

## High Performance *tuffset G*: Technical Data

**Tuffset G** is a high performance hydraulic mortar with rapid strength gain. Capable of being subjected to heavy trafficking within three hours or less, **tuffset G** is a versatile product that can be used effectively as bedding, primer and grouting, making it ideal for emergency repairs to modular paving, concrete and ironworks. A realistic working life of around 15 minutes at 20 ° means that sufficient quantities can be mixed to allow productive workflow, while

keeping waste to a minimum. The absence of polymers, chemical admixtures and resin binders, also means **tuffset G** can be easily cleaned, and residual stains avoided.

Like all **tuffbau** mortars, **tuffset G** is fully compliant with BS 7533, meeting or exceeding all of the Standard's rigorous requirements for low elastic modulus, high adhesion bond and all-round performance.

Adhesion bond in British Standards for pavement construction is 2 N/mm<sup>2</sup> and **tuffset G** achieves consistently more than 3 N/mm<sup>2</sup>. Adhesion is key to any successful repair or early trafficking of modular paving and **tuffset G's** final strength is similar to standard mortar, showing no downside to its very rapid early strength gain, and the stiffness modulus is similar to other products in the **tuffbau** range.



### Tuffset G Technical Performance (at 20°C)

	<b>tuffset G</b> for jointing or priming	Mixed 1:1 for concrete repairs	Mixed 1:2 for rapid strength	Mixed 1:3 for overnight strength gain
<b>Compressive strength gain</b>				
- 1 hour	~ 17 N/mm <sup>2</sup>	~ 27 N/mm <sup>2</sup>	~ 15 N/mm <sup>2</sup>	~ 10 N/mm <sup>2</sup>
- 2 hours	~ 23 N/mm <sup>2</sup>	~ 34 N/mm <sup>2</sup>	~ 19 N/mm <sup>2</sup>	~ 12 N/mm <sup>2</sup>
- 3 hours	~ 24 N/mm <sup>2</sup>	~ 37 N/mm <sup>2</sup>	~ 20 N/mm <sup>2</sup>	~ 15 N/mm <sup>2</sup>
- 1 day	~ 40 N/mm <sup>2</sup>	~ 50 N/mm <sup>2</sup>	~ 30 N/mm <sup>2</sup>	~ 25 N/mm <sup>2</sup>
- 28 days	~ 58 N/mm <sup>2</sup>	~ 70 N/mm <sup>2</sup>	~ 40 N/mm <sup>2</sup>	~ 40 N/mm <sup>2</sup>
BS7533 requirement	~ 40 N/mm <sup>2</sup>	~ 35 N/mm <sup>2</sup>	~ 35 N/mm <sup>2</sup>	~ 35 N/mm <sup>2</sup>
<b>Adhesion bond final strength</b>				
- 28 days	~ 3 N/mm <sup>2</sup>	~ 3 N/mm <sup>2</sup> with <b>tuffset G</b> used as primer ~ 1 N/mm <sup>2</sup> without		
BS7533 requirement	~ 2 N/mm <sup>2</sup>	~ 1 N/mm	~ 1 N/mm	~ 1 N/mm
<b>Flexural strength</b>				
- 3 hours	~ 4 N/mm <sup>2</sup>	~ 4 N/mm <sup>2</sup>	~ 4 N/mm <sup>2</sup>	~ 3 N/mm <sup>2</sup>
- 1 day	~ 7 N/mm <sup>2</sup>	~ 6 N/mm <sup>2</sup>	~ 6 N/mm <sup>2</sup>	~ 5 N/mm <sup>2</sup>
BS7533 requirement	~ 4 N/mm <sup>2</sup>			
<b>Elastic modulus</b>				
- 28 days	~ 23 kN/mm <sup>2</sup>	~ 18 kN/mm <sup>2</sup>	~ 18 kN/mm <sup>2</sup>	~ 18 kN/mm <sup>2</sup>
BS7533 requirement	16-24 kN/mm <sup>2</sup>	15-21 kN/mm <sup>2</sup>	15-21 kN/mm <sup>2</sup>	15-21 kN/mm <sup>2</sup>
<b>Shrinkage</b>				
	< 0.1%	< 0.1%	< 0.1%	< 0.1%
<b>Permeability</b>				
EN 12697-19				~ 18.5 * 10 <sup>-4</sup> m/s

### Tuffset G COLD WEATHER Technical Performance (3°C)

<b>Compressive strength gain</b>				
- 4 hours	~ 19 N/mm <sup>2</sup>	~ 27 N/mm <sup>2</sup>	~ 15 N/mm <sup>2</sup>	~ 10 N/mm <sup>2</sup>
- 6 hours	~ 23 N/mm <sup>2</sup>	~ 34 N/mm <sup>2</sup>	~ 19 N/mm <sup>2</sup>	~ 12 N/mm <sup>2</sup>

**At 3°C the setting process is retarded, though after it begins, it continues very intensively**

### Bedding Mortar

To use as a high-speed early strength gain bedding mortar – mix **ONE** sack of **tuffset G** with **TWO** sacks of **tuffgrit** aggregate. Suitable for three-hour trafficking at 20 °C.

For an overnight solution, with a slightly less rapid strength gain, mix **ONE** sack of **tuffset G** with **THREE** sacks of **tuffgrit** aggregate.

### Bonding mortar

Add water to **tuffset G** and use a mixing paddle to produce a thick, high adhesion slurry paste, that can be applied with a trowel or stiff brush

### Jointing mortar

Add water to **tuffset G** and use a mixing paddle or forced action mixer to produce a highly plastic, just-pourable jointing grout.

### Emergency concrete repair

Mix **ONE** sack of **tuffset G** with **ONE** sack of **tuffgrit** aggregate to execute a concrete repair with stiffness modulus, compressive and flexural strength compatible with pavement quality concrete C32/40.

Uniclass 2015: Pr 20 31 53 60 Paving Jointing Mortars & Pr 20 31 53 61 Paving Laying Course Mortars.

