

## FOGTEC protects the tunnels of the Dartford River Crossing – the link across the River Thames on London’s orbital motorway, the M25

FOGTEC Fire Protection has been granted by the Highways Agency the contract to protect the Dartford River Crossing. Two road tunnels together with the Queen Elizabeth II Bridge form a crossing for the River Thames as part of London’s orbital motorway, the M25, being passed daily by about 150,000 vehicles. The contract covers a turn-key supply of a state-of-the-art fixed fire fighting system (FFFS) including its maintenance for two years.

The Crossing is located 26 km from the centre of London connecting Dartford on the south bank of the Thames with Thurrock on the north one. Dartford belongs to the county of Kent whilst Thurrock is part of the county of Essex. The crossing is managed by Connect Plus on behalf of the Highways Agency, an executive agency of the Department for Transport. The crossing is subject to charges during day time; free access is available during late evenings and nights.



The Highways Agency decided to invest in this state-of-the-art high-pressure water mist system to improve fire safety. The two tunnels have a total length of 1.43 km. The first tunnel opened for traffic in 1963 and the second tunnel in 1981. The new innovative fixed fire-fighting system brings their fire safety to an increased level following the pattern of other modern tunnels in Europe.

Paul Harding, project manager for the Highways Agency, said:

***“The tunnels at Dartford are currently safe, and this fire suppression system will provide even greater protection for road users, our maintenance staff and the emergency services should a fire occur.”***

The development, design (electric, mechanical), manufacturing, installation, commissioning and maintenance of the high-pressure water mist system were contracted to FOGTEC Fire Protection in May 2010. All installations take place in limited night shifts in order to minimise the disturbance for tunnel operation. The system will include very high redundancy level. Critical control parts will be designed to reach SIL2 (safety integrity level). The project is due to be completed in 2012. The contract includes an extensive full scale fire test program with simulated heavy good vehicle fires. These tests will be carried out in 2010.

FOGTEC is the leading supplier for fixed fire-fighting solutions for tunnel applications. The FOGTEC technology is currently being installed to other high profile tunnel projects like e.g. the Channel Tunnel (Eurotunnel, France/UK) and the New Tyne Crossing, Newcastle, UK. Additionally, FOGTEC is already protecting several other tunnels and large underground facilities like large scale cable tunnels and metro systems in Spain, Italy, Russia, the Czech Republic, Germany, Dubai, Singapore, China and Hungary.

The patented FOGTEC high-pressure water mist technology is based on results from full scale fire tests. FOGTEC technology has been independently tested in European tunnel safety research programs like UPTUN and SOLIT. In the near future the FOGTEC technology will be tested as part of the ground-breaking SOLIT<sup>2</sup> research program, [www.solit.info](http://www.solit.info).

### The Smarter Way of Fire Fighting

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Prior full scale fire tests have shown the effectiveness of the FOGTEC water mist technology to fight fires with smallest water droplets by rapidly absorbing heat and providing a very effective cooling. Water mist reduces greatly the amount of smoke being generated and the intensity of the heat. The superior heat absorbing effect of water mist contributes to safer evacuation to save lives during the first critical phases of a tunnel fire. As part of prior research work FOGTEC has carried out extensive fire testing in co-operation with professional fire brigades. The tests showed that the operation of the emergency services was greatly enhanced, the fire was well controlled and the fire brigade personnel were able to extinguish any remaining fires within minutes. The latest fire tests carried out for the protection of the Channel Tunnel (Eurotunnel) showed that even fully developed class A truck fires with a heat release rate of over 200 MW was controlled within 2 minutes after the activation of the FOGTEC system.



## FOGTEC Tunnel Department

FOGTEC's tunnel department employs a team of specialised engineers from various sectors including mechanics, hydraulics, electrics, software, SCADA, RAMS, detection, tunnelling, automation, fire engineering and health & safety. FOGTEC's tunnel department relies on a unique range of know how covering design, fabrication, installation, integration, operation and maintenance of not only fixed fire fighting systems, but also their supporting technologies. The basis of FOGTEC's knowledge has been generated in a number of international research programmes, full scale fires tests and actual installations in real tunnels. FOGTEC technology has already been installed to a number of new build or refurbishment projects. FOGTEC offers services for all stages of a tunnel project covering fixed fire fighting systems, detection, controls and video systems. Typical services are the following:

- Fire safety consulting
- Cost analysis (investment and LCC)
- Design
- Simulation and fire testing
- Component supply
- Installation and project management
- Emergency trainings and system testing

FOGTEC is represented in numerous working groups for standards e.g. the technical committees of NFPA 502 – *Standard for Road Tunnels, Bridges and Other Limited Access Highways*, NFPA 750 – *Standard on Water Mist Fire Protection Systems* and NFPA 130 – *Standard for Fixed Guideway Transit and Passenger Rail Systems* as well as ITA-Cosuf, IMO and CEN committees for fire safety. FOGTEC is a member of the board of IWMA (*International Water Mist Organisation*). More information is available on [www.FOGTEC-TUNNEL.com](http://www.FOGTEC-TUNNEL.com).

### Further information:

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