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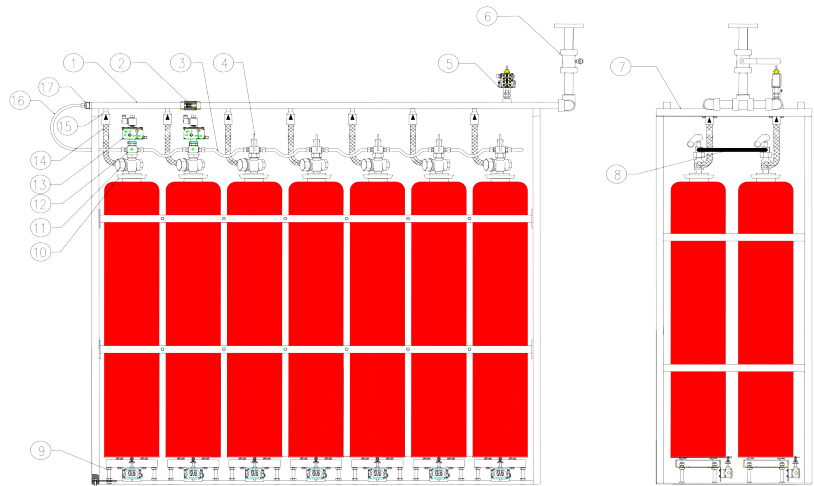
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# SYSTEMS

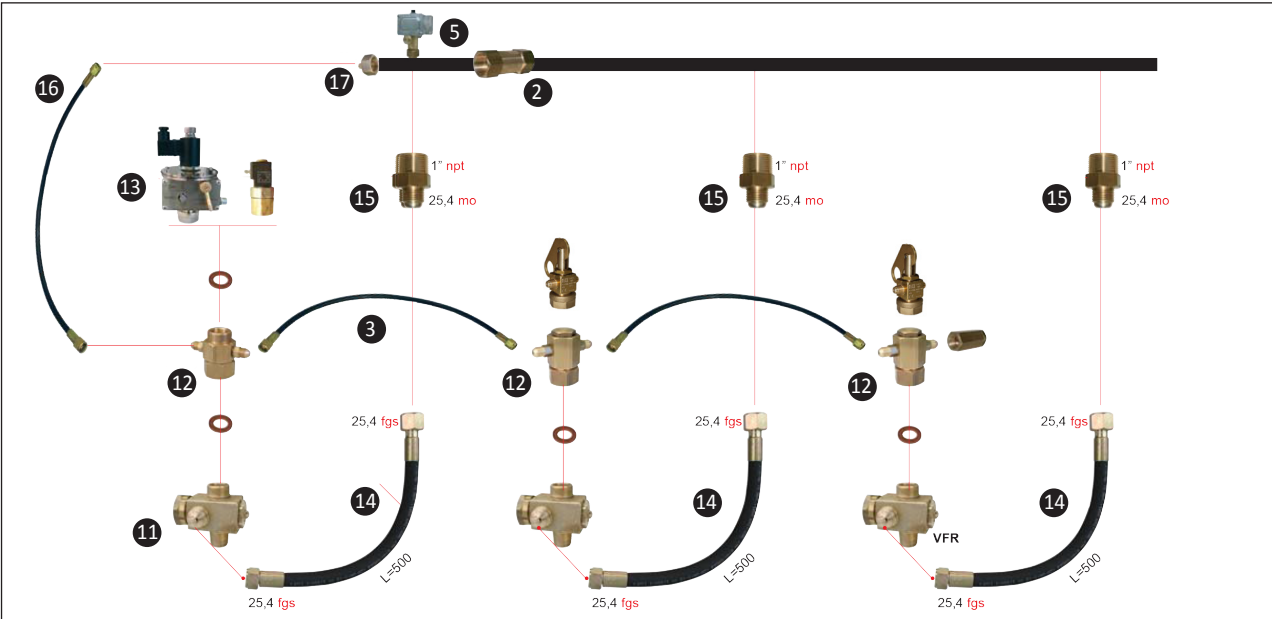
The extinguishing action of Carbon Dioxide (CO<sub>2</sub>) occurs firstly for the smothering of the fire (CO<sub>2</sub> takes oxygen out of the air), and secondly for the cooling caused by the rapid gas expansion. It can be used on live electrical appliances. It is used to extinguish fires caused by flammable liquids, e.g. petrol, oils, paints, alcohol, etc. Example of a Co<sub>2</sub> automatic system diagram With 67 lt cylinders diam. 267

Location	CODE	No.	Description
2	2257	1	Closed check valve
3	2256-1	12	Servocontrol hose 1/4 L 500 mm
4	2258-3	12	Hand-pressure control for VRF
5		1	Pressure Switch
6		1	Ball valve
8	2256-4	1	Servocontrol hose 1/4 L 800 mm
9	2184	14	Spring weight control system
10	1903-1	14	Cylinder cap nut
11	2255	14	Rapid flow valve 3/4 "25E VFR
12	2257-4	2	Two-way internal valve
13	2258-2	2	Manual electric control 24 Vdc 12w IP65
14	2256-3	14	Delivery hose L 430mm
15	2257-1	14	Ball check valve
16	2256-4	1	Servocontrol hose 1/4 L 800mm
17		1	Reduction G1FxG1 / 4M Ogiva



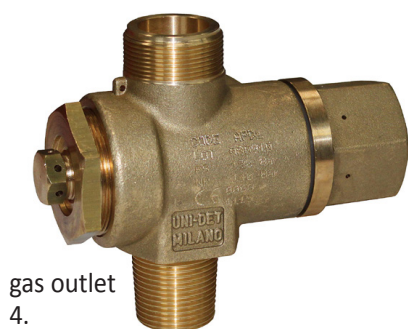
CODE	Kg	Lt	Ø	H	PRICE
31279	20	27	232	850	
31409	30	40	232	1180	
31509	50	67	267	1470	

With the implementation of the European legislation PED 2014/68 / UE - DM 6/03/2000, the manifold must be inspected and certified. All of its components must be subjected to hydraulic test pressure and the manifold must be marked with an EC tag with all its data and a manufacturer's certificate must be issued. Emme Antincendio builds collectors according to the laws in force and issues the necessary certification.





## Rapid Flow Valves Co2 VFR

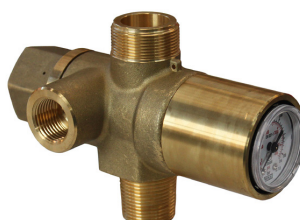


CODE	PRICE
2255	

## Nitrogen Valves

CODE	PRICE
2255-2	

VFR 3/4 "with pressure gauge



## Retarding valve

Delays the discharge of CO2, it is mainly used in boat systems. RINA obligation is mandatory. Its activation allows to evacuate the CO2 discharge space.

CODE	PRICE
2255-1	



## Ball check valve

CODE	PRICE
2257-1	



## Electrical control



CODE	Spec.	PRICE
2258	220 VAC MAX	
2258-1	12 VDC	
2258-2	24 VDC	

## Actuation controls for Rapid Flow Valves VFR

### Pneumatic control



CODE	PRICE
2258-4	

### Hand-pressure control

CODE	PRICE
2258-3	



Actuation controls are used to activate rapid flow valves. They can be automatic electric, mechanical, or manual.

## 2-way internal valve G 1/2



CODE	PRICE
2257-4	

## Handwheel control



CODE	PRICE
2258-5	

## Closed valve 1"

CODE	PRICE
2257	



## Safety valve and vent-hole

CODE	PRICE
2257-3	



## Sealing Flexible hose L400



CODE	DESCRIPTION	PRICE
2256	Delivery hose 1/2 RK 2SC W25.4FSVxW25.4FSV L = 530	
2256-1	Servocontrol hose 1 / 4RK 2SC G1 / 4FSVxG1 / 4FSV L = 500	
2256-2	Delivery hose 1/2 RK 2SC W25.4 FSVxG1 / 4FSP L = 430	
2256-3	Delivery hose 1/2 RK 2SC W25.4 FSVxW25.4FSV L = 430	
2256-4	Servocontrol hose 1/4RK 2SC G1/4FSVxG1/4FSV L=800	



Speakers of the CO2 gas diffusers

CODE	DESCRIPTION	PRICE
2259	Cone Co2 Ral3000 fitting G1 / 2F for permanent systems	
2259-1	Cone Co2 Ral3000 with G1 / 2F flange for permanent systems	
2259-2	Minicone Co2 Ral3000 fitting G3 / 8M for permanent systems	

Cylinder Scales



CODE

2184-1

PRICE

Triggered by the pressure of the CO2. Equipped with NO and NC contacts, at 10 A.

Pneumatic siren.



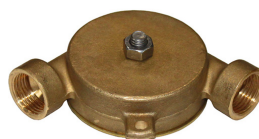
CODE

2260

PRICE

A very small amount of gas on the discharge pipe activates a powerful sound.

Tail block on bearings



CODE

2260-1

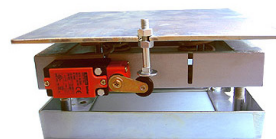
PRICE

Cylinder Scales

CODE

2184

PRICE



CODE	DESCRIPTION	PRICE
0096	Tulip cap for handwheel valves, or VT.	
1903-1	Ring nut + aluminum cap.	
18493	In iron for handwheel valves	



Empty CO2 cylinders



CODE	Ø mm	H mm	Volume (L)	PRICE
18299	232	1180	40	
18330	204	645	15	
18332	232	850	28.6	
18333	267	1470	68	

Co2 systems with air expansion thermostats

This system allows you to install a fully automatic system and does not need any power source or batteries.

Operation is based on the physical principle that air expands while heating up expands. The air expansion thermostat is a small tank built that consist of two copper cups sealed with a small capillary tube diam 3x2 and a threaded terminal. Installed on the ceiling, in case of fire the air, normally at atmospheric pressure, heats up and increases the pressure which, through a 3x2 copper capillary tube, is conveyed to the pneumatic control, which is able to turn the pressure into mechanical drive and activates the pilot Co2 cylinder. The cylinders are then connected in battery with the same gas pressure and are all activated and discharged in the space where the fire is.



CODE

2260-4

PRICE

Saddle and Collar two places for Cylinders



CODE

2260-2

PRICE

Fixing rack for 1 Cylinder



Useful for fixing a single cylinder on the wall.

CODE

2260-3

PRICE

Flaring tool



CODE

2260-7

PRICE

It is used to create the internal conical flaring of the 3x2 capillary copper tube to have a perfect joint and seal with the fittings 3x2 thread M 6x0.75.



# Introduction to sprinkler systems

## Features of Sprinkler heads

What are the characteristics of a sprinkler?

### Installation orientation

- Upright, with deflector facing upwards.
- Pendent, with deflector facing downwards.
- Orizontal Sidewall, with horizontal deflector.
- Vertical Sidewall, with vertical deflector but horizontal jet.
- Concealed, completely embedded in the ceiling.
- Recessed, partially embedded in the ceiling.

### Form and direction of the jet in the discharge phase

- Spray paraboloidal jet > 80% directly downward <20% upwards.
- Conventional paraboloidal jet >40% upward <60% directly downward.
- Flat paraboloidal jet - the amount directly discharged downwards is between 60-80%.
  - Sidewall, semiparaboloidal shape discharged downwards and the wall behind.

Thermal sensitivity

The response time of the heating element is measured in RTI (response time index)

- STANDARD RESPONSE RTI > 80.
- FAST RESPONSE RTI < 50.

Glass bulb sprinkler		Fuse sprinkler	
Storage Nominal operating temperature ° C	Bulb liquid color	Nominal operating tempera- ture °C nominal ° C	Arms color
57	Orange	From 57 to 55	No color
68	Red	From 80 to 107	White
79	Yellow	From 121 to 149	Blue
93	Green	From 163 to 191	Red
100	Green	From 204 to 246	Green
121	Blue	From 260 to 302	Orange
141		From 320 to 343	Black
163			
182	Mallow	Activation temperature How do you choose it? - 30° more than the maximum ambient temperature - depending on the heat generated by the fire - depending on the conformation of the structure	
204			
227	Black		
260			
286			
343			

## SPRINKLER PENDENT 1/2 "SP K factor 80 - 2011/305 / EU (CPR)

UNI EN 12259-1 with paraboloidal water distribution, suitable for giving the expected delivery when the jet is directed downwards against the deflector washer. The "SU" sprinkler code and the operating temperature of the glass bulb (with clip) are indicated on the deflecting washer.

### Sprinkler Pendent Standard Response

Standard specifications fitting: 1/2 "  
Version: Pendent Response:G5  
Factor K: 80 UNI EN 12259-1  
Finishing: Brass  
Homologation: 2011/305 / EU (CPR)



CODE	TEMPERATURE	PRICE
2196	57°C = 135°F	
2196-1	68°C = 155°F	
2196-2	79 ° C = 175 ° F	
2196-3	93 ° C = 200 ° F	
2196-4	141 ° C = 286 ° F	
2196-5	182 ° C = 360 ° F	

### Sprinkler Pendent Quick Response

Standard specifications fitting: 1/2 "  
Version: Pendent Response: F3  
Factor K: 80 UNI EN 12259-1  
Finishing: Brass  
Homologation: 2011/305 / EU (CPR)



CODE	TEMPERATURE	PRICE
2197	57°C = 135°F	
2197-1	68°C = 155°F	
2197-2	79 ° C = 175 ° F	
2197-3	93 ° C = 200 ° F	
2197-4	141 ° C = 286 ° F	

## Frontal sidewall sprinkler

Frontal sidewall sprinkler with wall water distribution system. Side jet.  
Used to protect middle shelves or near walls.

Standard specifications  
Factor K: 80  
fitting: 1/2 "  
Finishing: Brass



CODE	TEMPERATURE	PRICE
2202	57°C = 135°F	
2202-1	68°C = 155°F	
2202-2	79 ° C = 175 ° F	
2202-3	93 ° C = 200 ° F	
2202-4	141 ° C = 286 ° F	
2202-5	182 ° C = 360 ° F	

### Sprinkler Pendent Standard Response

## SPRINKLER PENDENT 3/4 "SP K factor 115 - 2011/305 / EU (CPR) -

UNI EN 12259-1 with paraboloidal water distribution, suitable for giving the expected delivery when the jet is directed downwards against the deflector washer. The "SP" sprinkler code and the operating temperature of the glass bulb (without clip) are indicated on the deflecting washer.

Standard specifications Response 3/4"  
Version: Pendent Response:G5  
Factor K: 115 UNI EN 12259-1  
Finishing: Brass  
Homologation: 2011/305 / EU (CPR)



CODE	TEMPERATURE	PRICE
2198	57°C = 135°F	
2198-1	68°C = 155°F	
2198-2	79 ° C = 175 ° F	
2198-3	93 ° C = 200 ° F	
2198-4	141 ° C = 286 ° F	
2198-5	182 ° C = 360 ° F	

**SPRINKLER UPRIGHT 1/2" SU K factor 80 - 2011/305/UE (CPR)**

UNI EN 12259-1 with paraboloidal water distribution, suitable for giving the expected delivery when the jet is directed upwards against the deflector washer. The "SU" sprinkler code and the operating temperature of the glass bulb are indicated on the deflecting washer.

**Sprinkler Upright Standard Response**

Standard specifications fitting: 1/2 "   
Version: Upright Response:G5   
Factor K: 80

Finishing: Brass   
Homologation: 2011/305 / EU (CPR) - UNI EN 12259-1



CODE	TEMPERATURE	PRICE
2199	57°C = 135°F	
2199-1	68°C = 155°F	
2199-2	79 ° C = 175 ° F	
2199-3	93 ° C = 200 ° F	
2199-4	141 ° C = 286 ° F	
2199-5	182 ° C = 360 ° F	

**Sprinkler Upright Quick Response**
**SPRINKLER UPRIGHT 1/2" SU K factor 80 - 2011/305/UE (CPR)**

Standard specifications fitting: 1/2 "   
Version: Upright Response: F3   
Factor K: 80

Finishing: Brass   
Homologation: 2011/305 / EU (CPR) - UNI EN 12259-1



CODE	TEMPERATURE	PRICE
2200	57°C = 135°F	
2200-1	68°C = 155°F	
2200-2	79 ° C = 175 ° F	
2200-3	93 ° C = 200 ° F	
2200-4	141 ° C = 286 ° F	
2200-5	182 ° C = 360 ° F	

**Sprinkler Upright Standard Response**
**SPRINKLER UPRIGHT 3/4 "SU k factor 115 - 2011/305 / EU (CPR)**

UNI EN 12259-1 with paraboloidal water distribution, suitable for giving the expected delivery when the jet is directed upwards against the deflector washer. The "SU" sprinkler code and the operating temperature of the glass bulb are indicated on the deflecting washer.

Standard specifications Response 3/4"   
Version: Upright Response:G5   
Factor K: 115   
Finishing: Brass   
Homologation: 2011/305 / EU (CPR) - UNI EN 12259-1

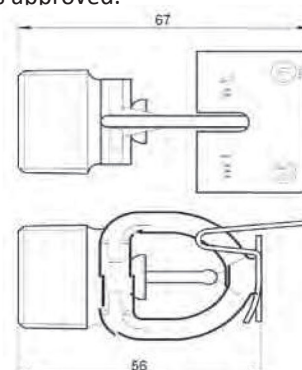


CODE	TEMPERATURE	PRICE
2201	57°C = 135°F	
2201-1	68°C = 155°F	
2201-2	79 ° C = 175 ° F	
2201-3	93 ° C = 200 ° F	
2201-4	141 ° C = 286 ° F	
2201-5	182 ° C = 360 ° F	

**SPRINKLER ORIZZONTAL SIDEWALL EXTENDED 1/2 "**

Sprinkler Horizontal Sidewall Extended Coverage, with 3 mm bulb and 15 mm orifice. LPC / Vds approved.   
Chrome or White RAL 9010 finishing.

CODE	VERSION	FINISHING	K FACTOR	FITTING	TEMPERATURE	PRICE
2226	Orizzontale	Cromata	80	1/2"	57°C = 135°F	
2226-1	Orizzontale	Cromata	80	1/2"	68°C = 155°F	
2226-2	Orizzontale	Cromata	80	1/2"	79 ° C=175 ° F	
2226-3	Orizzontale	Cromata	80	1/2"	93 ° C = 200 ° F	
2226-4	Orizzontale	Bianca	80	1/2"	57°C = 135°F	
2226-5	Orizzontale	Bianca	80	1/2"	68°C = 155°F	
2226-6	Orizzontale	Bianca	80	1/2"	79 ° C=175 ° F	
2226-7	Orizzontale	Bianca	80	1/2"	93 ° C = 200 ° F	





## SPRINKLER CONCEALED (HIDDEN) 1/2 "

SPRINKLER Concealed, with a quick response 3 mm bulb.

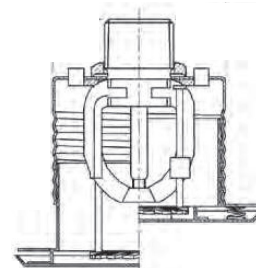
UL approved. Chrome or White RAL 9010 finishing.

Plate activation temperatures:

- for bulb 68 °

- for bulb 93 °

CODE	FINISHING	K FACTOR	FITTING	TEMPERATURE	PRICE
2227	Chrome	80	1/2"	68°C = 155°F	
2227-1	Chrome	80	1/2"	79 °C=175 °F	
2227-2	White	80	1/2"	68°C = 155°F	
2227-3	White	80	1/2"	79 °C=175 °F	



## SPRINKLER ESFR K14 3/4 "

SPRINKLER Concealed, with a quick response 3 mm bulb. UL approved.

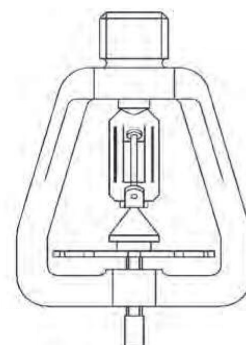
Chrome or White RAL 9010 finishing.

Plate activation temperatures:

- for bulb 68 °

- for bulb 93 °

CODE	VERSION	K FACTOR	FITTING	TEMPERATURE	PRICE
2228	Orizontal	14	3/4"	68°C = 155°F	
2228-1	Orizontal	14	3/4"	93 ° C = 200 ° F	



## WATER BLADE NOZZLES

Water blade nozzles create a horizontal or vertical jet like a fire wall. The flow varies according to the outlet hole.



CODE	K-Factor	FITTINGS	ORIENTATION	PRICE
2203	20	1/2"	150	
2203-1	40	3/4"	150	
2203-2	110	1"	150	

## SPRAY NOZZLES

The spray nozzles create a jet of fractional or nebulized water. They are used in deluge systems to protect from serious risks. They are built with different diameters, flow rates and jet angles. These nozzles are equipped with an internal swirl capable of providing a rotational component to the fluid vein during the process.

CODE	K-Factor	FITTINGS	ORIENTATION	PRICE
2204	9	1/2"	60°	
2204-1	18	3/4"	60°	
2204-2	45	1"	60°	
2204-3	9	1/2"	90°	
2204-4	18	3/4"	90°	
2204-5	45	1"	90°	
2204-6	9	1/2"	± 120°	
2204-7	18	3/4"	± 120°	
2204-8	45	1"	± 120°	

This type of nozzles produce a full cone spray with a uniform distribution. The flow varies according to the outlet hole. Ask for technical bulletins.



**Sprinkler rosettes**

5x65mm semi-flat one-piece rosette. Available in chrome or white RAL 9010 finish.

Two-piece rosette 20 mm adjustment x 73 mm Available in chrome or white RAL 9010 finish



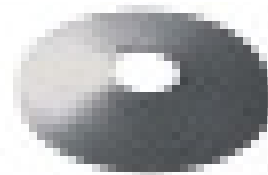
CODE	No. of pieces	FITTING	FINISHING	PRICE
2205	1	1/2"	Chrome	
2205-1	1	1/2"	White	
2205-2	1	3/4"	Chrome	
2205-3	1	3/4"	White	
2205-4	2	1/2"	Chrome	
2205-5	2	1/2"	White	
2205-6	2	3/4"	Chrome	
2205-7	2	3/4"	White	

**Protection cage**  
**Protection cla**


CODE	FITTING	DESCRIPTION	PRICE
2206	1/2"	Small	
2206-1	1-2-3-4	Large	
2206-2	1/2" - 3/4"	Upright	

**Anti-wet panel**

Anti-wet panel  
 Ø est. 77.2 mm



CODE	FITTING	PRICE
2207	1/2"	
2207-1	3/4"	

**Retard chamber**

CODE	PRICE
2230	

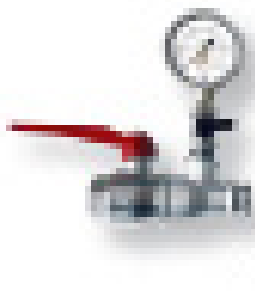


Gas threaded fittings  
 pressure gauge 0-25

**Hydraulic Alarm Bell**


CODE	PRICE
2230-1	

Equipped with a ball valve that allows the system inspection

**Plant Test and Drainage Device**


CODE	PRICE
2230-2	

**Sprinkler test system**


CODE	PRICE
2230-3	

**Sprinkler cabinet in red painted sheet metal**


CODE	SPECIFICATIONS	PRICE
9258	12 Spots Dim. 230x140x140H	
9248	24 Spots Dim. 400x140x140H	

**Sprinkler Tightening Wrench (GC091)**

Sprinkler tightening wrench for 1/2 "and 3/4" fitting



CODE	PRICE
2208	

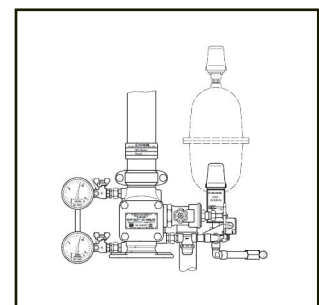
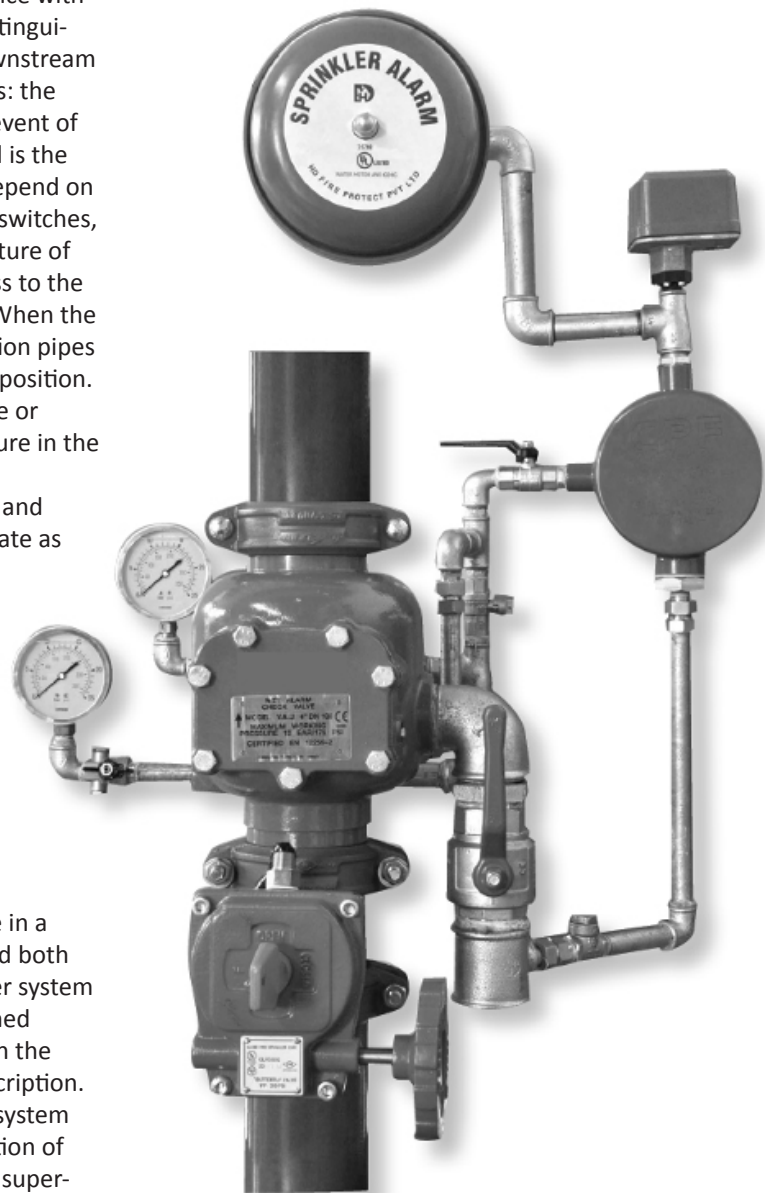
## WET SYSTEM

We are pleased to introduce on the European market the first alarm valve complete with trim entirely produced in Italy, having obtained the CE 1922 certification in accordance with the UNI EN 12259-2. The wet valves CE 1922 certified in accordance with the UNI EN 12259-2 standard are used in extinguishing systems with water upstream and downstream of the station. They have two main purposes: the first is to allow the passage of water in the event of one or more sprinklers breaking, the second is the activation of a sound alarm that does not depend on electrical sources. With the use of pressure switches, additional alarm systems can be used. A feature of wet valves is the extreme simplicity of access to the clapper for inspection and commissioning. When the system is inactive, the water in the distribution pipes keeps the plate of the alarm valve in closed position. As a consequence of water spillage from one or more sprinklers there is a decrease of pressure in the pipes. Therefore, the feedwater pressure becomes prevalent and determines the automatic opening of the plate as much as necessary, in order to feed the nozzles. 11.

When the fluid flows, the valve signals the opening of the sprinklers, operating a hydraulic alarm bell.

The retard chamber eliminates the possibility of false alarms due to normal pressure variations in hydraulic systems. The purpose is to protect the building, people and what is inside from fire. It can cover up to 12,000 square meters of surface in a single fire compartment and can be powered both by a water pumping system and by the water system of the aqueduct. The system must be designed by qualified technicians in collaboration with the competent authorities for a correct risk description. In order to allow technicians to inspect the system once assembled, and to obtain the certification of verification and inspection of the system by supervisors, we decided to offer a trim set-up / wet valve with variable pressure, test valves and valves that silence the alarm.

ALARM SILENCE



Illustrative photo



## DRY SYSTEM

The dry system is installed in all areas subject to the risk of frost or areas such as loading platforms or non-heated parking areas.

The operating principle is similar to that of wet systems, with the difference that downstream of the alarm valve, in the distribution system located in the protected area, the pipes are not filled with water but with compressed air or nitrogen.

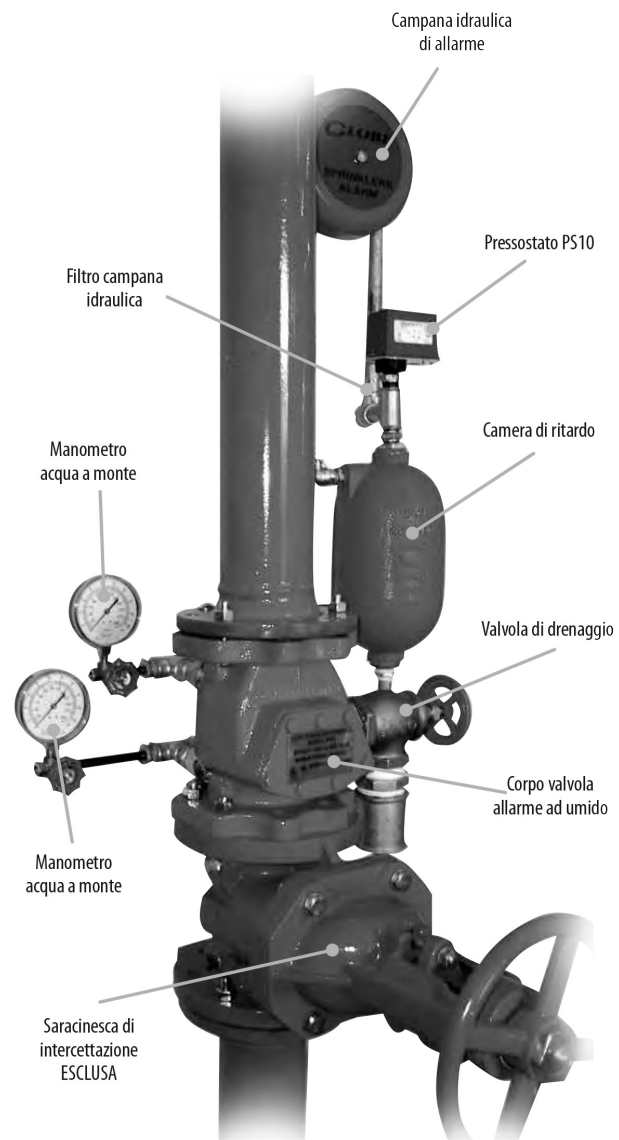
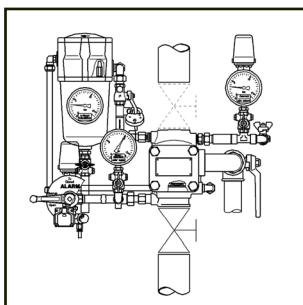
The discharge of a sprinkler generates a pressure drop which activates the opening of the alarm valve thus allowing water to reach the dispenser and act on the fire.

All components are built to allow a quick opening ensuring effective action on the fire since

the first moments; components like the accelerator guarantee even better results in operation times. Although more complicated than wet systems, construction quality guarantees constant performances over the years without any expensive maintenance.

### System Configuration:

- Dry alarm valve.
- Complete test and alarm trim with accessories and pressure gauges.
- Accelerator with Trim.
- Pressure maintenance set.
- Water pressure warning switch.
- Air pressure warning switch.
- Alarm hydraulic bell.
- Pre-assembling of units in the workshop included



Illustrative photo

## DELUGE SYSTEM

The deluge system is designed for safe and fast intervention in order to provide a total soaking of protected areas.

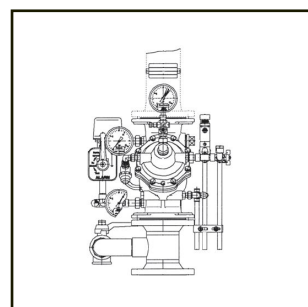
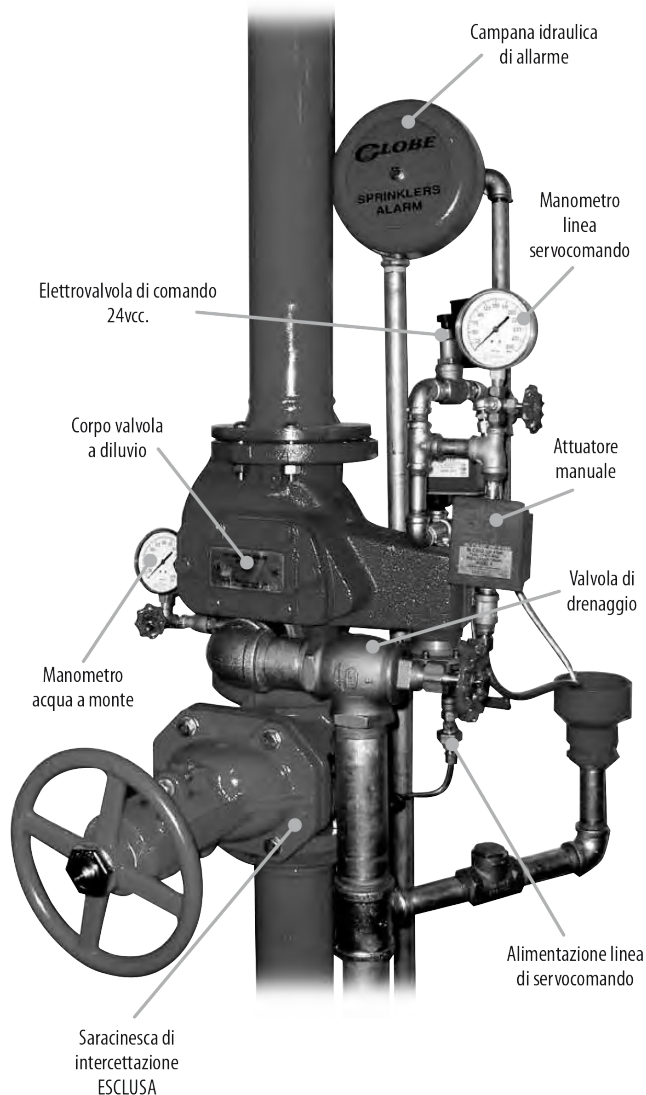
The deluge system is normally used both for flood systems to protect areas such as airport hangars, and for systems to protect localized areas and surfaces such as cooling tanks and water blades.

The deluge system is also compatible for use in low, medium and high expansion foam systems.

The wide range of activation systems ranging from manual, to electrical combined with pulsants or smoke detectors, to pneumatic through wet or dry pilot lines run by manual systems make is ideal for any type of installation.

### System Configuration:

- Deluge alarm valve.
- Basic trim.
- Electrical activation trim 24 Vcc.
- Manual emergency activation.
- Hydraulic Alarm Bell
- Water pressure warning switch PS 10-1.



Illustrative photo

## PRE-ACTION SYSTEM

The preaction system is specifically designed for applications where it is crucial to avoid an accidental operation of the system or to replace extensive dry sprinklers to speed up their operation.

The perfect application of preaction systems is in data processing centers (DPC), control rooms, libraries, archives of precious documents and cold storage.

In some cases, preaction systems combined with carbon dioxide extinguishing systems in subfloors can replace the traditional gas shut-off systems.

Systems that use a single interlock require a detection system before water arrives at the distribution pipes and sprinklers.

This system protects against soakings due to accidental breakage.

The passage of water into the protected area is allowed only with the alarm of the detection system. In dual interlock systems, before water enters the distribution system, the detection consent is

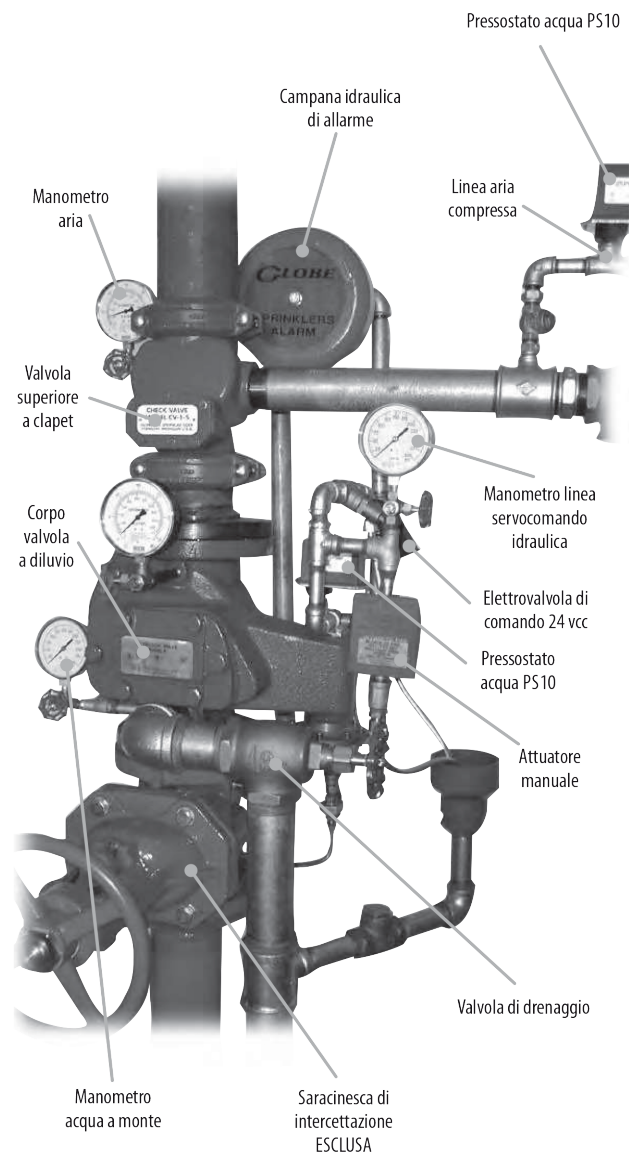
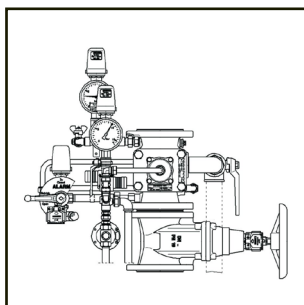
necessary as well as the sprinkler discharge.

This last protection guarantees even more protection from damage due to accidental discharges.

Accidental

### System Configuration:

- Preaction alarm valve.
- Complete test and alarm trim with accessories and pressure gauges.
- Pressure maintenance set.
- Water pressure warning switch.
- Air pressure warning switch.
- Alarm hydraulic bell.



Illustrative photo



## FOAMING AGENTS APPROVED IN ACCORDANCE WITH UNI EN 1568: 2008 - PART. 1, 2, 3, 4 - NOTES ON LEGISLATION

Fire-fighting foaming agents fall into two main categories:

### - PROTEINICS AND PROTEIN FLUOROUS DERIVATIVES - SYNTHETICS AND PROTEIN FLUOR DERIVATIVES

These are divided into categories summarised as follows:

The standard is divided into four chapters:

**UNI EN 1568-1:** specifications for medium-expansion concentrated foaming agents for applying to the surface of liquids that are immiscible with water.

**UNI EN 1568-2:** specifications for high-expansion concentrated foaming agents for applying to the surface of liquids that are immiscible with water.

**UNI EN 1568-3:** specifications for low-expansion concentrated foaming agents for applying to the surface of liquids that are immiscible with water.

**UNI EN 1568-4:** specification for low-expansion concentrated foaming agents for applying to the surface of liquids that are miscible with water.

#### CHAPTER 1

Refers to medium-expansion foaming agents for hydrocarbons (e.g. Synthetic HIEG used with medium-expansion generators, that is, with a ratio of <1:20-200). The fire test, conducted on heptane, requires that the foaming agent has the following performances:

The **EXTINCTION**: within 120 seconds. **RESISTANCE TO RE-IGNITION 1%:** not less than 30 seconds.

#### CHAPTER 2

Refers to high-expansion foaming agents for hydrocarbons (e.g. Synthetic HIEG used with high-expansion generators, that is, with a ratio of > 1:200). The fire test, carried out on eptane, provides that the foaming agent has the following performances:

**EXTINCTION:** within 150 seconds.

#### CHAPTER 3

Refers to low-expansion foaming agents (e.g. AFFF or AR-AFFF used with nozzles for low expansion i.e. with a ratio of <1:20) used on hydrocarbons. This is the most complex section of the legislation. The test fire, conducted on heptane, classifies the

Extinction class of settlement	Level of resistance to re-ignition	Indirect jet application		Direct jet application	
		Extinction not exceeding minutes	Re-ignition not exceeding minutes	Extinction not exceeding minutes	Re-ignition not exceeding minutes
I	A	Not applicable		3	10
	B		15	3	Not applicable
	C		10	3	
	D		5	3	
II	A	Not applicable		4	10
	B		15	4	Not applicable
	C		10	4	
	D		5	4	

#### CHAPTER 4

Refers to low-expansion foam (e.g. AFFF or AR-AFFF used with nozzles for low expansion i.e. with a ratio of <1:20) used on polar solvents. The fire test, **carried out only on acetone in the 2000 version of the legislation, now also includes the fire test on isobutyl alcohol.**

Extinction class of settlement	Level of resistance to re-ignition When starting again	Extinction not exceeding minutes	Re-ignition not exceeding minutes Extinction not exceeding minutes
I	A	3	15
	B	3	10
	C	3	5



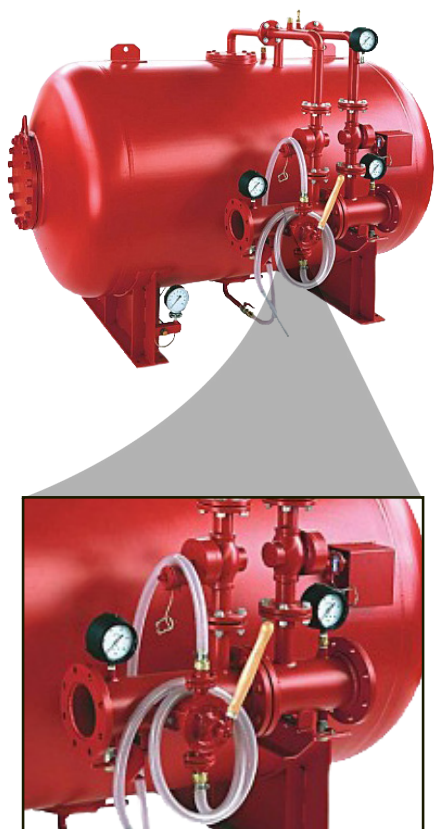
## VERTICAL PRE-MIXER WITH INTERNAL LIQUID DISPLACEMENT

Code	Dimensions			Va- cuum weight vacuum	Capacity	Price
	A	D	E			
2818	500	291	450	226	100	
2818-1	500	291	450	267	200	

It works as a pre-mixing system

## MIXER

Mixer Ø	Maximum flow rate L / 1	D. nozzle h20 mm	Delta P
3'	2000	Ø 55	0.93 BAR
4'	3200	Ø 71	0.94 BAR
6'	8500	Ø 111	0.97 BAR



## HORIZONTAL PRE-MIXER WITH INTERNAL LIQUID DISPLACEMENT WITH INTERNAL LIQUID DISPLACEMENT

Code	Dimensions			Va- cuum weight vacuum	Capacity	Price
	A	D	E			
2819	800	624	650	413	500	
2819-1	800	624	650	440	600	
2819-2	800	624	650	497	800	
2819-3	1000	790	750	519	1000	
2819-4	1000	790	750	625	1500	
2819-5	1100	864	800	845	2000	
2819-6	1170	914	800	915	2500	
2819-7	1270	984	860	1137	3000	
2819-8	1360	1048	900	1234	3500	
2819-9	1450	1112	950	1307	4000	
2819-10	1450	1112	950	1396	4500	
2819-11	1600	1245	1050	1455	5000	
2819-12	1600	1245	1050	1539	5500	
2819-13	1750	1351	1150	1589	6,000	
2819-14	1750	1351	1150	1642	6500	
2819-15	1750	1351	1150	1741	7000	
2819-16	1750	1351	1150	1824	7500	
2819-17	1960	1534	1200	2124	8000	

## FOAM FIRE-FIGHTING SYSTEM

MONITORS  
ADJUSTABLE MONI-  
TORS



Code	Flange diameter Inlet	Body	Flow Rate long	Body material	A quota dim.	Wei- ght kg	Price
2823	3 "/ 4"	3"	3200	Carbon steel carbon.	465 mm	30	

WATER NOZZLE FOR MONITORS



Code	A	B	C	Flow rate from 5 to 8 BAR	Price
2824	1000	166	3"	800-1200	
2824-1	1000	166	3"	1200-1500	
2824-2	1000	166	3"	1500-2000	
2824-3	1000	166	3"	2000-2300	
2824-4	1000	166	3"	2400-3500	

FOAM NOZZLE FOR MONITORS

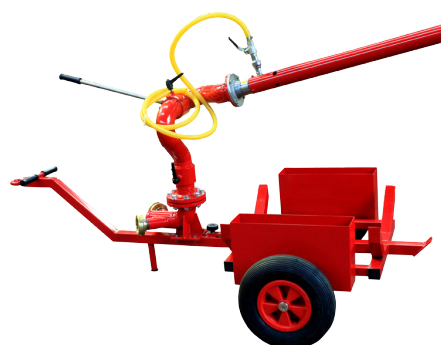


Code	Weight: kg	Flow Rate	Material	Price
2825	5	1500-2000	AISI 304	

FOAM MOBILE MONITORS



FOAM MOBILE MONITORS



Built according to customer specifications, with stainless steel tank for foaming agent, can be trailed by hand or with a vehicle, suitable for high-risk areas



## VENTURI-TYPE HIGH PRESSURE GENERATOR

For use with synthetic foaming agent for high expansion.

At the time, the world market price was rising. Used to flood large areas such as tunnels, hangars, and parking lots in a few minutes.



Code	Flow Rate	Weight	Expansion ratio	Price
2820	200 L / min	57	1 ÷ 500	

High expansion foam generator. It is used for saturating volumes of large indoor spaces.

## MEDIUM-EXPANSION FOAM SPRAY NOZZLE YIELD 1:8

Low expansion foam spray nozzle used in non-pure water sprinkler systems



Code	K-Factor	ø gas - BSP	Weight	Price
2821-4	28	3/4"	0.5 kg	
2821-5	45	1"	0.55 kg	

## FOAM CHAMBER

The foam chamber is used in permanent systems with low expansion foam



For protecting tanks for flammable liquids

Code	Operating pressure of exercise	Flow Rate	A mm	D mm	And mm	Weight	Price
2822	5 BAR	200-450	250	425	210	19	
2822-1		200-450	250	425	210	21	
2822-2		500-1260	250	425	210	24	
2822-3		1260-2600	400	620	300	40	
2822-4		1260-2600	400	620	300	45	

POWDER SYSTEM 250 KG



## SKID-MOUNTED MODULES READY FOR INTEGRATION INSTALLATION

Dry powder extinguishing systems use sodium bicarbonate as the main extinguishing agent and are intended for the industrial sector, in particular the processing of petrochemical derivatives.

In fact, their technical characteristics make them suitable for extinguishing Class C fires; the systems are designed and manufactured according to customer specifications and dimensions vary depending on the amount of extinguishing agent to be stored.

designed and manufactured according to the specifications requested by the customer and the size varies depending on the amount of extinguishing agent to be stored.

The system is activated with high pressure cylinders, loaded with nitrogen, remotely controlled with electric or pneumatic activators, as well as with a manual and local control system.

The tank is gradually pressurised with nitrogen

Code	Capacity	Price
2826	100 kg	
2826-1	250 kg	
2826-2	500 Kg	

POWDER SYSTEM 500 KG



## FIXED ELECTRICALLY CONTROLLED POWDER SKID

### Powder tank characteristics

Capacity	250 kg
Material	P 355
Operating pressure	14 bar
Safety valve	ISPESL
Tank Painting tank	Tank externally N.1 inorganic zinc based coating 60 microns N.1 final coat epoxyvinyl 75 micron

## PRESSURISATION AND CONTROL UNIT

### Components

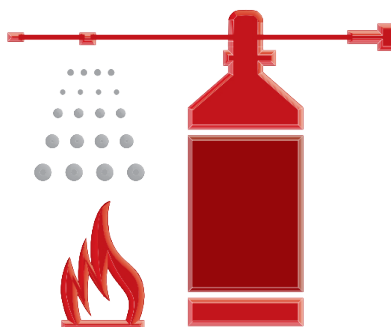
1 nitrogen cylinder 50 LTS - BAR 200 each with:	
1 electric valve with solenoid IP55 solenoid IP55	1 ring and cap propeller nut
1 Gooseneck	1 Check valve
1 Pressure reductor	
1 Electro / manual diffuser powder discharge valve powder delivery	
*System supplied pre-assembled on a painted iron base painted iron bearings	

## DIRECT DISCHARGE SYSTEM LOW PRESSURE



This is the simplest system, designed to guarantee the safety in a indoor area with limited dimensions. The flame generated by a possible failure burns the pressure pipe connected to the cylinder causing it to break. The characteristics of the pipe are such that the break has dimensional characteristics similar to those of a nozzle, and from this break the extinguishing agent contained in the cylinder and in the pipe escapes in a very short time and extinguishes the flame, limiting the damage only to the source of fire ignition. The system therefore guarantees an excellent protection of the equipment located in the adjacent space, since at the time of pipe breaking, the extinguishing agent will be conveyed directly onto the flame, optimizing the extinguishing action of the fire.

LOW PRESSURE SYSTEM



LOW PRESSURE SYSTEM  
WITH PRESSURE SWITCH



GAS HFC 227EA			
Code	Maximum protected volume Protected [M ^ 3]	Load	Price
2827	1.15	1 kg	
2827-1 *		1 kg	
2827-2	2.30	€2 / kg	
2827-3 *		€2 / kg	
2827-10	4.60	4 kg	
2827-11 *		4 kg	
2827-4	6.90	6kg	
2827-5 *		6kg	
2827-6	10.35	9 kg	
2827-7 *		9 kg	

NOVEC 1230			
Code	Maximum protected volume Protected [M ^ 3]	Load	Price
2842	1.70	1 kg	
2842-1 *		1 kg	
2842-2	3.40	€2 / kg	
2842-3 *		€2 / kg	
2842-4	6.80	6kg	
2842-5 *		6kg	
2842-6	10 ≤ x ≤ 20	9 kg	
2842-7 *		9 kg	
2842-8	15.30	12 kg	
2842-9 *		12 kg	

The system is supplied without installation and commissioning kit.

\* Valve with integrated pressure switch



## DIRECT DISCHARGE SYSTEM CO<sup>2</sup> - HIGH PRESSURE

HIGH PRESSURE SYSTEM



The system is supplied without installation and commissioning kit.

CARBON DIOXIDE			
Code	Maximum protected volume [M <sup>3</sup> ]	Load	Price
2830)	1.2/1.7 * *	€2 / kg	
2830-1 *	1.2/1.7 * *	€2 / kg	
2830-4	3.3/4.3 **	5 kg	

### INSTALLATION KIT FOR DIRECT DISCHARGE SYSTEMS

Code	(1-2 Kg. Powder / HFC 227ea - 2 Kg Co2)	Price
2837		

COMPONENTS	QUANTITY
Heat-sensitive adhesive tube clamp	20
Heat-sensitive hose - Ø 6	5
End line cap Ø 6	1

Code	(6-9-12 Kg. Powder / HFC 227ea - 5 Kg Co2)	Price
2837-1		

COMPONENTS	QUANTITY
Heat-sensitive adhesive tube clamp	40
Heat-sensitive hose - Ø 6	10
End line cap Ø 6	1

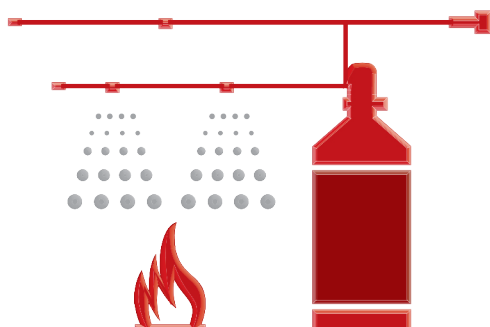
Code	(6-9-12 Kg. Powder / HFC 227ea - 5 Kg Co2 with end-of-line pressure reading)	Price
2837-3		

COMPONENTS	QUANTITY
Heat-sensitive adhesive tube clamp	20
Heat-sensitive hose - Ø 6	5
Pass-through wall fitting with Ø 6 pressure	1

COMPONENTS	QUANTITY
Heat-sensitive adhesive tube clamp	40
Heat-sensitive hose - Ø 6	5
Pass-through wall fitting with Ø 6 pressure	1

## INDIRECT DISCHARGE SYSTEM CO<sup>2</sup> - HIGH PRESSURE

HIGH PRESSURE SYSTEM



CARBON DIOXIDE - CO <sub>2</sub>			
Code	Maximum protected volume [M <sup>3</sup> ]	Load	Price
2834	1.2/1.7 *	2 Kg	
2834-2	3.3/4.3 *	5 Kg	
2834-3	5.6/7.8 *	9 Kg.	
2834-4	11.2/15.6 *	18 kg	
2834-5	16.2/22.6 *	26 [kg]	
2834-6	27.4/38.4 *	44 Kg	



## INDIRECT DISCHARGE SYSTEM - LOW PRESSURE



It is a very effective automatic extinguishing system. The flame burns the under pressure FALCON TUBE connected to the cylinder, causing it to break and consequently the loss of pressure of the gas inside the pipe, which will activate the opening of the valve. The extinguishing agent contained in the cylinder can then pass through a steel pipe and will convey on the flame through nozzles, extinguishing the fire. The system therefore guarantees a perfect protection of the equipment and the surrounding environment, preventing the extending of the fire to other areas.



LOW PRESSURE SYSTEM

The system is supplied without installation and commissioning kit.

NOVEC 1230			
Code	Maximum protected volume Protected [M ^ 3]	Load	Price
2843	1.70	1 kg	
2843-1	3.40	€2 / kg	
2843-2	6.80	4 kg	
2843-3	$10 \leq x \leq 20$	6kg	
2843-4	15.30	9 kg	

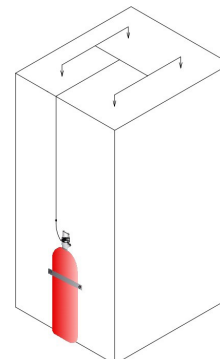
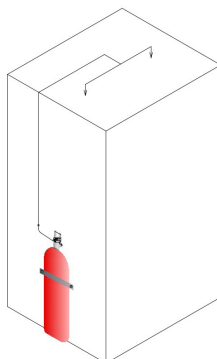
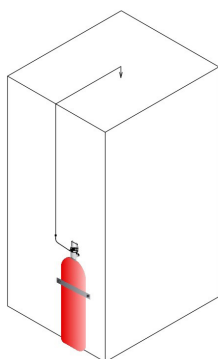
GAS HFC 227EA			
Code	Maximum protected volume Protected [M ^ 3]	Load	Price
2831	1.15	1 kg	
2831-1	2.30	€2 / kg	
2831-5	4.60	4 kg	
2831-2	6.90	6kg	
2831-3	10.35	9 kg	
2831-4	13.80	12 kg	

ABC POWDER			
Code	Maximum protected volume Protected [M ^ 3]	Load	Price
2832	1.70	1 kg	
2832-1	3.40	€2 / kg	
2832-5	6.80	4 kg	
2832-2	$10 \leq x \leq 20$	6kg	
2832-3	15.30	9 kg	

POWDER D			
Code	Maximum protected volume Protected [M ^ 3]	Load	Price
2833	0.50	0.5 kg	
2833-1	0.90	0.9 kg	
2833-5	1.7	1.7 kg	
2833-2	2.5	2.5 kg	
2833-3	4	4 kg	
2833-4	4.5	4.5 kg.	

## INSTALLATION KIT FOR INDIRECT DISCHARGE SYSTEMS

Installation kit for indirect discharge systems with: Clamps for heat-sensitive pipe, discharge pipe, discharge nozzles.



Code	MODELS	Price
2837-4	6/9/12 Kg. Powder	
2837-6	1/2 Kg. gas HFC 227 ea	
2837-8	2 Kg Co2	

Code	MODELS	Price
2837-5	4/6/9/12 Kg Powder	
2837-7	HFC 227 ea 6/9/12 Kg.	

Code	MODELS	Price
2837-10	18/26 Kg Co2	

# CO<sup>2</sup> HIGH PRESSURE

## REFERENCE REGULATIONS

The system design can be performed according to various international standards with the aid of software for calculating discharge times and holes in the nozzle passage sections. The reference standards for the design of the system are:

- NFPA 12 Standard on Carbon Dioxide Extinguishing Systems
- APSAD R13 Règle d'installation - Extinction automatique à gaz
- ISO 6183 Fire protection equipment - Carbon dioxide extinguishing systems for use on premises - Design and installation
- CEA4007 CO2 systems Planning and Installation - VdS 2093en CO2 Fire Extinguishing Systems

TECHNICAL DATA	
Code	Model
Chemical name	Carbon Dioxide (CO <sub>2</sub> )
Chemical formula	Co <sub>2</sub>
Density at 0 ° C and 0.101 MPa	1.98 kg / m <sup>3</sup>
Density relative to air	1.5
Critical temperature	31°C
Vapor pressure at -18 ° C and 21 ° C	20.7 and 58.6 BAR
Cylinder capacity	67.5 liters
External cylinder diameter	267 mm
Cylinder height	1600 mm
complete Cylinder weight	130 kg
Maximum degree of admission	0.75 kg / liter
Design concentration for fires with embers formation NFPA12 (% by volume)	
Dry electric risks	50% to be kept for at least 20 minutes
Paper archives	65% to be kept for at least 20 minutes
Design concetration for liquid and gaseous fuels NFA12 (% by volume)	
Methane, diesel, petrol	34%
Ethyl alcohol	43%
Hydrogen	75%

## CERTIFICATIONS

The extinguishing systems comply with the requirements of the European Pressure Equipment Directive (PED2014 / 68 / EU). In addition to the PED, the components are also compliant with the Construction Products Directive (CPD 89/106 / CE) and the EN12094 series regulations.

### LEVEL INDICATOR FOR LIQUID GASES CO<sub>2</sub>, HFC, FM 200, NOVEC HOMOLOGATED RINA



Code2047