ArcelorMittal's steel fibres are lining London's newest tunnels

Project overview ›

ArcelorMittal Fibres reinforcing tunnel lining segments, shafts, and sprayed concrete lining works.

Project title: Crossrail, London

Client: Crossrail Ltd.

Location: London, United Kingdom

Working environment: 42 metres below ground and under the river Thames

Distance: 21 km of twin bore tunnels

Internal diameter of the tunnels: 6.2 metres

Duration: 2012 – 2015

ArcelorMittal Fibres used: 12,504 tonnes to include:

- 6099 tonnes of HE 55/35. Whitechapel and Liverpool stations – shafts and sprayed concrete lining works
- 640 tonnes of HE+ 55/35. Crossrail Running Tunnels – East
- 4725 tonnes of HE++ 90/60. Crossrail Running Tunnels – East
- 1040 tonnes of HE++ 90/60. Crossrail Thames Tunnel

Dosage: Between 35kg and 45kg/m^3

"ArcelorMittal Fibres were excellent throughout the project. They provided expertise and support from start to finish and came down to the factory at short notice to help with the mix development. Supporting us throughout was something they did very well."

Nick Lowe
Production Manager – Segment Factory
Dragados-Sisk Joint Venture – Crossrail Running Tunnels – East

The challenge ›

Transport for London exist to keep London working and growing, and to make life in the Capital better for residents, workers and visitors.
A rapidly growing population means achieving this goal is more challenging than ever. Currently, 8.4 million people live in London. This is expected to become 10 million in the 2030s, so Transport for London must continue to support London's infrastructure requirements if its success is going to continue.

The 14.8 billion GBP project needed to be executed with the minimum of disruption to existing infrastructures and the daily lives of the people who live and work in London.

The solution ›

Our technical experts delivered detailed guidance throughout the project from start to finish. This guidance included the development of new steel fibre qualities to meet the demanding project specifications, optimising dosage rates, the supervision of performance tests, the installation of dosage equipment and ongoing on-site support throughout the project.

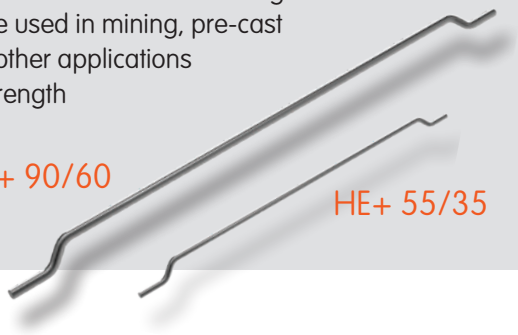
In total, ArcelorMittal Fibres supplied 12,504 tonnes of steel fibres for use in precast and shotcrete applications.

12,504 tonnes
of fibres supplied in total

Two new high performance steel fibres, with exceptional tensile strength, were developed by ArcelorMittal specifically for the Crossrail project.

The two new fibres were developed using a new steel wire quality with an ultra high tensile strength (above 1900 N/mm^2), allowing contractors to reach demanding performance specifications and demonstrate how it is possible, with relatively low dosage rates, to reach new levels of fibre reinforced concrete performance and residual flexural strengths.

The two new grades of premium quality steel fibre are the HE++ 90/60 and HE+ 55/35. These high tensile fibres can also be used in mining, pre-cast production, and other applications requiring high-strength concrete.



The result ›

From 2018 Crossrail trains will transport up to 72,000 passengers per hour through the new tunnels, increasing rail capacity and reducing journey times for everyone who crosses the Capital.

Crossrail, which is jointly funded by the Department for Transport and Transport for London, is a vital part of the Government's commitment to invest record amounts in the rail network as part of its long-term economic plan.

The world is building on our expertise.

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