TECHNICAL BULLETIN
STEIN TEC® DRAIN CONCRETE DBT 08

MÖRTEL FÜR PROFIS
STEIN TEC

PRODUCT DESCRIPTION

STEIN TEC® drain concrete DBT 08 is a work dry concrete for bonded base courses, exclusively developed by STEIN TEC®. In its properties it meets resp. surpasses the requirements of the FGSV bulletin No. 827 for drain concrete base courses (DBT). Compared to drain concrete according to the FGSV bulletin, it features controlled, considerably reduced shrinking, quick strength development and considerably higher strength values.

The shrinking behavior of STEIN TEC® drain concrete DBT 08 is optimally adapted to STEIN TEC® bedding and jointing mortars. Furthermore, the notching of the drain concrete base course at intervalls of 5 m maximum (according to FGSV bulletin about drain concrete base courses) is not necessary. Therefore, the overlaying expansion joints in the bedding and the surface are obmitted.

By using STEIN TEC® drain concrete DBT 08 for the base course in combination with STEIN TEC® bedding and jointing mortar, the complete system is reinforced in that way, that also traffic loads up to construction classification "SV" according to RStO 01 (=heavy traffic) can be durably borne. At professional processing, an evenly high adhesive bond to STEIN TEC® bedding mortars is achieved.

Properties

- shrinkage-reduced, low-stress
- accelerated hardening
- early loadable/paveable
- high compressive strength
- high adhesive tensile strength
- high water-permeability
- frost-resistant
- very good processability
- processable by road finishing machines

Range of application

STEIN TEC® drain concrete DBT 08 is applicable for bonded base courses for traffic surfaces used with up to highest loads. It can be processed by road finishing machines. It is especially suited if quick construction progress is required, because it is possible to pave on it after approx. 24 hours already if combined with STEIN TEC® bedding and jointing mortars and under appropriate conditions.

Delivery form

STEIN TEC® drain concrete DBT 08 is available in the silo with mixing device (15 t minimum purchase).

Storage

Storable for 6 months in the silo.

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.
The base should be pre-wet (no stagnant water).

Mixing

Mix drain concrete DBT 08 in earth-moist texture by the horizontal flow mixer mounted to the silo (attend the STEIN TEC® journal for silo instruction).
Only clear cold water shall be added.
Required water addition: approx. 8 %.

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 drain concrete is to dry. A slight adhesion of binding-agent paste should remain on the hand. The "snow ball" should show a slight gloss on its surface because of a binding-agent/water film (see technical bulletin page 2 bedding mortar BM 04 resp. BM 04 S).

The correct addition of water is very 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 drain concrete 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 drain concrete in a short time. This process is characterized by the "white drying" of the concrete, starting on the concretes surface, i.e. it becomes significantly brighter than after mixing. The building-in of skin-dry and/or too dry drain concrete is not permissible.
The protection measures against desiccation must not be used to prolong the processing time of the drain concrete (see below).

While mixing it is advisable to add a little more water to the drain concrete 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

For building-in the usual principles for compaction and after-treatment must be complied with.
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.

The minimum thickness of a base course when compacted is 15 cm (c.p. RStO 01), the maximum thickness for one-layer construction is 25 cm.

Depending on the device used for compacting and for bigger thicknesses the drain concrete has to be multi-layer processed with intermediate compaction. STEIN TEC® drain concrete DBT 08 can be built in by a road finishing machine.
While building-in it is necessary to pay attention to the uniform earth-moist texture of the drain concrete. 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-moist texture to ensure the applicability of the drain concrete for building-in.

The compacting of the drain concrete under approx. 25 % (required gross density of hardened concrete ≥ 1.850 kg/m³, cp. table "Technical specifications") shall be carried out by rammers or static rollers. Vibrating apparatuses are not permissible.

The processing time of STEIN TEC® drain concrete DBT 08 is 90 minutes. If the temperature is lower than 20° C, it will be shortened.

Finishing treatment

The drain concrete layer needs to be after-treated. Depending on the weather conditions, the finishing treatment shall be carried out by using a moist cover, repeated thorough watering (after sufficient setting) etc. until paving. Protect non-set drain concrete against heavy rainfall.
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Initial use

As a rule, on STEIN TEC® Drain Concrete DBT 08 can be paved after 24 hours after finishing. At an ambient temperature of 20 °C, the drain concrete attains a strength of approx. 5 N/mm². If the ambient temperature is lower, the setting and hardening time will be extended.

Important information

The minimum thickness of a base course made of STEIN TEC® Drain Concrete DBT 08, when compacted, is 15 cm, the maxi mum thickness for one-layer construction is 25 cm. For bigger thicknesses the drain concrete has to be multi-layer processed with intermediate compaction. Respective regulations and generally accepted codes of practice, especially the FGSV bulletin about drain concrete layers and RStO, must be complied with. 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.

For new users we recommend a briefing of the construction site staff in terms of water addition and required texture by our practice engineers.

To avoid soiling of the voids within the drain concrete layer, it must not be passed over by site traffic. If site traffic is unavoidable, it will be possible after sufficient hardening of the drain concrete layer and under sufficient protection against soiling only.

Security advice

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

TECHNICAL SPECIFICATION

DRAIN CONCRETE DBT 08	
Drain concrete DBT 08	hydraulically binding specialty cements
Binding agent base	5° C, night-frost free
Minimum processing temperature	approx. 1,5 hours at 20° C
Processing time	approx. 19 kg dry mortar / cm / m²
Requirements in compacted condition	15 cm in compacted condition
Minimum built-in thickness	25 cm in compacted condition
Maximum built-in thickness (single-layer)	> 5 N/mm²
Compressive strength after 1 day (20° C) *	> 20 N/mm²
Compressive strength after 7 days (20° C) *	> 25 N/mm²
Compressive strength after 28 days (20° C) *	> 1,5 N/mm²
Adhesive tensile strength[1)]	1.850 kg/m³
Gross density of hardened concrete	< 15.000 N/mm²
E-module	> kf = 1 x 10^{-4} m/sec
Water permeability	Mixing rate 5 to 6 m³/h/silo. The actual build-in rate depends on the site conditions

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.

Important information

Suitability for storage 6 months in the silo.
* 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.