



**COMPLETE SYSTEMS FOR
COMMERCIAL KITCHENS**



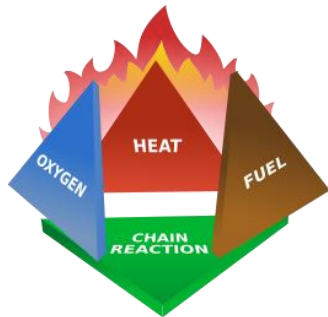
**MARKET AND PRODUCT
INFORMATION**

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Background information

In restaurants and other eating establishments, fire risk assessment should not be neglected: the cooking areas are hazardous environments in terms of fire.



There are **multiple risks factors** in the same area:

- **grease and oils, food (Fuel)**
- **open flames, hot cooking surfaces (Heat)**
- **oxygen**

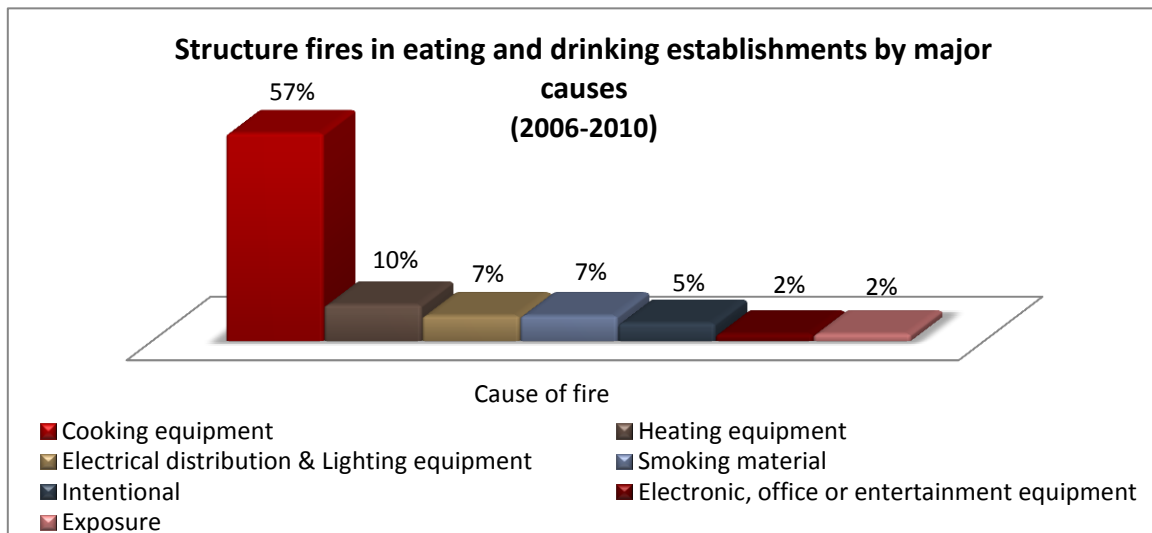
These three combined elements provoke the fire **chain reaction** and ignite fire.

And these kitchen fires are much more common than we would like to believe, as the NFPA report shows it:

Reported structure fires in eating and drinking establishments in US (2006-2010)	
Average Number of fire/year	7 640
Average property damage/year	\$ 246 million = 228 million EUR
Average property damage/fire	\$ 32 198 = 29 843 EUR
Average injuries/year	115

Source: NFPA – “Structure Fires in Eating and Drinking Establishments”, Ben Evarts, November 2012

For these **7640 cases** in eating and drinking establishments, the major causes of fire have been defined as bellow:



Source: NFPA – “Structure Fires in Eating and Drinking Establishments”, Ben Evarts, November 2012

In **more than half of the cases**, **cooking equipment** is involved in the development of fires. Investing in their protection seems thus logical and essential since the fire extinguishing systems can prevent disastrous scenarios: **severe injuries, structure damages costs and unscheduled downtime for weeks or months** (renovation work, equipment replacement), leading to **loss of clients, loss of reputation** and so **loss incomes**.

Even official associations recommend the installation of automatic fire extinguishing system in restaurant facilities:

- The Confederation of Fire Protection Association Europe in the **European Guideline CFP-A-E No 9:2012** – Fire Safety in Restaurants, states that “it is recommended that a **suitable fixed extinguishing system, installed by a third party approved company, be provided**, with both manual and automatic operation, to protect cooking equipment, overhead canopies, and ducting system”.
- The National Fire Protection Association (USA) in **NFPA 96** – Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, states that “**Fire-extinguishing equipment** for the protection of grease removal devices, hood exhaust plenums and exhaust duct systems **shall be provided.**” and that “Fire-extinguishing equipment shall include both **automatic fire-extinguishing systems as primary protection** and portable extinguishers as secondary backup”.

FireDETEC: System for Commercial Kitchen

Functioning Principle

Rotarex FireDETEC systems use a continuous linear **thermal sensor tube** that reliably detects in a **360° environment** and actuates release of the extinguishing agent. It is **more flexible**, **space efficient** and **cost effective** versus alternative mechanical or electronic systems.

- **Installation closer to the source**

Because the sensor tubing is flexible, it can easily be installed directly above cooking areas, resulting in early fire detection.

- **Instant Suppression**

The sudden tube depressurization actuates the valve and floods the cooking area with extinguishing agent. The fire is quickly suppressed just moments after.



FireDETEC sensor tubing technology

The sensor tubing used in this environment is the **grey FireDETEC tube**, specifically developed to be **more resistant to heat and grease conditions**, as above kitchen cooking areas.

The tube is a **linear detection system** that **does not need any energy** sources to function.



The FireDETEC grey tubing bursts at **175°C** and detects fire just a few seconds after it starts, compared to a longer time with heat sensitive fusible link detectors, which are also more difficult to install.

Along with quicker detection time, the FireDETEC tubing technology has another advantage: the zone to protect can be entirely covered with the flexible and tube. And the **tube flexibility** enables an **easier installation, reducing the installation costs**.

The FireDETEC sensor tubing technology is the easiest and the most modern detection device available on the market.

Additional features and components

A **pressure switch** enables secondary electronic operations such as sounding an **alarm** when the system actuates, and informing the central alarm system.

The alarm sound level is 110 dB.



A **manual release device** is installed at the end of the FireDETEC sensor tubing for additional **manual system activation**.

A **new manual release device** (right picture) can be ordered and has a different nicer and more robust design, which enables an easier installation. There is also **no need to change diaphragm** after an actuation thanks to this new design.



In case of fire, by simply pulling the yellow safety device and pushing the red handle, the FireDETEC system activates.



The installation of a **protection cabinet** is possible. This solid stainless steel cabinet has different functions:

- It **hides and protects** the kitchen system cylinder from dust, grease and oils.
- It can be locked and **protects from unauthorized manipulation of the valve**.

SYSTEM SPECIFICATIONS - SUMMARY

- Cylinder kit size: 9 Liters
- Cylinder approval: CE
- Cylinder material: stainless steel
- FireDETEC sensor tube: Grey – 175°C burst temperature
- Extinguishing agent: FireDETEC F/Kea
- Number of nozzles: 3
- Approval: LPCB

ADVANTAGES

- **All components** together in one box
- **Easy / Flexible installation**
- **Quick & Effective suppression**
- Highly Dependable: **no electricity** or moving parts
- **Highly economical**

FireDETEC F/K extinguishing agent

F/K ea is a special liquid fire extinguishing agent based on salt for fighting fires involving **cooking oil and fat** in deep fat fryers and frying appliances.

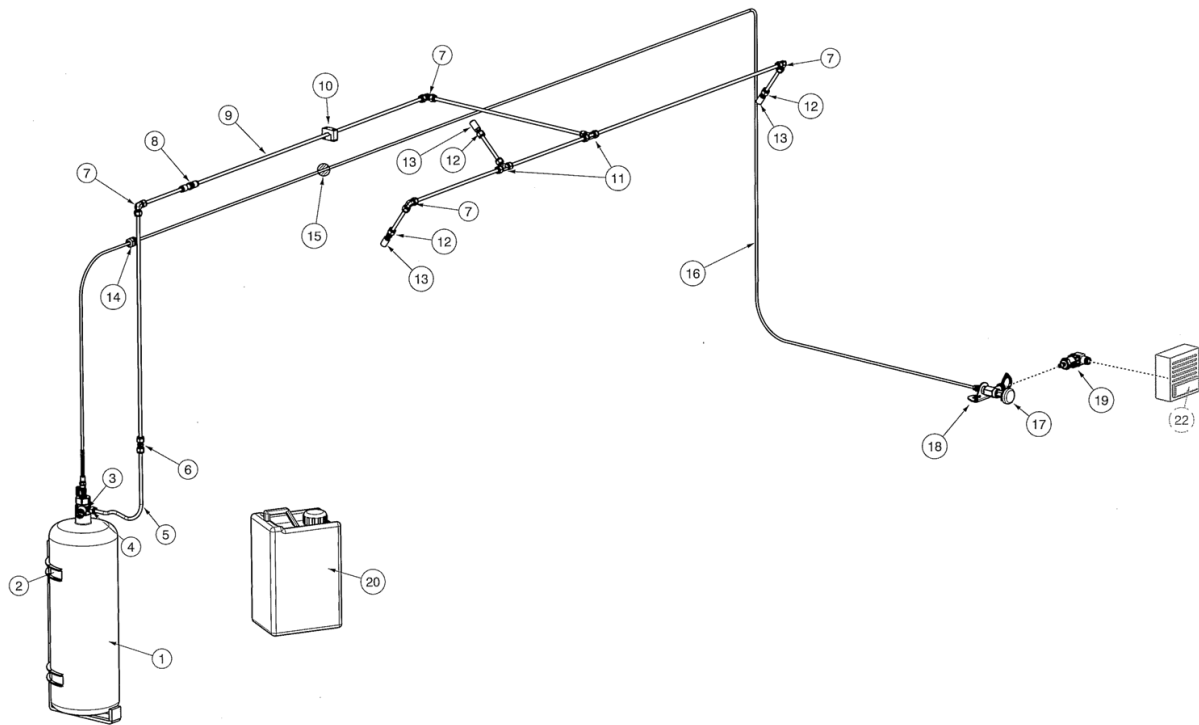


The F/K extinguishing agent reacts with hot, burning cooking oil or fat, and has a **cooling effect** when discharged. As a second step, the agent removes both the energy and the oxygen from the fire environment thanks to an effective fire extinguishing **cooling blanket of foam**, creating a suffocation effect. The blanket of foam also prevents fire reignition.

After discharge and fire extinguishment, the residues of FireDETEC F/Kea are simply **cleaned thanks to clear water**.

When choosing the F/K ea, there is no risk for the environment as it is biodegradable. And you also choose the guarantee of a high-quality and effective extinguishing agent.

Kitchen application



Pos.	Qty.	Description
1	1	ILP Kit 9 Liter (unfilled)
2	1	Cylinder bracket
3	1	Flat sealing
4	1	Tube fitting
5	1	Flexible piping
6	1	Tube fitting – straight union
7	4	Tube fitting – elbow
8	1	Cross panel – fitting
9	6	Stainless steel pipe (1m)
10	10	Pipe bracket (ø8mm)
11	2	Tube fitting – Tee
12	3	Straight fitting
13	3	Nozzle
14	1	Cross panel – fitting
15	20	Clips for tube attachment
16	1	FireDETEC Tube
17	1	Manual release device
19	1	Wall bracket for end of line
20	1	Pressure switch
21	1	Agent (9 Liter)
OPTIONAL		
22	1	Alarm box

Market positioning

The FireDETEC system for kitchen is designed for **small commercial kitchens**, and this market segment should be considered as an **excellent opportunity**. These small installations are often forgotten by competitors, who target larger kitchens, partly due to the fact that their systems are more expensive than ours when the application is smaller.

Our system can protect **2 or 3 cooking units** (maximum), and additional cylinders can be installed if necessary for bigger installations.

It can be installed in lots of **places**, where a cooking fire risk exists:

- Casual and fine dining restaurants
- Fast food chains
- Food trailers and trucks
- Cafes
- Cafeterias
- Catering facilities
- Delis Diners
- Food courts
- Hospitals
- School
- Hotels and casinos
- Sports complexes and stadiums

And it can protect a **variety of equipment**:

- Deep Fat Fryers
- Ranges
- Hoods & filters
- Chain-Broilers
- Upright Broilers
- Woks
- Griddles
- Ducts

Approvals

The FireDETEC Commercial Kitchen System is **LPCB** approved since **2014**, which is an **essential reference for specifiers, regulators, designers and end users of fire and security products** and services.



The LPS standards, such as the **LPS 1223** concerning the “**Requirements and testing procedures for the LPCB certification and listing of fixed fire extinguishing systems for catering equipment**”, are created by a team of international experts, who research, draft, review, and assess the certification process.

Our system is tested for **complete system functioning (actuation, discharge, and extinguishment performance)** according to the following LPS 1223 guidelines:

Fire extinguishment

- Equipment tested: deep fat fryer and extract system
- 4 different procedures:

Test	Agent flow	Extractor Fan	Filters	Conditions
1	Minimum	On	Removed	- Unused cooking fat applied on Discharge nozzle, detectors and filters
2	Minimum	On	Fitted	
3	Minimum	Off	Fitted	- Fryer filled with unused cooking oil (auto ignition temperature 330-380°C)
4	Maximum	Off	Removed	

Source: BRE Global Ltd., 2014 – LPCB - LPS 1223

- **Requirements:**
 - Fire effectively extinguished within the system discharge time: no residual flames one minute after the end of discharge.
 - Temperature in the equipment after discharge: lower than records at the time of the actuation, and below auto-ignition.
 - No re-ignition (checked for 10 minutes after discharge)
 - No burning oil splash out of the equipment
 - Shut-down of the heat source thanks to actuation
 - Manual actuation cause shut-down of the extract fan

Distribution Test

- Testing agent distribution balance in extreme system design:
 - Minimum and maximum agents flow conditions
- Requirements for single container: the balance shall be in accordance with system manual.

Components Tests

- Examination
- Pressure strength tests
- Leakage tests
- Corrosion tests
- Operation and ageing tests
- Thermal shock test
- Clogging test
- Pump running test

Installation References

DASSAULT - France



France (Le Mans)



SCHOOL – France (Nancy)



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