

# Product Data Sheet No. 13

# S C R E E D

## Technical data: Tufscreened F

### Identification

#### INTRODUCTION

Tufscreened F was developed by Tarmac to meet the increasing demand for factory produced cement sand, levelling screeds of all mix proportions incorporating an even dispersion of polypropylene fibres. The presence of suitable fibres can help to achieve a more cohesive material and help control cracking caused by intrinsic stresses.

Tufscreened F is ideally suitable for use in hospitals, offices, superstores, industrial and other applications where there would be a high cost in loss of use through floor failure due to surface cracking of the levelling screed.

Tarmac Tufscreened F is produced by adding the optimum amount of fibres to any of the designations listed in Table 1.

### Advantages

Tarmac Tufscreened F has the following advantages over traditional cement sand levelling screeds:

- Reduced early age shrinkage/cracking.
- Improved flexural strength/flexural fatigue resistance.
- Improved toughness.
- Easy to place and compact and overcomes many practical problems when used as an alternative to steel crack control fabric.
- Fibres cannot be misplaced.
- Reduced permeability.
- Better impact/abrasion resistance against site traffic.
- Improved pumping characteristics.
- Factory mixed to give accurate control and better dispersion of cement and fibres with strength classes conforming to BS EN 13813.

### Product Conformity

Use in accordance with the recommendations in Code of practice BS 8204-1. The British Standard listing traditional proportions of materials for ready-to-use cement sand screeds was BS 4721 which was withdrawn in February 2005.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.

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

### Description

#### COMPOSITION AND MANUFACTURE

Tarmac Tufscreened F 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.
- Polypropylene fibres (normally 6 mm).
- 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.

Where it is intended to pump the material, please notify your local sales office allowing reasonable time before work is due to commence.

### Density

Typical test results:

Fresh wet uncompactd:	1850-2000 kg/m <sup>3</sup>
Compacted, set and air dried:	2000-2200 kg/m <sup>3</sup>

### Performance

#### STRENGTH

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

The inclusion of polypropylene fibres provides a three-dimensional system of secondary or crack control reinforcement and may be considered as an alternative to steel wire fabric traditionally employed for this purpose. Polypropylene fibres should not be used as an alternative to primary or structural reinforcement.

Table 1 - Screed material strength classes and traditional designations

Traditional Screed Designation	BS EN 13813 Compressive Strength Class	BS EN 13813 Flexural Strength Class
1:3 (a)	C30	F3.0
1:4 (b)	C20	F2.0
1:5 (c)	C16	F1.0
Truscreened Truscreened H.D.	C30 C35	F3.0 F4.0

These results are indicative and may be subject to change.

## TYPICAL HARDENING TIMES

Light foot traffic - 4 days. Site traffic - 7 days.

## DRYING TIMES

Allow approximately one month per 25 mm of thickness. Where the screed is above 50 mm, any thickness above 50 mm should be allowed to dry for two months per 25 mm of thickness. Where the concrete base has an excessive moisture content these times should be increased. High humidity or low temperature will also delay the drying out process. As the drying times indicated apply from the completion of any curing operations, the flooring contractor must check the moisture content of the screed prior to laying the final floor finish.

## FIRE PROTECTION

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

## EFFECT OF FREEZE THAW

In cold conditions adequate precautions must be taken against freeze thaw. No antifreeze chemicals or accelerating admixture should be added to the screed material.

## COMPATIBILITY

Tarmac Tufscreeed F 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 Tufscreeed F is not designed as a wearing surface and should always 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 eyes 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 Tarmac Sales Office.

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

One tonne of screed material will have an approximate volume of 0.43 to 0.48 m<sup>3</sup>. Table 2 shows the approximate coverage area per tonne of screed material for a range of thicknesses.

Thickness mm	Coverage Area m <sup>2</sup> /tonne (approx.)	Thickness mm	Coverage Area m <sup>2</sup> /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 2 Coverage of screed material

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

## Construction/Sitework

### SITE STORAGE

Tarmac Tufscreeed F 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 material is placed.

### BONDED CONSTRUCTION

(Minimum thickness 40 mm)

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 50 mm)

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

#### FLOATING SCREED

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

A levelling screed laid on a compressible layer such as thermal or sound insulating material, should be at least 65 mm thick, or, if containing heating pipes, a minimum of 75 mm thick. All conduits should be firmly fixed, covered with suitable crack control mesh and given a minimum cover of 25 mm. BS 8204-1 recommends that where possible pipes and conduits should not be laid within the thickness of a levelling screed.

NOTE: Levelling screeds should be divided into bays only if they are to contain under floor heating pipes or are intended to receive an in situ floor finish.

#### 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 - 15 mm and, if necessary, the suction of the lightweight screed should be controlled by wetting with clean water.

#### 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 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 50 mm 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.

#### CURING

Screeds should be protected from damage after laying. To achieve the full performance of Tarmac ready-to-use levelling screeds adequate curing is essential and the screed should be covered with plastic sheeting or other suitable material to retain moisture for at least seven days. Whilst damping down of the surface before covering is acceptable, saturation of the screed, e.g. by prolonged hosing is not recommended

NOTE: Do not use hot air blowers, underfloor heating, or other means of accelerating drying in the early life of the screed.

### Technical Support

Tarmac provides a comprehensive sales and technical advisory service to specifiers and customers.

A quality system has been implemented throughout the company since 1975 and quality procedures are in conformity with BS EN ISO 9001:2000. All Tarmac factories hold third party certification from the British Standards Institution. Details of the certification status of individual factories may be obtained from the technical help desk.

#### PRICES AND CONDITIONS OF SALE

Prices vary according to mix design, quantity and delivery location. For specific quotations contact your nearest Tarmac Area Office or – see heading Further Information.

All quotations given, orders placed and materials supplied are subject to the Conditions of Sale available via download from the Tarmac website [www.tarmac.co.uk](http://www.tarmac.co.uk) or upon request from your nearest Tarmac Office.

#### SUPPLY

Tarmac Tufscreen F is available direct from Tarmac factories located strategically throughout the United Kingdom: contact your nearest Tarmac Office for further details - see heading Further Information.

#### ORDERING

When ordering, state, product designation, quantity, date and time of delivery. 24 hours should normally be allowed for delivery.

### Delivery

Bulk loads in tipper road trucks generally up to 10/20 tonnes or 7-8 tonne steel skips (where available). The skips reduce wastage, and prevent contamination.

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## References

### BRITISH STANDARDS INSTITUTION

BS EN 197-1	Cement - Part 1: Composition, specifications & conformity criteria for common cements.
BS EN 1008	Mixing water for concrete - Specification for sampling, testing & assessing the suitability of water, including water recovered from processes in the concrete industry, as a mixing water for concrete.
BS EN 12620	Aggregates for concrete
BS EN 13139	Aggregates for mortar
BS EN 934	Admixtures for concrete, mortar and grout:
Part 2: 2001	Concrete admixtures- Definitions, requirements, conformity, marking and labelling.
Part 3: 2003	Admixtures for masonry mortar - Definitions, requirements, conformity, marking and labelling
BS 8204:	Screeds bases and in situ floorings.
Part 1: 2003	Concrete bases and cement sand levelling screeds to receive floorings - Code of practice.
BS EN 13501-1 : 2002	Fire classification of construction products and building elements Part 1: Classification using test data from fire reaction tests
BS EN 13813: 2002	Screed material and floor screeds - Screed material - Properties and requirements.
BS EN 13892	Method of test for screed materials (A multipart standard). Part 2: 2002 Determination of flexural and compressive strength.

### BRITISH CEMENT ASSOCIATION

Publication 48.046 Construction Guide: Laying Floor Screeds.

### TARMAC

Mortar Product Data Sheet No 11	Tarmac Ready-to-Use Cement Sand levelling Screeds.
Mortar Product Data Sheet No 12	Tarmac Truscreed and Truscreed HD
Mortar Product Data Sheet No 14	Tarmac SBR Polymer Screed.
Mortar Product Data Sheet No.22	Tarmac SB Admixture - for Masonry, Screed and Rendering Applications.
Site Guide No.2	Tarmac Screeds, Truscreed and Truscreed HD
Product safety datasheet No.17	Mortar Screeds and renders
Tarmac General Mortar and Mix Design Manual.	

## Further Information:

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For further technical information please call: **08701 116 116.**

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