IND-PE

SIEX

FIXING EXTINGUISHING SYSTEM WITH DRY CHEMICAL AS EXTINGUISHING AGENT

AUTOMATIC SERVICE STATIONS

FIRE PROTECTION

AUTOMATIC SERVICE STATION PROTECTION

Petrol stations are one of the most common and one of the greatest fire hazards. What's more, they are possibly—and more often than desired—one of the least protected hazards. These systems require special fire fighting attention due to the following factors:

- Fuel is constantly being transferred from the pumps to the vehicles.
- Petrol stations are often isolated and unattended.
- There is high risk of fire due to vehicle traffic, people smoking, vandalism, etc.

It's important to remember that installing automatic fire extinguishing systems is mandatory in unattended service stations. Installing this type of system is also highly advisable in stations that are usually staffed.

SIEX™ IND-PE is specially designed for the protection of service stations, providing complete and effective protection regardless of the property's structure and configuration.

It consists of a fully autonomous system that does not require electricity for operation, thanks to the fully automatic thermal pneumatic/mechanic detection mechanism developed by SIEX. This detection system makes it optimal, especially for unattended service stations.

Its reliability is maximized by its great simplicity, low maintenance and the fact that it is specifically designed to be used outdoors in service stations.

Its fully automatic operation ensures its operability even during power failures.

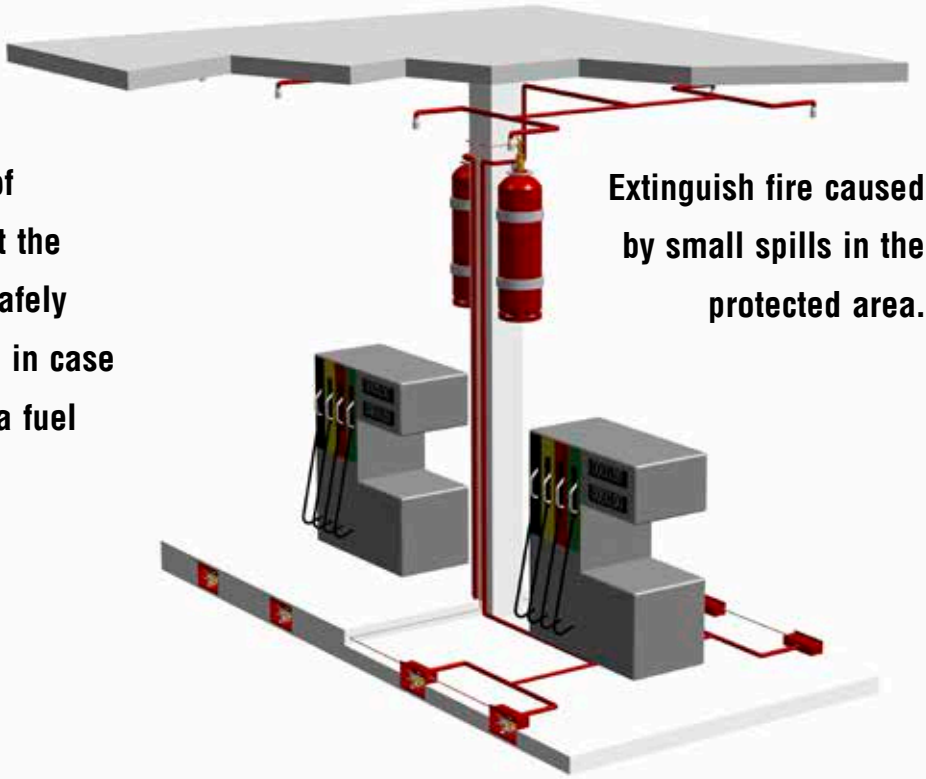
Do you need protection for a small unattended petrol station? Looking for a fire protection solution for a chain of service stations?

In either case, SIEX™ IND-PE allows you to deploy a fully effective and reliable solution for your project. Its flexibility ensures its suitability for your needs, whatever your design specifications and with the best value for money in its class.

The type of extinguishing agent used (BC DRY CHEMICAL) is particularly suitable for liquid fuel fires caused by the diesel and gasoline pumped at filling stations.

OBJETIVES

Allow occupants of vehicles parked at the petrol station to safely evacuate the area in case of fire caused by a fuel spill.



Extinguish fire caused by small spills in the protected area.

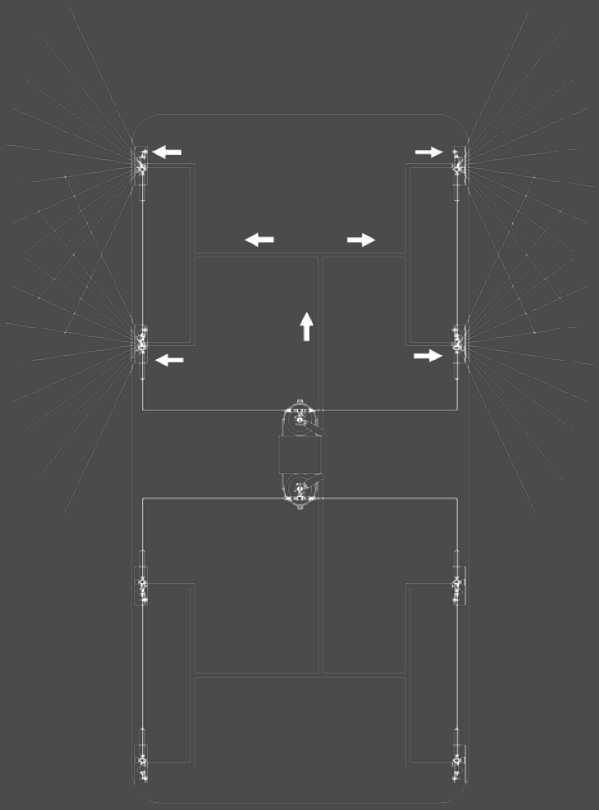
This system is not suitable for deep-seated flammable liquid fires, fires that re-start once the agent has been discharged, fires in high winds or fires which start inside vehicles, such as motors and boots.

Avoid obstructing the discharge system by following proper maintenance and cleaning habits.

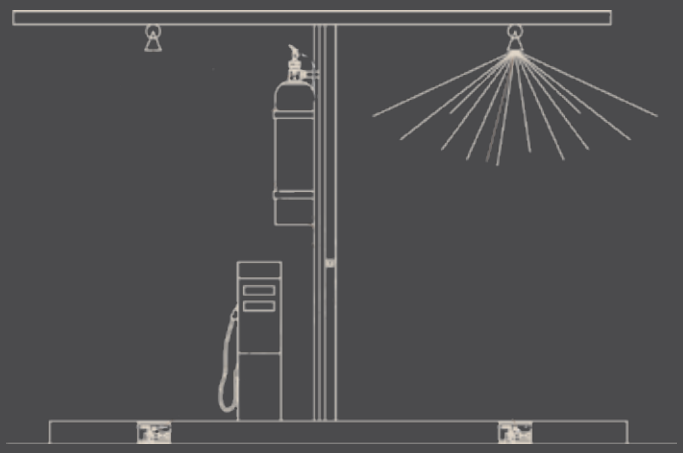
DESIGN

The objective of the system is to protect the parking area where vehicle fueling (diesel or gasoline) takes place.

Components are designed according to the EN 12416-2 standard. The amount of dry chemical to be discharged in these hazards is determined in function of the parking surface area on either side of the pump being protected.



Horizontal discharge using nozzle in the canopy.



Vertical discharge with nozzles on the upper roof.

RELIABLE OPERATION: TOTAL PROTECTION

The efficient and reliable pneumatic/ mechanical thermal detection developed by SIEX is designed to monitor the system. It consists of a thermal discharge head equipped with a nitrogen-pressurized cartridge which is in turn connected to a copper-pipe pneumatic discharge line that reaches all the way to the pneumatic/manual actuator in the dry chemical cylinder.

Compact and automatic detection and actuation

When the system is idle, the fusible link keeps the pneumatic/manual thermal actuator needle retracted. If a fire occurs, the heat will cause the fusible link to break, causing this needle to extend and thus activate the nitrogen cartridge valve.

When released, this gas travels through the pneumatic detection system until it reaches the pneumatic actuator in the cylinder valve.

This release causes the discharge of the extinguishing agent in the cylinder, which travels through the discharge pipe network to each of the nozzles.

If necessary, activation can occur MANUALLY by pulling the remote manual wire pull conveniently located next to the pump.

The protection of the entire hazard and especially against acts of vandalism is effectively achieved thanks to a cover that allows heat to properly get from the fire to the fusible link, making it easy to check the pressure on the gauge and conveniently discharge the extinguishing agent out of the corresponding nozzle. We thus avoid untimely discharges while verifying the correct status of the assembly.

The simplicity and robustness of this design translates into total reliability and resistance, completely eliminating false alarms.

DISCHARGE NOZZLES

These nozzles are designed for discharging dry chemical throughout the hazard surface from one side. They are installed in the box of the SIEX-NTD thermal/mechanic detector (assembly installed on the curb of the pump island) or screwed into the discharge pipe in the canopy.

- **SIDITA20**
  Nozzles installed on the curb of the pump island for horizontal discharge

- **SIDIAP20 (optional)**
  Nozzles installed in the canopy for overhead discharge

Specially designed to be installed outdoors

FUSIBLE LINKS

They are calibrated so that their two components separate when heat rises, thus releasing the tension of the thermal actuator. The following types of fusible link are available, selected according to the highest expected maximum temperature. Normally calibrated at 74 ˚C.

MODEL	TEMP. MAX. (ºC)
KFT 074	74
KFT 100	100
KFT 138	138
KFT 182	182
KFT 232	232

calibration temperature

MANUAL ACTIVATION

- **TK-DMS REMOTE MANUAL WIRE PULL**
  Connected by steel cable in conduit to the wire pull manual actuator.

- **TK-CP PULLEY ELBOWS**
  Facilitates changes in cable direction.

Although the reliability of the automatic detection is total, a manual actuation line must be installed on the SIEX™ IND-PE dry chemical extinguishing system. This system makes it possible for service station staff or users to activate the system in case of emergency and quickly leave the fire area at no risk to their safety.

The mechanism consisting of a remote manual wire pull is attached to a steel cable. This in turn is strongly and reliably connected with the manual actuator by cable, through the use of pulley elbows necessary for changes in direction. This device is located in the valve of the cylinder housing the extinguishing agent, allowing a comfortable and safe release.

CYLINDER-VALVE ASSEMBLY

The cylinder is designed to keep the agent pressurized at a design pressure of 25 bar at 20 ˚C. The discharge valve is made of hot-stamped brass. The valve is equipped with a gauge and a pressure relief element. Its working temperature is -20 ˚C to +50 ˚C. It is CE marked according to the European Pressure Equipment Directive 97/23/EC and PI marked according to the European Transportable Pressure Equipment Directive 2010/35/EU.

The extinguishing agent discharge is produced by activation of the cylinder valve either through an automatic release from the manual detection network or through the remote manual wire pull.

The cylinder includes a pressure gauge for convenient pressure checks.

Includes support for securely mounting it either on the ground or at a certain height.

EXTINGUISHING AGENT RELIABILITY

BC dry chemical is the optimal extinguishing agent for protecting service stations where the main hazard for which the protection system has been designed is flammable liquids (gasoline or diesel).

The high efficiency of this extinguishing agent is based on:

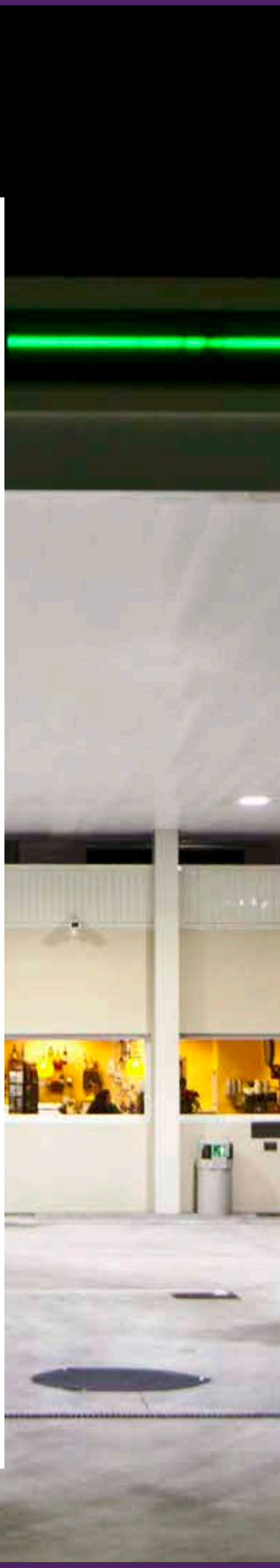
- **Particle sizes and their delivery,** which makes it possible to quickly cut the chain reaction in the gas phase of the combustion reaction (reverse catalysis).

- **The active agents in this dry chemical,** when in contact with the fire, decompose in an endothermic reaction that absorbs heat from the combustion reaction and cool it to enhance extinguishing and prevent reignition.

This extinguishing agent is also non-toxic, which makes it ideal for use in facilities open to the public.

In order to achieve a homogeneous discharge, and according to EN 12416-2, the distribution pipes should be Schedule 40 or DIN 2440.

The pipe should be installed according to the isometric approved by SIEX, ensuring it meets the criteria of balanced design, in which the distances between each network nozzle and the cylinder or dry chemical tank are always the same, and the number of fittings in each of the pipe runs is always equal, so as to ensure that the same quantity of powder is discharged through all the nozzles, in the same time interval and with the same flow rate.



BENEFITS

ENHANCED PERFORMANCE

The system design, which uses pressurized nitrogen at 25 bar to expel the BC dry chemical, allows for using longer pipe runs in the distribution network. Diffusion of the agent in the protected area is improved, which significantly boosts system performance.

DEPENDABILITY

It is important to note that the system is robust and reliable. This is completely necessary for these applications, subject to harsh environmental conditions, vehicle traffic, vandalism, etc. without damage or untimely activations.

EASY MAINTENANCE

Thanks to the simplicity of the design, maintenance is minimal and operation is fully autonomous and electricity-free.

SAFETY

This extinguishing agent is non-toxic, which makes it ideal for use in facilities open to the public, not causing any harm to people.

FLEXIBLE DESIGN

It can be adapted to any arrangement to ensure complete automatic protection of any service station.

SIEX
C. Merindad de Montija nº 6
P.I. Villalonquéjar 09001
Burgos (SPAIN)

tlfno: +34 947 28 11 08
web: www.siex2001.com