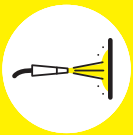
# webercem spray DSF

## Polymer modified, dry spray, structural repair concrete, with fibre-reinforcement

- High early strength and reduced rebound
- High build - up to 300mm thickness can be applied in a single operation, depending on repair location
- Complies with BS EN 1504-3 as an R4 mortar


SPRAY APPLICATION


LOW REBOUND


MEETS BS EN 1504-3 AS AN R4 MORTAR

COMPRESSIVE STRENGTH

APPLICATION THICKNESS


CONTAINS FIBRES

### About this product

**webercem spray DSF** is a ready-to-use, polymer-modified, cement-based concrete mix. It contains inert limestone aggregates and dust suppressants. The formulation has been designed specially for dry process spray application to give high early strength, reduced rebound and maximise application thickness.

**webercem spray DSF** contains alkali resistant glass fibres. It has been designed to give higher tensile strength and reduced rebound. The fibres help to reduce shrinkage cracking. Conformity testing to BS EN 1504-3 has confirmed that **webercem spray DSF** meets the requirement of a Class R4 repair product.

### Features and benefits

- Economical – low rebound
- No siliceous aggregates, no caustic accelerators
- High build – up to 150mm thickness can be applied in one pass on vertical and overhead faces without mesh reinforcement
- Low permeability to water and chlorides
- Low chloride ion diffusion: better protection of reinforced concrete marine structures
- Fibres provide better strain relief and stress distribution
- Thin overlays 25-50mm on columns, piers and walls without need for mesh, providing extra cover to steel
- Class 4 repair product meeting BS EN 1504-3

- Repairs to large areas of structural concrete
- Repairs of highway structures: bridge columns, piers, deck soffits, beams, abutments, parapets, retaining walls, tunnels and viaducts
- Repairs of marine structures: jetties, piers, quays, seawalls, concrete offshore platforms, docks and drydocks
- Repairs of fire damaged concrete structures
- Sealing of mine roadways and tunnels
- Structural enhancement of mineshafts
- Structural encasement of steel sections, pylons, chimneys and cooling towers
- Rock and embankment stabilisation
- Thin concrete overlays 25-50mm on columns, beams and soffits
- Increasing cover to steel in RC structures
- **webercem spray DSF** has been designed for use in both thin and thick sections up to 300mm.

## Constraints

- Do not apply if frost is forecast within 24 hours of use
- Do not apply in temperatures below 5°C or above 30°C

## Preparation

As with all repairs and applications it is essential to apply to a clean, sound surface free from all grease, oil, dust and loose material.

### Concrete

Concrete substrates must be adequately prepared by a suitable mechanical method such as scabbling, grit blasting, water jetting or needle gunning, or by such other means as appropriate. Concrete must be carefully prepared to give a clean, freshly exposed surface. The outer limits of concrete patches should be cut square to avoid feather edges.

Old concrete surfaces contaminated with oil or grease must be cleaned with a suitable detergent.

Care must be taken to ensure that the oil or grease is removed from the surface and not simply spread over a larger area.

When using this fibre-reinforced concrete in thin sections, from 25mm to 50mm, provided that the substrate has been adequately prepared to give a good bond and considering other factors, there is no need to use mesh unless it is specifically requested by the Engineer.

Soak the concrete surface thoroughly, allowing surplus water to drain off.

### Steel Substrates

Steel substrates, including exposed reinforcement, should be free of loose rust and grease. Steel should be prepared in accordance with BS EN 1504-10

## Application

Guidelines on the method of working are detailed in the Code of Practice for Sprayed Concrete published by the Concrete Society and should be strictly observed.

**webercem spray DSF** should be emptied from the bags directly into the hopper of the dry process spraying machine. The equipment should be balanced so as to produce a steady stream of material with minimal pulsing.

The amount of water added at the spraying nozzle will be controlled by the nozzleman – too low an addition will increase rebound and dust emission; too wet a mix will slump. The correct amount of water can be judged by the appearance of the sprayed concrete; any glossiness of the surface should be avoided.

In case of a long delay between applied coats of the sprayed concrete, the surface of the newly applied hardened concrete should be water jetted using maximum air pressure and water flow through the nozzle to ensure that any laitance and all weak or loose material has been removed.

The surface should be allowed to drain before proceeding with the next coat.

**webercem spray DSF** can be applied down to 15mm thickness but, because of the higher cement content, (due to aggregate loss through rebound) there is the likelihood of greater shrinkage. The recommended minimum thickness is 25mm. The recommended minimum thickness for protection over steel is 40mm.

## Finishing

Any necessary trowelling or profiling should be done immediately after spraying has finished.

An 'as-sprayed' appearance is recommended, but if overcoating is to follow, finish with a wooden float or damp sponge. Avoid the use of steel floated finishes as these normally result in surface crazing and cracking.

## Curing

This product must be properly cured if it is to achieve its optimum properties. Cure immediately with a high efficiency curing membrane unless the surface is to be overcoated or subject to chemical impregnation, in which case cure with polythene sheeting and/or wet hessian for a minimum of 3 days.

Protect from frost.

## Packaging

**webercem spray DSF** is supplied in 25kg polylined paper sacks

## Yield

Approximately 12 litres per 25kg bag, but allowance must be made for rebound and profiling.

## Storage and shelf-life

When stored unopened in a dry place at temperatures above 5°C, shelf life is 12 months from date of manufacture.

## Health and safety

For further information, please request the Material Safety Data Sheet for this product.

## Technical data

| BS EN 1504-3 (R4 Class) | All tests carried out at 20°C unless otherwise stated | | | |
|---|---|---|---|---|
| **Performance characteristic** | **Method** | **Requirement** | **Result** | **Pass/Fail** |
| Compressive strength | EN 12190 | ≥45MPa | 64.4 MPa | Pass |
| Chloride ion content | EN 1015-17 | ≤0.05 % | <0.01% | Pass |
| Adhesive bond | EN 1542 | ≥2.0 MPa | 3.2 MPa | Pass |
| Carbonation resistance | EN 13295 | dk ≤ control concrete (1.3) | dk ≤ control concrete | Pass |
| Elastic modulus | EN 13412 | ≥20 GPa | 24.5 GPa | Pass |
| Thermal compatibility Part 1 Freeze-thaw | EN 13687-1 | Bond strength after 50 cycles ≥2.0 MPa | 2.7 MPa | Pass |
| Capillary absorption | EN 13057 | ≤0.5 $kgm^{-2}h^{-0.5}$ | 0.2 $kgm^{-2}h^{-0.5}$ | Pass |
| Reaction to fire | EN 13501-1 | Declared class | Class A1 | |
| Coefficient of thermal expansion | EN 1770 | Declared value | 3.0 x $10^{-6}$/ °C | |

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