

New milestone in the fire safety of road tunnels – The first UK tunnels, the New Tyne Crossing, will be protected with FOGTEC high-pressure water mist technology

The Tyne Tunnels provide a crossing point under the River Tyne between the town of Jarrow on the south bank of the river with North Shields and Howdon on the North. The crossing, once complete, will consist of pedestrian and cyclist tunnels, which opened in 1951 and two road tunnels on the A19. The existing road tunnel has been opened in 1967 and the new tunnel will be opened in 2010. The tunnels are a vital part of the Tyne and Wear road network carrying 38,000 vehicles per day whilst the forecast is to rise to 43,000 per day by 2021.



The revolutionary decision to incorporate a fixed fire suppression system to protect the road tunnels of the New Tyne crossing makes the project a pioneer for applying the highest fire safety standards in the UK. The system is not required by law or according to European standards, but a number of tunnels have already been protected. The investment decision for the New Tyne Crossing project was made on the recommendation of an experts group that carried out a quantitative risk assessment and a cost-benefit analysis. According to the study the installation of the fixed fire fighting system will return the investment over the lifetime period of the project.

The Tyne and Wear Integrated Transport Authority (TWITA) has let the New Tyne Crossing contract to Concessionaire TT2 under a design, build, finance, and operate contract. TT2 has contracted the tunnel design and build to Bouygues Travaux Publics UK. The fire protection consulting has been carried out by Halcrow.

The fixed fire suppression system supply contract was awarded to FOGTEC Fire Protection, technology leader in water mist firefighting systems for tunnels, by the main contractor Bouygues TP, UK.

FOGTEC high-pressure water mist tunnel systems are based on patented technology developed in full scale fire tests. FOGTEC technology has been independently tested in the European research programs UPTUN and SOLIT with an excellent performance.



The full scale tests have proven the effectiveness of the FOGTEC water mist technology to fight tunnel fires with small droplets by rapidly absorbing heat, particularly through evaporation, and providing a very effective cooling effect. FOGTEC water mist systems greatly reduce the intensity of the fire. The superior heat absorbing effect of water mist supports safer evacuation to help save lives during the first critical phases of a tunnel fire. FOGTEC has carried out extensive fire testing programs with professional fire brigades showing that the system enables emergency services to safely evacuate people, take control of the fire and extinguish it within minimal time.

The New Tyne Crossing project includes the protection of both of the existing and the new road tunnels with state-of-art water mist technology. The tunnels are comprised of 130 sections of several different cross-section types. In the case of fire three adjacent sections, each 25m in length, will be triggered simultaneously. Only deluge nozzles are

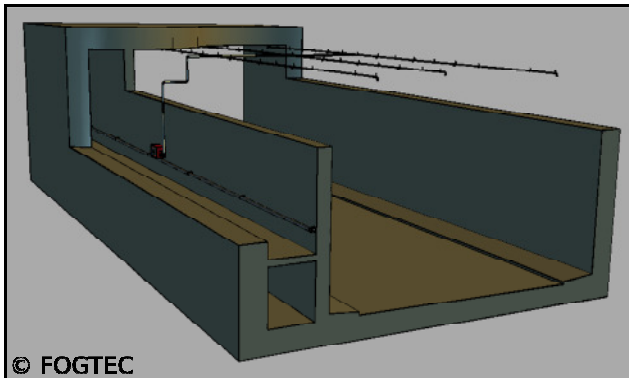
The Smarter Way of Fire Fighting

FOGTEC Fire Protection ♦ Schanzenstraße 19A ♦ 51063 Köln (Cologne) ♦ Germany

Phone: +49-(0)-221-962 23 0 ♦ Fax: +49-(0)-221-962 23 30

www.FOGTEC.com ♦ contact@FOGTEC.com

used in order to provide full flow rates for every activated section thus maximizing the effect of water mist from the beginning of activation.



FOGTEC fire protection has previously protected several road tunnels and large underground applications like long cable tunnels and metro systems in Spain, Italy, Russia, Czech Republic, Germany, Dubai, Singapore, China and Hungary. The FOGTEC technology has proven its functionality and durability in harsh conditions like road tunnels. The New Tyne Crossing will be a new milestone for road tunnel protection with FOGTEC technology.



NTC project in a nutshell

- Location: *Newcastle Upon Tyne, UK*
- Type of tunnel: *Road tunnel (on A19)*
- Total lengths of protected tunnels: *3.2km*
- Tunnel opening: *New tunnel in early 2011 and existing tunnel reopening after refurbishment in end of 2011*
- Number of pump stations: *1*
- Purpose of system: *Fire suppression*
- Design basis: *Full size fire tests with HGV fire loads*

FOGTEC Fire Protection

FOGTEC fire protection is an innovative fire protection company specialised in high-pressure water mist fire fighting. The FOGTEC headquarter are located in Cologne, Germany. With 45 system partners worldwide, FOGTEC is a market leader for land based water mist systems.

Other applications of FOGTEC systems are heritage buildings, archives, industrial applications, laboratories and risks in the automotive industry. In addition FOGTEC is the technology leader in fire protection systems for rolling stock. FOGTEC innovative fire protection technology has been acknowledged in several market sectors, "*The most innovative product award for small and medium size companies*" by UITP (International Association for Public Transport) in June 2009 being the most recent acknowledgment. Key users of FOGTEC technology are companies like Daimler, Siemens, Bombardier, Stadler and Alstom.

FOGTEC systems are 100% environmentally friendly applying pure water without any additives.

For more information, please contact:

contact@FOGTEC.com

or visit:

www.FOGTEC-Tunnel.com

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