

Rapid-setting, polymer-modified,
dry-spray concrete

weber.cem spray RS

multifix rapid-setting spray concrete



Uses

- Rapid repairs to structures within tidal zones
- Repairs to dock walls
- Repairs to coastal structures
- Structural repairs to jetties, piers, sea walls, quays and docks
- Repairs to river bridge abutments or piers
- Primary linings to underground workings
- Structural repairs to concrete beams, columns and soffits

About this product

weber.cem spray RS is a ready-to-use, polymer-modified, dry-sprayed concrete able to achieve early set, ideal for permanent concrete repairs where time constraints demand early strength gain. The material contains inert limestone aggregates, dust suppressants and accelerators. The formulation is designed for the dry spray process method of application with reduced rebound and maximum applied thickness.

Features and benefits

- ▲ Rapid setting allows work to continue in tidal zones
- ▲ Prevents wash out from tidal action or flowing water
- ▲ Economical with low rebound than conventional spray concretes
- ▲ High-build – up to 100 mm thickness can be applied in one pass to vertical faces
- ▲ Good adhesion to concrete substrates
- ▲ Non reactive aggregate complying with clause 1704
- ▲ Total chloride ion content does not exceed 0.1% of the weight of cement. No calcium chloride or admixtures containing chloride salts are used

Technical data

The following test results were obtained from actual sprayed panels in accordance with EFNARC Specification for Sprayed Concrete and SCA Guidelines and tested at 20°C

Physical properties

Dry density	Approx 2250 kg/m ³	
Initial set	15 minutes	
Drying shrinkage (BS 6073-1:1981)	0.05% – 0.07%	
Coefficient of thermal expansion	6 – 10 x 10 ⁻⁶ /°C	
Coefficient of chloride ion diffusion	150 – 250 x 10 ⁻¹⁵ m ² /s at 20°C	

Mechanical properties

Compressive strength (BS 1881-120:1983)	6 hour	10 – 15 N/mm ²
	24 hour	20 – 30 N/mm ²
	3 days	35 – 40 N/mm ²
	7 days	40 – 45 N/mm ²
	28 days	45 – 50 N/mm ²
Flexural strength (BS 1881-118:1983)	7 days	6 – 8 N/mm ²
Tensile strength (BS 1881-117:1983)	7 days	4 – 6 N/mm ²
Static modulus of elasticity (BS 1881-121:1983)	28 days	30 kN/mm ²
Bond strength to concrete substrate	> 2 N/mm ² (failure in concrete)	

weber.cem spray RS

Preparation

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

Concrete

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

Old surfaces contaminated with oil or grease must be cleaned with a suitable detergent. Care must be taken that the contaminants are removed and not simply spread over a wider area.

The designer may require the sprayed concrete to be reinforced with mesh or bars.

Any reinforcement shall be fixed in accordance with the recommendations outlined in the Sprayed Concrete Association, SCA-Design and Specification and Concrete Society Technical Report 15.

In most cases, no additional mesh reinforcement is required in repairs where existing rebar exists or where thin overlays are applied (i.e. less than 25 mm, see SCA recommendations).

Soak the concrete thoroughly and allow any surplus water to drain off.

Steel reinforcement

Steel surfaces, 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.

Application

Guidelines on the method of working are detailed in the Spray Concrete Association, SCA, guidelines and the EFNARC Specification for Sprayed Concrete – Guidelines for specifiers and contractors.

weber.cem spray RS should be emptied from the bags directly into the hopper of the spray 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 nozzle will be controlled by the nozzleman:

- too low an addition will increase rebound and dust emission;
- too wet a mix will result in slump.

The correct amount of water can be judged by the appearance of the sprayed concrete. Avoid any glossy finish.

In the case of a long delay between applied coats of spray concrete, the surface of the newly applied spray concrete be water jetted to remove any laitance, weak layers or surface loose material before re-spraying.

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

This material can be applied down to 25 mm thickness but the recommended thickness for protection of the steel is 40 mm.

Finishing

This material will set quickly and any finishing must take place within 15 minutes of application.

We recommend an 'as sprayed' finish is used with **weber.cem spray RS**.

Curing

This material must be cured correctly and for as long as possible in accordance with guidelines set by EFNARC and SCA.

Cure immediately with **weber.tec ritecure**, unless the surface is to be over-coated. Where coatings are to be used, cure with polythene sheeting and/or wet hessian for a minimum of 3 days.

In general, sprayed concrete should be cured as above. However, where the ambient temperature exceeds 25°C, or in exposed conditions where air movement can cause a rapid drying out of the surface, then the sprayed surface must be protected by wet hessian or a fog spray system. In these conditions no surface should be exposed for longer than one hour.

Protect from frost.

Packaging

weber.cem spray RS is supplied in 25 kg polylined paper bags.

Coverage

Approximately 11.5 litres per 25 kg bag. An allowance must be made for rebound and wastage.

Storage and shelf life

When stored unopened in a dry place at temperatures above 5°C, shelf life is 6 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: (01525) 722110
Fax: (01525) 718988

Sales enquiries

Weber products are distributed throughout the UK through selected stockists and distributors. For UK sales enquiries and overseas projects, contact **Weber's** Sales office.

Sales office

Tel: (01525) 722100
Fax: (01525) 718988

Saint-Gobain Weber Ltd

Dickens House, Enterprise Way, Maulden Road, Flitwick, Bedford MK45 5BY, UK
Tel: 08703 330070 Fax: (01525) 718988 e-mail: mail@netweber.co.uk

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