RG SYSTEMS W-FOG

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W-FOG

WATER MIST

¿WHY USE WATER MIST?

Nowadays and increasingly, water is a scarce commodity. RG W-FOG's innovative design means that the amount of water used for fire protection has been reduced to a tenth of what traditional systems required to protect the same hazard and with the same effectiveness, thus conserving this scarce resource.

It is a well known fact that in the event of a fire water damage is often greater than damage caused by the fire itself. W-FOG systems discharge 10% as much water as that required by sprinkler systems. Damage caused by system discharge is therefore minimal, since protected property is not soaked with water.

The pumps used for these systems are more energy efficient than traditional systems. If a stand-alone cylinder system is used, energy consumption is nil since the discharge is activated when nitrogen pressurises the water.

GREATER FIRE PROTECTION EFFECTIVENESS AND REDUCED WATER CONSUMPTION

For over a century and a half, a number of different sorts of fixed fire protection systems have been developed using water as the suppression or extinguishing agent, with the sole purpose of improving the security of people and property.

RG-SYSTEMS, aware of the present requirements, has taken up the baton in this great challenge. Through its R&D&i department it has improved these traditional systems with two main goals: greater fire protection effectiveness and reduced water consumption.

The result is the RG W-FOG Water Mist system. This innovative product, by pressurising and discharging demineralised water through a sophisticated nozzle system, forms a cloud of microdroplets which in just a matter of seconds puts out any fire that may have started in the protected space.

Since the beginning they have shown their fire protection effectiveness through tests carried out in internationally recognised laboratories as well as their performance in real-life fire situations. In both situations, this product has proven again and again its suitability for a large number of hazards.

These systems are easy to install therefore the savings in assembly costs compared to traditional sprinkler systems which require higher water flows and in turn larger pipe sizes throughout the discharge network, is a well-know proven fact.

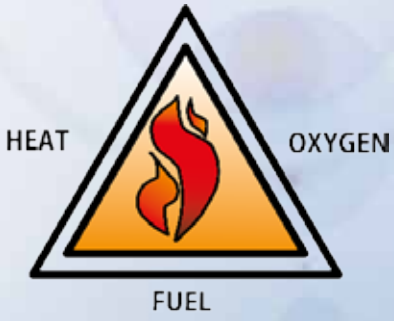
WATER MIST SYSTEMS INTERVENE IN OXYGEN AND HEAT

The goal is to prevent oxygen from reaching the combustible material and so prevent the combustion redox reaction from taking place and extinguish the fire. Part of the discharged water adheres to the surface of the combustible material, that hasn't already ignited, and avoids the contact of the oxygen with it.

RAPID TEMPERATURE REDUCTION OF THE HAZARD

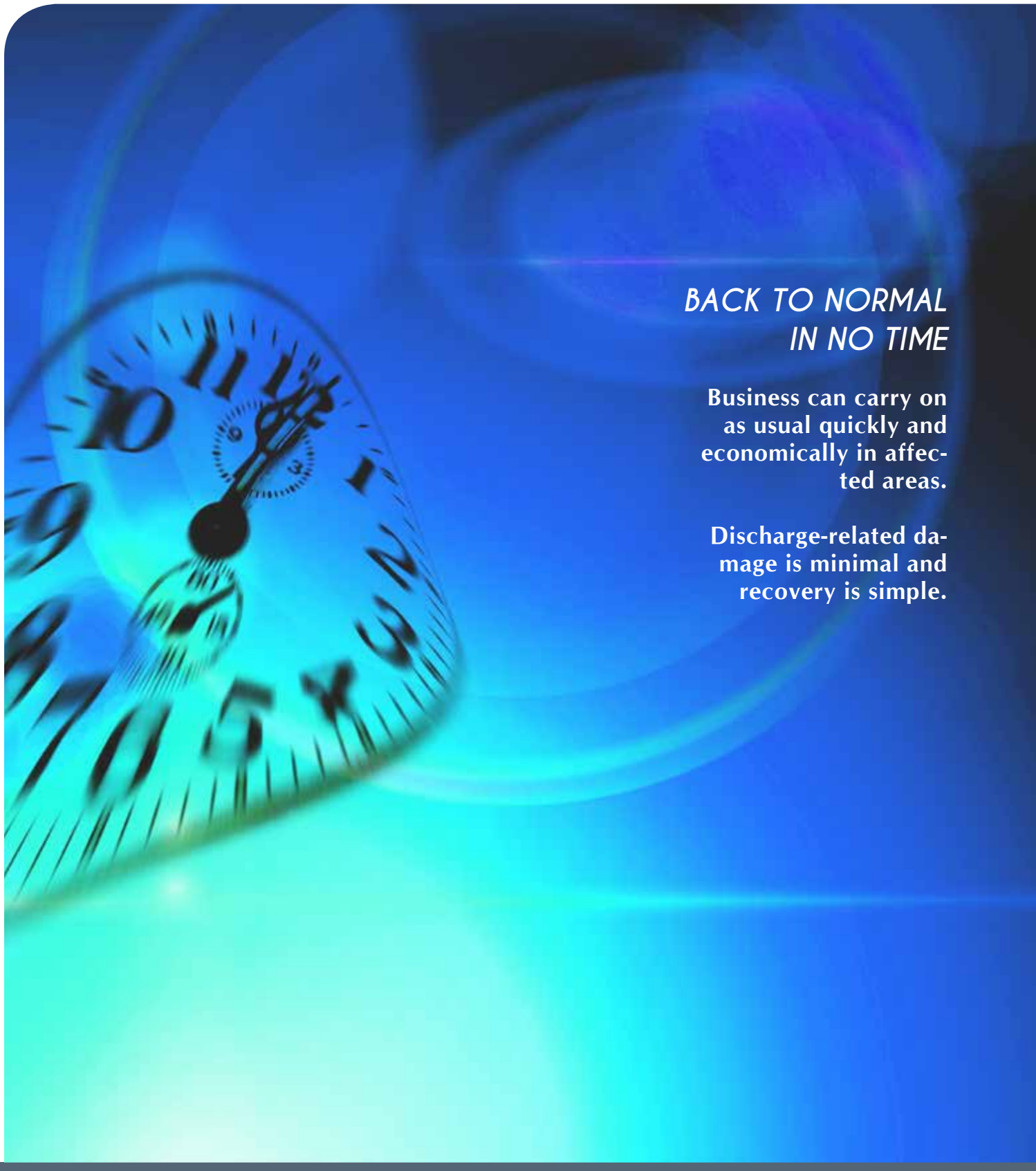
For a fire to start and spread, it is essential for there to be heat energy available in order to reach the ignition temperature. In addition, for a fire to grow, it needs to receive heat energy produced by the combustion reaction. If this energy can therefore be withdrawn sufficiently quickly, the fire will be extinguished. Water mist is an ideal agent for this purpose, since it is discharged in very small droplets and its specific surface area is therefore maximised, which optimises heat exchange in such a way that the temperature falls due to heat absorbed by water evaporation. The result is that combustion cannot take place and the fire diminishes until it is extinguished. The water vapour generated also contributes to extinction by displacing oxygen.

The smaller size of drops compared to the traditional systems causes a greater absorption of calorific energy and generates a greater amount of steam which achieves and additional displacing of oxygen, so necessary in fire fighting.



For a fire to occur, the three elements at each point of the triangle must be present:

- One of the components is the FUEL necessary to feed the combustion reaction.
- The second is OXIGEN, which is always present in the atmosphere.
- And lastly, there must be enough HEAT to trigger and sustain the combustion reaction.



BACK TO NORMAL IN NO TIME

Business can carry on as usual quickly and economically in affected areas.

Discharge-related damage is minimal and recovery is simple.

COMPONENTS AND OPERATION

NOZZLES

In order to fulfil the company policy RG-SYSTEMS –in continuous development- designs and supplies Water Mist equipments bearing in mind market requirements and our customers' needs. In addition, the various tests that have been conducted in the most important certification laboratories in Europe have helped us perfect our range of nozzles, for both total flooding applications and local application.

The nozzles developed by RG Systems have been designed to produce a correct and homogeneous distribution of flow. It is achieved thanks to the effect of the pressure causes the water to split into microdroplets with an optimal size distribution for fire suppression, control o extinguish.

WATER SUPPLY

The water pressure needed to create water mist at the nozzles is achieved by two types of system: electrical or diesel pumpsets (RG W-FOG UAP) or water cylinders pressurised with nitrogen. (FG W-FOG UAC)

Pumpsets (RG W-FOG UAP)

Water is pressurised using positive displacement pumps which raise the pressure to about 160 bar. This pressure is more than enough to compensate for pressure loss in the piping to the least favourable nozzle.

Cylinder systems (RG W-FOG UAC)

In these cases water is stored in one or more water cylinders. The cylinder bank is equipped with other cylinders, pressurised to 200 bar with nitrogen.

TYPES OF CONFIGURATION

The operation of the water mist system will depend on how it is configured. There are two types of configuration depending on the type of nozzle selected: dry pipe system with open or closed nozzles (preaction systems) and wet pipe systems with closed nozzles.

Dry pipe systems:

In these cases the pipework is empty and the system is released electronically. When nozzles are closed, preaction equipment, the systems counts with an additional safety measure, although the electronic detectors causes the filling of the pipework with pressurized water, it will not be released until the temperature increases enough to break the bulb.

Wet pipe systems:

In these systems water is pressurised in the pipework to 25 to 30 bar. Water discharge is prevented because the nozzles are sealed by a bulb calibrated at a specific temperature. When a fire occurs, the temperature in the vicinity of the thermal bulb increases, causing it to burst and let water out.

The nozzles used in W-FOG systems cover larger areas, resulting in fewer nozzles than traditional systems.

Overall efficiency and aesthetic integration is enhanced.

INSTALLATION

- Installations are simpler than in traditional systems. More manageable components and smaller pipe diameters are used. They also require fewer nozzles. In short, overexertion and other risks are avoided, which contributes to the meeting Occupational Risk Prevention laws.

- The smaller pipe diameters mean the permanent extra loads used to calculate load bearing structures can be reduced, driving down the cost of implementation.

- Installation is faster and more reliable because pipes can be bent instead of using elbows. All the components making up a water mist system are generally easy to handle.

- In systems where piping is visible, the small and stainless steel pipe used has no adverse impact on the appearance of the area.

- Suitable for installation in difficult configurations, RG W-FOG systems use much less pipework than sprinkler systems. They can fit seamlessly into existing facilities where the piping routes are practically saturated.

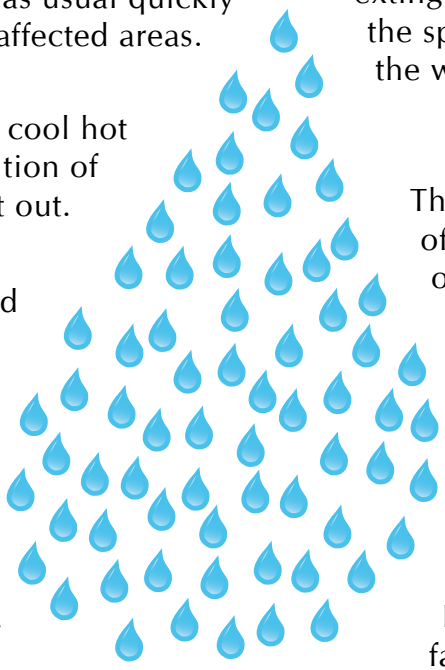
The installer's jobs are simplified, the RG W-FOG water mist system requires only five pipe sizes, the discharge network are smaller because of the greater extinguishing area of the agent. In turn cuts costs and reduces installation time.

BENEFITS

Fire losses are greatly reduced and business can carry on as usual quickly and economically in affected areas.

High suppression and extinguishing power due to the specific surface area for the water

Water used as an agent will cool hot surfaces, preventing reignition of the fire once it has been put out.



The mist has the positive effect of scrubbing the atmosphere of smoke and particles.

Minimal use of space and and larger areas cover with fewer nozzles.

Overexertion and other risks are avoided and long pipe runs.

Simplify inspection and maintenance tasks, making them more cost-effective than traditional sprinklers.

Installation is faster and more reliable because pipes can be bent instead of using elbows.

Suitable for local application and special aplication (escalators, robotic parking garages, etc.)

Certified by the principal recognised certification bodies in this field, via tests carried out in well-known laboratories.

Our equipment is approved for marine systems for use in both light hazard and high hazard local applications, according to IMO MSC/Circ. 913, as well as for use in public spaces and storage areas, as per IMO Resol. A.800.
It is also approved for land systems for use in public spaces (apartments, banks, educational centres, conference rooms, stations, churches, prisons, etc.) and offices according to standard CEN 14972 and certified by VdS.
Our company is also ISO 9001:2000 and ISO 14001:2004 certified for Quality and the Environment. RG-SYSTEMS is continually striving to obtain new certifications to meet the increasing market demands and offer our customers the best possible products.

APPLICATIONS

Archives and offices

Hotels, hospitals y schools

Bancks y commercial centers

Warehouses and factories

Center of telecommunications

Processes of data

Computer's rooms

Robotised parkings,

parkings and tunnels

Total flood

The entire enclosure is protected and the goal is to suppress and to control the fire until the human personnel to combat fires. Download time in these applications is about 30 minutes and they could be done by using open or closed nozzles depending on the dimensions and use of the room.

Local application

Water mist is discharged directly onto the protected risk for about 10 minutes, which will extinguish the fire. This is the case, for example, of the protection of electrical transformers, where nozzles are placed above and around them, so that water is discharged only onto the protected unit.

- Cable ducts
- Transformers
- Turbines
- Escalators
- Paint booths
- Kitchen hoods
- Wind turbines

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