

*Low-resistivity, dry-spray,
structural repair concrete*

webercem spray CP



Uses

- 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 dry docks
- Conductive overlay over anodes in cathodic protection applications

Limitations

This product, by its nature, is slow setting. Strength development in cold weather is slow.

Steps should be taken to protect fresh concrete.

About this product

webercem spray CP is a ready-to-use, 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, reduce rebound and maximise application thickness. It has low resistivity which makes it suitable for application to structures which receive cathodic protection. Conforms with BS EN 1504-3 as a Class R4 repair product.

Technical data

Sprayed concrete is a process dependent on the skill of the operating crew, on correct setting-up of reliable equipment and on the quality of the material used. The values given below are indicative of typical properties that are achievable in good conditions by an experienced contractor.

Dry density	2250 kg/m ³
Initial set	4 – 6 hours

Performance to BS EN 1504-3

Test results – all intended uses

Performance characteristic	Method	BS EN 1504-3 requirement	Pass/Fail
Compressive strength	EN 12190	≥ 45 MPa	Pass
Chloride ion content	EN 1015-17	≤ 0.05%	Pass
Adhesive bond	EN 1542	≥ 2.0 MPa	Pass
Restrained shrinkage/expansion	EN 12617-4	Bond strength after test ≥ 2.0 MPa	Pass
Carbonation resistance	EN 13295	$d_k \leq$ control concrete (1.3)	Pass

Test results – certain intended uses

Performance characteristic	Method	BS EN 1504-3 requirement	Pass/Fail
Elastic modulus	EN 13412	≥ 20 GPa	Pass
Thermal compatibility Part 1 Freeze/thaw	EN 13687-1	Bond strength after 50 cycles ≥ 2.0 MPa	Pass
Coefficient of thermal expansion	EN 1770	Result = $8.5 \times 10^{-6}/^{\circ}\text{C}$	N/A
Capillary absorption	EN 13057	$\leq 0.5 \text{ kgm}^{-2}\text{h}^{-0.5}$	Pass

Features and benefits

- ▲ Economical – low rebound – less wastage of materials and labour (rebound levels of about 10 – 15% on vertical faces and 25 – 30% on soffits at a thickness of 50 mm can be achieved by an experienced nozzleman using well adjusted equipment)
- ▲ Safe to use and handle. Relatively low dust emission, no caustic accelerators
- ▲ High-build – up to 100 mm thickness can be applied in one pass on vertical faces
- ▲ Good adhesion to well prepared concrete
- ▲ Compatible with high quality structural concrete substrates
- ▲ Rapid strength gain
- ▲ Very low resistivity
- ▲ Complies with Highways Agency specifications for repairs to highway structures

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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.

A light steel mesh about 2 kg/m² in density should be used whenever sprayed areas exceed 0.5 m² and where applied thickness is greater than 25 mm. This mesh helps to evenly distribute stresses due to thermal movement or shrinkage and reduces the risk of cracking especially on corners. The mesh should be fixed in accordance with the recommendations in Concrete Society Technical Report No. 15.

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. Ideally they should be grit blasted to a uniform grey metal finish to achieve first quality to BS 7079-A1 followed by degreasing with a suitable solvent immediately prior to bonding.

Any formwork or extra reinforcement such as steel mesh should be designed/prepared and fixed in accordance with the guidelines of the Code of Practice (*Application*).

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 CP 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.

Finishing

Any necessary trowelling or profiling should be done immediately after spraying has finished. An 'as-sprayed' appearance is normally acceptable but if overcoating is to follow, finish with a wooden float or damp sponge.

Curing

This product must be properly cured if it is to achieve its optimum properties. Cure immediately with polythene sheeting and/or wet hessian for a minimum of 3 days.

Protect from frost.

Components

Preblended concrete comprising:

RHPC	Complying with clause 1702 of Highways Agency Specification for Highway Works, Part 1. Minimum cement content 400 kg/m ³
Aggregate	5 mm maximum sized, graded limestone, non-reactive, complying with clause 1704 of Highways Agency Specification for Highway Works, Part 6.

The total chloride content does not exceed 0.1% of the mass of cement. Calcium chloride and admixtures containing chloride salts are not used.

Packaging

webercem spray CP is supplied in 25 kg polylined paper sacks.

Yield

Approximately 11.5 litres per 25 kg 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

Contains cement (Contains chromium (VI). May produce an allergic reaction). Harmful by inhalation. Irritating to eyes and skin. Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical help. After contact with skin, wash immediately with plenty of soap and water. Wear suitable protective clothing, gloves and eye/face protection.

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

Technical services

Weber's Customer Services Department has a team of experienced advisors available to provide on-site advice both at the specification stage and during application. Detailed specifications can be provided for specific projects or more general works. Site visits and on-site demonstrations can be arranged on request.

Technical helpline

Tel: 08703 330 070
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Sales enquiries

Weber products are distributed throughout the UK through selected stockists and distributors. Please contact the relevant Customer Services Team below for all product orders and enquiries.

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