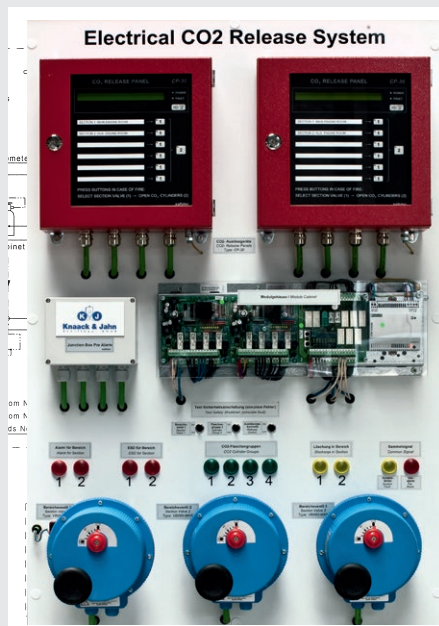
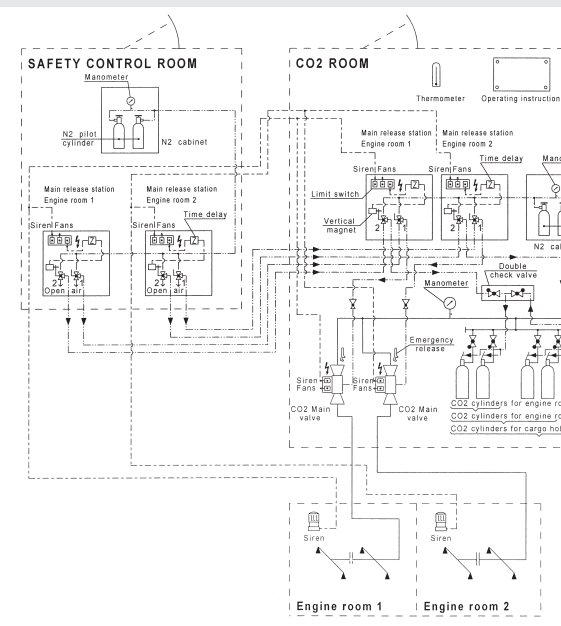


SHIPBUILDING

FIRE PROTECTION GAS SUPPRESSION SYSTEM



CO₂ FIRE EXTINGUISHING SYSTEM



CO₂ System

Due to its physical and chemical properties, CO₂ is the most commonly used gas on ships in order to extinguish fire during accidents. CO₂ is used in a number of ways, mainly depending on the intensity of fire.

A CO₂ fire fighting system includes a number of CO₂ bottles arranged together. This system is mainly used for large areas on ships, such as cargo holds or machinery spaces of engine rooms, where fighting fires gets difficult due to extensive spaces and fire intensity. This system is also known as total flooding system, as for the spaces affected with fire are totally flooded with CO₂ in order to quench the flames.

In this system, the cylinders are grouped together in banks, in a separated room away from the machinery or cargo spaces. All the cylinders are joined together with a common manifold. The outlet of each cylinder discharges through a connecting hose into the manifold.

The release of the CO₂ system for the protected areas take place from:

- Electric CO₂ release panel
- Pneumatic CO₂ release panel

Advantages of using CO₂

CO₂ gas is mainly used for extinguishing fires because of the following properties:

- At normal temperatures, CO₂ remains in the gaseous state. CO₂ is also 1.5 times denser than air. This heaviness helps displace the air by making CO₂ act as a blanket to cut off the supply of oxygen to the fire.
- CO₂ is easily available and can be liquified and bottled simply. It is normally contained under a pressure of approx. 50 bar in cylinders made of steel.
- When CO₂ is released onto fire, it boils off rapidly as a gas into the atmosphere, taking away the heat from the surrounding atmosphere and cooling down the environment.
- CO₂ is a non-flammable and non-corrosive gas.
- It does not conduct electricity and does not leave any kind of residue.

Disadvantages of using CO₂

- CO₂ is the most toxic gas when it comes to human health. It is a highly suffocating gas, a concentration of even 9% in the breathing air would render a person unconscious within minutes.

NOVEC FIRE EXTINGUISHING SYSTEM



3M Novec™ 1230 System

3M Novec™ 1230 fluid offers a unique combination of safety, low environmental impact and extinguishing performance, making it the first chemical halon replacement to offer a viable, long-term, sustainable technology for special hazards fire protection.

Novec™ 1230 Fire Protection Fluid is based on a proprietary chemical from 3M called a fluoroketone.

- Zero ozone depletion potential
- 5-day atmospheric lifetime
- A global warming potential of 1
- A large margin of safety for occupied spaces

The complete system consists of one or more storage containers coupled to a system of pipework and discharge nozzles. These are specifically sized using a hydraulic flow calculation programme to achieve the design concentration of the system within a nominal ten seconds.

Containers

Containers are manufactured and marked in accordance with Classification Societies and regulations. They are painted in signal red.

Containers are fitted with lifting lugs and are designed for vertical mounting only.

Containers sharing the same manifold shall be equal in size and fill density.

The containers shall be positioned based on the summary of the hydraulic flow calculations and CAD layout drawings provided. The positions of the cylinders and pipe routes shall be confirmed and approved, prior to any installation being carried out.

Safety

Acute toxicity testing has shown that Novec 1230 fluid is safe at end use concentrations. The effective toxicity exposure limit is greater than 10% for both the acute inhalation exposure and cardiac sensitisation No Observed Adverse Effect Level (NOAEL) and set against low design concentrations, it offers margins of safety (up to 100%).

Service and spare parts

After completion, our range of services includes documentation, crew training and technical support. It also includes the necessary service inspections and delivery of all spare parts in OE quality. We are also happy to help you meet and implement all modification requirements.

WE DELIVER!



**FIRST STEPS
ARE ALWAYS WELCOME**

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