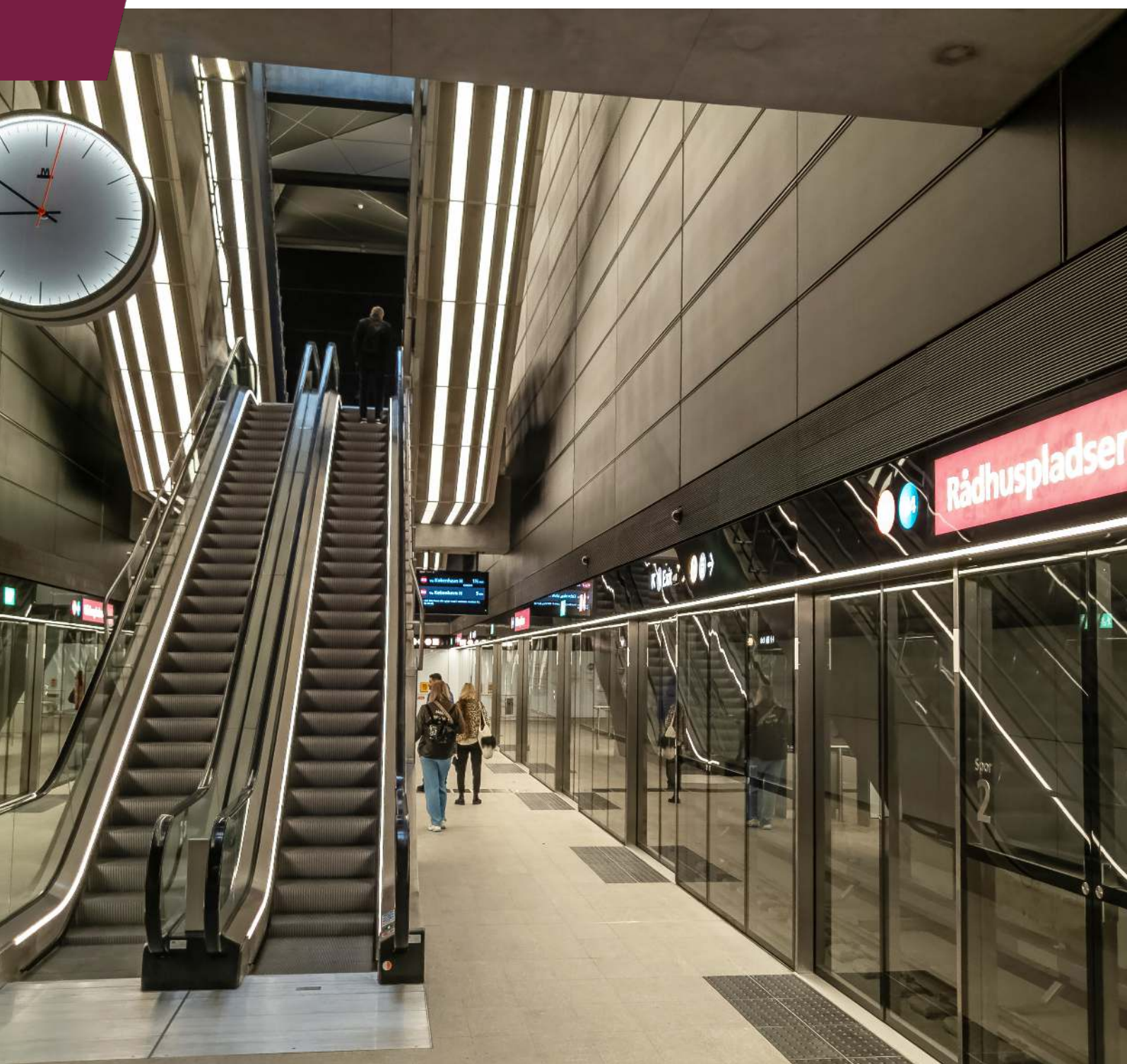


# Metro & Train Station Solutions



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VID FIREKILL's innovative low pressure watermist systems also offer protection for other infrastructure applications such as:

- Road, metro and train tunnels
- Cable and utility tunnels

# VID FIREKILL

VID FIREKILL located in Svendborg, Denmark, is a world leading innovative developer and manufacturer of water-based firefighting products, specializing in fixed water-based systems utilizing environmentally friendly firefighting methods.

We offer a large range of successfully tested and approved products matching our customer's individual requirements, and we always strive for the highest possible quality.

All our products are unique, offering either a better performance, a better approval, or a better solution than what is found on the market today.

With the advances in watermist fire protection technology and the continued addition of VID FIREKILL products, approvals, and covered applications, we form the spearhead of the fire protection industry.

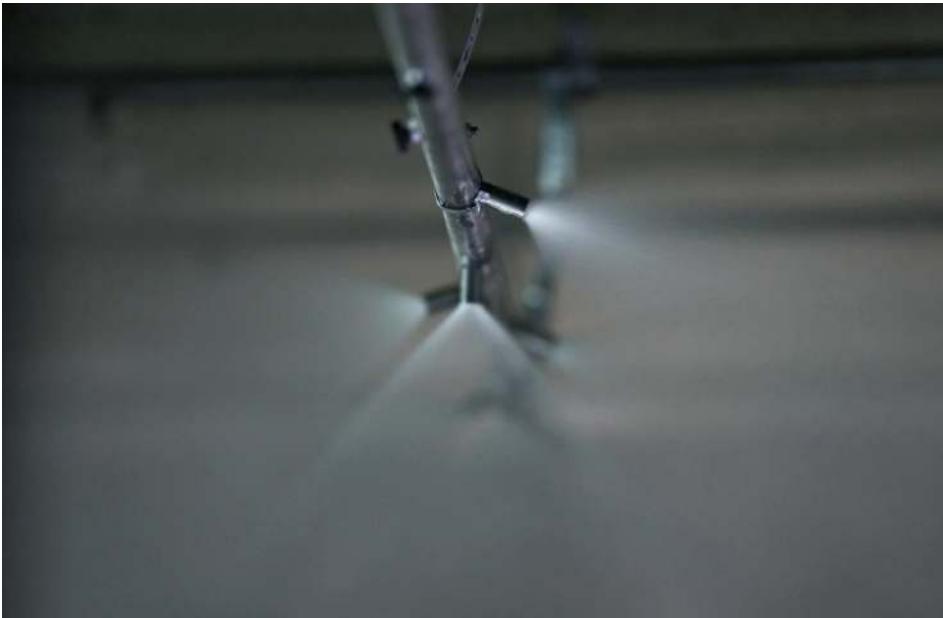


Fig. 1 N-pipe - water spray

## Low pressure watermist

### Facts about low pressure watermist

- Low pressure watermist can be designed, installed and maintained with the same skillset as a conventional sprinkler system.
- Low pressure watermist systems (EN < 16 bar, NFPA <12.1 bar) use the same components as conventional sprinkler systems.

### A green technology

- Low pressure watermist systems require less power kWh and significantly lower water consumption than conventional sprinkler systems.

# Why protect mass transit systems with active fire protection systems?

In busy underground stations or platforms, fire incidents can be disastrous due to the confined environment and limited escape routes. Evacuation can be challenging as evacuation routes easily become congested in emergency situations, and smoke can cause poor visibility. Quick evacuation is crucial for protecting people from fire and toxic smoke.

Station and platform fires can originate in:

- Incoming train in fire arriving at the platform area
- Escalators (engine or moving parts initiating a fire)
- Technical areas (electrical installations, motors, fuels initiating a fire)
- Shopping, ticketing, or magazine stand areas, storage areas with combustible goods, electrical installations etc.



Fig. 2 Smoke filled evacuation route

Fires in underground facilities can have severe consequences not only for people trying to escape or evacuate themselves through smoke-filled designated evacuation routes but also for the collapse of the building structure or destruction of critical power or communication networks can be extremely destructive. So, there are plenty of good reasons to install a low pressure water-mist system in a station, platform, or track area.

## Tests and approvals

Component approvals

- FM5560 watermist nozzle and zone valve component test approval
- Upon request SIL2 approval
- IMO MSC 1165
- A.800 <sup>(19)</sup>
- Di-electric test EN 3-7



Fig. 3 Fire test



# Benefits of low pressure watermist

It is well known that a water based Fixed Fire Fighting System can significantly improve safety in stations and underground facilities with limited evacuation routes by either controlling, suppressing, or extinguishing a fire. Other benefits of a Fixed Fire Fighting System are:

- Lowers temperatures and prevents structural collapse.
- Reduces smoke propagation and outlet of e.g. toxic carbon monoxide (CO) ppm.
- Protects critical and important power and communication cable networks and utilities.
- Ensures quick reopening of highly important infrastructure networks after a fire.
- Enables quick and safe intervention of fire and rescue services.

## Compensation effects

It is less known that a low pressure watermist system can reduce the need for, or improve, other required system installations:



The number or capacity of jet fans can be substantially reduced.



Smaller extraction ducts or shaft design. A suppressed fire has a reduced heat release rate, and therefore produces less smoke that needs to be removed.

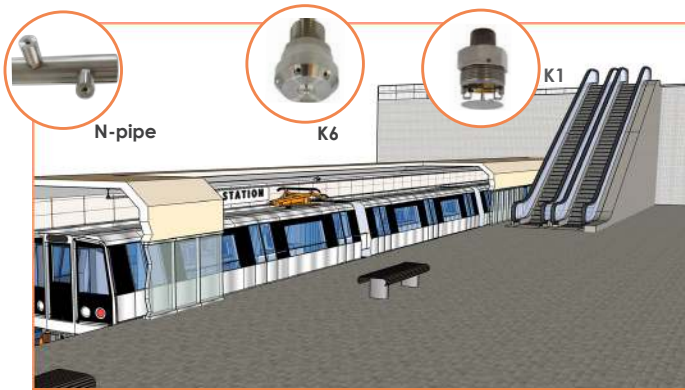


Avoid or reduce the need for passive fire protection.

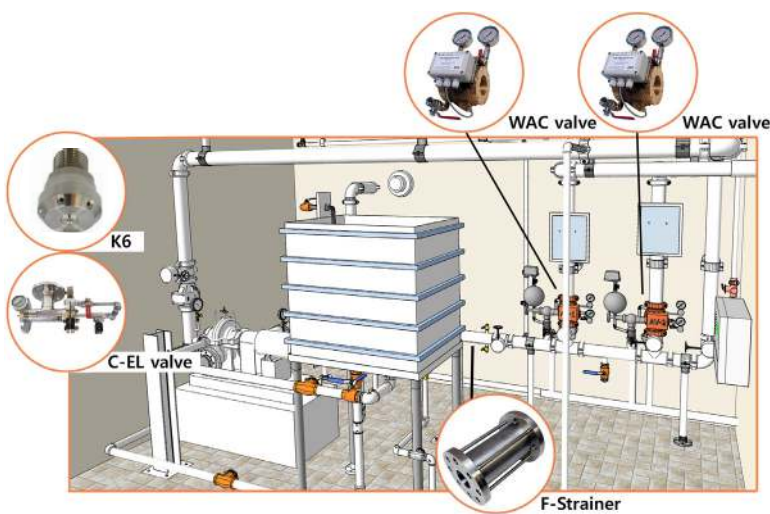
Technical comparison with other water-based technologies			
	<b>Sprinkler/Deluge</b>	<b>High Pressure Watermist</b>	<b>Low Pressure Watermist</b>
<b>Water consumption</b>	Require 2-5 times more water than High- and Low Pressure Watermist	Corresponding to Low Pressure Watermist	Corresponding to High Pressure Watermist
<b>Water pressure at nozzles and pumps</b>	Nozzles: 1.1-2.5 bar Pump: 6-8 bar	Nozzles: 35-80 bar Pump: 60-140 bar	Nozzles: 7-10 bar Pump: 12-15 bar
<b>Power/pumps</b>	Equal (kwh) or more power required compared to Low Pressure Watermist	More complex and higher capacity pumps. Typically requires twice the power (kwh) compared to low Pressure Watermist.	Smaller pump requirements than Sprinkler/Deluge and High Pressure Watermist
<b>Piping</b>	Typically twice as heavy and larger dimensioned pipes compared to High- and Low Pressure Watermist	Smaller pipe dimensions compared to Sprinkler/Deluge	Thin-walled lightweight and smaller pipe dimensions compared to Sprinkler/Deluge Systems
<b>Cost material/installation</b>	Corresponding to Low Pressure Watermist	Higher compared to Sprinkler/Deluge and Low Pressure Watermist	Typically 20-40% lower compared to High Pressure Watermist
<b>Maintenance/service</b>	Larger nozzle orifices and more robust components reduce maintenance compared to High Pressure Watermist. Corrosion problems over time must be expected	Smaller nozzle orifices and more complex valves require more frequent maintenance and service compared to Sprinkler/Deluge and Low Pressure Watermist Systems	Larger nozzle orifices and more simple and robust valves which require less frequent maintenance compared to High Pressure Watermist

Fig. 5 Comparison table

# Overview tracks, station & technical areas



Platforms, station areas, escalators etc. Are critical to be kept operative for evacuation purposes during a fire outbreak, so the protecting of such access is critical for the metro/station safety.



## Technical areas

- Power and pump rooms containing critical components
- Power and communication cables in ducts or in cable tunnels

These areas need to be protected and be operative in case of fire.



## Control rooms

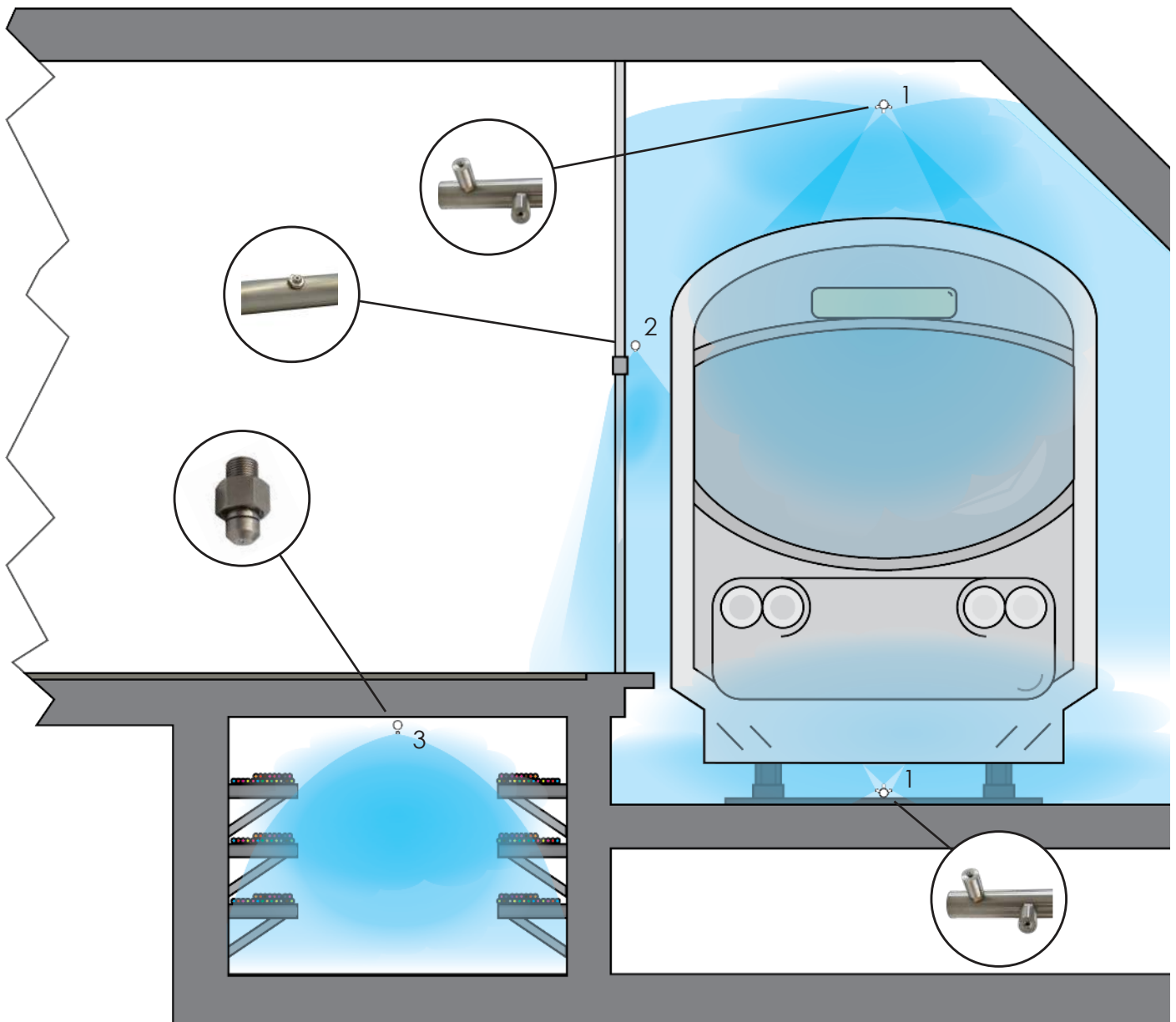
Communication and control rooms are key elements in the overall planning and coordination and are required to be protected against fire as well.



## Shops, offices etc.

Shops, offices, storages, magazine stands, ticketing, etc. in metro or station complexes can contain a substantial number of combustible items and goods and as such require fire protection.

## Overview track area



### Track Protection

VID FIREKILL offers a package of solutions suitable to guarantee the protection of track areas including protection of critical signaling and communication or utility networks e.g., power, etc. Our system ensures safe evacuation and protection of critical communication networks against the devastating effects of fire from an incoming train or fires in the vicinity of platforms.

1. Creating protection of an incoming train on fire with N-Pipe solution on the tracks.
2. Creating smoke and water curtain with K1 micro nozzles solution.
3. Creating cable tunnel protection of critical communication, signaling and utility networks e.g. power, with CT-ODC1 nozzle solution.



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