

BECAUSE WE BELIEVE IN THE VALUE  
OF MEASURED PROTECTION.

THE MOST ADVANCED SYSTEMS FOR  
SECURITY AGAINST THE MOST DELICATE HAZARDS



**W-FOG System**  
for the protection of

**TRAINS**



# SPECIAL PROTECTION

## IN THE TRAIN

Trains are vehicles of great importance in the land transportation of considerable numbers of people or goods on a large-scale. Whether over ground or underground, **trains and metro services present normal hazards which are aggravated by mobility, lack of restraints and difficulty of evacuation**, added to the great social impact of an accident.

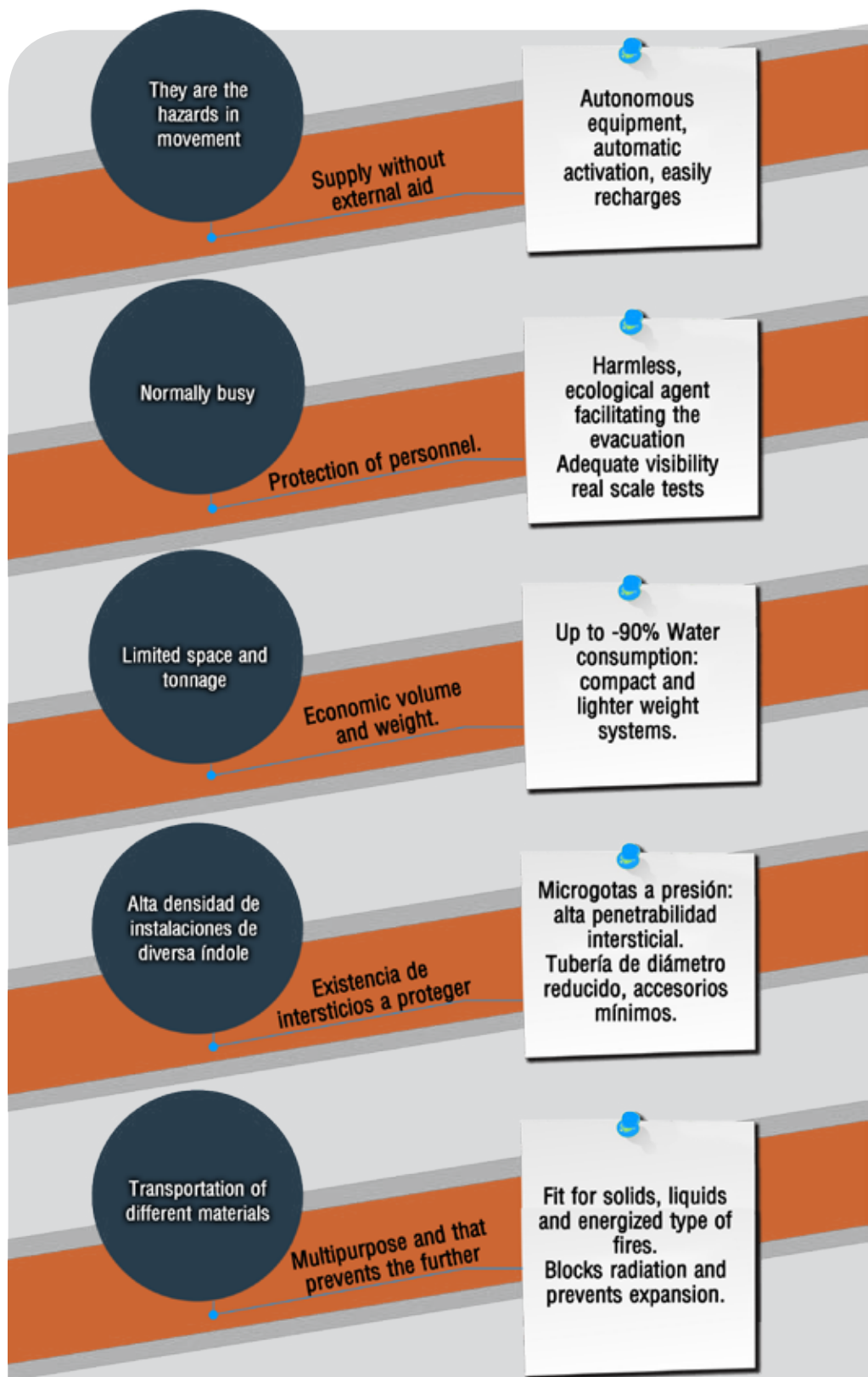
They may be short-, medium- or long-distance; run in the open air or underground, be open or divided into compartments and be subject to various atmospheric or weather conditions. In any event it is vital to act promptly and decisively on any outbreak of fire:

- Medium- / long-distance journeys must be equipped with their own resources as external assistance will not be able to arrive in time to prevent the fire spreading and causing complete destruction
- On short journeys there is greater risk of affecting other urban infrastructures, with serious consequences in terms of service interruption and stoppage.
- Passenger trains need quick action to avoid smoke escaping and to help evacuation, especially in remote or difficult environments such as tunnels and bridges.
- In the case of goods transport the large amounts carried increases the size of the fire, with more intense blazes and large financial losses.



# WHY USE RG W-FOG IN TRAINS

***RG W-FOG equipment is highly advantageous for these risks, due particularly to its autonomy, allowing quick and effective action at any time, and the safety it provides for the people present, facilitating evacuation and controlling growth.***



# CAUSES OF FIRES ON TRAINS

**The main hazards to be taken into account in this type of vehicle are:**

## **MACHINERY**

- Overheating of engines
- Build-up of dirt or grease.
- Fuel leaks
- Sparks or electrical faults.
- Auxiliary energy units

## **COACHES**

- Passengers: carelessness, negligence, vandalism, etc.
- Design and materials used
- Fittings: electronics, air conditioning
- Restaurant car: kitchen, heat focus
- Waste, grease, dirt.

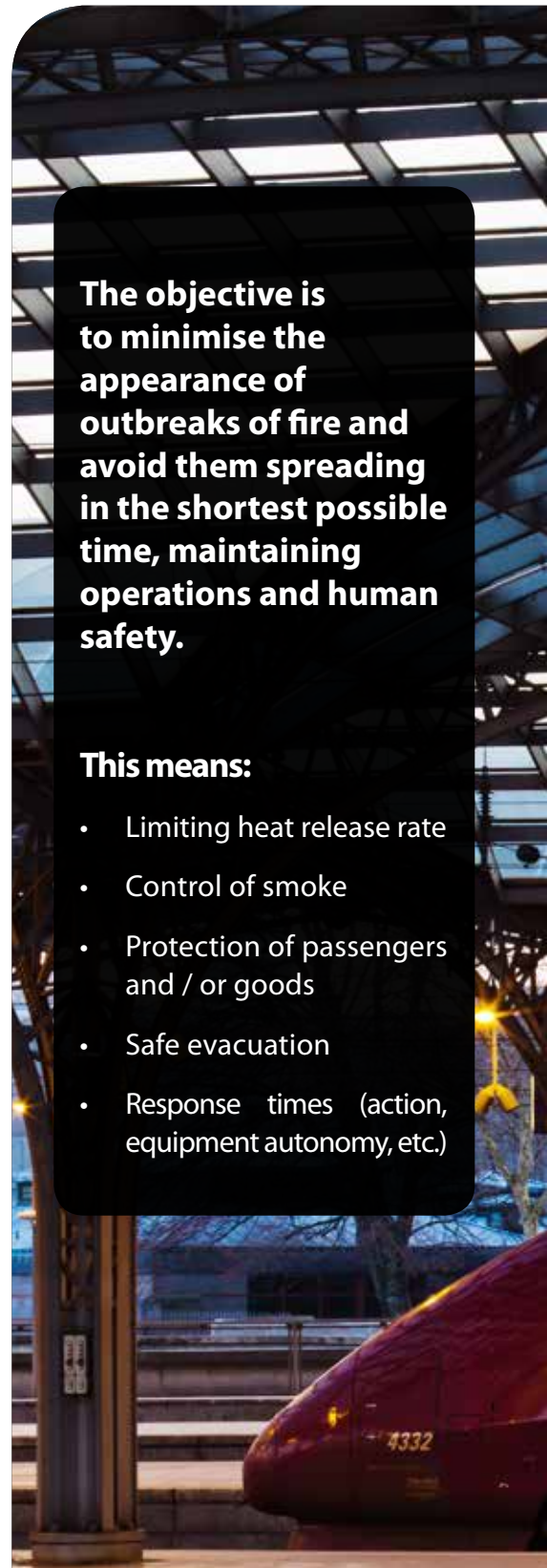
**And the factors to take into account as regards the design of the installation are:**

- **Operation category** (type of service, associated infrastructure, evacuation characteristics)
- **Design categories** (configuration of vehicles)

**The objective is to minimise the appearance of outbreaks of fire and avoid them spreading in the shortest possible time, maintaining operations and human safety.**

**This means:**

- Limiting heat release rate
- Control of smoke
- Protection of passengers and / or goods
- Safe evacuation
- Response times (action, equipment autonomy, etc.)







# COMPONENTS

Typical protection for a train or metro train made up of one or a number of driver's cabins, coaches and supplementary enclosed spaces consists of:

## ● SET OF CYLINDERS

suitable for placing on trains on account of their compact size and the minimum space available. These automatic systems include the necessary agent and are self-pressurised for completely autonomous use. RG-Systems offers special assembly at reduced size.

## ● ANTI-VANDAL NOZZLES:

Their special design prevents unauthorised passengers or staff from interfering with them. The adaptor keeps it withdrawn, hidden, until release begins when it is revealed enough to release the agent.

## ● CONTROL SWITCHBOARD AND DETECTOR CONTROLS:

activate the alarm signal and open the area affected, dry piping systems and open nozzles.

## ● CONTROL VALVES:

allow the agent to be aimed at different hazards, in order to protect various sectors with a single piece of equipment.

## ● MISTING NOZZLES

RG-Systems has open nozzles specifically tested to protect risk areas such as machinery.

## ● OTHER COMPONENTS:

valves, control, direct accessories, supports, etc.

## ● PIPING NETWORK:

the saving on water consumption due to the great efficiency of the misting helps the installation to be of minimum size.

## ● DIRECT ACCESSORIES:

direct Ts, reductions, etc. for rapid assembly, compact and prefabricated, with fewer components.



*It should be taken into account in any event that there are few persons present (goods) or they are untrained (passengers), hence fixed automated protection ensures control of growth and / or spreading in any situation.*

# PCI ON TRAINS, SPECIAL FEATURES:

**It is essential to avoid both direct effects** (heat, injury due to high temperatures, reduction of oxygen, gas poisoning, etc.) **and indirect effects** (structural damage, reduced visibility, increased evacuation times). The train's morphology and the materials used will affect fire scenarios, hence RG **studies each project individually**.

RG W-FOG water mist equipment is highly effective in various scenarios: machinery, passenger coaches (seats, luggage racks), restaurant cars, conduits, electrical equipment,...

**Its compact size and minimal piping** make it possible to store equipment and valves in **cupboards inserted into the width of the wall** in passageways and service areas.

## ITS ACTION CONCENTRATES ON THREE KEY ASPECTS:

- The water mist **drastically reduces the rate of heat release**, confining the outbreak and preventing it from spreading to other wagons.
- It allows **extra time for evacuation of persons**: the blocking of radiation and the particle dragging effect improves visibility and maintains life-supporting conditions in the car for longer.
- **It minimises the effect of the fire**, by acting immediately and decisively. Numerous tests support its use and guarantee its effectiveness.



## ADVANTAGES

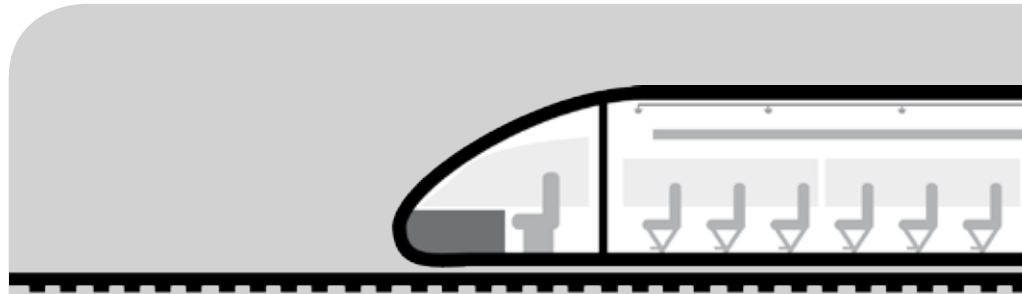
- **Minimum space:** compact equipment, possibility of smaller cylinders to adapt to available space.
- **Simpler assembly:** direct accessories for minimal use of space
- **Anti-vandal accessories** for rapid, safe and unalterable installation
- A single set protects against all hazards on the train. Autonomy as required.
- Full scale trials
- Special finishes
- Ideal in manned spaces.



## EXAMPLES OF INSTALLATION

*The high efficiency of a water mist system is founded on the droplet size, formation density and the ability to penetrate the fire.*

*The microdifusores nozzles consist of advanced design to achieve this end.*

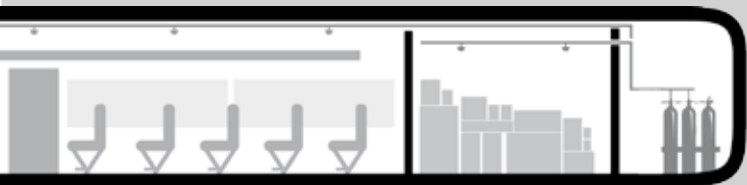


RG W-FOG facilitates **local application** on key focal points such as machinery or motors, as well as **total floods** on the inside of boxcars and tight enclosures

Their **compact size** and pipes with a minimum section help to house equipment and fittings in closets built into the wall thickness in corridors and service spaces.







## PROJECT

Design and calculation of needs from phase one, according to applicable regulations and realworld testing.



## INSTALLATION

Our advanced technology allows for a reduction in diameter and faster installation. Data sheets are provided to facilitate assembly.



## MAINTENANCE

RG-Systems offers installation and maintenance manuals, as well as spare parts and incident support.

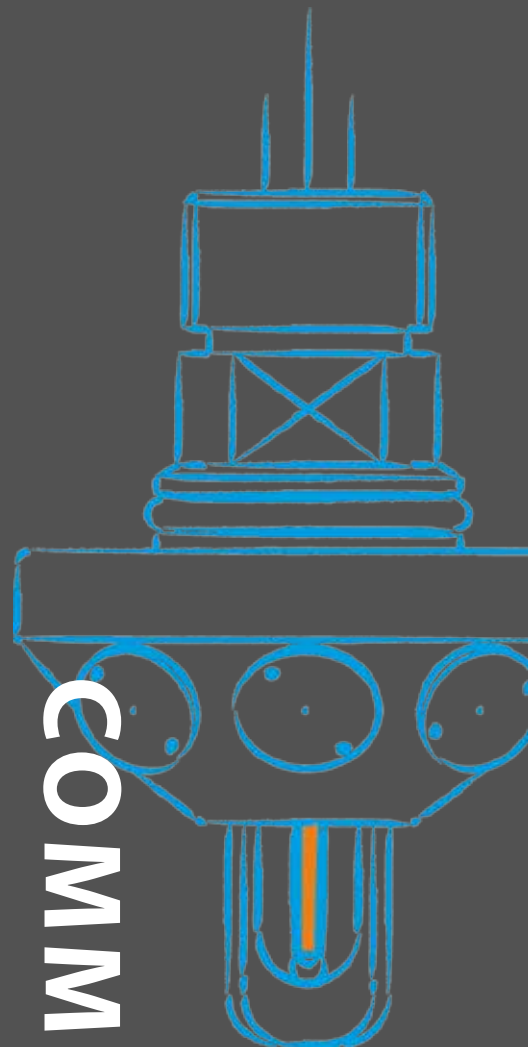


## TRAINING

RG-Systems offers courses and technical support documentation so that project technicians and installers can become familiar with the latest advancements in design, regulations and installation.



# COMMITMENT

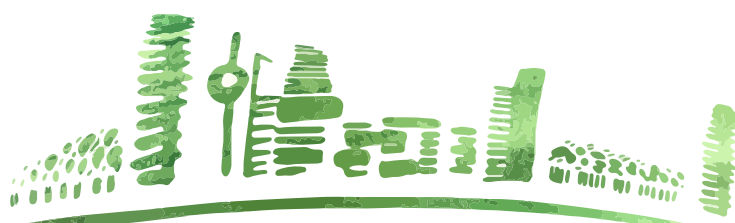


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**THINK  
GREEN**