earth-moist texture by the horizontal flow mixer mounted to the silo (attend the STEIN TEC® journal for silo instruction).

Mix bag ware in the positive mixer, horizontal flow-mixer or by stirring device. Lumping must be avoided. For mixing in the positive mixer or by stirring device, fill water into the mixer first. Attention shall be paid to evenly good mixing of the mortar.

Testing of the earth-moist texture by forming a snow-ball like clod in the hand. The clod must not decompose when opening the hand, otherwise the mortar is too dry and, consequently, inapplicable. A slight adhesion of binding-agent paste should remain on the hand.

The "snow ball" shall show a slight gloss on its surface because of a binding-agent/water film (see fig. on page 2).

The correct addition of water is important for the processing properties like e.g. compactability and to obtain the required properties of the set mortar like compressive and adhesive tensile strength.

During the processing, the bedding mortar must be protected against desiccation (e.g. by a moist cover). Due to weather conditions like solar radiation and, in particular, wind, a considerable amount of water can evaporate out of the bedding mortar in a short time. This process is characterized by the "white drying" of the mortar, starting on the mortars surface, i.e. it becomes significantly brighter than after mixing. The building-in of skin-dry and/or too dry mortar is not permissible.

The protection measures against desiccation must not be used to prolong the processing time of the bedding mortar (see below).

While mixing it is advisable to add a little more water to the bedding mortar than necessary for the earth-moist texture described above. This more of water serves the purpose to compensate the moisture loss until processing.

### Building-in

The works can be carried out at temperatures above 5° C, as far as night frost is not to be expected; also during slight rain. At temperatures below 20° C longer setting and hardening time has to be considered.

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

The thickness of the bedding when compacted shall be 4 cm minimum and single-layer 6 cm maximum, according to the state of the art. If the bedding thickness is more than 6 cm when compacted, it is necessary to pre-shape in layers under approx. 25% compaction (required gross density of hardened mortar 1.900 kg/m<sup>3</sup>, cp. table "Technical specifications").

The compacting of the bedding mortar for the pre-shaping shall be carried out by rammers or static rollers. Vibrating apparatuses are not permissible.

To grade unevenness, levelling mortar can be built in in small stripes (6 cm maximum, depending on the construction layer). It must be compacted under approx. 25% by ramming (no vibrating!) (required gross density of hardened mortar 1.900 kg/m<sup>3</sup>, cp. table "Technical specifications"). The actual bedding mortar shall be applied on top of it "fresh-in-fresh".

While building-in it is necessary to pay attention to the uniform earth-moist texture of the bedding mortar. Therefore, depending on the weather conditions the snow ball test shall be carried out after mixing at the site from time to time to check the earth-

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## STEIN TEC® BEDDING MORTAR BM 04

moist texture to ensure the applicability of the bedding mortar for the laying of the elements.

On the bedding, the paving blocks resp. slabs shall be finally hammer set in correct height and alignment in projected joint distance. The compacting tool (paving hammer, hand pile-driver) has to be adapted to the elements dimensions and the thickness of the bedding, so that by the piling strike, a compaction of approx. 25 % of the mortar bed, professionally prepared, is achieved underneath the element (required gross density of hardened mortar 1.900 kg/m<sup>3</sup>, cp. table "Technical specifications"). The mortar bed must be raised up by that slump (e.g. 6 cm target thickness => 8,0 cm build-in thickness).

The processing time of STEIN TEC® Bedding Mortar BM 04 S is 60 minutes. If the temperature is lower than 20° C, the processing time will be shortened.

The processing must take place step by step, a temporary storage of mixed mortar is not permissible.

Adjusting, levelling and slight post-ramming of laid elements is only possible within 30

min maximum after building-in. After this, no further corrections resp. no further compacting are permitted.

If adhesive bond is used, levelling, adjusting, post-ramming, post-compacting of the surface elements is not permitted.

Mortar/mortar residues must not reach the sewerage system.

The paved surface must not be loaded until sufficient hardening of the jointing mortar (with the exception of stepping on it for jointing). The surface, depending on the weather conditions, shall be jointed after 48 hours at the latest, see Technical Bulletins Jointing Mortar.

### Finishing treatment

STEIN TEC® Bedding Mortar BM 04 S must be after-treated, depending on the weather conditions, by repeated thorough watering of the joint space, by moist cover etc. until jointing.

Protect non-set bedding mortar against heavy rainfall.

### Important information

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. If you have any questions, please contact our technology department.

For new users a briefing of the construction site staff in terms of mixing process of silo and bag ware, addition of water and required texture and processing by our practice engineers is recommended.

### Security advice

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

## SNOWBALL-TEST



Decomposed "snow ball" due to too dry texture



"Snow ball" at optimal earth-moist texture



Binding-agent/water film on the surface of the "snow ball" at optimal texture.

## TECHNICAL SPECIFICATION

<b>BEDDING MORTAR BM 04</b>	
Binding agent base	hydraulically binding specialty cements
Minimum processing temperature	5° C, night-frost free
Processing time	approx. 1,5 hours at 20° C
Requirements	approx. 20 kg dry mortar / cm / m <sup>2</sup>
Built-in thickness	4 cm maximum, single-layer 6 cm maximum in compacted condition
Compressive strength after 7 days (20° C) *	> 15 N/mm <sup>2</sup>
Compressive strength after 28 days (20° C) *	> 30 N/mm <sup>2</sup>
Adhesive tensile strength <sup>1)</sup>	> 1,5 N/mm <sup>2</sup>
Gross density of hardened mortar	1.900 kg/m <sup>3</sup>
E-module	< 15.000 N/mm <sup>2</sup>
Water permeability	> kf = 5 x 10 <sup>-5</sup> m/sec
Frost resistance	proved
Reduction of sound run-time after CIF test CIF Testing fluid distilled water	< 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.	
<sup>1)</sup> 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 the silo, Big Bag and bag ware 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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