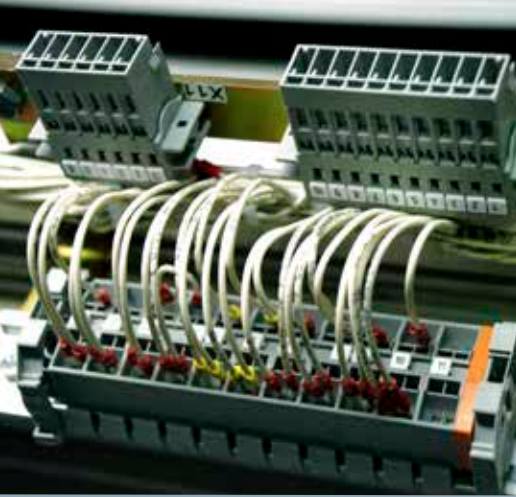


**AUTOMATIC FIREFIGHTING  
SYSTEMS IN  
ELECTRICAL PANEL ROOMS  
and small enclosures**





*Total flooding protection*

## Hazard type

### *NRI FACTOR*

PROBABILITY OF  
A FIRE STARTING  
**X**  
CONSEQUENCES

Electrical panel rooms house the electrical and automation systems for factories, businesses and large retail centres, so they are one of the key areas for companies' productivity.

In case of fire, losses are valued not only in terms of the equipment's material value but the downtime-related lack of revenue.

A hazard of this type can completely paralyze an entire organization.

Starting production will prove inviable until the entire panel room is inspected and faulty elements are replaced or fixed. The alternative to this is having fire protection measures in place to minimize these damages.

Electrical panel rooms are considered capable of being occupied because authorized personnel may enter at any moment.

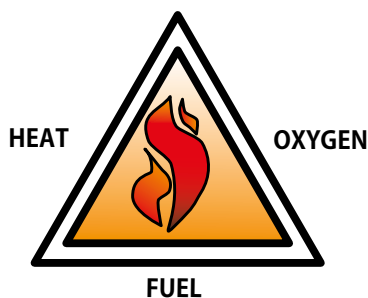
The protection must therefore be looked at from two different perspectives:

- Protection of electrical and automation equipment.
- Protection of any people that may be in the enclosure.

***Protection can be ensured in two ways:***

- ***Protection of existing panels in the room.***
- ***Total flooding of the room.***

Whatever the specific need of the hazard, SIEX delivers the right solution for both the installer and the customer.



# Sources of fire

A fire is understood as its breakout and its immediate spread. However, considering that the oxidizer (air) is always present and that the chain reaction is a result of the fire, the basic conditions that will cause the breakout are fuel and activation energy. Therefore, and taking the above into account, to assess the risk of fire you have to consider the probability of fuel and flashpoints coexisting in the same space and time, and with sufficient intensity.

The main causes of fire which can occur in this sort of installation are:

## INTERNAL FACTORS

- Sparks caused by switches
- Short-circuits
- Overloading
- Static electricity

## EXTERNAL FACTORS

- Dirt
- Devices that produce heat
- Solar radiation
- Thermal Environmental Conditions

Attention should be paid to the refurbishment actions that could be carried out in the room which could be dangerous, such as welding, vehicle traffic and internal combustion vehicles and machines.

## **SPECIAL WARNING**

*Keep in mind that the vast majority of rooms housing electrical panels, especially large ones, have a raised floor and false ceiling. Low, medium or high tension electronic wiring runs through both spaces.*

*They must be carefully protected because they may house dirt, excess external elements from installation and maintenance work. These are potential sources of fire that are not easily inspected visually.*



# Recomendaciones Siex

The most effective protection method for spaces of this type is total flooding, involving the release of an agent into the enclosure so that a minimum concentration is reached throughout the hazard area, for the protection of both the entire room and the panel itself.

## RECOMMENDATIONS FOR PROTECTION OF COMPLETE ROOMS

Storage containers should be located as close as possible to the hazards they protect, or even inside them, if there were no enclosure designated for this purpose.

If we have to protect several hazards, it may be worthwhile to calculate the amount of agent for the one that needs the most agent. It could be protected using selector valves from a main cylinder bank sized according to the most unfavourable hazard.

This system is compatible with the use of a backup system. In many cases, it may be very useful to have backup agent supply to ensure protection during charging and/or re-stamping of the main system cylinders. The backup system will have the same quantity of gas for protecting the enclosure as was calculated for the main system. When uninterrupted protection is required, both the main and backup agent supply systems must be permanently connected to the distribution piping and arranged in such a way as to make the switch as easy as possible.

For greater maintenance convenience, SIEX offers continuous weighing systems which allow ongoing monitoring of cylinder status.

Certain products will be more appropriate than others, depending on the size of the room.

These recommendations are based primarily on the required pressure.

### *Large electrical panel rooms*

- INERT-SIEX™
- INERT-SIEX™ CONSTANT FLOW VALVE
- SIEX-NC™ 1230
- SIEX-HC™ 227 S-FLOW

### *Small electrical panel rooms*

- INERT-SIEX™
- SIEX-HC™ 227
- SIEX-NC™ 1230

***The organization and structure of the room are very important factors in choosing the right equipment***

## RECOMMENDATIONS FOR PROTECTION OF ELECTRICAL PANELS

The hazard can also be protected individually by placing the extinguishing system within the panel itself.

The resulting installation will be the same as for the protection of rooms, but all accessories will be small-sized so they can be inserted in the equipment itself. That makes this system very simple and convenient.

SIEX™ SMS systems meet all these requirements. They feature small-sized equipment specially designed for this type of hazard.

The system can be filled with HFC-227ea or HFC-125.

## IMPORTANCE OF HAZARD AREA SIZE:

The protection system and the type of agent selected depends largely on the size, shape and arrangement of the room itself. Pressure is another determining factor.

NUMBER OF CYLINDERS AND STORAGE SPACE REQUIRED.

AGENT PRESSURE ACCORDING TO PIPE LENGTH, DIAMETER AND PATH.

NOZZLE TYPE DEPENDING ON THE FLOW, DISTRIBUTION, RADIAL OR 180°, OPEN OR CLOSED (WATER MIST), ETC.

SYSTEM CONFIGURATION WITH OR WITHOUT SELECTOR VALVES, BACKUP SYSTEM, CYLINDER BANK ARRANGEMENT, VALVES, ETC.

## CYLINDER BANK DIAGRAM





## Solutions:

To ensure the most effective response to fire, we offer a wide variety of extinguishing agents and application systems in response to the many features of the enclosure. All have been installed for protecting this hazard and feature:

QUICK RESPONSE
NON-TOXIC
NO RESIDUE
ELECTRICALLY NON-CONDUCTIVE



*IG-01 – Argon.*

*IG-55 – 50% argon and 50% nitrogen.*

*IG-100 – Nitrogen*

*IG-541 – 52% Nitrogen + 40% Argon + 8% CO<sub>2</sub>*

OBTAINED FROM THE ATMOSPHERE
LOW-COST AGENT
EXCELLENT VISIBILITY FOR EVACUATION
CHEMICALLY NEUTRAL
STORAGE PRESSURES OF 150, 200 AND 300 BAR.
LONG PIPE RUNS.

Its high pressure allows the use of long pipe runs and selector valves.

The buildings, factories or areas with several rooms used exclusively for housing electrical panels could thus save extinguishing agent, thereby saving money, space and weight load on the building structure.

The high pressure also allows for safer gas distribution in confined spaces such as false ceilings and raised floors.



It boasts high extinguishing power, which allows us to use a much lower design concentration than with other gases and thus achieve extinguishing with a much lower amount of agent. Thanks to this fact, less storage space is required.

Low pressure may be used. The piping required is DIN 2440 or Schedule 40 with 300-lb grooved fittings. This piping system is remarkably more affordable.

IDEAL FOR OCCUPIED AREAS
DOES NOT REDUCE OXYGEN
INCREASES THE SAFETY MARGIN
HIGH EXTINGUISHING CAPABILITY
STORAGE 15 TO 60 BAR
NON-CORROSIVE FOR ELECTRICAL AND ELECTRONIC MATERIALS

### NEW SIEX-HC™ S-FLOW

Thanks to storage of HC-227 gas at pressures between 50 and 60 bar we ensure gas discharge at distances which would be unthinkable with less pressure. This facilitates the use of selector valves, saving on gas quantity, storage systems and space.

## Our commitment

### CHOICE OF SYSTEMS

SIEX has the widest range of products and systems to suit different needs, both as regards pressures and extinguishing agents.

### COMPETITIVE PRICE

Optimizing all of our processes make us more and more competitive worldwide.

### SPECIALIZED ENGINEERING

Our highly qualified staff ensure the best service for customers both as regards technical advice on the choice of system, and solving any problems that might arise after installation. Backed up by our extensive experience and a track record of successful projects.

### INNOVATION

At the forefront of innovation in every product we develop, ensuring the technical features offered.

### QUALITY GUARANTEE

All products meet the highest quality requirements and internationally recognised official approvals.

## OTHER SPECIAL HAZARDS PROTECTING BY SIEX:

SERVICE STATIONS

ARCHIVES AND LIBRARIES

DPCs

PAINT SPRAY BOOTHS

ELECTRICAL PANELS

INDUSTRIAL KITCHEN

TURBINES AND GENERATORS

ROAD TUNNELS

NATURAL GAS PLANTS

CLEAN ROOMS

CABLE TUNNELS

TELECOMMUNICATION CENTRES

HOTELS

HOSPITALS

EDUCATIONAL ESTABLISHMENTS

TRAIN AND UNDERGROUND STATIONS

TRAINS

TRANSFORMERS

OFFSHORE PLATFORMS

SOLAR THERMAL PLANTS

MACHINE TOOLS

PRINTING INDUSTRY

HISTORIC BUILDINGS

ROBOTIC PARKINGS

WIND TURBINES

STEEL INDUSTRY

BANKS

OFFICES

LARGE VEHICLES

CONVEYOR BELTS

GAS PUMPS

OIL & GAS

TIMBER INDUSTRY



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