

New milestone in fire protection of railway tunnels achieved: the world's longest undersea rail tunnel EUROTUNNEL is protected under the "SAFE" project with the FOGTEC high-pressure water mist technology.

During fire tests in a test tunnel Fogtec has successfully shown the effectiveness of its technology in fire loads in excess of 200 MW.

The EUROTUNNEL is the rail link under the Channel between Calais in France and Folkestone in England. Up to 450 trains are crossing daily the two tubes of the tunnel. This includes the high-speed train EUROSTAR and car shuttles as well as freight trains and truck shuttles. Each year approximately 16 million passengers pass through the tunnel.



After the severe fires of trucks on shuttles in 1996 and 2008, where no one was injured due to the already high safety standards in the EUROTUNNEL, the operating company now reinforces safety: In a total of four sections in the tunnel fire-fighting areas will be established, in which fires on trains can be fought quickly and effectively. Due to the significantly larger potential fire load in the truck shuttles, the "SAFE" stations serve primarily to protect these truck shuttles.

Currently, the prototype of a "SAFE" station is being installed; the complete equipment is to be accomplished until the 2012 Olympics in London.

The landmark decision to use a fixed fire fighting system for fire protection of railway tunnels under the "SAFE" project makes this project to a leader for the highest fire safety standards in railway tunnels worldwide. The protection with fixed fire fighting equipment is not required by law, nor necessary

according to European standards. So far, no comparable railway tunnel was equipped with a similar system. The investment decision for the "SAFE" project is based on the recommendation of an expert group that had carried out specifically for this project a quantitative risk assessment and a cost-benefit analysis. According to this study, the potential savings from the fire fighting system will exceed the investment costs significantly.



The EUROTUNNEL operating company is contracting for the consortium of four companies, which provides the fire protection system and installation. Know-how, engineering and equipment are supplied by Fogtec Brandschutz GmbH in Cologne. The installation of the electrical components is carried out by the French company SPIE. ACIS does mechanical installation of the water mist system. The administrative coordination is provided by RODIOJ.

EUROTUNNEL has awarded the civil engineering work for the tunnel extension and the construction to the French company RESIREP. EFECTIS, a European fire protection consultant, conducted the fire protection analysis in beforehand.

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.



Large scale fire tests have been carried out specifically for the EUROTUNNEL-„SAFE“ project and the effectiveness of the FOGTEC-technology has proven



The Smarter Way of Fire Fighting

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its capacity impressively. Small water droplets can fight tunnel fires by rapid heat absorption in a very effective way. The high ability to cool the environment is a crucial property. This cooling effect withdraws high amounts of energy from the fire. FOGTEC water mist systems thus contribute remarkably to reduce the intensity of a fire. This heat absorption effect supports successfully the evacuation of persons especially during the first critical phase of a tunnel fire.



During vast test programs together with experienced fire brigades one could see that even with heat release rates of 100 MW to even more than 200 MW the FOGTEC system eases the rescue of persons for the fire brigade and allows for control of the fire and rapid extinguishing.

The tunnels will have 4 x 29 fire fighting sections in total, each 30 m long and independently controllable. Only deluge nozzles are 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 "SAFE" project will be a new milestone for railway tunnel protection with FOGTEC technology.



FOGTEC Fire Protection

FOGTEC fire protection is an innovative fire protection company specialised in high-pressure water mist fire fighting. The FOGTEC headquarters 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.

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