

Gaseous Extinguishing Systems



STANDARD MATERIALS:

Cabinet:	Stainless Steel AISI 316 L
Piping:	Stainless Steel AISI 316 L
Gas cylinders:	Carbon Steel
Cylinder valves:	Brass

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QA Certificate no: 2001-OSL-AQ-7140



Gaseous Extinguishing Systems

BRIEF DESCRIPTION

FPE is supplying inert gas type of gaseous extinguishing systems for room protection, and is able to supply both Inergen type and Argonite type of such systems.

This type of systems is functioning by injecting an accurately calculated amount of the inert gas into the protected room upon system activation.

This will cause the oxygen content in the room atmosphere to drop to 12 – 13%, which is less than what is required to maintain a fire in the room. However, the oxygen level is still sufficient for a person to breathe safely.

The Inert Gas systems can be made as single zone or Multi-zone systems.

WHERE TO USE

Gaseous systems are used for extinguishment and prevention (inerting) of flammable liquid and gas fires, fires involving energized electrical equipment, as well as for a variety of combustibles found in the following applications:

- Computer rooms
- Raised floors
- Switch gear
- Power generation
- Engine rooms
- Turbine hoods
- Telecommunications
- Manufacturing and industrial processes
- Any normally occupied or unoccupied areas with sensitive electronic equipment

Gaseous systems are used as total flooding systems. Gaseous systems must not be used as an extinguishing agent for chemicals containing its own oxygen supply or reactive metals such as magnesium, sodium, potassium or titanium.

DESCRIPTION OF INERTGAS SYSTEM

FPE can deliver Inergen and Argonite type systems.

Inert gas systems are environmentally neutral, three dimensional, fire suppression agent. Inert gas systems are:

- Electrically non-conductive

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- Safe for use in normally occupied facilities
- Not damaging to sensitive electronic equipment

An Inert gas system lowers the oxygen content of the protected area to a point insufficient to support combustion, but perfectly safe to human occupancy.

Technical description, Argonite/Inergen

Argonite/Inergen are three-dimensional clean agents. Within seconds the entire hazard area is penetrated, smothering the combustion.

Argonite/Inergen are colorless and odorless. The gases are normally harmless to equipment, materials and property. They do not cause spoilage, require no clean up and leave no residue, thus minimizing downtime after a fire.

Argonite/Inergen systems are designed in accordance with NFPA 2001 "Standard for Clean Agent Fire Extinguishing Systems".

The Argonite/Inergen extinguishing system reduces the oxygen concentration in the protected room to 12.5%, which is an oxygen level acceptable to human exposure for a short time without risk.

The quantity of extinguishing gas is 0.75 kg per m³ room net volume, and cylinders are available in various sizes, normally:

80.0 ltr = 22.8 Kg Argonite/Inergen (corresponding to a room volume of 30.4m³)
67.5 ltr = 19.2 Kg Argonite/Inergen (corresponding to a room volume of 25.3m³)

The gas is stored at 200 barg (300 barg systems are also available).

If required, the Argonite/Inergen system may be equipped with an interlocking device, which prevents unintentional release of the system, and at the same time avoids any discharge of gas while personnel is present in the protected room.

FPE's Argonite/Inergen systems are supplied fully assembled in enclosed cabinets.

A typical Argonite/Inergen system consists of the following components:

- Cabinet
- Gas cylinders
- Cylinder valves
- Manifold w. checkvalves
- Restricting Orifice
- Release Solenoid valve

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- System release alarm
- Pressure Switch
- Lockable isolation valve with limit switches indicating closed / open position (option)
- Directional Valves (If required)
- Argonite/Inergen Nozzles

All the gas cylinders are hooked up to a common discharge manifold via individual flexible hoses and check valves.

The discharge manifold is connected to the discharge piping leading to the nozzles, via the lockable isolation valve (optional).

The cylinder valve is kept shut by the pressure in the cylinder, and after a release, either electrically or manually, the valve will remain open until the cylinder has been completely emptied.

Argonite Physical and Chemical Properties

NFPA designation:		IG55	
Composition:	Nitrogen	50%	
	Argon	50%	
Boiling Point:		-190.1	[°C]
Freezing Point:		-199.7	[°C]
Critical point:	Temperature:	-134,7	[°C]
	Pressure:	41,5	[barg]

Inergen Physical and Chemical Properties

NFPA designation:		IG541	
Composition:	Nitrogen	52%	
	Argon	40%	
	CO2	8%	
Boiling Point:		-78.5	[°C]
Freezing Point:		-196.0	[°C]
Critical point:	Temperature:	N/A	[°C]
	Pressure:	N/A	[barg]

PRODUCT DESCRIPTION:

The Inert gas system is normally designed as an enclosed skid. The inert gas is stored in a number of high pressure cylinders with individual automatic release activation valves. The number of cylinders is calculated based on the volume of the protected room.

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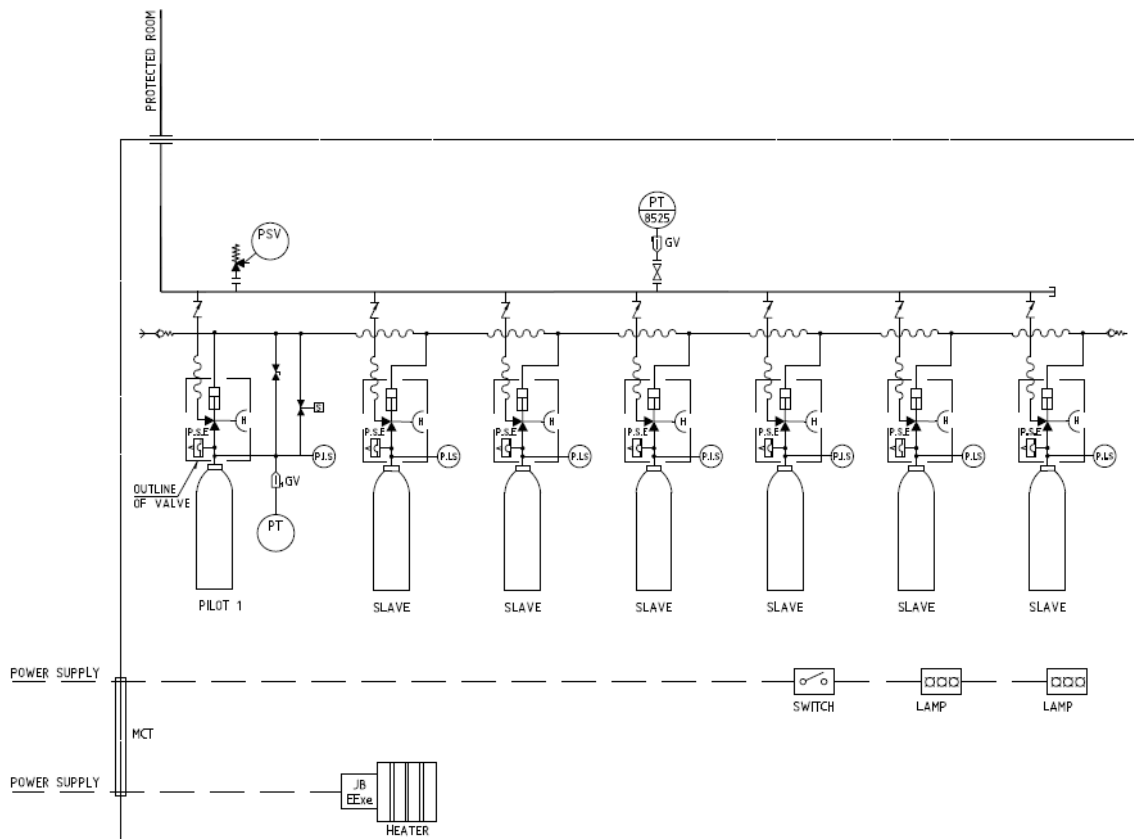


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The Inert gas system consists of the following main components:

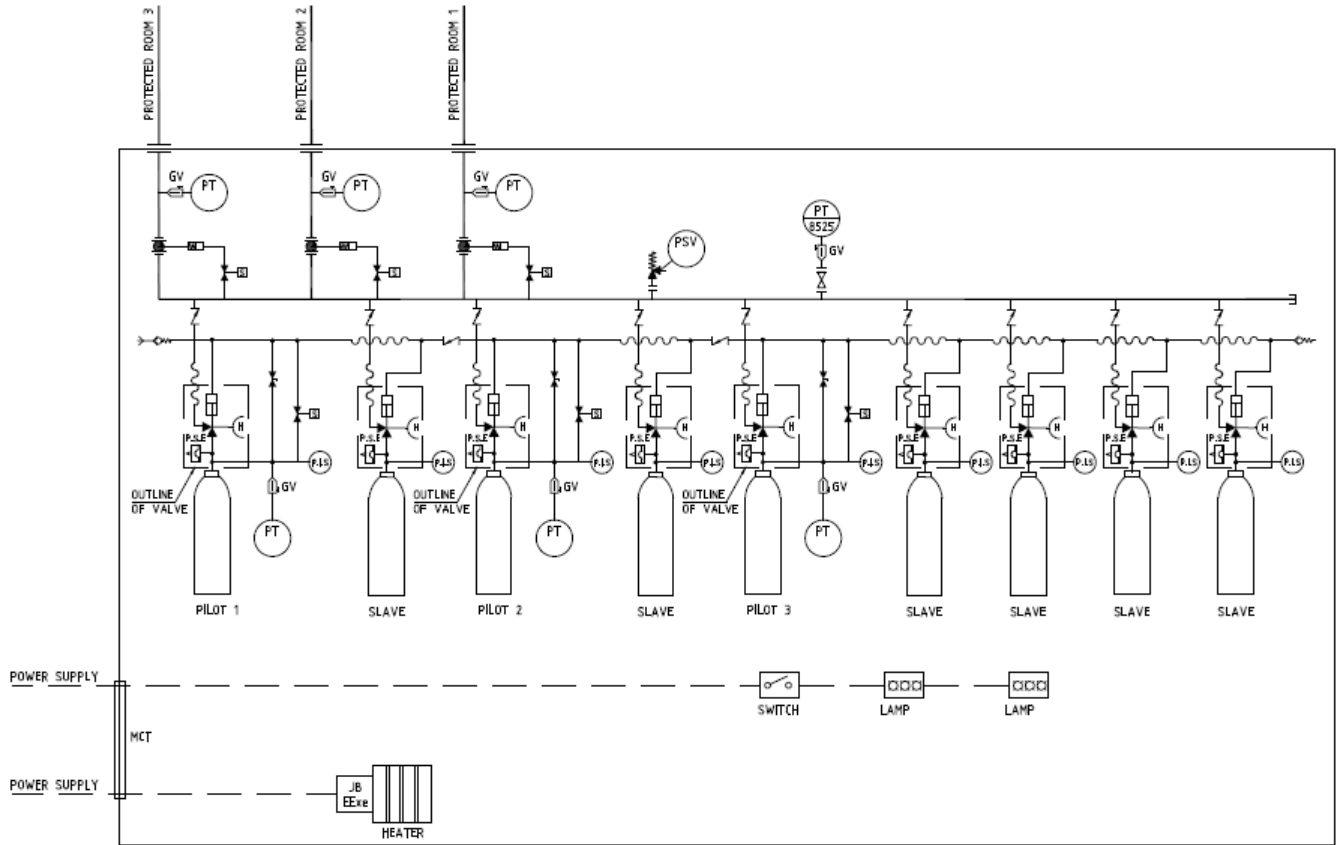
- Cabinet
- Inert gas cylinders, 80 litres volume, with discharge valves
- Distribution manifold
- Check valves
- Restricting orifices
- Solenoid valves
- Pressure transmitters monitoring the cylinder pressure
- Junction boxes, Eexi and Eexe
- Inergen nozzles
- Audible and visual pre-discharge alarms

System logic drawing Single Zone system



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System logic drawing Multi Zone system



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