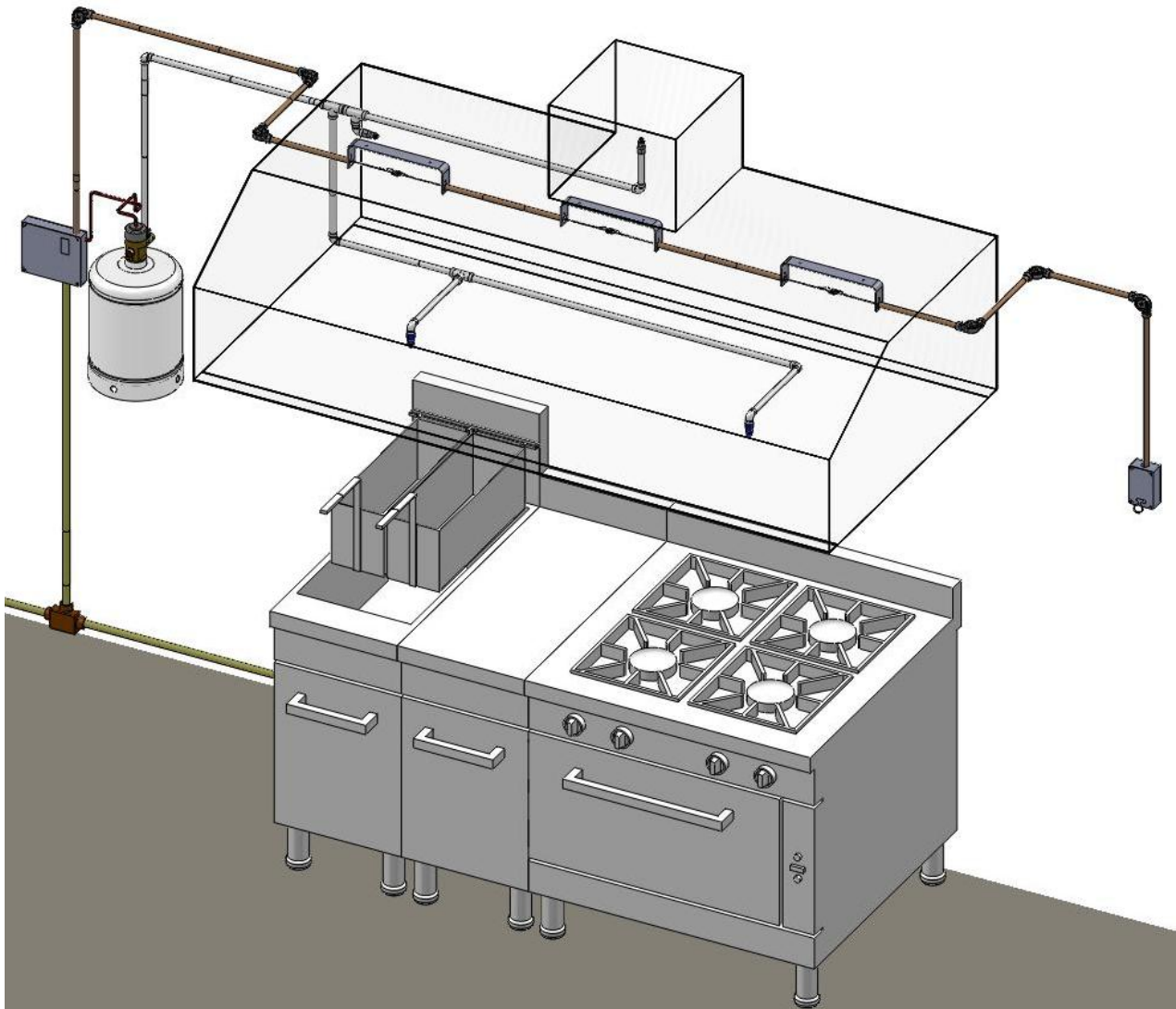


# **D Defender®**

Kitchen Cooking Appliances and Range Hood Extinguishing Systems



**DEFENDER KITCHEN COOKING APPLIANCES  
AND RANGE HOOD EXTINGUISHING SYSTEM**

**MECHANICAL ACTIVATION**

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**TECHNICAL MANUAL**

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January 2012/Revision 2.12

## 1. System Description

It is quite difficult to extinguish fires due to ignition of oils accumulating within the range hoods, filters or chimney if the range hoods that are used in industrial kitchens are used for extended periods of time without being cleaned. Furthermore, the risk of fire in cooking appliances in the kitchen is very high. Kitchen range hood and cooking appliances extinguishing system is the most convenient and efficient solution for extinguishing such fires.

### 1.1 Fire Class Description

Vegetable and animal liquid oil originated fires are described as Class "K" fires in the United States of America while they are described as Class F fires in European Countries (EN Norm). This product has been designed and tested for classes K and F fires. The relevant standards in European norms are given in EN3-7/A2.

### 1.2. Operation Temperature Limits

System operation temperature is between  $-20^{\circ}\text{C}$  and  $+49^{\circ}\text{C}$ . The environment should be ventilated or cooled down under higher ambient temperatures. In temperatures exceeding  $+49^{\circ}\text{C}$ , unexpected activations may occur in system cylinder or CO<sub>2</sub> cartridges in activation mechanism.

### 1.3. Standards and Approvals

The manufacturer company has ISO-9001/2008 (Certificate 71 100 K473) quality certificate.

**(System is LPCB 12.23 approved.)**

Design of the system meets the requirements of NFPA 17A and NFPA 96.

System partially meets the requirements of TSE-ISO15371 standards.

System has been certified with the certificate number CE-PED-B-DLC 002-10-TUR.

The manufacturer company has Warranty certificate of the Ministry of Industry numbered 30.04.2010-82306.

The manufacturer company has TSE 14.31.07/HYB 665 Service Place qualification certificate.

The manufacturer company has After-Sale Service Qualification certificate numbered 03-05-2011/31631 according to TSE 13345 standard.

### 1.4. Manufacturer's Warranty Terms and Conditions

The product is under 2 years unconditional warranty against production flaws. Warranty period starts as of the date of sales invoice and expires at the end of two years. In cases of production flaws, faulty product/part shall be replaced within 30 days starting from the date on which it has been returned to the manufacturer.

**"This system consists of units that have been tested within the limitations as declared in detailed installation and maintenance manual. When changes are planned for the system or its protection area, system designer should be consulted at any time. After the system has been discharged, authorized installer or system designer should be consulted."**

## 2. Working Principles

System operates in two ways; either automatically or to be activated by the user. In automatic operation, the fusible metal detectors that are heat sensitive and placed specially inside the range hood system melt down and break apart due to increase in temperature and thus system is activated.

When the system is to be manually operated, system should be activated by pulling the ring on activation mechanism or the ring on the activation button that is optional in the system.

After the system has been activated, Fire Eraser® chemical extinguishing liquid within the cylinders is sprayed on the cooking appliances, within the range hood filter and chimney by means of nozzles and consequently ignited oils are extinguished.

**Technically, the system is operated based on the principle that the fusible link detectors within the system melt down and break apart or activation valve is triggered by means of the activation mechanism by user's manually pulling the activation rings.**

**2.1 Basic Configuration**

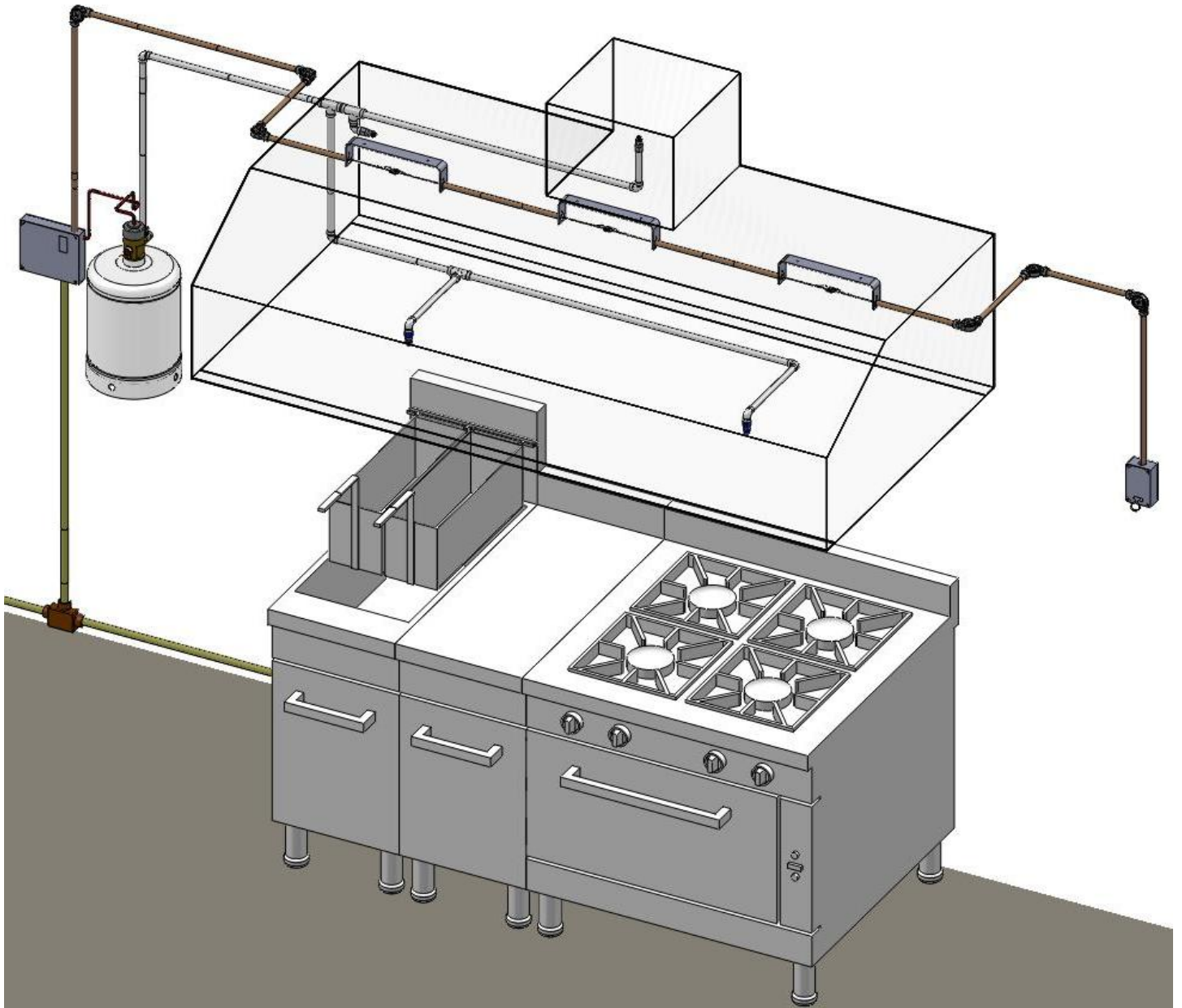


Figure 1: An example application figure for a basic kitchen configuration.

**2.2 Activation**

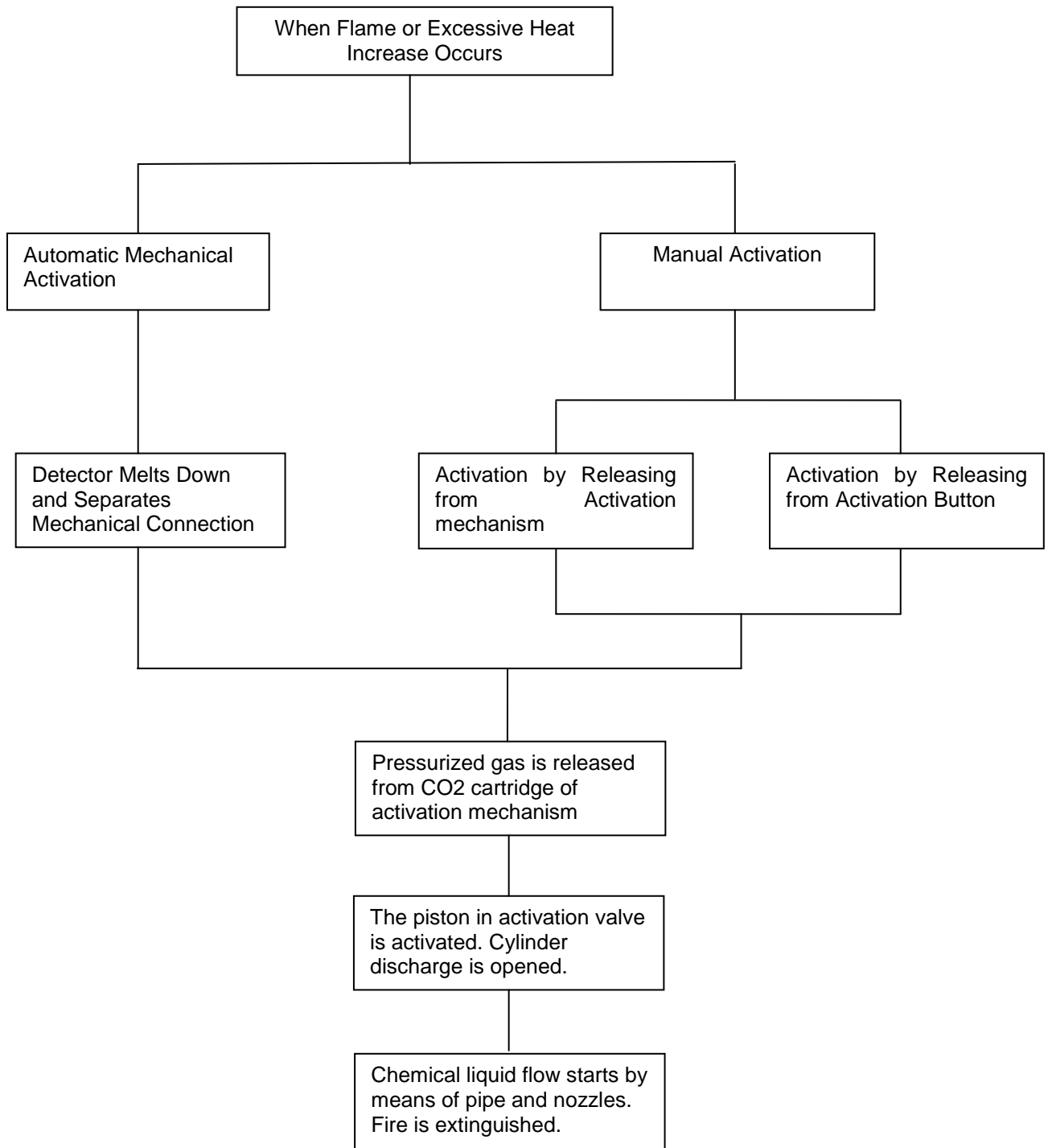

























Figure 2: Activation Chart

**TECHNICAL DESCRIPTION OF DEFENDER COMPONENTS**

Sn	Code	Item Name	Description	Photo
1	1100	Activation Valve	There is one activation valve that is used in the system, When activation mechanism is triggered, the pressurized CO2 gas that comes out of CO2 cartridge inside the mechanism enters through the connection point on the valve and activates valve piston by pushing the activation pin forward	 1100
2	1200	Activation Mechanism Automatic and Manual	This is a mechanism consisting of spring attached to main body, lever bar, gas outlet elbow, CO2 propeller gas cartridge, detonator needle and guy wire tension apparatus	 1200
3	1400	D8 Cylinder	D8 - 8 Flow 9,5 Liters (2,5 Gallons) P/N 1400	
4	1401	D8 Cylinder Siphon	PN20 PVC siphons 32 mmx37,5 cm	
5	1500	D12 Cylinder	D12 - 12 Flow 15 Liters (4 Gallons) P/N 1500	
6	1501	D12 Cylinder Siphon	PN20 PVC siphons 32 mmx55,0 cm	
7	1600	D18 Cylinder	D18 - 18 Flow 22,7 Liters (6 Gallons) P/N 1600	
8	1601	D18 Cylinder Siphon	PN20 PVC siphons 32 mmx78,5 cm	
9	1700	A Nozzle	Type A nozzle in the system. It has one flow coefficient. Usage areas; Chimney Filter Plate	
10	1800	F Nozzle	Type F nozzle in the system. It has two flow coefficients. Usage areas; Deep fat fryer Tilting Pan	
11	1900	R Nozzle	Type R nozzle in the system. It has one flow coefficient. Usage areas; Ranger cookers with 4 rings Single or double floor cookers	

Sn	Code	Item Name	Description	Photo
12	2100	130 Fusible Link	Low Temperature, Gas/Electrical range cookers on floor or desk Plate, Wok	
13	2200	182 Fusible Link	Medium Temperature, Appliances without open flame	
14	2300	260 Fusible Link	High Temperature, Barbecue, grill, oven featuring open flame	
15	3100	9,5 Litre Fire Eraser Wet Chemical	9,5 Liters Fire Eraser Refilling Drum Min. Weight:13,5 Kg	
16	3200	15 Litre Fire Eraser Wet Chemical	15 Liters Fire Eraser Refilling Drum Min. Weight: 22,5 Kg	
17	3300	22,7 Litre Fire Eraser Wet Chemical	22,7 Liters Fire Eraser Refilling Drum Min. Weight:33,0 Kg	
18	9005	Manometer	System cylinders are pressurized with 12 bar (175 psig-1205 kPa), and manometer green area starting point is 11 bars and end point is 18.5 bars	
19	9042	D8 Mounting bracket	There are two types of cylinder mounting apparatus in the system. Type-1 is for flat surface (such as wall) mounting. Type-2, on the other hand, is for horizontal surface mounting.	
20	9046	D12 Mounting bracket		
21	9051	D18 Mounting bracket		
22	9061	Detector Mounting Kit	Mounting kit ends should be completed with ½" EMT unions	
23	9070	Corner Pulley	These should be used in all returns in detection line installation	
24	9015	CO2 cartridge	This is used for the activation of automatic discharge valve and pressurized by 12 gr CO2 gas	