SISTECOIN

Protection Instinct

CATALOGUE 2015
AUTOMATIC EXTINCTION


Transocean

Automatic Extinction

In SISTECOIN we work every day in order to offer a good service and the best and the most competitive products in the market. As a result of this desire to offer a fully and comprehensive service, we have created SI STECOIN, a new range of products devoted to automatic extinguishing systems.

SISTECOIN has developed a competitive product, by using the most advanced technology and we guarantee the high quality of our products.

The range SISTECOIN includes the following systems:

- Chemical gas extinguishing systems:
  - HFC 227 ea
  - HFC 125
  - HFC 23
  - NOVEC 1230

- Carbon dioxide (CO2) extinguishing systems
- Inert gas extinguishing systems
  - IG-01
  - IG-55
  - IG-100
  - IG-541

Besides, in SISTECOIN, we carry out the refills and replacements of your fire extinguishing systems.

KITCHEN

AFFF Fire Suppression Systems

EXTINGUISHING SYSTEMS FOR KITCHENS

SISTECOIN's extinguishing system for kitchens, thanks to its ease of use and installation, and its cutting edge technology, seeks to become the benchmark in the extinction sector of community kitchens.

All the commercial kitchens, due to the use of highly flammable products such as oils and vegetable and animal fats, and to the high calorific value of the used equipments (deep-fryers, stoves, etc.) represent an extremely, serious and permanent risk of fire.

Therefore, SISTECOIN, in view of the need to protect people and materials, launches an automatic extinguishing system for commercial kitchens through a chemical agent based on potassium salts.

The fire extinguishing system for kitchens is an automatic and autonomous system, which is precalculated for the protection of all the areas in an industrial kitchen (covers, exhaust ducts, plenums and air filters) and of all the kitchen equipments (fryers, stoves, grills, woks, etc.)

The system is ideal for kitchens that are normally used in restaurants, hospitals, schools, hotels, old people's homes, airports, etc.

The automatic extinguishing system for kitchens designed by SISTECOIN is a precalculated system, charged with a cutting edge chemical agent, which is pressurized with dry nitrogen at a pressure of 15bar. It has been designed in accordance with the regulation NFPA 17A and the Spanish CTE (Technical Building Code), tested in the laboratory AFITI-LICOF, and accredited by ENAC (Entidad Nacional de Acreditación - the National Accreditation Entity).

The system's detection is carried out through a tube, manufactured with cutting edge thermoplastic polymers.

When the tube receives the flame action, it breaks down and releases the pressure, fact which allows the valve's opening and the resulting discharge of the extinguishing agents through the diffusers.

The system includes the cylinder with the extinguishing agent and the discharge system, the detection system and the discharge diffusers.

Besides some additional elements, such as fire extinguisher cabinets in stainless steel, manual operation of the system, manometer with pressure switch, pressure switch for 1/2 pipes, etc., depending on the installation needs.

MAIN ADVANTAGES

• A system which is 100 % effective and there is no probability for burn-back.

• Comprehensive protection system. The system is designed to protect all the elements in a kitchen, independently of that which may cause the fire.

• Autonomous system. It doesn't need any type of power supply

• Automatic system. It guarantees the kitchen's protection without the need of a person who must activate the system. It is guaranteed the system's permanent activation.

• A rapid response system. Once the fire is detected, the system extinguishes the fire in a few seconds.

• A reduced and economic system. A system which is easy to install and maintain.

• An extinguishing agent with neutral, non-toxic, biodegradable and clean pH.

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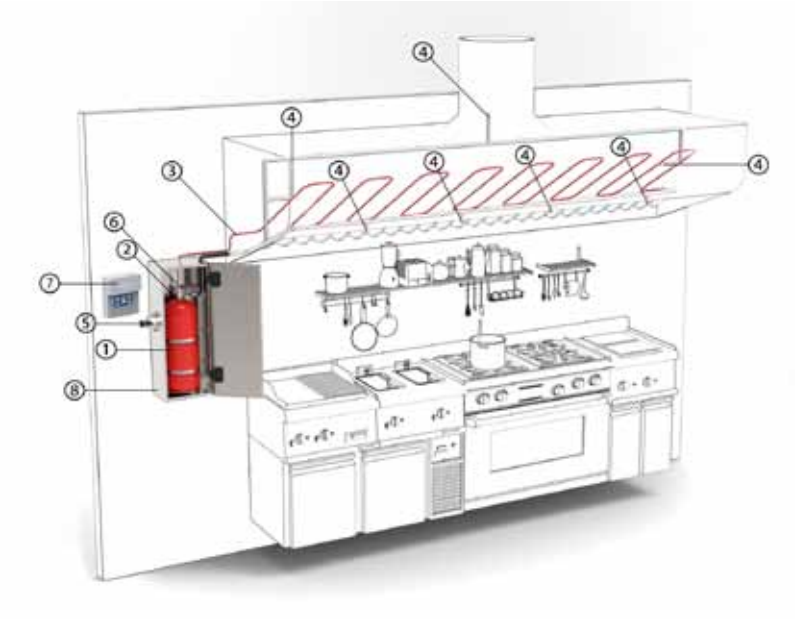
COMPONENTS OF THE SYSTEM



1. CYLINDER

It is fabricated in stainless steel and its external coating is painted in polyester RAL9010. Availability of three different volumes: 9, 12 and 25l.

2. VALVE

Pilot control and rapid trigger valve, IHP model and brand Ceodeoux. Certified valve according to the European Directives 97/23/CE and 99/36/CE and the VDS official approval.

3. FIRELINE Detector Tube

It is fabricated in cutting edge thermoplastic polymers.

Characteristics

- Permanent detection. It allows a complete and instantaneous detection in any of the kitchen elements.
- Flexible detection. This FIRELINE detector tube can break down at different temperatures depending on the pressure inside the tube.

Sistecoin provides a pressurized system between 15-20bar, fact which produces a break at a temperature between 105-120ºC.

4. DISCHARGE DIFFUSER

4.1. FIXED DIFFUSER

It is fabricated in brass or in stainless steel and it is designed to carry out a constant discharge by improving the system's usefulness.

Availability of several models with different discharge flow rates depending on the needs of design of each installation.

4.2. DIRECTIONAL DIFFUSER

It is fabricated in brass or in stainless steel and it is designed to carry out a constant discharge by improving the system's usefulness.

Availability of several models with different discharge flow rates depending on the needs of design of each installation.

5. MANUAL OPERATION

SISTECOIN Model. It is placed in any situation of the FIRELINE tube.

When this system is operated, the depressurization of the FIRELINE tube is allowed with the resulting opening of the discharge valve.

6. PRESSURE SWITCH

It indicates the installation state (extinguisher activated or at rest). In case that the system is activated and triggered, it sends a sign to the fire extinction central, which may carry out different actions such as stopping the extraction, closing the gas supply valve, etc.

7. ALARM CENTRAL

Alarm central which controls the pressure for fire extinguishing systems in range hoods. This alarm central is used in order to obtain the signal of "low pressure", through the pressure switch, which indicates a pressure drop resulting from leakage or a fire. When the alarm is activated, it can active or deactivate different outlets.

8. Fire extinguisher cabinet

It is fabricated in AISI304 stainless steel, it is 1.5 mm thick and it has got a cam lock. We offer a different model depending on the cylinder.

Extinguishing

Cutting edge chemical agent, which is made from organic and/or inorganic salts, surfactants and very effective additives, and specially prepared for fires type F (oils, animal and/or vegetable fats). It forms a very resistant foam, with a long drainage time, which increases the efficiency of the fire extinction.

PROPERTIES

- Fire type F
- Specific density at 20ºC: 1,20 ±0,05 g/ml
- Viscosity 375 s-1 at 20ºC: <10 mPa.s
- Minimum operating temperature: 5ºC
- Maximum operating temperature: 50ºC
- Surface tension: <25 mN/m
- Low expansion foam rate: >7
- pH at 20ºC: 8,8 - 9,5-

Characteristics

Fire extinguishing system. It cools and reduces the oxygen. When the chemical agent is discharged, it reactions with the hot fat by saponification and quickly forms a permanent layer that surrounds the fire and vapors by reducing the temperature and isolating the oxygen, process which avoids a possible burn-back.

- Ecologic product. It is a biodegradable product with a minimum environmental impact.
- Non toxic product for people that do not generate vapors when it is discharged.
- Non corrosive product, which is compatible with stainless steel materials, made of galvanized steel.
- Clean product and easy to recharge, and once the extinguishing agent is discharged, the kitchen can be used again in a few minutes. The system can be easily and quickly recharged.

NEW DESIGN

New Valve auto pressurization

INOX Support

Handles Activation Valve


CO_2

Gaseous Fire Suppression Systems

PROPERTIES

Carbon dioxide is colorless, odorless and electrically non conductive. It is characterized by a fast and efficient penetration in the protected area, which makes the carbon dioxide to be the gaseous extinguishing agent that covers the highest quantity of fire fighting equipments. The accumulated experience throughout the years facilitates its building in a huge number of applications.

The carbon dioxide offers two different fire fighting systems, based on two physical principles. The first one is by reducing the oxygen concentration below 15%, situation below which the majority of fires can't maintain their combustion. The second process is by cooling and absorbing the heat from the protected area.

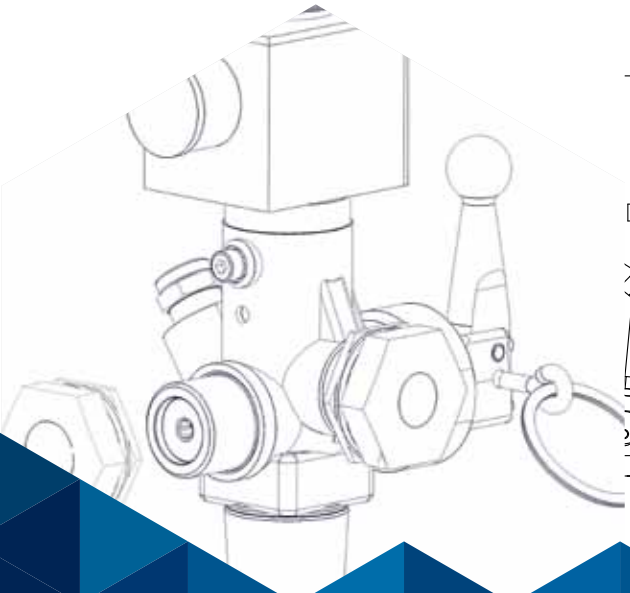
Thanks to its versatility, the dioxide carbon can be used in application as a total flooding agent, such as in local applications, taking always into account the necessary precautions for the security in case that it must be applied in occupied areas, because even in low oxygen concentrations, it can cause asphyxia.

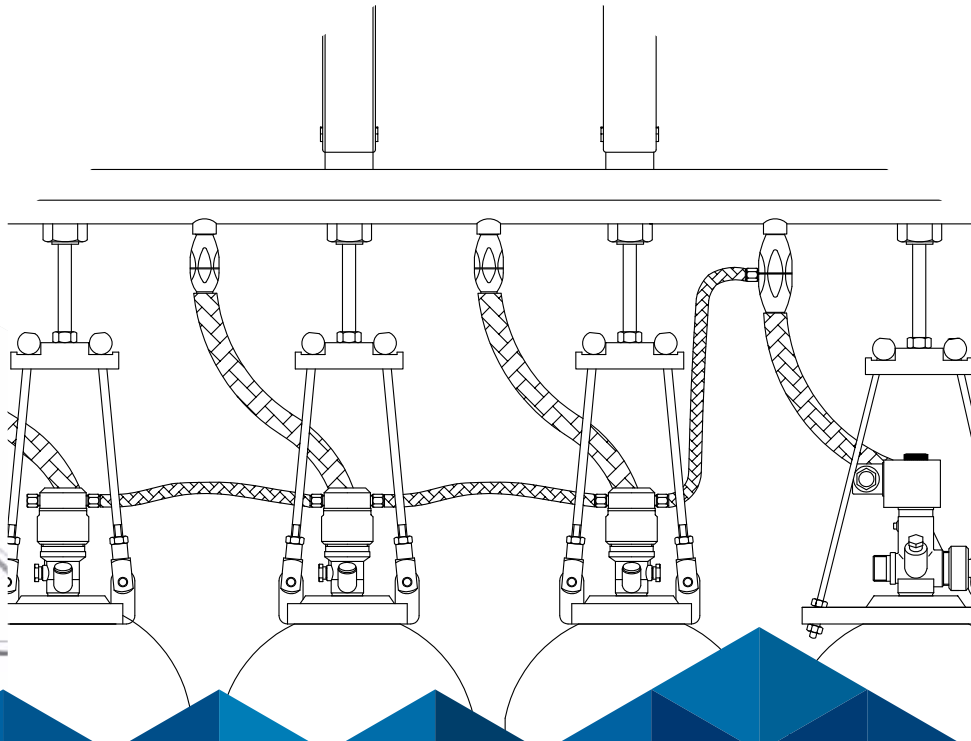
APPLICATIONS

The great majority of standard applications are part of the industrial segment, but some of them are also part of other segments, due to its great variety of uses.

The most notable sectors of applications are:

- Gas turbines
- Power transformers
- Flammable liquid storage areas
- Rotating printing machines
- Electric power transformer stations
- Range hoods
- Electrical cabinets and substations.
- Gas pipelines





SECURITY

In order to avoid problems such as accidents, that the carbon dioxide may cause, systems have the following security accessories for situations in which it can't be guaranteed the NON occupation of the protected area by people.

- Discharge retardant
- Inhibitor
- Security vent valves
- Pneumatic sirens

CHARACTERISTICS

Chemical name	Carbon dioxide
Chemical formula	CO_2
Molecular weight	44.01
Triple point: temperature	-55.6ºC
Triple point: pressure	517.8 kPa
Liquid density at 20º C	777 kg/m3
Critical temperature	31.0ºC
Critical pressure	73.82 bar
Pressure at 21º C	58.8 bar
Vapor pressure at 20º C	57.2 bar
Density of maximum filling	0.75 kg/l
Density related to air	1.5
Concentration for deep electric fires Vol<57m2	1.6 kg/m3
Concentration for deep electric fires Vol<57m2	1.33 kg/m3
Extinction concentration for archives	61% (2.0 gk/m3)
Typical concentration for superficial fires	34%
Destructive power of the ozone	0
Greenhouse-effect potential	1

CERTIFICATES

All SISTECOIN's components for CO_2 are certified and authorized by VdS Schadensverthürteng (Vertraven durch sicherheit) (Germany)

HFC227ea

Gaseous Fire Suppression Systems

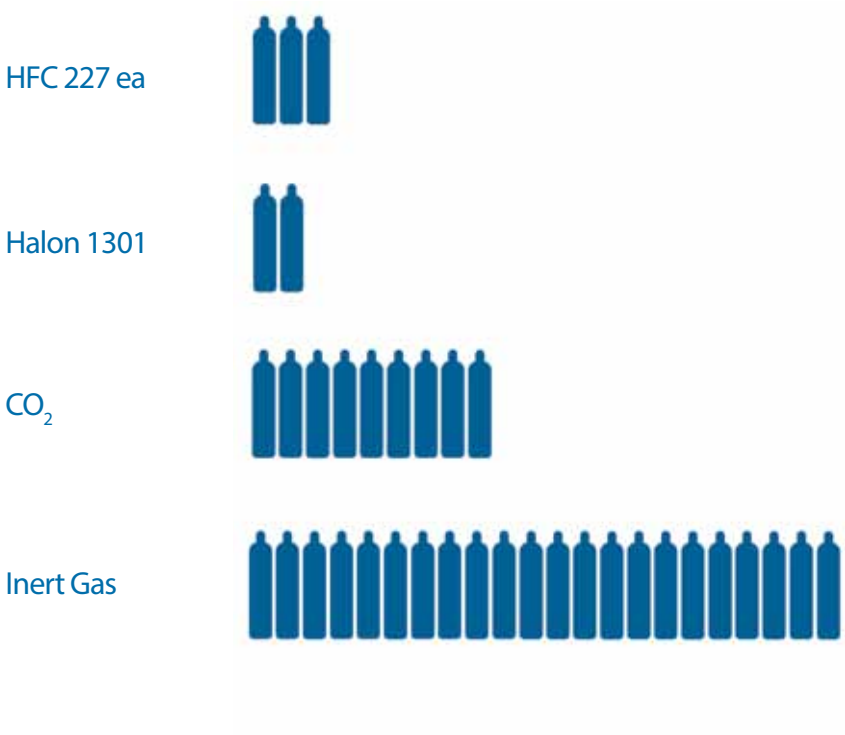
PROPERTIES

The product HFC-227ea is a colorless, almost odorless and electrically non conductive gas, which has an approximately density of about 5.9 times the air's density. HFC 227ea is nowadays the most used alternative fire extinguishing agent in the world to halon firefighting equipment. NLE manufactures its total flooding systems with gas, according to the different regulations in force.

The extinguishing agent mainly extinguishes fire by chemical means. The HFC-227ea extinguishes fire through the absorption of heat in flames, so when the flame temperature is low enough, the chemical reaction which keeps the combustion working can't keep continuing and the fire is extinguished.

The agent HFC 227ea removes, besides the damages produced by a fire, those damages produced by the fire extinguishing agents, due to its gaseous nature.

COMPARATIVE OF CYLINDERS



APPLICATIONS

Fire extinguishing systems HFC 227ea are designed for discharges up to 10 seconds, and they are used for total flooding applications, because they are very effective in the protection of a wide variety of risks.

- Computer rooms
- Telecommunications Centers
- Gas turbines
- Archives
- Museums
- Equipments in the oil industry
- Means of air, land and sea transport

SECURITY

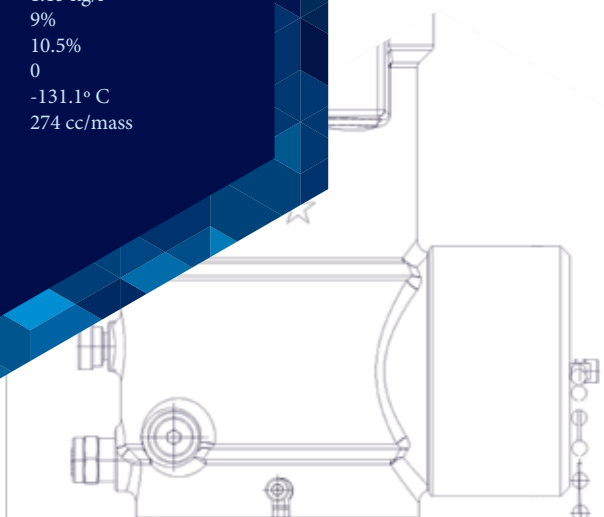
Respectful with the environment: Chemical gases don't contain chlorine nor bromine, and in their composition the ODP is zero, so these gases don't harm nor destroy the ozone layer.

Safe with properties: Chemical gases are neither electrically conductive nor corrosive for modern components of electrical systems, and they are clean because their application doesn't produce remains that may harm the protected systems, so this fact makes this extinguishing agent to be available for a great number of applications.

Safe with people: In the same way as Halon 1301 and 1211, chemical gases are very safe for areas which are occupied with the concentration of the official design, and that's why this product can be used for several risks and in different areas. EPA and NFPA describe chemical gases as good products for its design and use when it has to be used in spaces with a total flooding.

CHARACTERISTICS

Chemical name	Heptafluoropropane
Chemical formula	CH3CHFCF3
Technical designation	HFC-227 ea
Molecular weight 170	170
Boiling point at 1,013 bar	-16.4ºC
Liquid density at 20º C	1407 kg/m3
Critical temperature	101.7 ºC
Critical pressure	29.12 bar
Vapor pressure at 20º C	3.91 bar
Electrical resistance regarding 1 atm. 25ºC (N2=1.0)	2.0 kg/l
Maximum density of filling	1.15 kg/l
NOAEL	9%
LOAEL	10.5%
Destructive power of the ozone	0
Freezing point	-131.1º C
Critical volume	274 cc/mass



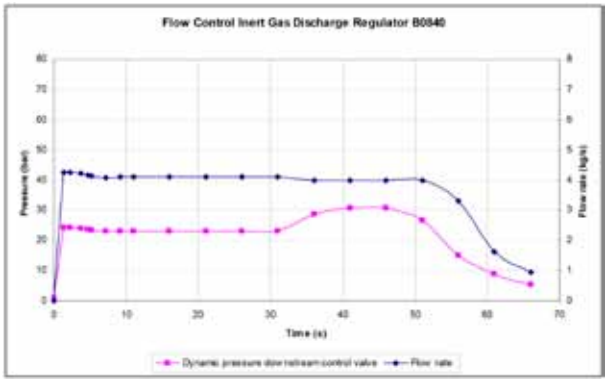

INERT
Gaseous Fire Suppression Systems

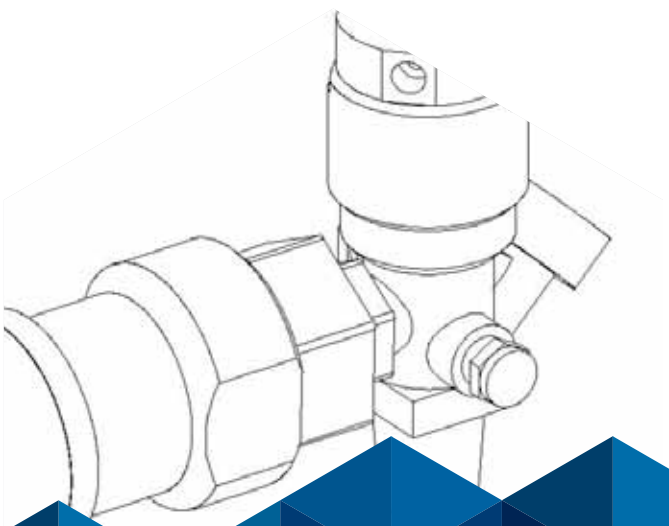
PROPERTIES

Inert gases are characterized by its situation in the atmosphere in a natural way, whose greenhouse-effect potential is non-existent and they don't harm the ozone layer. They are non corrosive, so they can be used in standard temperatures with materials such as nickel, steel, stainless steel, copper, brass or bronze, and they are also non conductive, colorless, odorless and insipid gases.

Inert gas extinguishing systems offer a high adaptation flexibility to all the action and trigger systems that are used nowadays in the market, by even allowing combinations between some of them and by adding some protection elements against accidental triggers due to microfuges to its design. Besides, they also allow the verification and maintenance of all the critical elements which are part of the installation.

Inert gases are kept as a compressed gas in high pressure cylinders, so the necessary space for the storage of cylinders will depend on its pressure and capacity.





INERT IG-01

INERT IG-01 systems are designed for a filling pressure of cylinders at 200/300 bar, by obtaining with this fact, a saving in space and money.

The INERT IG-01 extinguishing method is based on the reduction of the oxygen concentration in the affected area, although in contrast to CO2 extinguishing systems, the IG-01 system is sure for its use in occupied areas, by also maintaining an excellent visibility during the discharge.

INERT IG-55

INERT IG-55 extinguishing systems can be modular (single line) or a centrally-installed system (double line), and they are designed for a filling pressure at 200/300 bar.

All the systems with manual or automatic trigger include the N certificate in all the bottles equipped with a manometer.

INERT IG-100

INERT IG-100 extinguishing systems are made of nitrogen, a very recommendable dielectric gas for protecting electric and electronic materials.

INERT IG-100 extinguishing systems can be modular or a centrally-installed system, and they include all the systems with manual or automatic trigger, and the N certificate in all the bottles equipped with a manometer.

INERT IG-541

INERT IG-541 systems are made of very recommendable dielectric gases for protecting electric and electronic materials.

They can be assembled both in single line and in double line systems, by obtaining the N certificate in all the bottles equipped with a manometer, both in manual and automatic trigger systems.

APPLICATIONS

Inert gases are ideal for protecting equipments or machinery that need a non conductive electrical gas, areas of risk for which inert gases are the ideal extinguishing agents in order to protect them due to their importance or value.

- Computer rooms
- Electronic equipments
- Rooms with TV or radio broadcasting equipments
- Laboratories
- Flammable gases and liquids
- Oil platforms.

CERTIFICATES

Systems and components for inert gases are certified by VdS Shandenverhürteng (vertraven durch Sicherheit) from Germany No. G300018, G300020, G302018 and G302017, by the LPCB (Loss Prevention certification Board) from England.

CHARACTERISTICS

Designation	IG-01	IG-55	IG-100	IG-541
Chemical name	Argon	Argon / Nitrogen	Nitrogen	Nitrogen/Argon/Carbon dioxide
Chemical formula	Ar	N2/Ar	N2	N2 - 52% (V)Ar - 40% (V)CO2 - 8% (V)
Molecular weight	39.9	33.95	28.02	34.0
Boiling point at 1,013 bar	-185.9ºC	-196ºC	-195.8ºC	-196ºC
Critical temperature	- 122.3ºC	-	-146.9ºC	N/A
Critical pressure	49 bar	-	34 bar	N/A
Maximum filling pressure	300 bar	300 bar	300 bar	N/A
NOAEL	43%	43%	43%	43%
LOAEL	52%	52%	52%	52%
Maximum concentration	43%	43%	43%	43%
Destructive power of the ozone	0	0	0	0
Greenhouse-effect potential	0	0	0	0


FIRELINE
Fire Suppression Systems

DETECTOR TUBE solutions

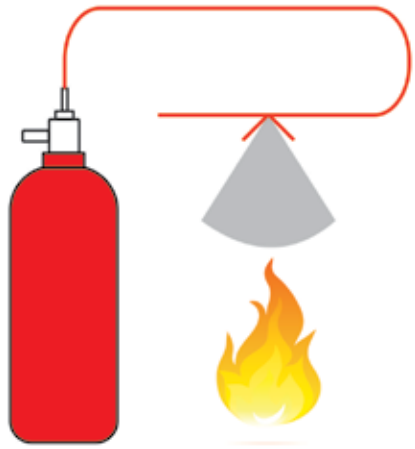
PROPERTIES

SISTECOIN offers a developed range of products to extinguish fires in small and centralized installations caused in an immediate and effective way, for example in vehicles, electric panels, industrial machinery, etc.

FIRELINE is equipped with two possible configurations:

DIRECT EXTINCTION

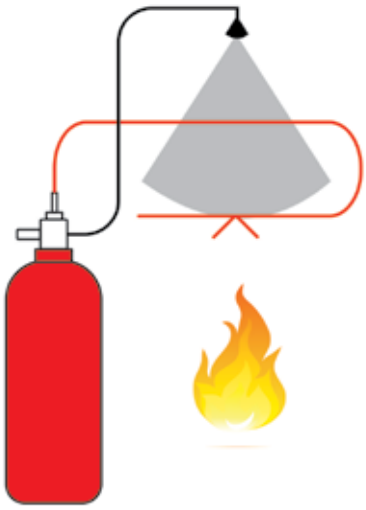
It is made up of a cylinder, a valve, iron fittings, a FIRELINE detector tube and an end of line. The FIRELINE tube is used as a detector and as a discharge system of the extinguishing agent. The temperature's increase breaks the tube by creating a perfect cylindrical hole, which serves as a diffuser, and by discharging the extinguishing agent directly over the fire focus. This system is ideal for closed volumes smaller than 1 m3.



INDIRECT EXTINCTION

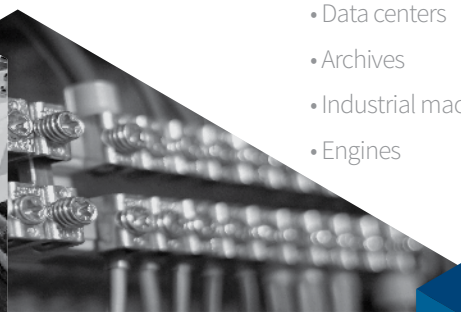
It is made up of a cylinder, a valve, iron fittings, a FIRELINE detector tube, an end of line, diffusers and a manual trigger. The FIRELINE tube is only used as a detector, by discharging the valve and the extinguishing agent through the diffusers. The temperature's increase breaks the tube, which activates the valve because of the pressure difference and discharges the extinguishing agent through those diffusers placed over the risk. This system is ideal for closed volumes between 1 and 5 m3.

These extinguishing systems may be designed at a low or high



APPLICATIONS

- Chemical industries
- Pharmaceutical industry
- Universities
- Individual Kitchens
- Collective Kitchens
- Vehicles
- Telecommunications
- Electric panels
- Data centers
- Archives
- Industrial machinery
- Engines



CHARACTERISTICS

DLP SYSTEMS (Direct extinction at a low pressure)

Extinguishing agents	ABC Powder, HFC 227 ea and NOVEC
Cylinder's capacity	4 - 6 - 9 - 12 l.
Work pressure 20º C	10-20 bar.
Maximum protected volume	1 m3
Maximum length of the tube	Powder: 4 m
	HFC227 and NOVEC: 6 m

DHP SYSTEMS (Direct extinction at a high pressure)

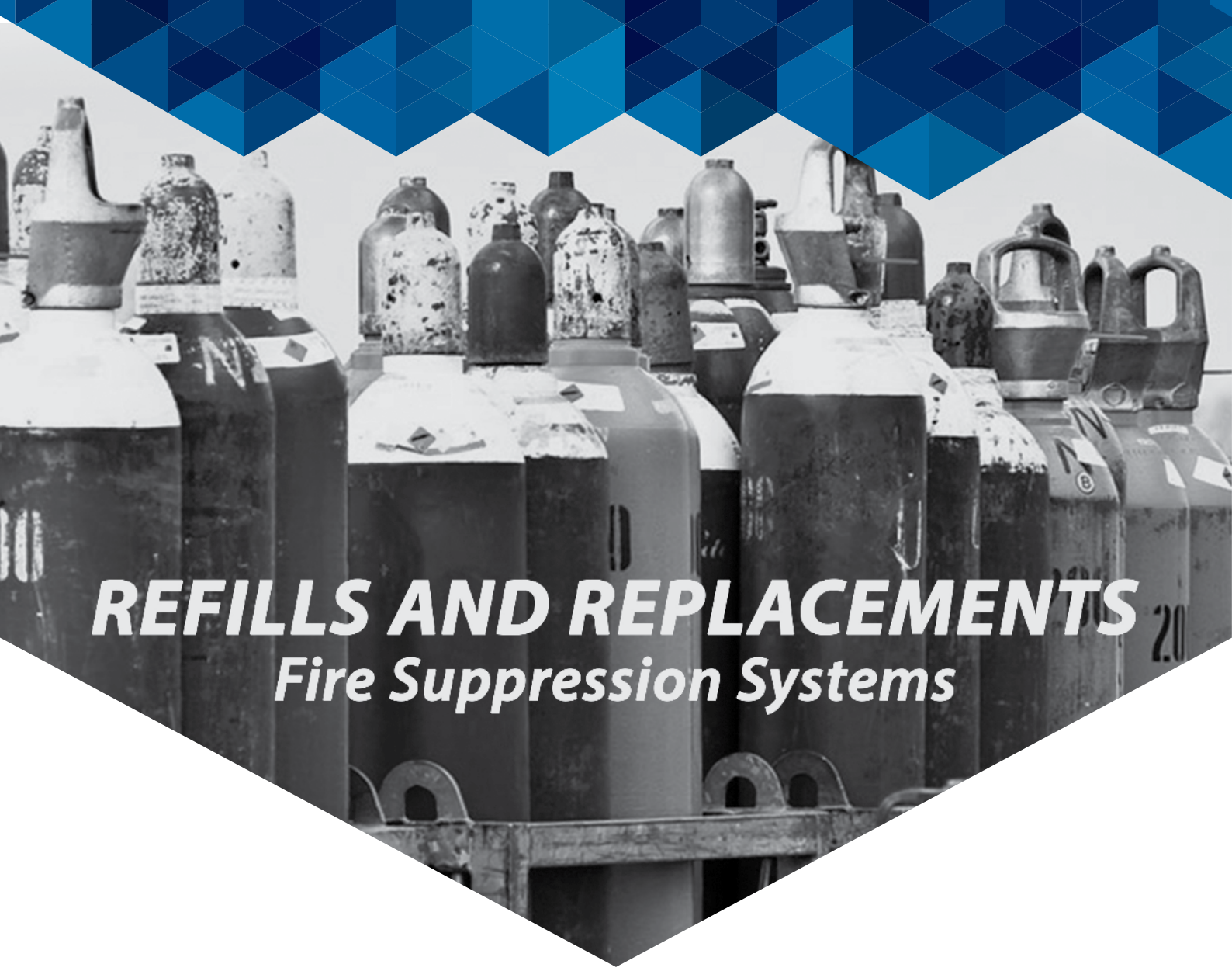
Extinguishing agents	CO2 and Nitrogen /Argon
Cylinder's capacity	3 - 7.5 - 15 l.
Work pressure 20º C	CO2: 60 bar
Maximum protected volume	Nitrogen / Argon: 200 bar
Maximum length of the tube	1m3
	25 m.

ILP SYSTEMS (Indirect systems at a low pressure)

Extinguishing agents	ABC Powder, HFC 227 ea and NOVEC
Cylinder's capacity	4 - 6 - 9 - 12 l.
Work pressure 20º C	10-20 bar.
Maximum protected volume	1 m3
Maximum length of the tube	Powder: 4 m
	HFC227 and NOVEC: 6 m

IHP SYSTEMS (Indirect extinction at a high pressure)

Extinguishing agents	CO2 and Nitrogen /Argon
Cylinder's capacity	3-7.5-15-27-40-67l.
Work pressure 20º C	CO2: 60 bar
Maximum protected volume	Nitrogen / Argon: 200 bar
Maximum length of the tube	1 to 5m3
	> 100 m.



REFILLS AND REPLACEMENTS

Fire Suppression Systems

SISTECOIN is an authorized supporter and host according to:

• The complementary technical instruction ITC-MIE-AP7

• Regulations about dangerous goods ADR. This fact allows us to guarantee a complete service to our clients.

SISTECOIN carries out the appropriate inspections and replacements required by the industry, by doing different tests of tightness, concentration, etc.

NOTE: It is essential that cylinders are sent with the protection stopper of valves, and trigger elements have to be dismantled before they are shipped, as required by the technical instruction ITC-MIE-AP7.

Certificate

IS - Inhouse-Inspection-Service

for transportable pressure equipment

Certificate-No.: 01 202 144/IS-13 0011-T

Applicant: SISTEMAS TECNICOS CONTRAINCENDIOS S.L.U.
Pol. Ind. Carbonera calle C, parcela 6
E-42190 Golmayo (Soria)

SISTECOIN

The applicant implemented an inhouse-inspection-service, according to 1.8.7.6 ADR/RID 2013.
The demands on the personnel, the equipment and the quality system are fulfilled.

It is confirmed that the inspections performed on the products of the applicant are in compliance with the requirements of ADR/RID.

The applicant is entitled to affix the registered mark of the Xa-body TÜV Rheinland.

Scope: Periodical inspection of steel cylinders for compressed and liquefied gases up to 345 liters

Report-No.: This authorisation is based on the results of the certification audit, dated at 2013/09/30 and the follow up audit, dated at 2014/09/23.
Order No: 33273081.

Validity: This authorisation is valid for a period not exceeding three years. End of period: 2016/10/29

Cologne, 2014/10/29

Erik Holzhauser, M.Sc.

TÜV Rheinland Industrie Service GmbH
Am Grauen Stein, D-51105 Köln

according to dir. 2010/35/EU and ADR/RID 2013, accredited according to EN ISO/IEC 17020 by DAkkS and ZLS.

www.tuv.com

TÜVRheinland®
Genau. Richtig.

H_2O

Water Mist Fire Suppression Systems

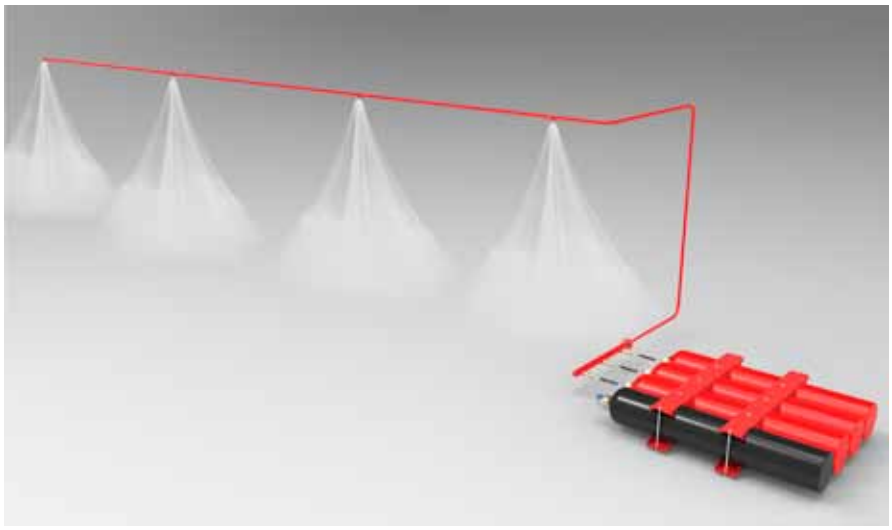
SISTECOIN Water Mist Fire Protection

SISTECOIN offers optimal service at all levels. SISTECOINsystems use pure water, converting it to fine water mist at a pressure of 80 to 200 bar.

These water mist systems are not only 100% environmentally friendly but water mist systems are often more effective than conventional gas or water fire fighting equipment.

APPLICATIONS

- All Classes of Fire (A,B,C,F)
- Ordinary flammables (Paper, wood, cloth)
- Flammable liquids
- Kitchen Fires (K,F Class)
- Electrical Fires



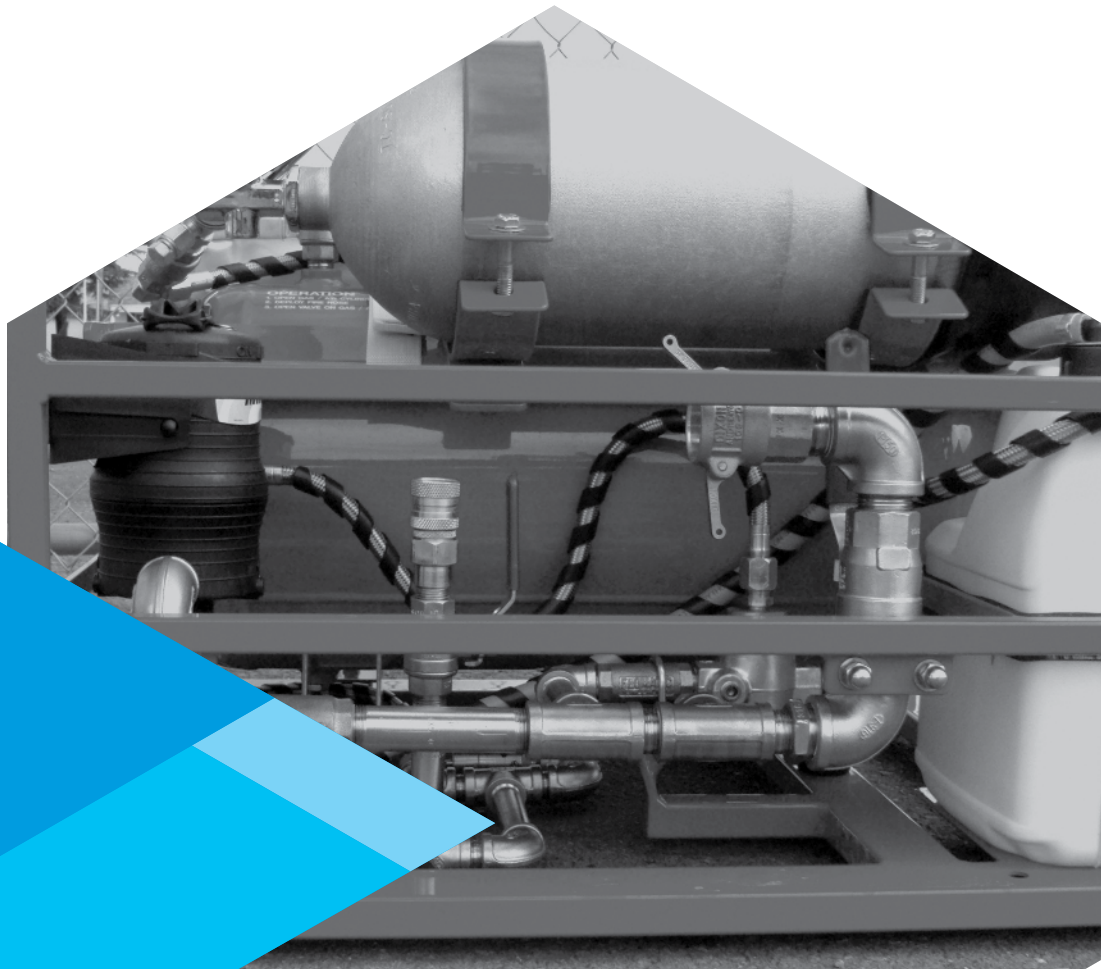

AFFF
Foam Fire Suppression Systems

SISTECOIN Foam Suppression Systems

Fire suppression foam is comprised of three parts: foam concentrate, water, and air. When mixed correctly, these parts form a homogeneous foam blanket that extinguishes flames by the combined mechanisms of cooling, separating the flame source from the product surface, suppressing vapors, and smothering. This makes foam suppression systems an effective option for protecting flammable and combustible liquids.

APPLICATIONS

- Aircraft hangars
- Petrochemical
- Oil and Gas
- Flammable liquid storage
- Tank farms
- Loading facilities
- Warehouses




VdS
VdS calculation software
for gas extinguishing systems

VdS Calculation Software for Gas Extinguishing Systems

The basis for an optimal application of gas fire extinguishing systems are the hydraulic equations combining the technical data of the installation components (pipe diameters, resistance coefficients of armatures, etc.) with the specific properties of the extinguishing agent and the physical conditions during the discharge (e.g. flow velocity, pressures in the pipes and at the nozzles). Furthermore, conservation laws and balance equations must be fulfilled. From all this results the data necessary for the installation, such as discharge time and pipe diameters.

The calculation programmes allow you to calculate gas extinguishing installations of very different construction. Your input of flooding zones, gas storage, and pipe system will be saved in project files which the programme accesses for any calculation. You can modify these parameters anytime and make a recalculation of any system with altered parameters, e.g. graded nozzle and restrictor orifices, to see the effects on the discharge time or on the distribution of the extinguishing agent amongst the nozzles. The results can be printed or viewed on screen.

Inert gas extinguishing systems usually employ restrictor plates behind the manifold, reducing the pressure in the pipe system downstream the restrictor to a defined maximum value. Due to the necessarily strong pressure reduction a so-called over-critical flow through the restrictor appears. Here the general relation (Bernoulli) between pressure drop and mass flow is no longer valid, so the calculation requires additional care.

Generally, the flow through the nozzles is also over-critical, so specific models are implemented for the nozzles, too.

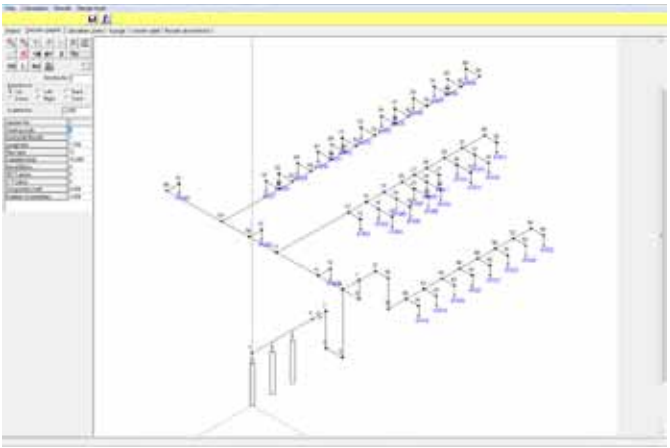
The data of the components used (armatures, nozzles, pipes) are entered in catalogue files. This way you can easily manage and distribute component data within your company. The resistance coefficients can be determined by the VdS-laboratories, in case the manufacturer did not already receive them during the VdS approval process for the component. The component data in the example catalogues (vds.*) comprises merely example values to allow for a calculation of example systems. They have to be replaced with data of the specific components you are using.

In addition to the design of the installation a material list is generated stating the type, number/amount and dimension of the components needed as well as the atmospheric composition after the flooding and a recommendation for the pressure relief opening.

For the intended purpose of the calculation programs it is implied that the user of the calculation program possess the necessary knowledge of gas extinguishing systems and of the state of the art of the field of gas extinguishing systems and that the user creates system layouts which represent this knowledge.

SOFTWARE

- CO2
- IG-01, IG-55, IG-100, IG-541 Regulator/Restrictor
- HFC 227ea
- Novec



SISTECOIN

Protection Instinct

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