

ARGONITE® Fire Protection Systems



Introduction

Until the early 1990s, Halon was the most widely used and effective extinguishing agent in fire protection – especially in occupied areas. It is now widely recognised, however, that its use destroys the earth's protective ozone layer and so its production has been banned in accordance with the latest revision of the Montreal protocol.

Ginge-Kerr has developed the Argonite system as a viable but environmentally friendly alternative to Halon. Tested and approved by regulatory bodies throughout the world, Argonite is effective against fires in almost all combustible materials and flammable liquids and is particularly suitable for use in areas where the use of water, foam or powder would be unacceptable.



Applications

Argonite systems are ideally suited to the protection of fire hazards. Fires can have devastating consequences way beyond the

Benefits of the Argonite System

- Fast acting and effective against nearly all fire hazards
- Environmentally neutral – zero ODP, zero GWP
- Low installation and maintenance costs
- No post-fire residues or damage to protected equipment
- Electrically non-conductive
- Safe for occupied areas
- Can be integrated with existing detection and alarm systems
- Automatic or manual release
- Total flooding or modular design
- Minimum downtime after a fire

System Design

In a closed space almost all fires are extinguished in less than 60 seconds when the oxygen concentration falls below 15%. The Argonite fire extinguishing system, based on a mixture of 50% Argon and 50% Nitrogen, reduces the oxygen concentration to 12.5% – a level acceptable to human exposure over short periods – thus eliminating the fire quickly and effectively without affecting personnel.

Knowing the size and complexity of the area to be protected, the fire hazard

present and the requirements of the local approving authority, a dedicated computer program is used to specify the size and geometry of the Argonite system hardware.

Generally one of two methods is used to protect an area with Argonite. These are total flooding, where the required amount of gas is released into a room, and modular or local systems that are designed to cover a particular piece of enclosed machinery, equipment, etc.

Argonite Systems

Argonite systems consist of one or more pressure cylinders connected via a common manifold. System actuation can be manual or automatic and the gas is dispersed through a pipe network and enters the protected area via nozzles. Valve design, the size and pressure of the cylinders used together with computer calculated pipe and nozzle dimensions



ensure that the correct amount of Argonite is released effectively. Argonite's inerting and extinguishing properties act quickly to eliminate the fire.

If more than one area within a building is to be protected, a single Argonite system, designed to extinguish a fire in the largest room, can be used. Provided that there is no risk of more than one fire within the facility at any one time, the total cost of the fire protection system can be reduced significantly in this way.

Argonite Cylinders

A range of cylinders is available offering a choice of fill and pressures to meet your specific needs and to ensure maximum cost effectiveness of the installation. Each cylinder is manufactured from high strength alloy steel and is supplied in accordance with the requirements of the various national authorities — inclusive of stamping and certification. They are mounted in rows and may be installed in any suitable location.

Applications include:

- Computer Suites ■ Telecommunications Facilities ■ Archive Stores ■ Petrochemical Plants
- Offshore Oil and Gas Installations ■ Gas Turbines ■ Control Centres

ed equipment and plant. They are particularly applicable for high value risks where cost of damage and lost production.

Argonite Valves

Made of corrosion resistant brass, Ginge-Kerr's Argonite valves are designed to ensure optimum system performance, reduced pipe sizes and low installation costs. They can be actuated by one of the following methods:

- Electrical
- Pneumatic
- Manual

The valve design allows Ginge-Kerr's world-wide network of distributors to

recharge the cylinders without the need for replacement parts. An easy-to-read gauge enables convenient inspection of the agent pressure and a pressure switch is fitted as standard to allow remote monitoring of the system's integrity.

Approvals

Argonite has been approved and/or verified by major international authorities and classification bodies. These include the NFPA, DNV, Lloyds Register, Bureau Veritas, The Loss Prevention Certification Board, CNPP and the Environmental Protection Agency.

Reliability Assured

Ginge-Kerr works to the international ISO 9001 quality standard. The computer calculation program ensures rapid and accurate system design.

The Company

Ginge-Kerr has over 80 years experience in manufacturing, designing and commissioning fire protection systems for industrial, commercial and marine applications around the world. Backed by the world-wide technical and financial strength of Kidde PLC, the company is able to offer a total capability approach to fire detection, suppression and control.

Further Information

Contact your local distributor or Ginge-Kerr for further information about the Argonite fire protection system. Our staff will gladly advise you on all issues concerning the refitting of your current Halon system.

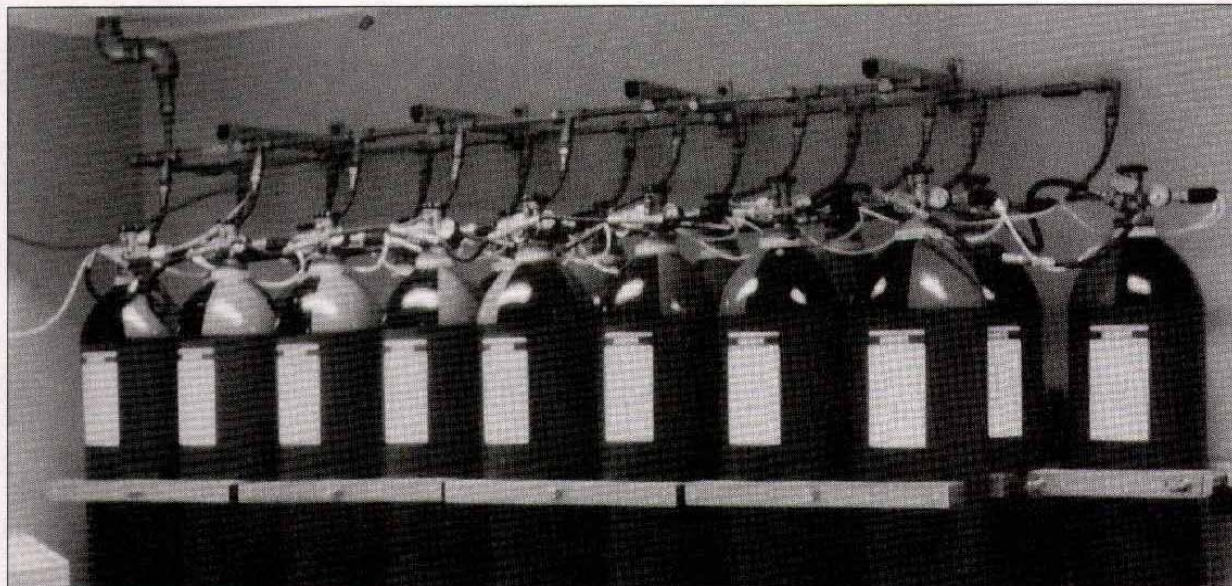


Ginge-Kerr

Argonite is a registered trademark



ARGONITE® Fire Extinguishing Systems



Characteristics

- Suitable for extinguishing fires in spaces where the use of water, foam or powder would cause unacceptable secondary damage.
- Extinguishes the fire rapidly and leaves no residue after extinguishing.
- Suitable for extinguishing fires involving petrol, oil, paint and similar liquids, various gases and chemicals. Electrical installations.
- Downtime after fire is reduced to a minimum.
- Can be installed with the option of either manual or automatic release.
- May be installed as a total flooding or modular system.

Description

General

Nitrogen mixed with Argon has been used as an extinguishing agent in fixed installations for the last fifty years. The introduction of Halon reduced the demand for nitrogen based systems that take up considerably more space. With Halon being phased out, interest in alternative gas extinguishing systems has increased. The ARGONITE® Fire Extinguishing System is based on a mixture of 50% Nitrogen and 50% Argon.

Field of Application

ARGONITE® systems will extinguish fires in almost all combustible materials except for a few active metals, metallic salts and substances containing oxygen i.e. nitrates and chlorates.

ARGONITE® is non conducting and therefore suitable for extinguishing fires in electrical installations.

The inert features of ARGONITE® make it suitable for use in spaces or rooms containing EDP equipment, archives/files etc., indeed any application where the use of other extinguishants is unacceptable due to secondary damage by the extinguishant or where life is at risk.

ARGONITE® may be used to extinguish fires involving flammable liquids. ARGONITE's inerting and suffocating properties quickly spread over the surface of the liquid, eliminating the fire rapidly. ARGONITE® leaves no residue after the fire is out, thus minimizing downtime and secondary damage.

Method of Organisation

One of two methods of operation is generally employed when applying ARGONITE® as the suppression agent. The first being total flooding, where a given amount of gas is released to a room, secondly modular or local systems that are designed to cover a particular piece of closed machinery/equipment, cabinet etc.

ARGONITE® Fire Extinguishing Systems

Total Flooding Systems

With this method the release of ARGONITE® creates an inert atmosphere in the space or room where the fire is present. Within a short time the fire will be suffocated. EDP rooms will typically be protected by this method.

Local Application

This method is based on ARGONITE® being applied directly into a cabinet or enclosure, which is covering the equipment to be protected.

Special nozzles will be used to avoid direct gasbeam on possible sensitive parts.

System Description

ARGONITE® systems consist of one or more pressure cylinders connected via a common manifold. ARGONITE® is dispersed through the manifold and pipe system and enters the room or space via nozzles. Valve design, size and pressure of the cylinders, combined with computer calculated pipe and nozzle dimensionings ensure that the correct amount of ARGONITE® is correctly released and distributed to the protected room or space. The system may be manually or automatically released.

Automatic release is used where a fire may develop quickly and immediate action is required.

In order to get the most reliable automatic system, it is important to consider which type of detector there is most suitable for a particular application. The following measures must also be taken into consideration when designing a system with automatic release.

- Air exhausters must be stopped and fire dampers closed.
- Doors to be fitted with self closing devices.
- Cable and pipe exit and entries should be sealed.
- Automatic current shut off to EDP or other electrical equipment.

Unitor Denmark's range of alarm and control panels are designed to interface with the above requirements.

Cylinders

Cylinders are delivered with a nominal capacity off 67.5 litres or 80 litres. The cylinders are fitted with pressure operated fast opening valve. These valves also include a manual over-ride.

Cylinders are supplied in accordance with the requirements of the various national authorities, inclusive of stamping and required certificates.

The following table indicates the most important data for the standard cylinder. Minor deviations may occur.

	150 Bar		200 Bar	
Cylinder volume	67.5 L	80 L	67.5 L	80 L
Argonite	14.7 kg	17.4 kg	19.2 kg	22.8 kg
Weight empty	75 kg	85 kg	75 kg	85 kg
Diameter	267 mm	267 mm	267 mm	267 mm
Height incl. valve	1610 mm	1900 mm	1610 mm	1900 mm
Free volume	10.2 m³	12.1 m³	13.4 m³	15.8 m³
Approx. volume to be protected	21 m³	25 m³	27 m³	33 m³

Cylinders are mounted in batteries in one or two rows and may be placed anywhere that is appropriate.

Care should be taken to ensure that the temperature of the room is maintained between 0° C and 70° C. Release is by means of a solenoid valve.

System Design

System design is based on the following:

Almost all fires are extinguished when the oxygen concentration in the room is reduced below 15%. Based on the room size, tightness of the room, the fire hazard and the different requirements from local authorities, we calculate our systems by a pipe calculation program, special designed for ARGONITE®.