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INERGEN® CLEAN AGENT

FIRE EXTINGUISHING SYSTEM

Extinguishing fires in enclosed spaces requires solutions that can be deployed quickly and effectively with minimal risk to the crew, equipment and environment. The Inergen® system is a fire extinguishing system for enclosed spaces. Inergen is a clean agent consisting of atmospheric gases, which provides a safe solution for the crew, equipment and environment.

FEATURES

- INERGEN IS THE ONLY FIRE EXTINGUISHING SYSTEM THAT IS FREQUENTLY DEMONSTRATED WITH AN AUDIENCE INSIDE THE PROTECTED ROOM
- IT CONTAINS 8% CO_2. THIS MEANS THAT THE BODY CAN ABSORB AS MUCH OXYGEN AS IT WOULD IN A NORMAL ATMOSPHERE
- IT IS STORED IN CYLINDERS AS COMPRESSED GAS AND DOES NOT CREATE FOG IN THE PROTECTED ROOM WHEN RELEASED
- INERGEN DOES NOT DECOMPOSE OR REACT WITH OTHER COMPONENTS IN THE FIRE. THIS ELIMINATES CORROSION OR RESIDUAL HARMFUL AGENTS IN THE PROTECTED SPACE
- INERGEN HAS NO OZONE DEPLETION POTENTIAL (ODP) AND NO GLOBAL WARMING POTENTIAL (GWP)

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Safe for people

Inergen is the only fire extinguishing system that is frequently demonstrated with an audience inside the protected room.

The unique feature of Inergen is that it contains 8% CO_2. At this low percentage CO_2 has a physiological effect which ensures that the body absorbs as much oxygen as it would in a normal atmosphere.

Inergen is stored in the cylinders in a gaseous form. It will not create any fog in the protected room when released resulting in a clear and visible escape route.

Safe for equipment

With no risk for bodily harm, an Inergen system can be released immediately when a fire is detected, avoiding unnecessary damage caused by the fire.

Inergen does not decompose or react with other components in the fire. This eliminates corrosion or residual agents (that could be harmful) in the protected space.

Only atmospheric gases

As Inergen consists of atmospheric gases only, it is a truly environmentally friendly gas.

Inergen has no ODP and no GWP, which is also stated by NFPA. When released, the gases take their natural place in the atmosphere.

The new Fjordline vessels "Stavangerfjord" and "Bergenfjord" are equipped with the Inergen system.
Photographer: Styrk Fjærtoft Trondsen

Clean Agent

The NFPA 2001 definition of a clean agent is:
Electrically nonconducting, volatile, or gaseous fire extinguishant that does not leave a residue upon evaporation.

Application

- Machinery spaces
- Paint and flammable liquid lockers
- Control rooms and switchboard rooms
- Transformer rooms
- Any spaces needing fire protection

How does it work

The extinguishing principle that Inergen uses, is called oxygen displacement.

The goal of oxygen displacement is to reduce the oxygen level in a room, so the fire will be suffocated. In the atmosphere, there is approximately 21 % oxygen. The level of oxygen needed to sustain a fire varies depending on what it is that is burning, but a level below 14 % oxygen will extinguish any fire in normal machinery spaces.

Inergen systems are typically designed to reduce the oxygen level to 10 - 12 %, which will extinguish the fire, and still be well above the level where people can breathe in the room.

The reduction of oxygen has a 3D extinguishing effect, which means that even "hidden" fires are quickly and effectively extinguished. The limited oxygen level also prevents re-ignition of the fire while cooling the room.

System description

The Inergen agent is stored in steel cylinders of various sizes and numbers depending on the volume of the protected space(s).

The cylinders are mounted on a supporting rack inside or outside the protected space, in a multiple cylinder system. These are connected by hoses to a manifold for common distribution and discharge of the gas. The discharge and control of the system come with different means of release methods.

When the gas is released from the cylinders it passes through the manifold orifices which control the discharge time of the system. This reduces the pressure to approx. 25 % of the cylinder pressure before the gas enters the protected area.

The system can be installed with a common cylinder bank, and a distribution manifold and valves which make it possible to protect multiple areas with one cylinder bank.

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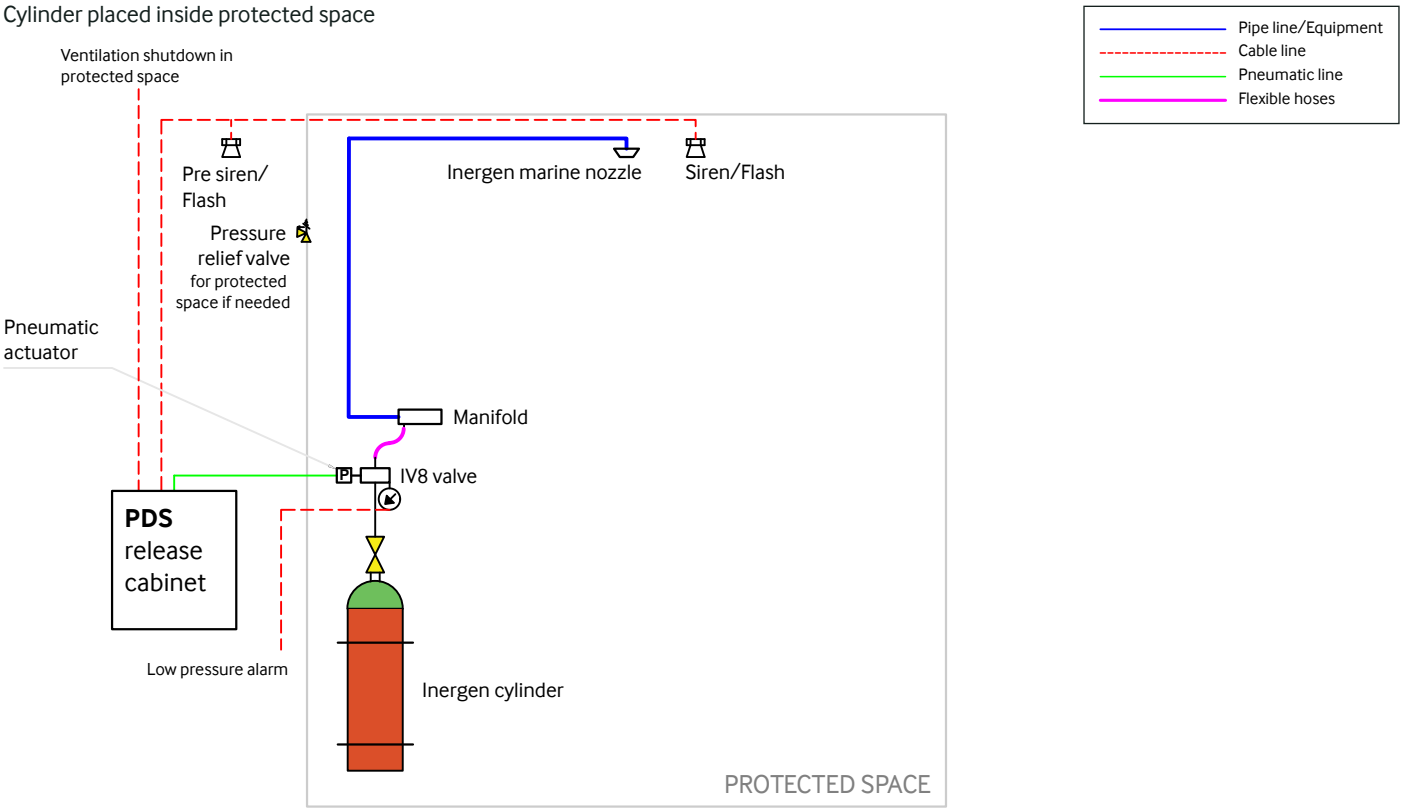
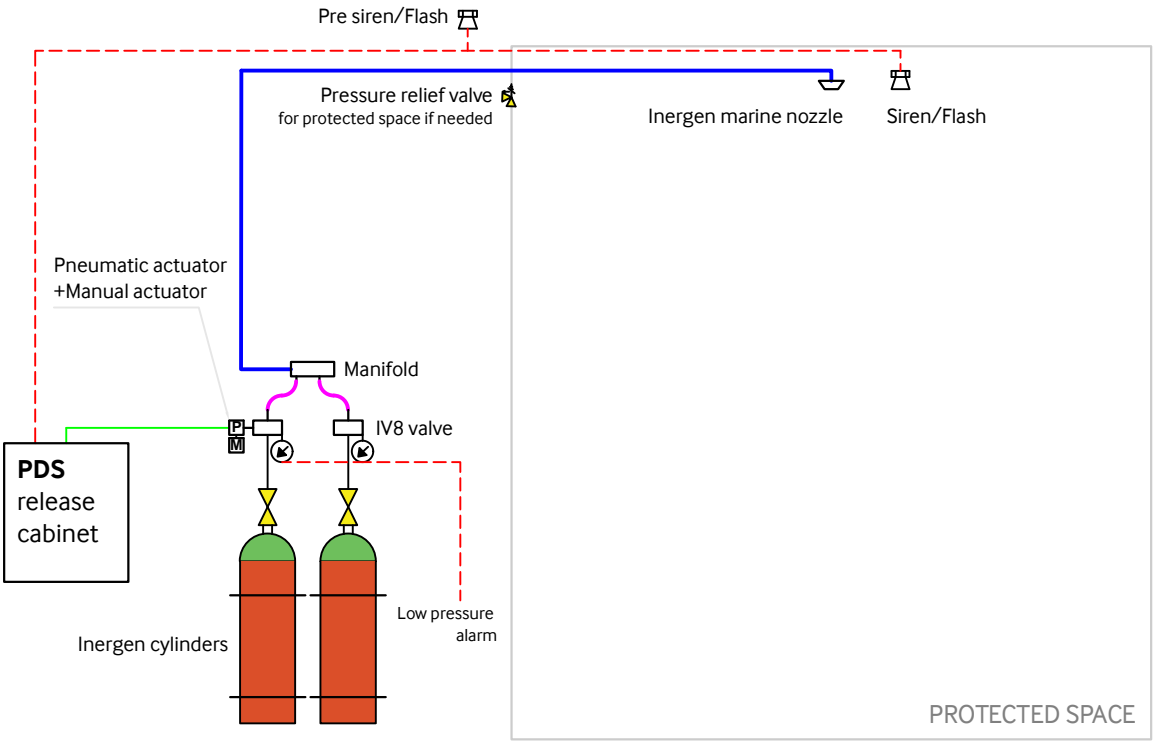
Standard configurations

Cylinder placed inside protected space



Cylinders placed outside protected space



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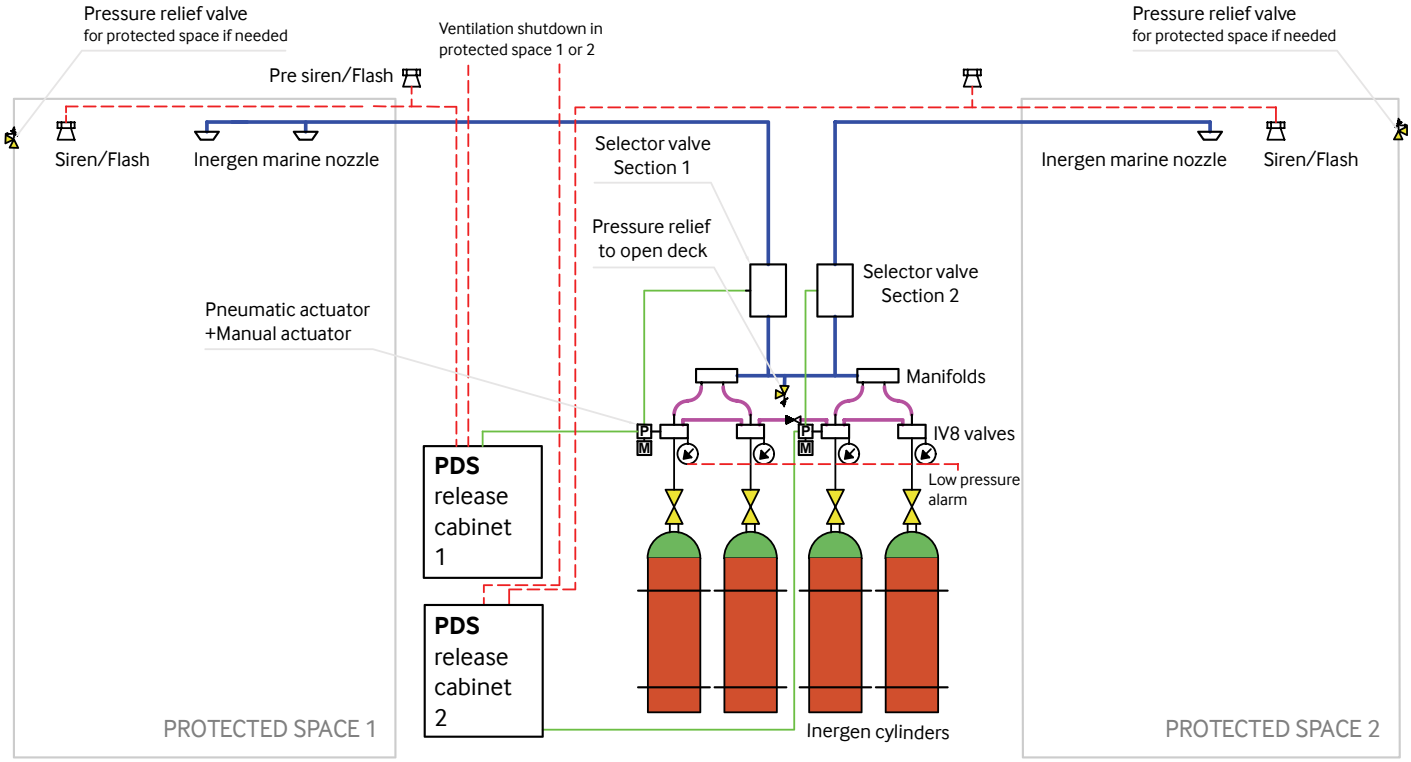
Standard configurations (continued)

Multiple protected spaces with one cylinder bank



Inergen gas

TECHNICAL DATA	
Inergen®	Extinguishing gas for fixed installations
Gas composition	52 % nitrogen (N_2) 40 % argon (Ar) 8 % carbon dioxide (CO_2)
NFPA designation	IG541
Discharge time after release [s]	120

Inergen cylinders

TECHNICAL DATA			
Volume [litre]	5 to 80	**Test pressure [bar]**	300/450
Pressure [bar @ 15 °C]	200/300	**Colour**	Red, with green shoulder
Gas volume [Nm³]	1 to 24	**Height [mm]**	465 to 1780
Weight empty [kg]	9 to 108	**Diameter [mm]**	140 to 267
Weight filled [kg]	11 to 140	**Standard & approval**	EN1964-2, π; TPED EC1999/36

Approvals

The Inergen system can be applied on merchant marine and offshore structures as its design is in accordance to SOLAS and IMO MODU Code. It is tested according to the IMO test standards and has approvals from Classification Societies, UL, FM as well as other national authorities around the world.

It is approved according to NFPA 2001 as a Halon gas alternative and is listed as a clean agent.

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