SIEX HC 13

# FIXED EXTINGUISHING SYSTEM

with HFC-23
EXTINGUISHING AGENT

FIRE
PROTECTION

# PROTECTION OF HIGH VOLUMES

The consequences of an uncontrolled fire represent one of the greatest dangers to any building and its occupants and resources. In the case of buildings housing many people (hospitals, shopping centres, etc.), or where many assets are stored (shops, control rooms, museums, etc.), fire protection presents a major challenge because **other high-priority needs have to be met in addition to effective extinguishing. These other priorities include health safety and total versatility — high ceilings, quick and neutral action, storage, variability of contents, etc.**

SIEX-HC™ 13 equipment provide continuous protection, minimizing possible damage to fire by effectively activating at the first signs of fire. It is tailored for every need, providing the best solution for an optimal design. When protecting human life in large spaces is the goal, SIEX-HC™ 13 guarantees safe and fast protection that meets that most stringent requirements.

**We are committed to guaranteed efficiency.**

# SIEX-HC™ 13 SOLUTION FOR LARGE SPACES

SIEX-HC™ 13 **is characterized mainly by its high safety margin and working pressure.**

These factors translate into significantly higher adaptability than other agents, advantageous for everyone involved within the permitted uses and in the established concentrations:

**For humans:**
it has the greatest safety margin. Design concentrations well below NOAEL

**Nozzle height:**
one level protects up to a height of 7.5 m, protecting large enclosures.

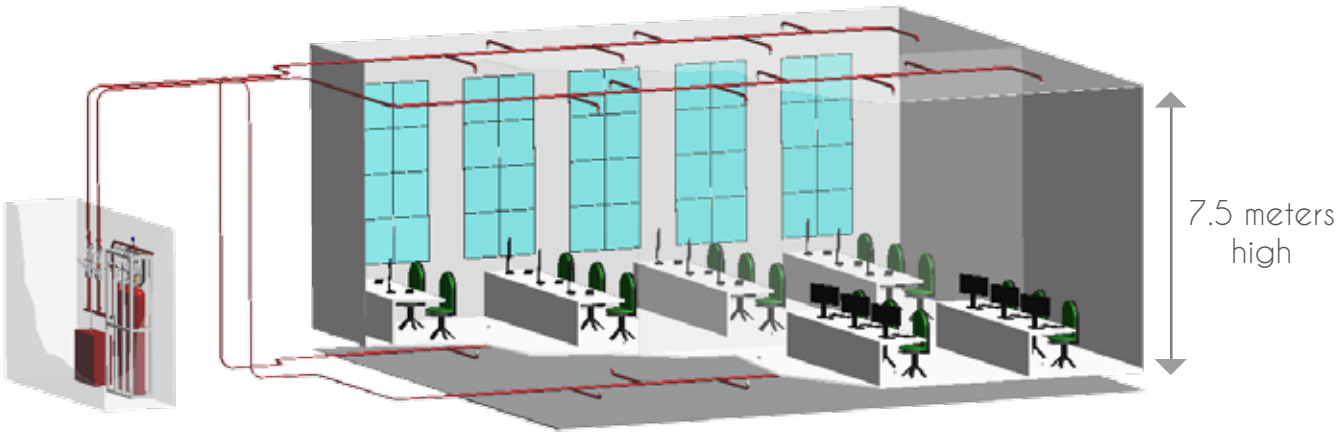
**High pressure:**
it gets around obstacles and allows complex networks and remote storage.

**Independent of the hazard:**
suitable for multi-purpose or multi-use warehouses and spaces.

In short, it is specially designed to deal with the utmost effectiveness with fires in large occupied spaces, difficult fires or applications where the risk may be exposed to large variations between the maximum and minimum temperature.

VdS

**The complete system is internationally approved by VdS, including all hardware components.**



# HOW IT WORKS

SIEX-HC™ 13 uses the DupontTM FE-13™ gas (trifluoromethane, CHF3), a clean compound from the halocarbon family that leaves no residue after use, does not harm equipment and people and is non-conductive.

It works primarily by **cooling** the hazard, rapidly absorbing heat from the flames. It also **interferes with the chemical reaction** of combustion, blocking the formation and action of free radicals. It does not affect the concentration of oxygen and does not harm users.

Due to its properties, it is highly recommended in applications where large amounts of extinguishing agent are required or where people can be exposed. The reason is the **significant safety margin between the normal design concentrations and the established NOAEL** (no observed adverse effect level), the highest of gaseous agents.

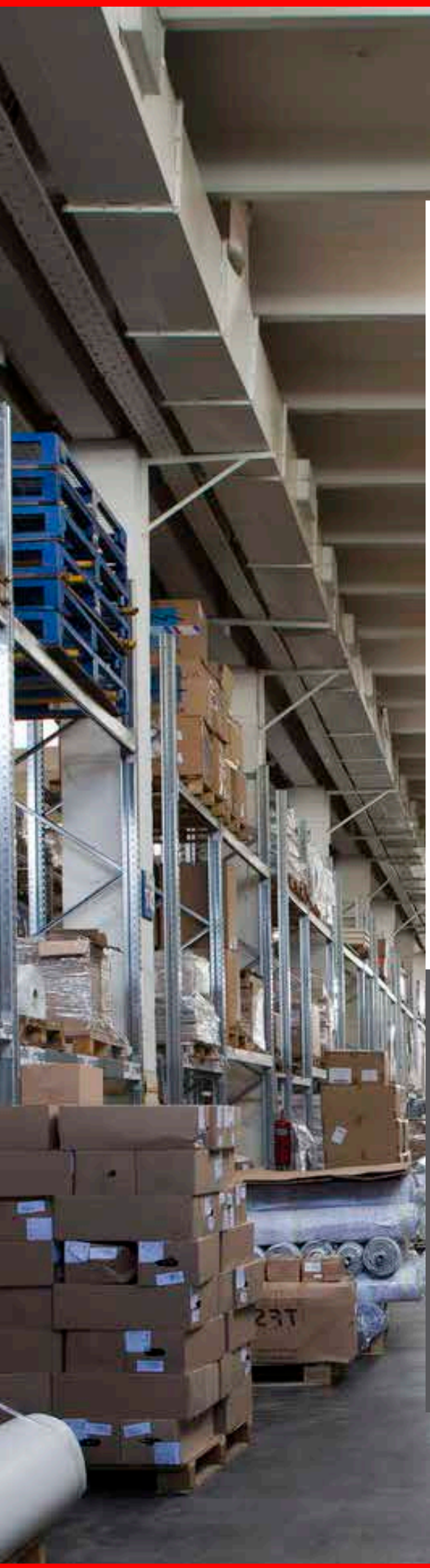
It is also **ideal for use at low temperatures**: the boiling point is -82.1 °C so it can be stored outdoors as per manufacturer specifications. **It is the clean agent that can work at the lowest temperatures.**

EXTINGUISHING

AGENT

HFC-23

- *For installations that require changing content or type of risk*
- *High safety margin, ideal for occupied areas*
- *Extreme working temperatures*
- *Electrically non-conductive*
- *Clean, no waste*
- *Short extinguishing time*



# DISCHARGE

Unlike other chemical gases, it has a high pressure at ambient temperature and therefore does not require additional pressurization with Nitrogen. It is used for **total flooding** of airtight enclosures, ensuring the concentration and preventing reignition.

Activation can be automatic and/or manual. Its quick action, thanks to early detection and 10-second discharge, prevents the growth of a fire and protects the contents of a room, and therefore its structural integrity.

It works primarily by cooling the majority of combustible solids and liquids and energized electrical fires (unsuitable for materials with their own oxygen supply, as well as class D and radioactive materials). It mixes effectively and quickly with the air in a room, so the **concentration is homogeneous**. Pressurization mixes the ambient air from every last corner of the room and ensures a three-dimensional action that circumvents obstacles and shields.

***The high safety associated with the agent is due to its recognized extinguishing power:***

*HFC-23 has a very low molecular weight, which ensures effective scattering and rapid extinguishing.*

Moreover, its design concentration (16.3% according to ISO 14520) is well below the no observed adverse effect level (NOAEL, set at a concentration of 30%).

*This wide margin also helps ensure the safety of personnel, even with difficult fires that require greater concentrations.*

# THE INSTALLATION

The SIEX-HC™ 13 installation delivers great benefits due to the agent's unique properties and the SIEX system configuration:

**It is self-pressurizing** due to the high vapour pressure (42 bar at 20 °C, the greatest of all halocarbons). Coupled with its low density, this makes it **ideal for enclosures with high ceilings (up to 7.5 m), where it mixes more quickly and permanently with the air**, with only one level of nozzles.

**Storage space required is minimal since it takes up very little room**, thanks to the fact that it is stored as liquefied compressed gas and has a high extinguishing efficiency per weight.

The high pressure expands the operating range, making it possible to **store remotely**, and for **piping routes through the building to be long or complex**, overcoming obstacles.

It has a wide range of applications, so **the protection guarantee is maintained regardless of the room**. The standard concentration is constant regardless of the type of risk: **Effective action is guaranteed without redesigning or replacing the installation**.

Finally, the installation benefits from its extensive operation temperature range, with equipment that can work under zero or stored outdoors.

## RELY ON OUR EXPERTISE

SIEX grows thanks to its efforts in R&D and innovation and its ongoing experience with each new challenge or project. All this enables us to optimize solutions offered to match the specific requirements of each client with their overarching need for effectiveness, quality, cost-effectiveness and safety.
The market's most advanced technology, at your service.

# APPLICATIONS

Laboratories

Electrical cabinets and substations

Archives and libraries

Machinary rooms

False floor and false ceilings

Control rooms

Museums and art galleries

Telecommunication systems

Hospitals

Petrochemical facilities

DPCS

Historic buildings

# *Unique*

## *in our SIEX-HC™ range*

Unlike other chemical gases used for extinguishing, SIEX-HC™ 13 **does not require additional pressurization with nitrogen** at the cylinder level.

### Its high operating pressure allows the unrestricted use of selector valves

SIEX components feature the necessary certifications to ensure safe operation at high pressures, as well as international quality and suitability approvals.
Depending on the characteristics of the hazard, either modular equipment or cylinder banks can be configured, according to factors such as: amount of agent required, simultaneous protection of various environments, volume, distance, etc.

| CYLINDERS CAPACITY (L) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 6.7 | 13.4 | 26.8 | 40.2 | 68 | 80 | 100 | 120 |

| CYLINDERS CAPACITY (lb) | | | | | | | |
|---|---|---|---|---|---|---|---|
| 10 | 25 | 50 | 75 | 125 | 150 | 187 | 225 |

## CYLINDER VALVES

Valves for this type of gas can be fitted to seamless steel cylinders. These valves feature a dual chamber, full bore and latching upon opening. They incorporate a gauge for easily checking the load.

**The complete discharge of the agent is ensured thanks to the reliability of each component.**

## SELECTOR VALVES

If there are two or more independent risks to be protected in the same building, selector valves may be used. This way, the system can be configured to route more agent to the room in need of more extinguishing power.

Each enclosure will have a collector output with its own selector valve. Upon detection, the pilot cylinder activates the corresponding cylinder, which in turn **activates only the cylinders required to protect the affected room.** This represents a significant cost savings since it avoids the need for duplicate equipment.

## LOAD TESTS BY CONTINUOUS WEIGHING

The panel is alerted of changes in cylinder weight, depending on the fill of each cylinder. It is a simple, standardized system which is easy to intall and allows both visual inspection and sending a remote signal.

## SAFETY ACCESSORIES

- **PNEUMATIC RETARDERS**
- **AUTOMATIC SIRENS**
- **PIPED EXHAUST RELIEF VALVES**
- **BLEED VALVES**
- **MANUAL CABLE PULL WITH PULLEY ELBOWS**
- **ODORIZERS**
- **SHUTOFF VALVES**

For the petrochemical industry, SIEX-HC™ 13 features EXPLOSION-PROOF components.

Equipment may include a **PRESSURE SWITCH** for checking that cylinders are active. With the battery manifold installed, you can confirm correct agent discharge.

NOZZLES OF UP TO 2" IN **STAINLESS STEEL, BRASS, ALUMINIUM AND CHROMED STEEL** FOR UP TO 360° (CEILING) OR 180° (WALL) COVERAGE

# SPECIAL BENEFITS OF SIEX-HC™ 13

## WIDE SAFETY MARGIN

It is a very suitable agent for occupied areas: boasts the highest NOAEL (30%), with much lower use concentrations. It is therefore safe for people's health.

## HIGH-CEILING RISKS

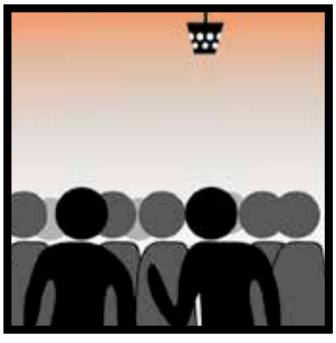
SIEX-HC™ 13 ensures effective discharge for heights of up to 7.5 m, determined empirically in numerous full-scale fire tests. It is especially useful in public, crowded or very large spaces.

## HIGH-PERFORMANCE EXTINGUISHING

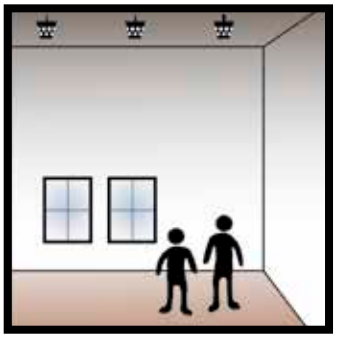
It diffuses very efficiently, extinguishing the fire in the minimum time. Pressurisation also ensures high interstitial penetrability.

## RISKS IN EXTREME TEMPERATURE CONDITIONS

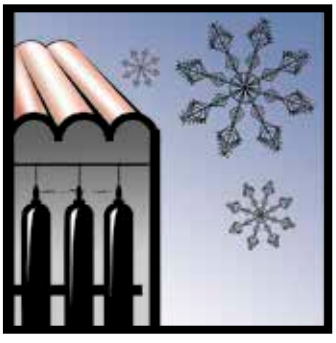
It is ideal for applications or storage in below freezing conditions or in risks with great temperature fluctuations between minimum and maximum temperatures. Its -82.1 ˚C boiling point ensures extinguishing in the gaseous phase.



Wide safety margin for people



Heights of up to 7.5 m



Great temperature fluctuations

## SAFE FOR EQUIPMENT

It does not react with electrical or electronic equipment, does not produce corrosion or debris that are deposited and/or affect proper operation. The discharge is very fast and knocks down the fire with minimal damage to equipment and facilities.

## INSTALLATION ADVANTAGES

The agent is self-pressurized, which allows both remote storage (separated from the risk) and complex pipe runs, as well as the use of selector valves with minimal restrictions.

## VARIETY OF USES

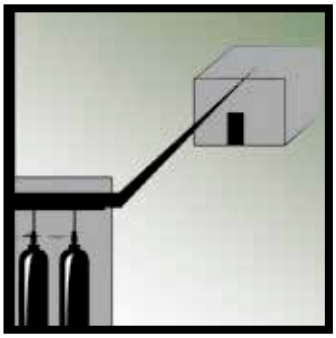
It requires the same design concentration regardless of the type of risk, within permitted applications. It is therefore possible to protect multi-use spaces, warehouses and multi-purpose areas to be protected with the same level of protection without restructuring the installed equipment.

## IMMEDIATE RETURN TO STANDBY STATUS

Normal activity can be resumed quickly after discharge, since the agent is clean, does not produce particles or debris and is removed with normal ventilation. Helps protect critical assets.

Multi-use spaces protection

Wide protection with small systems



Remote storage

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