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# RiskFix

Balanced Risk Engineering Solutions

# Gaseous Fire Suppression System

All Authorities are reliant on computer technology in order to survive today. What if there was a fire in the main computer room. Would it impact on your ability to deliver your services? If the answer is yes then you need to evaluate computer room and other critical area fire protection measures in order to ensure that they are adequate.

Gaseous fire suppression systems are particularly applicable for high value risks where a minor fire within a critical area could have serious financial repercussions or a critical effect on the ability to deliver services.

## Types of Gaseous Fire Suppression Systems

There are two main types of gaseous fire suppression systems comprising inert gas and chemical agents. The main agents that are encountered today include:

- Inergen
- Argonite
- FM 200
- Novec 1230

Inert gases principally extinguish fires based on the principal of oxygen depletion where the oxygen concentration is reduced below 15% which is an acceptable level for human exposure but insufficient to allow fire development. Chemical agents generally act on fires by physical means by lowering the temperature of the flame and fuel to a point at which the combustion process cannot be sustained.

A summary of the above mentioned fire suppression systems are included in a number of accompanying RiskFix documents.

## System Operation

Gaseous fire suppression system activation can be manual, automatic or auto/manual. Gas is discharged through a pipe network system and enters the protected environment through appropriately designed spray nozzles.



Gaseous fire suppression systems when designed and installed correctly should ensure that high value assets are protected from fire and the effects of fire fighting

When systems operate effectively they should ensure that operations resume quickly and that physical damage and financial losses are minimised. Clean up costs will also be limited.

Critical to the functioning of all gaseous fire suppression systems is the control network including the automatic fire detection system.

In normal practice the fire detection system will identify the presence of fire. The control panel will note this, sound an alarm, shut down essential services including the air movement system, isolate power supplies and then release the fire suppression agent into the protected enclosure. Systems will normally operate on a double knock basis ensuring that there is a controlled procedure in place for shutting down services.

### Applications

There are various applications for gaseous fire suppression systems including:

- Computer Rooms
- Production Control Rooms
- Clean Rooms
- Critical Pieces of Site & Equipment
- Archive Store Rooms
- Data Processing Equipment
- Air Traffic Management Centres
- Telecom Centres
- Internet Service Providers
- Heritage Sites
- Offshore Gas & Oil Installations

### Approvals

Systems are approved and/or comply with major international authorities and classification bodies.

Installations should be undertaken in accordance with an approved standard such as BS ISO 14520:2015 and the requirements of the Authority Having Jurisdiction must be considered.

Please review manufacturer information relating to approvals in the particular jurisdiction when considering the installation of a suppression system.

### Key System Considerations

- As part of the installation of a fire suppression system it is paramount that this is designed, installed and maintained in line with the manufacturers recommendations.

- System should be undertaken by an approved installer in line with applicable standards.
- Structural changes to the protected enclosure must be strictly supervised and will require system redesign and room integrity testing following site modifications. A permit to work system should be put in place and this should only be signed off when the integrity of the room has been restored following completion of the work.
- Fire suppression systems when correctly designed and installed should provide critical protection for fixed equipment and site and will also provide business security and can form part of the overall Business Continuity Plan for your organisation.
- The protected area must not be overly taxed with heavy combustibles and non essential storage. Housekeeping standards must be to the highest level.
- The gaseous fire suppression system should be complemented with an adequate level of portable fire extinguishing appliances suitable for the occupancy.
- The gaseous fire suppression system should be maintained in automatic mode at all times and a permit system put in place in order to monitor when the system is switched to manual. An impairment procedure should be adapted.
- There should be adequate monitoring of the system outside normal hours e.g. BT Redcare or similar.
- It is crucial that staff in the respective area is formally trained in system operational procedures.
- In line with the provision of any fire protection measure it is critical that the outline specification is submitted to AIG for review and approval in advance of installation.

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