

CYLINDER BATTERY WITH CONSTANT PRESSURE TECHNOLOGY

WATER
MIST
SYSTEMS



OPEN NOZZLES

THE LATEST TECHNOLOGY IN

WATER MIST



The High Pressure Water Mist System with cylinder batteries, RG W-FOG UAC and open nozzles utilizes the last technology to control, suppress or extinguish a fire in the protected premises.

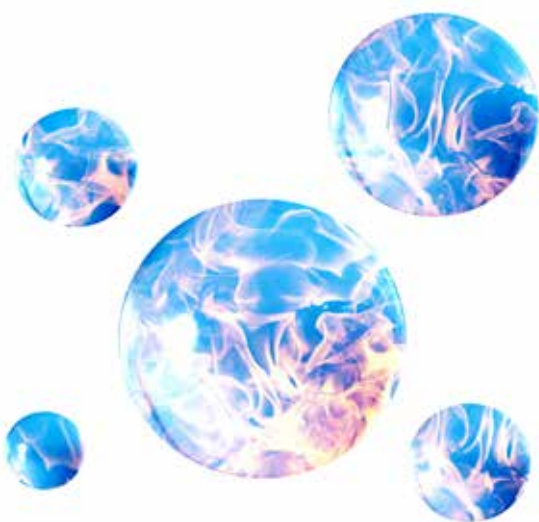
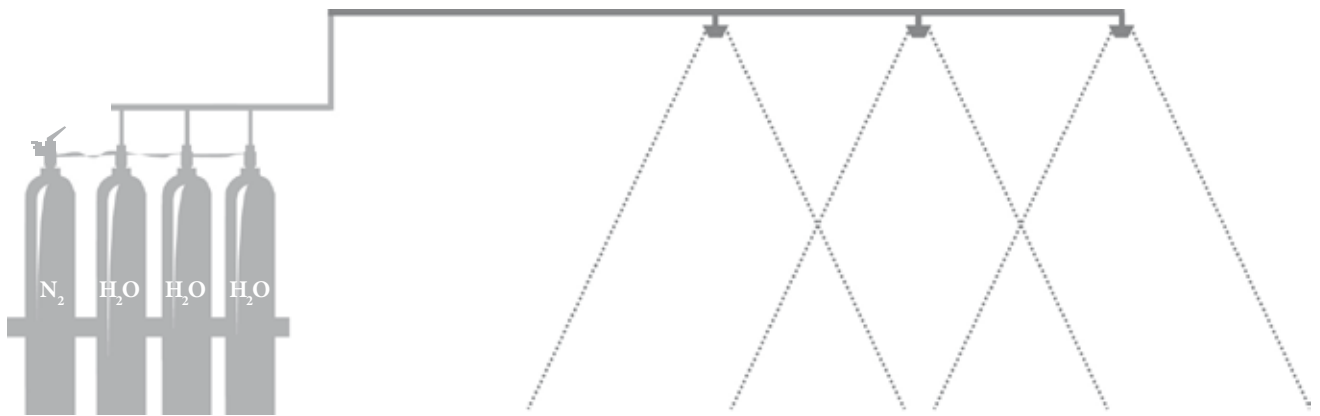
For this purpose, it has the most efficient manufactured nozzles with the highest quality standard and tests in the most prestigious international laboratories according to regulations and strictest guidelines for each application.

The RG W-FOG UAC system combines two technologies in one. It simultaneously attacks two elements of the triangle of fire (oxygen, temperature and flammable material), reducing the oxygen concentration in the source of the fire as the gases system and lowering the temperature like the traditional sprinkler systems.

This is possible since a fine division of micro-droplets are produced during the discharge. Its rapid evaporation, thanks to a greater heat exchange surface, chills the flame at the same time that the generated vapor displaces the adjacent oxygen, hindering the combustion.

This system is ideal for busy areas, since the oxygen displacement is carried out at the source of the fire, not in the protected area.

In the RG W-FOG UAC system the open nozzles generate water mist, the water cylinders store said element and the inert gas cylinders propel the water to the nozzles, carrying out the correct distribution and misting of the agent in protected area.



The water mist utilizes a natural element as a fire extinguisher, water, but in its most efficient form, protecting the protected area and extinguishing the fire, reducing the resulting damages to a minimum.

It is a completely ecological system that employs nitrogen as propellant to prompt the agent, a clean gas present in the air that we breathe and that has no greenhouse effect nor damages the ozone layer.

It is especially recommendable when in the protected area there are people involved who work occasionally or permanently there, also, the water mist absorbs the particles in decomposition and the poison gases and irritants created by the fire.

PRINCIPLES OF OPERATION

DETECTION:

In flood systems, the activation of the extinction system is triggered by an electric signal originating in a system of independent detection. When there's a fire outbreak under the protected hazard, the detectors give signal the fire department, which is responsible for sending the electric sign to the extinction system for its activation. The possibility to carry out a manual activation in case of electric failure exists.

ACTIVATION:

Once the extinction system has been activated, electrically or manually, the activation of nitrogen cylinders is produced, which discharges the gas in the water cylinders, pressurizing and forcing all the water to run through the water pipes and be discharged in the protected area through the nozzles. These nozzles have been designed, tested and manufactured for the concrete hazard they are protecting against and are responsible for carrying out the correct water misting.

CONSTANT PRESSURE TECHNOLOGY:

RG-Systems offers an unique protection system with High Pressure Water Mist by means of cylinder batteries, since it permits regulating the propelled agent discharge pressure (nitrogen) and maintain it for a longer period of time, with provides constant action and is completely controlled.

This is possible since the nitrogen propelled cylinders are equipped with discharge pressure pneumatic self-regulation valves. The innovative valve RGS-MAN-RD achieves a constant discharge, without pressure peaks, which provides continuous and stable water pressure to optimize misting in the affected zone nozzles.

Its advanced design doesn't use springs and mechanical components, of worse performance and aging. Our pneumatic device auto-regulates itself in function of the internal cylinder pressure, compensating its drop while it empties in order to maintain the predicted pressure and volume.

Another key point that makes the RGS-MAN-RD stand out is that is able to be calibrated to the desired pressure, permitting itself to be adapted to each project and protection requirement.

All in all, this is a new secure system, optimized and of extensive benefits, that contributes to equip the most sensitive or valuable hazards with the most reliable and effective technology protecting against fires.



COMPONENTS



Pneumatic mechanism of total discharge control.

Configurable pressure, adapted to each project.

Self-regulation for pressure maintenance for a longer duration

Without pressure peaks

Better behavior, reliability and aging.

Optimization of the nitrogen quantity

The High Pressure Water Mist RG W-FOG UAC system is formed by two types of cylinders, some contain water at atmospheric pressure and others contain the nitrogen utilized as a propellant gas, which pressurizes the water and discharges it through the open nozzles.

The latter can be of 200 or 300 bar, and, along with the volume control technology, they achieve a quantity optimization of N_2 that permits nitrogen–water cylinders proportions of 1:5. Therefore, the systems are more compact and less bottles of nitrogen are employed.

The nozzles utilized are open nozzles designed specifically for the hazard in question. The difference between the constant pressure and declining pressure technology are the cylinder valves propelling the nitrogen. In the constant pressure system, the valve regulates the pressure with the one that propels the water, having constant pressure during the entire discharge.

A cylinders system is comprised of:

- Water cylinders at atmospheric pressure (with volumes of 67, 80 and 140 liters).
- Cylinders of N_2 loaded to 200 or 300 bar (with volumes of 67, 80 and 140 liters).
- Delivery manifold.
- Retention valves for the correct orientation. Tubing networks and accessories. Open nozzles, for the most efficient misting.
- Distribution blocks and direct tees to facilitate installation.
- Pressure gauges, pressure gauges with electric contacts, switches, etc.
- Pressure switches.
- Trigger hoses, discharge hoses, adaptors, etc.
- Electric, manual, pneumatic, etc. discharge headrests.
- Continuous weighing systems for all cylinders.
- Directional valves.

Less propellant bottles (N_2)

More Compact Equipment

More Secure and Stronger

SPECIAL COMPONENTS:

All the employed electric components in this system can be substituted for electrical components with classification for explosive atmospheres. That is to say, when the equipment is installed or is protecting a special hazard, temporarily or permanently, with an atmosphere with the possibility of explosion due to sparks or sources of electric heat, it is possible to substitute existing electric components of our system by other (likewise approved) that are protected against these atmospheres.

Said electric components have different classifications for atmospheres more or less restrictive and they are approved by different agencies as ATEX, UL, CSA, IEC Ex, KOSHA, NEPSI, etc.



THE BEST ALTERNATIVE



The RG W-FOG UAC system does not need that the protected area be closed hermetically, with systems of gases if theThis increases the price of gas systems installations in respect to water misting.

It's more economical:
Does not require
overpressure racks.

SET AGAINST
GAS SYSTEMS

The prices of the recharges are a lot smaller, against gases like the Novec 1230, for its low cost and better agent availability (water and nitrogen). Does not need water tightness, which avoids tests like the "Door Fan Test" necessary in the protection of critical hazards with clean gases.

With constant pressure technology, the water mist discharge carried out in the protected area is at a constant pressure during the discharge time than with the decreasing pressure technology the discharge of the agent isn't controlled, it is carried out as an inert gas discharge, that is to say, depending on the piping network that we have rises to a specific maximum pressure to then decline throughout the discharge time.

The components of the declining pressure system include protection

FOR DECREASING
PRESSURE SYSTEMS

elements, like escape break valves, to assure that the discharge is not carried out to a pressure higher than required, while the constant pressure system components employ elements of control to be able to activate the system to the required pressure.

The constant pressure system gives a specific flow throughout the discharge time, on the contrary, in the declining pressure system the flow is variable obtaining a greater concentration during the first instants of the discharge.

BENEFITS

The Water Mist RG W-FOG UAC system is the most efficient and beneficial system for the environment since it employs a technology that optimizes water use, employing a tenth of the amount of water than the traditional sprinkler system. Also, it utilizes an inert gas as a propellant gas which has a positive impact on the environment because it is naturally found in the atmosphere. Of all the benefits that the RG W-FOG UAC system has, we emphasize the following:



It allows to maintain the high pressure generated in the discharge under control, utilizing the constant pressure technology developed by RG-Systems.



Eligible to protect busy areas without causing damages to the people that are found in said zone. Even after the discharge the personnel can breathe normally and evacuate the areas without danger.



It has a particle absorption effect in decomposition and toxic gases and irritants created by the fire, maintaining an atmosphere apt for proper breathing of the personnel that work in the protected area.



The damage caused to the equipment is minimum due to the employment of a technology that permits a most minimum water consumption.



Does not consume energy since the water pressurization and impulsion carries out it an inert gas that doesn't damage the ozone layer and has zero greenhouse effect.



Thanks to the cooling off effect and cooling of the system, it avoids greater damages to the equipment, obtaining an rapid activation after a discharge, saving on costs by returning to the normal rhythm of work sooner.



Due to its design, it permits an integration with esthetics and the architecture in which it is installed, obtaining a suitable and beautiful installation in applications as museums, hospitals, schools, etc.



RG Systems is continuously investigating and designing systems for different applications, for which this system can be utilized in a variety of special protections, transformers, mechanical stairs, etc.



Cost reduction in the resulting damages by employing this technology, as well as a cost reduction when utilizing a system with less water and less necessary components than other systems.



Direct local application on the protected area employing less water than a total flood. Applications as transformers, turbines, etc.



Guarantee in the use of the RG-Systems approved for different applications by international agencies, like VdS, Bureau Veritas, DNV, etc. As well as in laboratories of recognized prestige as VTT, SINTEF, etc.



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