ATEX Explo-Guard Hot Water Atomizer Suppressor Y—2.4

INTRODUCTION

The ATEX Explo-Guard Hot Water Atomizer (HWA) Suppressor Sub-System is the next generation protection option. The engineers at ATEX were given two basic principals by which to design the new HWA suppressor. First it needed to be reliable, second it must handle large volumes without expensive dry chemical costs. An analysis of existing suppression products found them to be reliable but ineffective and costly when used in large volumes. The engineers knew the valve had to be totally different than the existing designs. The final product the ATEX Explo-Guard HWA Suppressor. A simple mechanical valve with redundant firing, requiring minimal part replacement after activation and major advances in cost control for initial and operational costs. For an agent they used hot super-pressurized water a uniquely effective suppressant totally rechargable with readily available tap water.

CONCEPT

The ATEX Explo-Guard HWA is designed to use the minimum parts for valve opening to achieve the maximum speed of operation and reliability. The valve uses natural geometric shapes that enhance the speed of operation. A mechanical flapper is held in place by a piston-release pin. When a signal is sent to the valve from the control panel two redundant gas generator cartridges pressurize a uniquely designed release mechanism to release the hold pin and fire the suppressor. While other suppressors have used redundant electrical solenoid coils they do not provide the unique simple redundancy directly connected to the piston-release pin.
When the suppressor's valve opens superheated water releases into the protected area using the unique ATEX Spreader Nozzles. Suppressors using dry chemical in large vessels have a limited size capacity as the agent slows down while the unique discharge action of the hot water creates a super fast distribution at an increasing rate of speed. The energy of the water is transferred into the expansion process producing a cloud of water droplets with an optimum extinguishing capacity. The rapid evaporating water produces an additional inert effect to assist in the suppression and mitigate the reignition. And using water as the suppressant lowers operating costs to a minimum.

BENEFITS

- √ **Suppresses flame and pressure propagation.**
- √ **Does not release combustion or toxic dust particles into the air.**
- √ **Can be used inside all plant areas regard less of ventilation.**
- √ **Reduces Maintenance and Operational Cost.**
- √ **User maintenance and operation.**
- √ **True redundant release for system reliability.**
- √ **Low cost plentiful water as suppressant.**
- √ **No agent replacement cost on reconditioning.**
- √ **Provides protection in occupied areas where other agents present a problem.**

DESCRIPTION

After detection of a deflagration by the ATEX Explo-Sentinel System a signal is sent to the system controller, processed and sent to the HWA Sub-System.

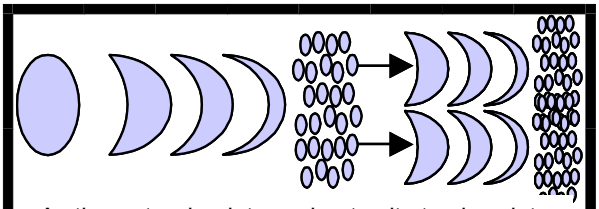
When the Explo-Guard unit receives a signal two small redundant gas generators activate introducing pressure to the spring controlled piston-release pin which pushes away from the valve allowing the pressure in the HRD to push the pin and open the valve. The valve opens completely and releases the super-pressurized hot water into the protected vessel.

Because the system uses hot water, cooling damage to the vessel does not occur and the unit can be ready for protection again in a minimum amount of time.

The hot water is stored and heat controlled at 180^0 C in the storage containers producing 10 barg pressure. The system automatically supervises the suppressor for pressure, water level, water heating and heating coil overheat conditions. The unique fill check procedure assures proper water fill without weighing or metering of the water. A safety pressure release is provided for emergency situations.

The water suppressant provides superior and cost effective protection for large volumes where water is compatible with the product. The relative explosion of water droplets within the protected area reaccelerates the hot water discharge providing faster suppression than available with powder suppressants in larger volumes having agent throw considerations.

ATEX Explosion Protection. L.P.



As the water droplet accelerates it atomizes into many droplets which further accelerate and atomize into more hot water vapor droplets achieving rapid and homogeneous disperion of the suppressant and rapid deflagration suppression

The ATEX Explo-Guard Adjustable Pop Out Spreader advances suppressant release with a hygienic design that is easy to install and does not require expensive blow off caps and covers. The unit is adjustable to meet a variety of release pattern requirements. The unit is simple to recondition without entering the vessel. Providing an almost flush finish during normal operation on discharge the suppressor presses into the vessel.

Duct Work

Vessel Protection

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