

Designed for safety – made for life



TUNNEL FIRE PROTECTION

Water mist engineering

WME develops, produces and is a single source, full-service supplier of Active Fire Fighting systems. Our commitment to excellence is based upon a wide experience within fire engineering, system building, installation, service and commissioning. We focus on delivering cost efficient, high quality systems. When you purchase from WME, you are buying the finest environmentally safe fire fighting equipment possible.

TUNNEL FIRE PROTECTION LOW PRESSURE WATER MIST

Applications

WME Tunnel Fire Protection Systems are suitable for the protection of Road Tunnels, Train Tunnels, Mining Tunnels, Cables Tunnels and other transport tunnels of similar designs with one or more lanes.

Full scale fire tests

Our Tunnel Fire Protection Systems have been tested by The Norwegian Fire Laboratory SINTEF – NBL in full scale tests at the IF Security Centre in Norway. The tests were reported as a part of the EU - European Tunnel Upgrading Project UPTUN under the administration of The European Union. Two Low Pressure Protection Concepts were tested. A Water Only System, and a Foam Enhanced Water Mist System. Tests were conducted with different fire types (class A, class B and car fires) and sizes (3MW – 25MW). Ventilation rates were varied between 0 ms and 3 ms.

General Protection Principals

The tunnels are divided into protection zones, each zone is approximately 20m long. Heat, flame or line detectors are installed in each zone. There is also an option for a none electrical activation, using temperature activated release valves. If a fire (1MW and larger) occurs the detector automatically activates the nozzle pipe system to distribute extinguishent in the fire zone and its two adjacent zones. The System distributes the extinguishing agent above the vehicles, and provides fire control and prevents the spread of fire. The systems cool the tunnel air and pipe materials to prevent flashover. This also limits fire spread among vehicles and tunnel damage. The full scale tunnel fire tests demonstrated that the distribution of water mist provides improved visibility in the tunnel in the event of a fire.

Nozzle Pipes

Nozzle pipes are constructed using a number of nozzles pre-installed in a pipe. The length of the pipe and number of nozzles is adjusted according to the protected zone size.

Detection System

Each fire zone should utilise one or more detector. Electrical systems should be monitored. Detectors should be checked, tested and maintained at regular time intervals. It is recommended that fire detectors and electric wiring are installed in locations protected against physical damages from vehicles, accidents, fires, dust and exhaust fumes.

Hydraulic Pipe Work System Designs

WME Tunnel Fire Protection Systems use Low Pressure Water Mist with fixed installed water mist nozzle pipes. The nozzle pipes are divided into sections with each section corresponding to a detection zone. The water access to each nozzle pipe is controlled by a control valve. The control valves are either electrically or heat activated. All pipes and electrical components are installed in locations protected against physical damages from vehicles and accidents in the tunnel.