

Technical Data Sheet

CEMSCREED 5

TARMAC CEMSCREED 5 - A RAPID DRYING FLOOR SCREED

Description

Tarmac Cemscreed 5 is a rapid drying floor screed developed by Tarmac to fulfill the need for factory produced high performance cement:sand levelling screeds suitable for all common floor finishes. The screed is suitable for light foot traffic after 24 hours⁽¹⁾ and is sufficiently dry to receive all types of floor covering after 7 days⁽¹⁾.

Typical uses

Tarmac Cemscreed 5 is used to produce bonded, unbonded and floating screeds in internal situations where early foot traffic and quick drying is required e.g. to allow floor coverings, ceramic tiles and natural stone tiles to be laid with short installation times.

Advantages

- Accessible to light foot traffic within 24 hours⁽¹⁾.
- Quick drying allowing the floor coverings to be laid after 7 days⁽¹⁾.
- Can be used for the rapid repair of existing floor screeds.
- Suitable for use over under-floor heating systems.
- Better working properties providing easier and more reliable compaction.
- Quicker early strength development.
- Reduced drying shrinkage resulting from low water/cement ratio.
- Good resistance to construction traffic and dusting.
- Greater final strength.
- Fibres may be used to replace crack control reinforcement (D49).
- Better cement dispersion gives greater and more uniform compressive strength throughout the floor area.
- Factory mixing takes quality control away from the site and into the factory, providing consistent quality materials and accurate proportioning.

⁽¹⁾ At 23°C and 50% relative humidity. Tested using dried sand. All moisture testing completed using carbide method.

Product conformity

Use in accordance with recommendations in Code of Practice BS 8204-1. The British standard listing traditional proportions for ready-to-use cement:sand screeds was BS 4721 which was withdrawn in February 2005. Tarmac factory produced screed materials conform to the requirements of BS EN 13813.

Cemscreed 5 should be used in accordance with the recommendations of Codes of Practice BS 8000:Part 9 and BS 8204:Part 1.

Composition and manufacture

Tarmac Cemscreed 5 is a thoroughly mixed accurately controlled blend of the following materials:

- Well-graded washed fine aggregate (sand) conforming to BS EN 12620/BS EN 13139.
- Portland Cement conforming to BS EN 197-1.
- Retarding/water reducing admixture conforming to BS EN 934-2/3 giving the optimum working time, normally usable for 8 - 12 hours from the time of mixing.
- Water conforming to BS EN 1008, to give the optimum semi-dry consistency for easy laying and thorough compaction.

Density

Typical test results:

Fresh wet uncompacted 1,850 - 2,000 kg/m³.

Compacted set and air dried 2,000 - 2,200 kg/m³.

Performance

Strength

Results based on prisms made, cured and tested in accordance with the requirements of BS EN 13892-2.

SCREED DESIGNATION	BS EN 13813 COMPRESSIVE STRENGTH CLASS	BS EN 13813 FLEXURAL STRENGTH CLASS
Cemscreed 5	C30	F3.0

Table 1 : Cemscreed 5 strength classes and minimum strength

These results are indicative and may be subject to change.

Typical hardening times

Light foot traffic 1 day. Site traffic 3 days.

Typical drying times

Allow approximately 7 days at 50mm of thickness. For thicknesses above 50mm or where the concrete base has excessive moisture content, this time should be increased. High humidity or low temperatures will also delay the drying out process. At 10°C and 70% relative humidity the typical drying time will be 14 days at 50mm thickness.

Curing

After laying Tarmac Cemscreed 5 all windows and doors should be kept closed for the first 24 hours. If doors and windows are not fitted to the building then polythene sheeting should be used to seal all openings.

After the first 24 hours windows and doors should be opened to allow a natural airflow through the room and facilitate drying. Where possible it is strongly recommended that rooms be heated to 20°C to accelerate the drying process.

Fire protection

Tarmac Cemscreed 5 contains less than 1.0% organic material and is classified in accordance with BS EN 13501-1 as Class A1 without testing (Commission Directive 96/603/EC).

Effect of freeze thaw

In cold conditions adequate precautions must be taken to protect from freeze thaw attack. No antifreeze chemicals or accelerating admixtures should be added to the screed material.

Compatibility

Tarmac Cemscreed 5 is compatible with all normal building materials, but wet cementitious materials may attack certain metals e.g. aluminium.

Durability

No problems should occur if the correct screed material has been specified, but Tarmac Cemscreed 5 is not designed as a wearing surface and should be covered with a flooring material.

Health & safety

There is a real danger of contact dermatitis or serious burns if skin comes into contact with wet cement mixes such as fresh concrete, mortar or screed. Wear suitable protective clothing and eye protection. Where skin contact occurs, either directly or through saturated clothing, wash immediately with soap and water. For eye contact, immediately wash out eye thoroughly with clean water. If swallowed wash out mouth and drink plenty of water.

For further information refer to Tarmac Safety Data Sheet No. 17.

Applications

Uses

Suitable for use on the following bases:

1. Solid concrete ground floor slabs:
 - a) Directly in contact with the slab (bonded).
 - b) With suitable damp proof membrane between slab and screed (unbonded).
 - c) Over an insulating layer to isolate the screed from the base (floating).
2. Precast concrete units or beams with reinforcement.
3. In situ suspended floors.
4. As a topping to lightweight screeds based on perlite or other lightweight aggregates.
5. Certain other situations - refer to your nearest Local Sales Office.

The above applications are subject to the minimum thicknesses given in the section on Construction/Sitework.

Table 2 - Tarmac Cemscreed 5

TYPE OF SPECIFICATION	RECOMMENDED MINIMUM AVERAGE THICKNESS (mm)	MINIMUM THICKNESS AT ANY POINT (mm)	COMMENTS
Monolithic (i.e. applied within 3 hours of placing concrete)		Ideally 12 - 15 Not greater than 25	Thicknesses greater than 25mm should be avoided to minimise shrinkage stresses
Grouted to precast concrete slab cement: water slurry	45	30	Brushing of green concrete or mechanical treatment to expose aggregate recommended
Grouted to concrete planks with cement: water slurry	60	15	Screed should be reinforced if structural movement is expected. Cement: Tarmac SB Admixture slurry* may be used to ensure a better bond. Surface of units must be roughened to form a key
Grouted to sound, rough concrete slab with cement: Tarmac SB Admixture slurry*	40	25	Brushing of green concrete or mechanical treatment to expose aggregate below 40mm
Grouted to waterproof concrete slab with cement SB admixture slurry	50	45	Aggregate must be exposed
Grouted on bitumen dpm using cement: Tarmac SB Admixture slurry*	50	50	
Unbonded	55	50	
Applied to concrete stairs Treads Risers		20 12 (15 max)	Aggregate must be exposed by mechanical treatment and cement: Tarmac SB Admixture slurry* applied
Toppings to lightweight screeds †	13	10	Applied to lightweight aggregate screeds, e.g. Limelite Lightweight Screed. Pre-wetting of lightweight screeds may be necessary
Pipes and conduits		25 cover	Pipes and conduits
Trunkings		25 cover	Reinforced with wire mesh over and bonded to trunking with cement: Tarmac SB Admixture slurry*. Trunkings must be securely bedded and fixed
Floating screed for sound insulation on 5mm polyethylene foam	50	40	Reinforced with D49 or similar unless over 55mm, slurry grout to foam insulation
Floating screed for thermal insulation on fibre quilt	75	65	Screed reinforced with D49 or similar below 75mm
Floating screed for thermal/sound insulation on rigid board	55	50	Reinforced with D49 or similar below 60mm

* Used according to Tarmac Product Data Sheet No.22

† Where used in conjunction with Limelite Lightweight Screed apply monolithically if possible.

One tonne of screed material will have an approximate volume of 0.43 - 0.48 m3. Table 3 shows the coverage area per tonne for a range of thicknesses.

THICKNESS mm	COVERAGE AREA m ² /tonne (approx)	THICKNESS mm	COVERAGE AREA m ² /tonne (approx)
10	45.0	45	10.0
15	30.0	50	9.0
20	22.5	55	8.2
25	18.0	60	7.5
30	15.0	65	7.0
35	13.0	70	6.5
40	11.0	75	6.0

Table 3: Approximate coverage area of screed material

NOTE: Slight variations in sub-base levels will affect the coverage.

Construction/sitework

Site storage

Tarmac Cemscreed 5 should be tipped on to a clean banker board with a sealed base and sheeted to protect it from the elements. Do not tip new deliveries onto the remains of the previous load.

Preparation

The base concrete must be clean and in particular free from lime, gypsum, plaster, dust, dirt, oil or grease. The base concrete should be swept to remove all loose material and wetted with clean water, where the levelling screed is to be placed in direct contact with the base. Just before laying the screed an appropriate bonding material should be brushed into the surface, care being taken that this neither forms deep pools nor dries before the screed is placed.

Application

Bonded construction

(Minimum thickness 40mm)

The bond between the base and levelling screed will depend on the thoroughness with which the base has been prepared. A bonding agent such as Tarmac SB Admixture can be used to obtain a good bond. The bonding agent should be used in a slurry with cement in place of the normal cement + water slurry (3 volumes cement : 2 volumes Tarmac SB Admixture) and the screed laid before the slurry dries or sets.

Unbonded construction

(Minimum thickness 50mm)

When no bond is possible between levelling screed and base, the screed should be at least 50mm thick, or, if containing heating pipes, a minimum of 65mm thick.

Floating screed

(Minimum thickness 75mm / 65mm for light loading)

A levelling screed laid on a compressible layer such as thermal or sound insulating material, should be at least 65mm thick, or, if containing heating pipes, a minimum of 75mm thick. All conduits should be firmly fixed covered with suitable crack control mesh and given a minimum cover of 25mm.

Where Tarmac Cemscreed 5 is laid on thermal or sound insulation boards, which are sufficiently rigid to enable the screed to be properly compacted, the minimum thickness of the Tarmac Cemscreed 5 may be reduced to 55mm.

Topping to lightweight screeds

A smooth surface can be given to lightweight screeds, which will enable point loadings to be carried. The normal thickness will be of the order of 10 - 15mm and, if necessary, the suction of the lightweight screed should be controlled by wetting with clean water. Tarmac recommends Limelite Lightweight Screed.

Laying

Reference should be made to Code of Practice BS 8204-1. The material should be spread on the prepared base with adequate surcharge. It is important to compact the screed material thoroughly and evenly over the whole area, either by tamping or by mechanical means and then level with a screed board. For many floor finishes, the screed must be finished with a steel trowel to give it a smooth dense surface. For such a finish, the screed should be allowed to stiffen slightly and then worked with the trowel, which will make a ringing sound when the correct action is being used. Excessive trowelling should be avoided as this brings a layer of cement laitance to the surface where it may craze and dust. To aid compaction of thicker cement:sand levelling screeds, i.e. over 50mm thickness, the screed may be laid in two layers.

Both layers should be of approximately equal thickness and the same mix and water content.

The first layer should be thoroughly compacted using heavy tamping or a weighted roller. The second layer should be laid as soon as possible, i.e. within 2 hours, after compaction of the lower layer (monolithically). The most common cause of screed failure is poor compaction.

Further Information:

Please call the Technical Centre on: 08701 116 116.