

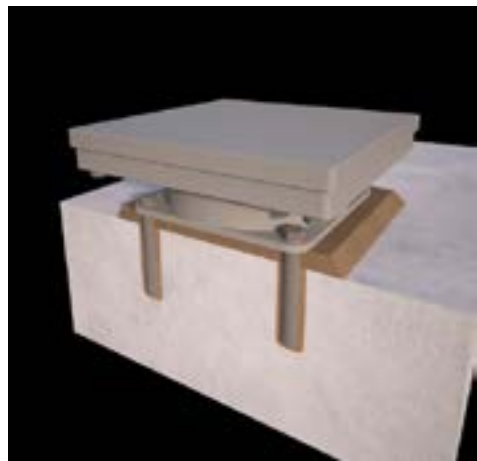


Fosroc Solutions for Highway Repairs



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	CONBEXTRA BB Bridge Bearing Grout	LOKFIX Range Chemical Anchors	PATCHROC 250 Thick Section Repairs	PATCHROC GP Reinstatement mortar	PROTECTOSIL CIT Corrosion Inhibitor	RENDEROC DS Dry Spray Concrete
						
Uses	Non shrink cementitious bridge bearing grout for grouting beneath: ■ Bridge bearings ■ Parapet posts ■ Flanged lighting columns ■ Can be used in section thicknesses 10 mm to 100mm	■ High strength corrosion resistant anchoring of bolts where high speed installation and early application of load is required. ■ MoT bolts ■ Fixing barriers and lampposts ■ Base plates ■ Reinforcement bars	■ For rapid and permanent reinstatement of discrete thick section areas in concrete carriageways, pavements, access ramps and floors. ■ Used to rapidly reinstate thick sections of concrete without excessive heat generation and associated cracking. ■ Particularly useful when interruption of traffic must be minimised. ■ Patchroc 250 is suitable for repair methods 3.1, 3.2, 4.4, 7.1 and 7.2, as defined by BS EN 1504-3.	■ Emergency and permanent reinstatement of localised patches in concrete pavements, airport aprons, access ramps and floors. ■ Alkaline in nature and will protect embedded steel reinforcement ■ May be used internally and externally ■ Patchroc GP is suitable for repair methods 3.1, 3.2, 4.4, 7.1 and 7.2, as defined by BS EN 1504-3	■ A penetrating treatment applied to the surface of steel reinforced concrete, designed to delay the ingress of moisture and chlorides. Protectosil CIT will penetrate concrete and chemically bind to steel reinforcement within concrete, inhibiting corrosion induced by high chlorides and/or carbonation in existing concrete. ■ Suitable for decks, façades, balconies, walkways, bridge decks, beams and columns. Also for marine applications including jetties, piers and sea defence walls (in tidal zone and above)	■ Designed for large area repairs such as bridges, tunnels, retaining walls, dams, etc. ■ The aggregates are chosen so as to be classified as 'non-reactive', and the product has an alkali content (expressed as Na₂O) of less than 3.0 kg/m³ ■ Specifically designed to comply with the Highways Agency Specification Series 1700 and BD27/86 PE5) ■ Suitable for repair method 3.3 and 4.4 as defined by BS EN 1504
Features	■ Complies fully with Department of Transport Specification for Highway Works March 1998 Clause 2601 ■ Non shrink ■ High strength ■ Excellent flow, particularly at low temperature ■ Low permeability ensures durability ■ Can be poured or pumped	■ Rapid strength gain ■ Vibration resistant ■ Corrosion resistant ■ Non-expansive ■ Can be placed underwater	■ Rapid strength gain — will generally accept traffic in 2 hours at 20°C ■ High strength, abrasion and weather resistance. Ideal for external works ■ May be left as a trafficable finish ■ Suitable to be overlaid with compatible deck membranes and coatings when the moisture content is <6%, typically 3-4 hours after cure ■ One component, pre-bagged, requiring only the site addition of clean water ■ Does not normally require a primer to achieve high bond strengths ■ Shrinkage compensation ensures no cracking ■ Controlled heat of hydration minimizes risk of thermal cracking, even in thick sections ■ Contains no chloride admixtures	■ Rapid strength gain — will generally accept traffic in 2 hours. ■ High strength, abrasion and weather resistance ■ One component product, pre-bagged to overcome site-batched variations - requires only the site addition of clean water ■ Excellent bond to the concrete substrate ■ Shrinkage compensated ■ Contains no chloride admixtures	■ Effective on dense concrete and even moist concrete ■ Inhibits chloride ion induced corrosion of steel reinforcement ■ Inhibits carbonation induced corrosion of steel reinforcement ■ Fast drying ■ Can be left as a clear finish ■ Can act as a primer for Fosroc Dekguard range of anti-carbonation coatings	■ Low rebound ■ Rapid strength gain ■ High resistance to carbon dioxide penetration ■ Excellent bond to the concrete substrate ■ Contains no chloride admixtures ■ Renderoc DS is specifically designed to comply with the Highways Agency Specification Series 1700 and BD27/86 PE5)
Specification	Conbextra BB has been independently tested, by a NAMAS accredited laboratory, in accordance with the Department of Transport Specification for Highway Works March 1998 Clause 2601. Conbextra BB complies fully with the requirements of this specification	Lokfix S complies with the requirements of BS EN 1504-6 : Anchoring of reinforced steel bar. E35S, E55S and E75S comply with ETA (European Technical Assessments). See data sheets for further details.	Patchroc 250 complies with the classification R4 according to EN 1504-3, repair methods 3.1, 3.2, 4.4, 7.1 and 7.2	Patchroc GP complies with the classification R4 according to EN 1504-3, repair methods 3.1, 3.2, 4.4, 7.1 and 7.2. Patchroc GP complies with LU Standard 1-085 'Fire Safety Performance of Materials'.	Tested to BS EN 1504-2. Can be used according to principles 1.1, 2.1, 8.1 of EN 1504-9	Renderoc DS complies with Class R4 according to BS EN 1504-3 repair principals 3.3 and 4.4.

	RENDEROC DSR Rapid Set Dry Spray Concrete	RENDEROC HB45 Reinstatement Mortar	RENDEROC LA60 High Flow Micro Concrete
			
	■ Rapid setting dry spray material designed for large area repairs such as bridges, marine structures and tunnels ■ May be used for large scale repairs and for overlay systems ■ The mixed product has a low alkaline content ■ Meets the requirements for Highways England Approval ■ Meets performance requirements for Network Rail within 1 hour of application	■ For the reinstatement of reinforced concrete where low permeability characteristics are required and where higher compressive strength is a consideration ■ Renderoc HB45 has been specifically developed for the repair of columns and beams, but because of its medium fresh wet density, is also suitable for soffit repairs ■ Renderoc HB45 is suitable for repair methods 3.1, 3.3, 4.4, 7.1, 7.2 as defined by BS EN 1504-3	■ For the reinstatement of reinforced concrete where low permeability characteristics are required and where high compressive strength is a consideration ■ It is suitable for use where excellent chloride and carbon dioxide resistance is required or for repairs to concrete affected by alkali-silica reaction (ASR) ■ Renderoc LA60 is alkaline in nature and will protect embedded steel reinforcement
	■ Accelerated set ■ Rapid strength gain ■ Controlled alkali level ■ Low water absorption and chloride ion diffusion ■ Low rebound ■ High resistance to carbon dioxide penetration ■ No added caustic accelerators ■ Renderoc DSR has met the requirements for Highways England Approval	■ High-build applications possible while maintaining higher compressive strengths — fewer cold joints ■ Frequently obviates the need for formwork ■ Polymer-modification provides extremely low permeability to water, carbon dioxide and chlorides ■ Exceptional system of shrinkage compensation provides long-term dimensional stability ■ Can be applied quickly and efficiently by wet spraying ■ One component product, pre-bagged to overcome site-batched variations ■ Contains no chloride admixtures	■ Dual expansion system compensates for shrinkage in the plastic and hardened states ■ Low alkali content minimises risk of alkali-silica reaction ■ Suitable for placement by pumping or pouring techniques into restricted locations ■ Self-compacting nature eliminates honeycombing and displaces air without vibration ■ High strength and low permeability provide maximum protection against carbon dioxide and chlorides ■ Suitable for use with cathodic protection systems ■ Contains no chloride based admixtures ■ Maximum 3mm aggregate to improve application and finish
	Renderoc DSR complies with Class R4 according to BS EN 1504-3.	Renderoc HB45 complies with the classification R4 according to EN1504-3, repair methods 3.1, 3.3, 4.4, 7.1 and 7.2.	Renderoc LA60 conforms to the requirements of Highways England, Specification for Highway Works Series 1700: Structural Concrete 1770AR Repair Concrete - Class 29F Flowable Concrete and EN1504-3 Structural and Nonstructural Repairs Class R4.



THE PROJECT

The Oldbury Viaduct section of the M5 stretching 3.2km is a largely elevated stretch of motorway. It had deteriorated due to corrosion related damage, in part from the accumulation of road salts but also due to the physical stresses caused by the greatly increased volume of traffic over the years; currently around 120,000 vehicles daily. Works had to be carried out with minimal disruption to road users whilst providing a solution that would ensure the motorway construction was safe and the repairs would be long lasting. Access to the damaged beams, (at over 20 metres high) was difficult and required an easy to use and apply repair solution.

THE SOLUTION

Due to the project complexity and the large volume of concrete repair materials required, innovations were introduced to improve efficiency, safety and productivity. Renderoc LA60 was specifically developed by Fosroc to meet the stringent standards set out by Highways England. It has low permeability characteristics, rapid compressive strength gain to allow early age de-shuttering, and provides maximum protection against carbon dioxide and chlorides, matching resistivity with the host concrete to prevent incipient anode formation. Renderoc LA60 is easy to use requiring only the addition of clean water on site. The material can typically be applied in thicknesses between 50 and 150 mm and is suitable for placement into restricted locations, such as the damaged areas of the viaduct, by using pumping or pouring techniques.

THE BENEFITS

Fosroc delivered a sustainable motorway repair solution meeting Highways England's rigorous testing and quality standards. Collaborating closely with all partners, Fosroc successfully introduced innovations in product design and maintained regular supply to site through a fully integrated supply chain and production process. This approach helped reduce costs, saved time and enabled the works to be carried out effectively as part of what has become known as the largest concrete repair project carried out in the UK.

CASE STUDY

Oldbury Viaduct Renewal Scheme

M5 Midlands, UK

CUSTOMER

Highways England

SECTOR

Highways

DATE

2018

PRODUCTS

- Renderoc LA60



500kg bulk bags matching on site mixer capacity



Supply direct to bridge deck



Renderoc LA60 pour



With over 80 years' experience in the construction industry, Fosroc is a key supplier to major infrastructure projects. Our solutions for highways maintenance, bridge construction and refurbishment, are used on projects throughout the UK.

We combine high quality products, expert technical support, on-site customer service, innovation, design and specification support, to provide bespoke solutions for both new build and refurbishment projects.

- Specialist admixtures
- Curing compounds
- Protective coatings
- Waterproofing
- Floor toppings
- Grouts
- Anchors
- Repair mortars
- Adhesives
- Joint sealants
- Injection materials

FOSROC DELIVER SOLUTIONS NOT JUST PRODUCTS

CAD Details

A library of standard CAD details are available, bespoke CAD details can be created for your specific project

Project Specifications

Dedicated specification managers on hand to assist with correct system choices and tailored solutions

Site Support

Expert product and application support made available from our specialist teams

Seminar & Training

Comprehensive programme of seminars and training courses designed to expand and reinforce your knowledge

Fosroc International Limited
Drayton Manor Business Park
Coleshill Road
Tamworth
B78 3XN
Tel: 01827 262222
email: enquiryuk@fosroc.com
www.fosroc.com



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