



PAREX helps bridge the Mersey

Advanced PAREX Technical Mortars were used during the construction of the major new Mersey Gateway toll bridge near Runcorn in Cheshire.



The new 2.2 km structure features large pylons carrying stay cables which support the road deck. The elevated route includes a 1 km long cable stayed bridge and a series of 12 new bridges along its total length. Opened on schedule, the Gateway scheme was the second largest UK infrastructure project outside London.

During construction Porex Cable Grout was used to stabilise and protect the 810 miles of post-tensioned cables within the bridge deck. Porex Cable Grout complies with CARES PT10, and EN 445, 446 and 447 for post tension grouting procedures.

This method allows architects and engineers to design a bridge using less concrete, which in turn means less loading on the foundations and allows the construction of a “slimmer” less visually obtrusive bridge with the added benefit of using less concrete and mined aggregates than a more conventional structure.

Almost 790 tonnes of Porex Cable Grout was used by Structural Systems (UK) Ltd during the post-tensioning process using an internal system from BBR PTE S.L. The two companies were part of joint venture company BSV Mersey JV, along with VSL Systems (UK) Ltd.

Porex Cable Grout is a high performance grout for the grouting of cables in post-tensioned concrete, void and fissure grouting for new structures worldwide. The material readily mixes with water to produce a particularly fluid flowing grout which will penetrate and fill fine voids within and around the cables then harden without shrinking to give a high strength product.

CASE STUDY: Technical Mortars

PAREX
Building expertise, together



Core sample of void-free section showing cable tendons surrounded by Cable Grout

The main span of the bridge was post-tensioned laterally, while the approach viaducts are post-tensioned both laterally and longitudinally.

Later in the project, Parex LA Repair Concrete was used for remedial work to cast in-situ plinths, providing a close match to the light colour of the rest of the structure.

The low-alkali micro concrete is self-compacting, non-shrink and suitable for pouring or pumping. It is designed for use on bridges or soffits and is also suitable for cathodic protection projects. The material also conforms to; EN1504-3 repair principles 3.2, 4.4, 7.1, 7.2, DTp BD27/86 Clause 4 and "Specification for Highways Works" Clause 1704.6.

The Mersey Gateway is one of the largest infrastructure projects in the UK and was delivered on schedule and under budget, taking 1,200 days to build from start to finish. Some 127,415 m³ of concrete were used in its construction, along with almost 250 massive beams spanning up to 40 metres in length and weighing up to 106 tonnes.

The bridge forms a second Mersey crossing, linking the towns of Runcorn and Widnes and improving links to the city of Liverpool, its docks and airport. The Mersey Gateway

Crossings Board Ltd was set up by Halton Borough Council to manage the project and appointed the Merseylink consortium who are responsible for the design, build, finance and operation of the bridge over the next 30 years.

Merseylink appointed the construction joint venture which comprised Kier Infrastructure and Overseas Ltd of the UK, Samsung C&T Corporation (South Korea) and FCC Construcción S.A., of Spain.

- Client:** Mersey Gateway Crossings Board Ltd/Merseylink Consortium
- Main Contractor:** Joint Venture comprising Kier Infrastructure and Overseas Ltd of the UK, Samsung C&T Corporation (South Korea) and FCC Construcción S.A., of Spain.
- Parex Customer:** Structural Systems (UK) Ltd, part of joint venture company BSV Mersey JV, along with VSL Systems (UK) Ltd.



PAREX MATERIALS USED

Cable Grout
LA Repair Concrete