

AUTOMATED FIREFIGHTING
SYSTEMS IN
TRAIN AND
METRO STATIONS





Hazard type

There are millions of people who travel on subways and trains every day. It is the public transport means most used in large cities. Thousands and thousands of people use this transport means each day, and not only trains or metros themselves but the all public facilities associated with these stations.

Within the scope of managing a commuter train station, the following risk areas stand out:

- Offices and rooms
- Shops
- Lobbies
- Corridors
- Platforms
- Special risk establishments
- Car parks

Although public transportation is one of the safest modes of urban transport, sometimes fire escape routes become real traps for users, since fire easily blocks them and prevents evacuation.

All train and metro stations have risk areas, but the so-called special risk establishments should receive special attention from a safety standpoint and are classified as high, medium and low risk levels.

In short, metro stations are places where many passengers can converge, hence the importance of providing proper protection.

Hazard Factors

There can be numerous possible causes for a fire in a metro or train station.

The most common are as follows:

- Accumulation of waste, paper, etc.
- Combustible materials next to heat sources
- Train and metro passengers (lighted cigarettes in waste bins, curtains, waste bins, etc.)
- Train accidents due to human error or electrical failure
- Existence of faulty electrical wiring or overload.
- Accumulation of papers or waste, or lack of cleaning in kitchens and warehouses.
- Fires in transformer, generator rooms, etc., due to combustion of flammable liquids.
- Fire in escalators (accumulation of dirt, short circuits, overheating, etc.)??
- Acts of vandalism or terrorism

SPECIAL RISK ESTABLISHMENTS

- *Transformer centres*
- *Generators*
- *Escalators/moving ramps, moving walks and lifts*
- *HVAC machinery spaces*
- *Technical rooms (communications, racks, relays, CICs, PCI rooms, batteries, management centres)*
- *Local electricity meters*
- *Warehouses of any kind, cleaning, etc.*



SIEX recommendations



FEATURES OF OUR UNITS

The possibility of using pumpsets or cylinder banks depending on the size and the rooms you want to protect in the metro station.

Valves may be used for several hazards. Thanks to water mist control valves, several hazards can be protected at once using a single system. These control valves have solenoid (receives the opening signal from the turbine on fire), pressure switch (detects the flow of water) and manual release to activate it manually.

Wide range of nozzles depending on coverage, flow, approval (FM, IMO 913), height of application, etc.

Shut-off valves are normally open valves. They are fitted with a gauge and flow sensor indicating the flow of water.

PROTECTION BY WATER MIST

Water mist fire protection systems are a new alternative to gas extinguishing systems. The water mist extinguishing efficacy is based on water spray, which optimizes its effects of cooling, radiant heat attenuation and displacement of oxygen in the base of the fire.

The high speed of the droplets compensates for their small mass when it comes to evaluating momentum. This parameter determines the drop's ability to reach through the hot gases produced by the flame, and ensures that water will not be displaced from the fire environment. Particles will create a suspended wet, dense fog in suspension around the fire, first preventing its expansion, then reducing the size of the flame and finally extinguishing it.

Since 99% of the droplets have a diameter of less than 200 microns, the heat absorbing surface for a given volume of water increases exponentially and steam production is maximized.



HEAT ABSORPTION

With heat absorption, a percentage of these droplets becomes gaseous, displacing from the base of the fire an amount of oxygen essential for growth (water increases its volume by about 2000 times when it evaporates). The vaporization process cools the fuel, preventing the emission of flammable vapors, causing the extinguishing.

The smothering effect is limited to the space surrounding the fire, which is where the water mist turns to steam. The enclosure maintains generic oxygen levels above 19%, which results in a non-suffocating atmosphere.

BENEFITS

A single pumpset generates the power for the entire train or metro station. Other fire suppression systems such as gases, sprinklers, dry chemical, etc. are not required.

The most important advantages of the system and water as an extinguishing agent are:

COST-EFFECTIVENESS, THANKS TO THE MINIMAL COST OF EXTINGUISHING AGENT.
ENVIRONMENTALLY FRIENDLY EXTINGUISHING AGENT.
VERY LOW WATER DAMAGE.
DRASTIC REDUCTION OF THE TEMPERATURE IN THE ENCLOSURE.
OXYGEN LEVEL NOT AFFECTED.
SCRUBBING SMOKE AND TOXIC GASES.
PREVENTION OF REIGNITION.
EASY TO REFILL.
SAFE FOR PROTECTED EQUIPMENT AND FOR PEOPLE.

APPLICATION SCOPE

This protection system is combined with a type of detection in all the station areas under the scope of the project, the most common being the following:

Escalators and moving walkways.

Corridors, lobbies and public areas.

Generator rooms and transformer centres.

Communications rooms, racks and relays.

Shops, lockers, storage or waste rooms.

Electrical panel rooms.

Fire protection and meter room.



Water mist is an excellent choice for protecting these enclosures. Full-scale fire tests have been undertaken for all these types of risk and we have approval from IMO 265, IMO 800, VdS and FM 5560 demonstrating its viability.

Our commitment

CHOICE OF SYSTEMS

SIEX has the widest range of products and systems to suit different needs, both as regards pressures and extinguishing agents.

COMPETITIVE PRICE

Optimizing all of our processes make us more and more competitive worldwide.

SPECIALIZED ENGINEERING

Our highly qualified staff ensure the best service for customers both as regards technical advice on the choice of system, and solving any problems that might arise after installation. Backed up by our extensive experience and a track record of successful projects.

INNOVATION

At the forefront of innovation in every product we develop, ensuring the technical features offered.

QUALITY GUARANTEE

All products meet the highest quality requirements and internationally recognised official approvals.



OTHER SPECIAL HAZARDS PROTECTING BY SIEX:

SERVICE STATIONS

ARCHIVES AND LIBRARIES

DPCs

PAINT SPRAY BOOTHS

ELECTRICAL PANELS

INDUSTRIAL KITCHEN

TURBINES AND GENERATORS

ROAD TUNNELS

NATURAL GAS PLANTS

CLEAN ROOMS

CABLE TUNNELS

TELECOMMUNICATION CENTRES

HOTELS

HOSPITALS

EDUCATIONAL ESTABLISHMENTS

TRAIN AND UNDERGROUND STATIONS

TRAINS

TRANSFORMERS

OFFSHORE PLATFORMS

SOLAR THERMAL PLANTS

MACHINE TOOLS

PRINTING INDUSTRY

HISTORIC BUILDINGS

ROBOTIC PARKINGS

WIND TURBINES

STEEL INDUSTRY

BANKS

OFFICES

LARGE VEHICLES

CONVEYOR BELTS

GAS PUMPS

OIL & GAS

TIMBER INDUSTRY



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