

CYLINDER BATTERY WITH
CONSTANT PRESSURE
TECHNOLOGY

WATER
MIST
SYSTEMS



CLOSED
NOZZLES

THE LATEST IN WATER MIST TECHNOLOGY



The High Pressure cylinder battery system, RG W-FOG UAC, and closed nozzles utilizes the latest technology to control, suppress or extinguish the fire occurred in the protected area. 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.

In the RG W-FOG UAC system, the closed nozzles detect the fire source and generate the 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 agent misting in the protected area.

The water mist uses a natural element as the extinguishing agent, water, but in the most efficient way protecting the protected area and extinguishing the fire, reducing the damage caused to a minimum.

It's a totally ecological system that used inert gas present in the air we breathe and that

doesn't have any green house effect or harms the ozone layer. It's especially recommended when there are people in the protected area who work occasionally or permanently.

Also, the water mist absorbs decaying particles and toxic and irritant gases created by the fire.



OPERATION PRINCIPLES

DETECTION:

In systems with closed nozzles, the breaking of the nozzle's thermal bulb, which is set to a determined temperature, triggers the activation of the extinction system. When there's a fire in the protected area, the nozzle's thermal bulbs break upon reaching the set temperature, giving rise to a depressurization of the piping network that triggers the activation of the RG W-FOG UAC extinction system.

ACTIVATION:

Once the extinction system has been activated, the nitrogen cylinders are activated, which discharges the propelled gas in the water cylinders, pressurizing them and forcing all the water to travel through the piping network and discharge over the protected area through the nozzles. These nozzles have been designed, tested and manufactured for the area they are protecting and they are the responsible for carrying out the correct water misting.

CONSTANT PRESSURE TECHNOLOGY:

RG Systems offers a protection system with High Pressure Water Misting with cylinder batteries, since it allows pressure regulation of the nitrogen cylinder discharge, and therefore, the discharge pressure of the water mist nozzles.

The propelled nitrogen cylinders are equipped with pneumatic self-regulation valves of discharge pressure. This permits the gas to be released at a constant rate, controlled and continued during all the process.

This novel system doesn't need springs, or mechanisms, which is why it's more reliable, secure and lasting. It also guarantees the necessary pressure in the nozzles so that the water misting is optimum.



COMPONENTS

The High Pressure Water Mist system RG W-FOG UAC is formed by two types of cylinders, some contain water at atmospheric pressure and others contain the nitrogen utilized as propelled gas, which takes care of the water pressurization and to discharge it through the nozzles.

The latter can be of 200 or 300 bar, and, along with the volume control technology, they achieve a quantity optimization of N₂ that permits nitrogen–water cylinders proportions of 1:5. Therefore, the systems are more compact and less nitrogen bottles are used.

The utilized nozzles are closed diffusers designed specifically for the hazard in question. The water cylinders and piping network, as well as all the accessories (from discharge hoses to starters) are common so much for the constant pressure technology as for the declining pressure technology. The only difference between the two technologies is the nitrogen driving cylinder valves. In the constant pressure system case, the valve regulates the pressure with the one that it propels the water with, having constant pressure during the duration of the discharge.

A cylinder system with wet piping consists of:

- Cylinders with water at atmospheric pressure (with volumes of 67, 80 and 140 liters).
- Cylinders of N₂ loaded to 200 or 300 bars (with volumes of 67, 80 and 140 liters).
- Pilot control cylinder SIEX-WF-TH1 or SIEX-WF- TH2.
- Discharge collector to collect the propelled water and direct it to the network.
- Retention valves for the correct orientation.
- Piping network, accessories and closed nozzles, for the correct misting.
- Distribution blocks and direct tees to facilitate the installation.
- Pressure gauges, pressure gauges with electric contacts, switches, etc.
- Pressure switches, flow switch, etc.
- Trigger hoses, discharge hoses, adapters, etc.
- Electric, manual, pneumatic, etc. discharge heads.
- Weighing systems for the water and nitrogen cylinders.
- Control or directional valves.

Mist nozzles approved for each specific use.

Use of ecological and clean agents.

Optimized propellant employment. Improved cylinder Proportion: 5 to 1 water-nitrogen.

PILOT CONTROL CYLINDER SIEX-WF-TH1 OR SIEX-WF-TH2:

The pilot control cylinders are especially designed for pressurizing the piping network in closed nozzle or wet piping systems and to activate the extinction system when necessary. They are loaded with inert gas IG-100 (nitrogen) to 100 bar as the pressurization agent of the piping network. The water network must be previously filled with filtered water. These control cylinders can require additional components such as non-return valves, shutoff valves, etc., for the correct system pressurization.

These pilot cylinders have the same form of pressurizing the piping net-

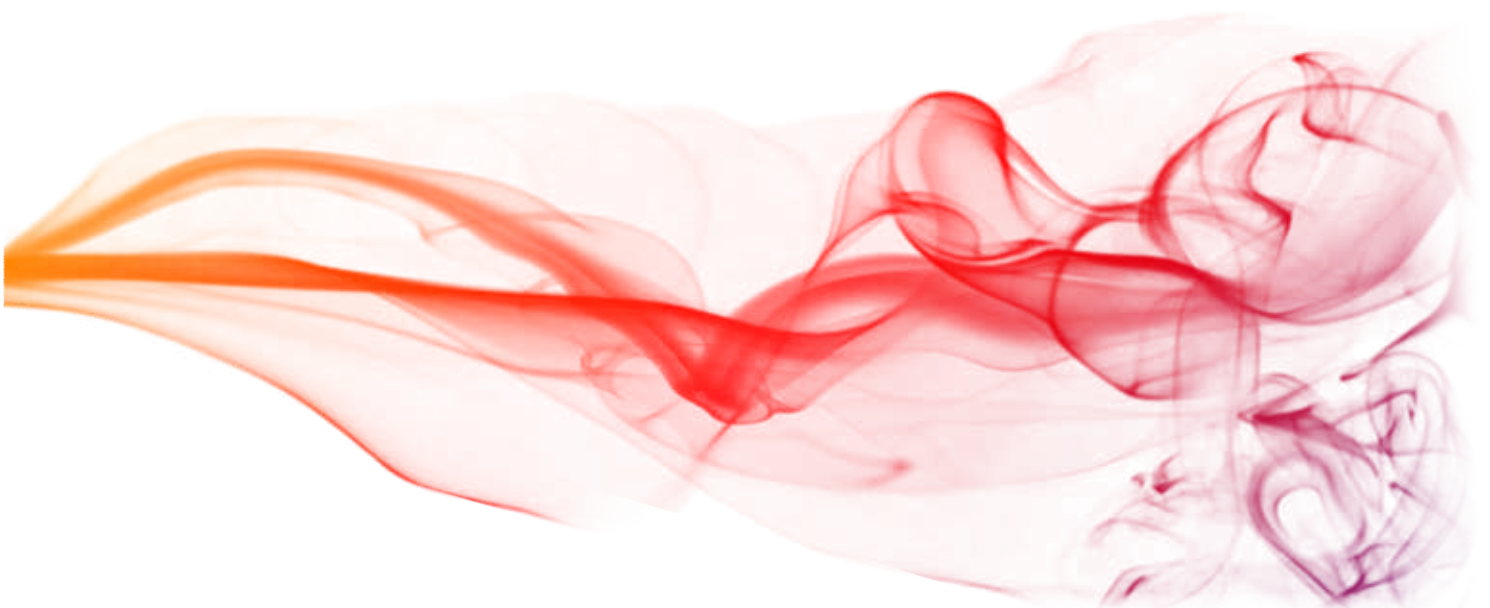
work, but they have a different way to activate the extinction system.

The pilot cylinder model SIEX-WF-TH1, has two pressure switches, one regulated to 60 bar and another to 30 bar, when the pressure switch goes over 60 bar it indicates that the pilot cylinder has low pressure, and when it jumps over 30 bar it automatically activates the extinction system. Said discharge is carried out through the fire department, which is why the system requires one.

On the other hand, the pilot cylinder model SIEX-WF-TH2, does not require of a fire fighting department

to activate the extinction system, this is carried out through the pilot cylinder upon detecting a low pressure in the piping network.

It is highly recommendable to test leaks in the piping network prior to the installation of these pilot control cylinders, since a leak can deactivate a system when it's installed.





SPECIAL COMPONENTS:

All of the electric components used in this system can be substituted for electrical components with explosive atmosphere classifications.

That is to say, when the equipment is installed or is protecting a special area that has, be it a temporary or permanent, an atmosphere with the possibility of an explosion due to the presence of a spark or a electrical heat source, the possibility of substituting the electric components of our system by others (also approved) that are protected against these atmospheres.

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



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