



SIEX⁵⁴¹

FIXED EXTINGUISHING SYSTEM

with ARGON, NITROGEN and CO₂
extinguishing agents

300_{BAR}

FIRE
PROTECTION

THE MOST DEMANDING AND ECO-FRIENDLY PROTECTION



In the firefighting industry, the market is increasingly demanding new, more secure, efficient and reliable solutions, as well as being adaptable to any hazards that need to be protected.

In designing such systems, fire extinguishing, despite being a critical factor, is not the only critical parameter to be taken into account. Other factors play an important role, such as the complexity of the distribution network, the possibility of damage to protected goods, the space required for extinguishing agent storage, and the overpressure of the protected enclosure. The safety of people is obviously of utmost importance, not to mention ensuring optimal visibility for easy exit in case of fire, the aesthetics of the installation and its environmentally friendliness.

The INERT-SIEX™ 541 system takes into account all these factors. It is a safe and environmentally

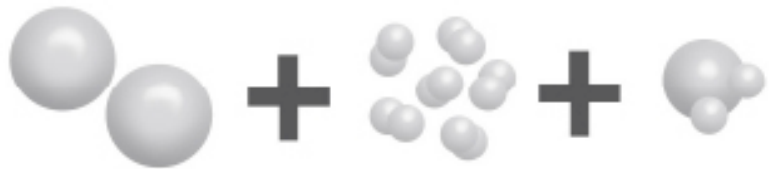
friendly product suitable and effective for fighting fires, as well as being competitive in a highly demanding industry.

Faced with the constant threat of fire, the system responds in a highly effective and reliable manner. It extinguishes the fire quickly, minimizing material damage without any negative effect for people or the environment.

The extinguishing agent used in the INERT-SIEX™ 541 system is one of the most popular because it combines cost-effectiveness with great flexibility and adaptability to any hazard. The reason for this is that it is a blend of gases present in nature, which optimizes distribution inside the protected hazard, ensuring total extinguishing, regardless of the type and location of the fire.

IG-541, THE PERFECT COMBINATION

INEX-SIEX™ 541 contains a blend of nitrogen, argon and carbon dioxide that combines their properties for a highly effective and multipurpose extinguishing.



40% ARGON

52% NITROGEN

8% CO₂

It is a suitable agent for occupied enclosures. In addition to being effective and safe, it does not damage protected property, especially electronic equipment.

It is a colourless and odourless blend of gases. It is CLEAN and does not generate residue, either during or after discharge, so that visibility is total, facilitating evacuation. It is recommended for use in cases where damage to sensitive equipment must be avoided.

Since it is extracted from atmospheric air, it is an ENVIRONMENTALLY FRIENDLY agent that does not deplete the ozone layer and has zero global warming potential (GWP). Once released, it is removed with simple ventilation. It can be used at low temperatures and is compatible with common building materials.

INERT-SIEX™ 541



HOW IT WORKS

The agent is stored in gaseous form at high pressure. Each component, and therefore the resulting blend, is inert and highly stable, and therefore does not behave dangerously in reaction to any external condition (temperature, humidity, other chemical compounds, light, etc.).

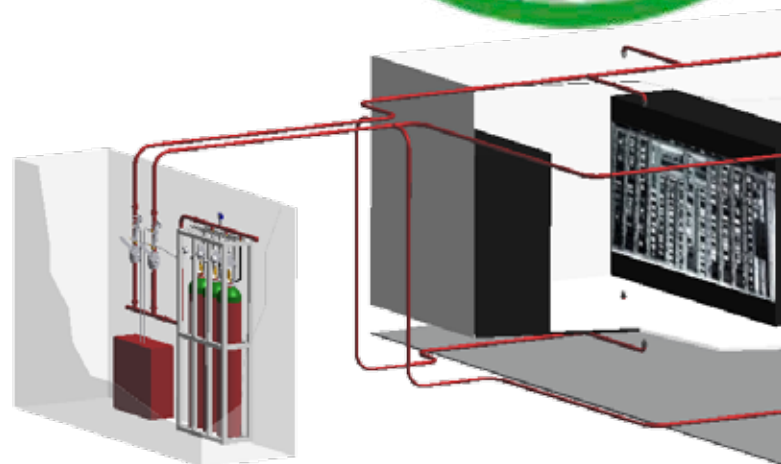
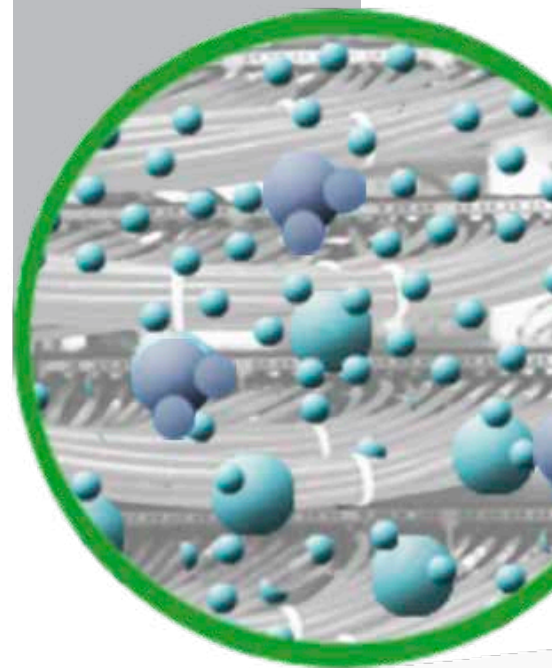
Although the storage pressure is high to minimize the size and number of cylinders, a calibrated restrictor reduces it to up to 60 bar before it reaches the distribution pipework. The piping and fittings may therefore be conventional for high pressures so that the installation costs are reduced.

Likewise, another advantage is that the storage area can be removed from the protected hazard, if necessary. The piping can also handle complex runs and architectural barriers that pose problems for other systems.

INERT-SIEX™ 541 is suitable for the protection of hazards occupied by persons, acting on the fire while maintaining a safe oxygen level, good visibility and absence of hazardous, corrosive or toxic substances during and after discharge. The slight presence of CO₂ (8%) stimulates breathing and counteracts the effects of a lower concentration of oxygen to ensure safe evacuation.

- *Suitable for occupied areas*
- *Harmless to the ozone layer*
- *Electrically non-conductive*
- *Clean, leaves no residue*
- *Immediate resumption of activity*
- *Inert agent, does not react*
- *High extinguishing capability*
- *Design flexibility*

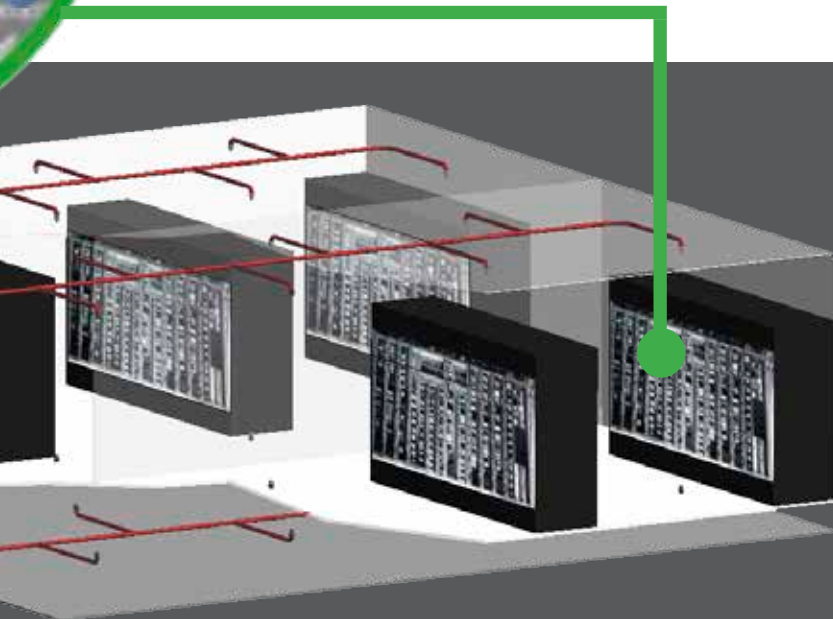
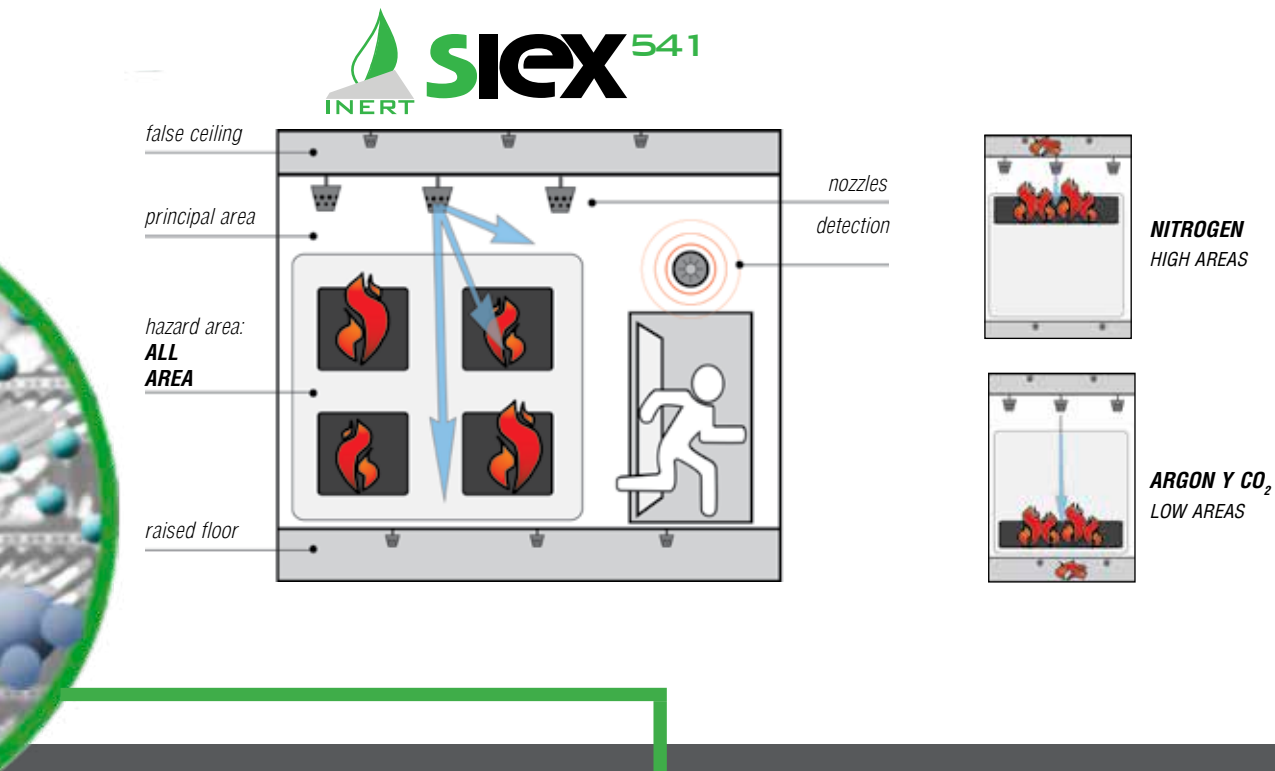
IG-541
AGENT



EXTINGUISHMENT

The IG-541 blend has unique properties to optimize its action:

The **STRATIFICATION** of the components making up the blend (CO_2 and argon, more dense than air, in the middle and lower parts of the enclosure, and lighter nitrogen above) provides comprehensive protection throughout the enclosure, minimizing the effect of dead zones.



After detection, the signal is sent and the system is electronically, mechanically or manually activated.

INERT-SIEX™ 541 responds quickly and safely.

To achieve and maintain the design concentration, the enclosure must be airtight.

COMPONENTS

EQUIPMENT OPTIMIZATION:

SELECTOR VALVES

They help optimize the cost of installation in cases where it is necessary to protect two or more independent hazards, by enabling simultaneous protection with a single unit.

Each enclosure is associated with a selector valve that ensures its protection. Designed to ensure total safety, activated at the same time as the cylinder valves.

This represents a significant cost savings since it avoids the need for duplicate equipment.

BACKUP SYSTEM

Very recommended option in critical, high-value facilities and/or which include selector valves. Backup systems ensure uninterrupted protection during maintenance or refilling of the main system, leaving the firefighting system on standby to address new threats.



The valve cylinder and burst disc assembly are 100% tested and are CE and PI marked, in addition to being certified by VdS, FM and UL



EXPERIENCE AND QUALITY

- INERT-SIEX™ 541 is certified by major international agencies, which highlights its quality.
- It is developed to comply with all relevant standards: ISO 14520:15, UNE 15004-10, NFPA 2001 and CEA 4008.
- It also complies with ISO 9001:2000, ISO 14001:2004 and European CE and VdS standards, as well as American FM & UL standards.
- SIEX supports its customers in all phases of the project thanks to the experience accumulated throughout its history. This ensures success in all situations.

CYLINDERS

There is a wide variety of cylinder storage volume configurations both in individual (modular) and multiple (bank) assembly, depending on the size of the hazard to be protected and the type of fire.

For a pressure of 300 bar, IG-541 cylinders are available in 80 and 140 litre capacities, filled with 22.85 m³ and 39.95 m³ respectively. They are constructed of seamless carbon steel. In banks of more than nine cylinders, a pilot bottle for activation is included.

CYLINDER VALVES

The equipment loaded at 300 bar uses a high-flow, quick-release RGS-MAM-12-3 cylinder valve. It is made of hot-stamped brass features a control gauge. They can be installed with SIEX actuators and can be configured as master or slave cylinders.

300 BAR			
Cylinder	Load IG-541	Valve	Hose
80 litres	22.85 m ³	RGS-MAM-12-3	Model FH-20A
140 litres	39.95 m ³		

SPECIFIC EQUIPMENT FOR SPECIAL HAZARDS



HEADS OR ACTUATORS

Actuators for INERT-SIEX™ 541 at 300 bar serve the function of initiating agent discharge from each cylinder. Actuation can be electric, manual, pneumatic, pyrotechnic, electric-manual, pneumatic-manual, manual remote by cable, or even with protective housing. They are installed dry and can then be easily exchanged with the loaded cylinder.

CALIBRATED RESTRICTOR

Reduces the pressure in the distribution network from 300 bar (at which the agent is stored), to a maximum of 60 bar, reducing installation requirements and resulting in cost savings.

It is sized based on hydraulic calculations depending on the system configuration (distribution network, flow rate, amount of agent, etc.).

NOZZLES

These are components responsible for releasing the extinguishing agent in the area to be protected. SIEX's FEDR nozzles are optimal for proper flooding of the hazard. They are installed vertically, centred over the enclosure (360°) or along the wall (180°) with a maximum coverage of 13.2 x 13.2 metres and a height of up to 7.1 metres, the greatest in the market.

The hydraulic calculation determines its size, ensuring the pressure and right amount of agent due to orifice plate calibration and the in-depth study of the network to be installed.

Available Sizes: from 3/8" to 2"
in stainless steel, chrome steel, aluminium or brass, all of which are resistant to corrosion and fire conditions.



FILL CONTROL:

CONTINUOUS WEIGHING

The fire panel is alerted of any loss in cylinder fill.

The system is **approved**, simple, easy to install and also allows for visual inspection. It does not remain in contact with the agent, so there is no risk of leakage.



PRESSURE SWITCH

Installed on the cylinder valve, this device allows monitoring the load by controlling the internal pressure, sending an alarm signal in the event of any decrease.

PRESSURE SWITCH

Monitors the pressure in the piping network, sending a confirmation signal if agent is discharged.

PRESSURE GAUGE WITH ELECTRICAL CONTACTS

Visually indicates at all times the pressure within the cylinder, sending an alarm signal at a preset reduction in the cylinder agent load.

SAFETY DEVICES

SIEX offers the widest range of safety and control devices in the market. To further protect the integrity of the enclosure and its occupants, the following are included:

PNEUMATIC RETARDERS

Can be configured for direct or indirect action, they delay discharge of the system to allow for safer evacuation of staff present.

PNEUMATIC SIRENS

Warn of an impending discharge. They are automatically activated and standalone operation

PRESSURE DAMPERS

They prevent structural damage due to overpressure during the release of IG-541, making it possible to maintain pressure inside the enclosure below a safe limit.

APPLICATIONS



Stations and airports



Telecommunication systems



Computer Rooms



Gas installations



Offshore platforms



Hospitals



Wind turbines



Petrochemical facilities



Laboratories



Electrical cabinets and substations



Archives and libraries



Educational establishments



Pharmaceutical industry



Museums and art galleries



Offices



Residential buildings

BENEFITS OF USING INERT-SIEX™ 541 300BAR

OPTIMIZED EXTINGUISHING

- Protection from floor to ceiling, thanks to stratification.
- The highest inertization capacity.
- Adaptability to ensure a wide range of uses.
- Clean and non-toxic, does not damage the equipment.



INSTALLATION & MAINTENANCE

- Allows long and complex pipe runs.
- Valves for handling and easy refills.
- Immediate resumption of activity without damaging documents or assets.
- Zero residues; requires no further cleaning.
- Comprehensive advice at every stage.

SAFETY AND COMMITMENT

- Suitable for occupied areas, stimulates breathing.
- Environmentally friendly: no impact on ozone or global warming (GWP).
- Safe evacuation of personnel: good visibility, possibility of delay.
- SIEX quality and safety warranty with international certification.

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