Kidde Fire Protection

CARBON DIOXIDE
Fire Suppression Systems

Kidde introduced the carbon dioxide fire extinguishing systems more than 90 years ago and is continuously involved in research and testing to improve the system. Kidde Fire Protection benefits from the accumulated experience of thousands of installations in power plants, industrial plants, oil refineries, electronic processes, on ships and in a wide variety of hazardous areas.

CO_2 IS VERSATILE

CO_2 is stored as liquid, under its own vapour pressure of ~59 bar at 21°C. When a system is activated, the liquid CO_2 flows through discharge pipework to specially designed nozzles. The agent's low boiling point means that the liquid vaporises rapidly during the discharge, providing a penetrative three-dimensional action. The rapid expansion of the gaseous agent allows fires to be targetted even in the most inaccessible areas of the risk.

CO_2 IS FAST AND EFFICIENT

The Kidde Fire Protection CO_2 system uses large bore cylinder valves, enabling high mass flow rates to be achieved. The fast action of the control system and valve enables the system to react within the first few seconds of a fire.

CO_2 IS CLEAN

CO_2 is colourless and odourless. After extinguishing a fire it vaporises fully leaving no residue. With non-conductive properties it can be used on energised electrical equipment and safely used to protect delicate electronic equipment, antiquities or archive materials.

CO_2 IS LOW COST

Carbon dioxide is a standard commercial product with many other uses and is readily available throughout the world. Because of its universal use it can be obtained inexpensively. This is an important consideration when frequent recharging of storage containers is necessary such as in local application systems, where fires may be more frequent.

BENEFITS

- High flow 'Klem' cylinder valve
- Manual or Automatic operation
- Pilot cylinder or Direct Acting Solenoid operating system
- Continuous weight monitoring option
- Design compliance with BS5306-4
- Fully compatible with Kidde Fire Protection control panels

FLEXIBLE DESIGN

The wide range of components manufactured by Kidde Fire Protection enables systems to be engineered to suit individual customer requirements. Systems can be either automatically or manually operated, arranged to protect single or multi-zone hazards and supplemented with a reserve discharge facility. Automatic control can be achieved mechanically, pneumatically, electrically or by any combination of these to suit site conditions.

Facilities are available for providing a pre-alarm and delayed discharge as well as various methods of preventing automatic release while protected rooms are occupied by personnel.

Audible and visual indications of system control can be provided together with facilities to automatically shut fuel valves, fire doors, dampers and shutters by either mechanical or electrical devices.

TOTAL FLOODING

Total flooding systems extinguish fires by rapidly discharging CO_2 into an enclosed volume to create an atmosphere that is incapable of supporting combustion.

The agent mixes homogeneously in the risk area to generate a CO_2 concentration by volume of at least 34%. This concentration of CO_2 presents a serious hazard to personnel and under no circumstances should CO_2 be released into areas that may be manned at the time of discharge.

Total flood CO_2 systems are ideal for unmanned applications such as transformer rooms, remote switch rooms, generators and archives. All systems should be installed with safety systems in place to prevent the inadvertent release of agent into occupied spaces. Kidde Fire Protection offers time delays, isolating valves including distribution valves and control head lockout pins to facilitate the safe use of CO_2.

LOCAL APPLICATION

This method of system design is used to protect hazards that are open or have only partial enclosure, situated within a larger area that would be unsafe or uneconomic to protect using a total flood system. Discharge nozzles are placed so as to provide direct agent flow at the points and areas prone to fire. These systems are very effective and are often installed with connected reserve banks so that the systems can be reinstated during the same shift as a fire event, while the empty cylinders are recharged.

APPLICATIONS

- Flammable liquid storage areas
- Printing presses, flow solder machines
- Quench tanks/exhaust fume ducts
- Paint spray booths
- Fryers/ovens
- EDP/computer rooms and floor voids*
- Commercial kitchens*
- Transformers
- Generators

* CO_2 is not the agent of choice for manned areas due to its toxicity at extinguishing concentrations.

APPROVALS

Major approvals for the Kidde Fire Protection CO_2 system include:

- FM Global
- Lloyd's Register
- Det Norske Veritas

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