



RH BRANDBEVEILIGING
WIJ HELPEN U UIT DE BRAND!

FIRE SUPPRESSION SYSTEM FOR PROFESSIONAL KITCHENS

MOBIAK
FIREFIGHTING • GASES • MEDICAL est. 1977



INSTRUCTIONS MANUAL



NOBIAK[®]
FIREFIGHTING • GASES • MEDICAL est. 1977

**FIRE SUPPRESSION SYSTEM
FOR PROFESSIONAL KITCHENS**

NOBIAK ΔΙΑΣ
FIREFIGHTING • GASES • MEDICAL est. 1977



INTRODUCTION

In professional and domestic kitchens large quantities of cooking oils and fats are used which are extremely flammable. The extinguishing agent used for fires from cooking oil & fats is Wet Chemical.

Wet Chemical agent is Carboxylic Acid Salt Solution which suspends fires by creating a saponified layer (*crust*) that prevents oxygen from interacting with the burning surface, cools down the area and eliminates the possibilities for re-ignition. The low acidity level (PH: 9 at 20°C) prevents any damage to surfaces made of stainless steel found in Professional Kitchens.

MOBIAK DIAS Fire Detection-Suppression System is designed by MOBIAK for protecting Kitchen Devices under Kitchen Hood, the Kitchen Hood itself and the Hood Air Ducts.

The system consists of a Wet Chemical Local Application Fire Extinguisher of both Automatic and Manual operation, Control Panel, Fire Detection Unit and Discharge Nozzles designed for protecting different Kitchen Devices.

Fire Detection is executed by an approved (UL/FM) Linear Heat Detection Cable (LHDC) of 138°C, 180°C or 250°C Activation Temperatures, the installation of which is particularly quick & simple offering unique reliability & safety because it can detect fire all over the area of the protected Kitchen Devices, Kitchen Hood and inside the Air Ducts. The LHDC is under continuous monitoring by system's Fire Detection-Suppression Control Panel.

In Automatic Operation, in case of Fire the Control Panel executes Alarm Signal and simultaneously activates the System by transmitting a Signal to the fuse of the Fire Extinguisher Valve resulting the flow of the Wet Chemical Agent through Copper Tube Network and Discharge through special type Nozzles.

In Manual Operation the system can be activated by Electrical Means by a) an Extinguish Button that is built-in to the Control Panel or b) an System Activation Call Point that must be installed near to the Kitchen Exit or by Mechanical Means by a) a Metal Wire Mechanism that must be installed near to the Kitchen Exit or b) by pulling the Valve Rod of the Fire Extinguisher Valve.

SYSTEM OPERATION

Linear Heat Detection Cable detects heat anywhere along its length. The cable is comprised of two steel conductors individually insulated with a heat sensitive polymer. The insulated conductors are twisted together to impose a spring pressure between them, then wrapped with a protective tape and finished with an outer jacket suitable for the environment in which the Detector will be installed.

Linear Heat Detection Cable is a fixed temperature sensor and is therefore capable of initiating an alarm once its rated activation temperature is reached. At the rated temperature, the heat sensitive polymer insulation yields to the pressure upon it, permitting the inner conductors to move into contact with each other thereby initiating an alarm signal.

This action takes place at the first heated point anywhere along the Detector's length. It does not require that a specific length be heated in order to initiate an alarm nor is system calibration necessary to compensate for changes in the installed ambient temperature. Linear Heat Detection Cable provides the advantages of line coverage with point sensitivity.

In case of fire, during the Automatic Operation of the System, the Detection Cable is activated and the Fire Detection-Suppression Panel executes constant Visual-Acoustic Alarm through a built-in Siren with Beacon.

Note: the Control Panel used on MOBIK DIAS System offers the user Fuse Activation Time Delay from 0-80 seconds. This means that if the Time Delay is been configured to 40secs, Extinguisher's Valve Fuse Activation will take place after 40secs. Practically, this delay offers the user the possibility to extinguish the fire using other means (*i.e. 2Lt EcoDare ABF-30C/M Portable Fire Extinguisher or Fire Blanket*). This time delay is valid only if the system is activated automatically (by LHDC) or in Manual Operation by Electrical Means (*described above*).

Fuse's impact forces the valve to open and the agent starts flowing from the fire extinguisher through a Stainless Steel Flexible Hose and Copper Tube Network to Discharge Nozzles (*of different flow rates depending on the protected device-area*), from which it is discharged over the protected devices under the Kitchen Hood, behind Kitchen Hood Filters and inside the Hood Air Ducts.

The discharge of the Extinguishing Agent is realized simultaneously from all the Nozzles, thus preventing the fire transmission from area to area.

Note: Fire Detection-Suppression Control Panel has a built-in Autonomy Battery lasting a) 90 minutes fully operating and b) 72 hours in idle position, hence ensuring Automatic System activation in case of electric power shut down in the Kitchen.

During the time delay, which may be reduced or increased by the installer (*from 0sec up to 80sec*), the user can cancel the activation of the system by pressing the Extinguish Cancel Switch offering prevention of agent discharge incase of false alarm and time for suppressing the fire by other means (*e.g. portable extinguisher or fire blanket*).

MOBIK DIAS Fire Detection-Suppression System may be activated manually by:

1. Extinguish Button built-in the Fire Detection Panel (electrical)
2. System Activation Call Point (electrical)
3. Pull down the fire extinguisher's valve rod (mechanical)
4. Metal Wire Mechanism (mechanical)

Note: shut down of Electrical Power on selected Electrical Devices including the Duct fans and of Gas/Propane Valve can be executed by an Electrical Relay built-in the Control Panel.

• **The System consists of the following Components:**

MBK09-060FCS-L1C	6Ltr Fire Extinguisher of Automatic & Manual Operation
MBK09-090FCS-L1C	9Ltr Fire Extinguisher of Automatic & Manual Operation
MBK13-1016FCS-L1C	10-16Ltr Fire Extinguisher of Automatic & Manual Operation
MBK13-1720FCS-L1C	17-20Ltr Fire Extinguisher of Automatic & Manual Operation with Heavy Duty Bracket
MBK13-2135FCS-L1C	21-35Ltr Fire Extinguisher of Automatic & Manual Operation with Heavy Duty Bracket
MBK13-HDBRACKET-6	Heavy Duty Fire Extinguisher Bracket For 6Ltr Fire Extinguisher
MBK13-HDBRACKET-12	Heavy Duty Fire Extinguisher Bracket For 9Ltr & 10-16Ltr Fire Extinguisher
MBK02-PYR	Fuse used for Automatic Activation of the Extinguisher's Valve
MBK13-SSTUBE-1/2	Stainless Steel Flexible Hose used for connecting Cylinder's Valve with the Pipe Network
MBK12-WIRE-138	Linear Heat Detection Cable 138°C
MBK12-WIRE-180	Linear Heat Detection Cable 180°C
MBK12-WIRE-250	Linear Heat Detection Cable 250°C
MBK12-CLEMA	Porcelain Splice Connectors used for Linear Heat Detection Cable Connections
MBK12-DEMATIKO	Stainless Steel Straps used for Linear Heat Detection Cable Support
MBK12-FIRETAPE	Fire Tape used for Linear Heat Detection Cable Connections Insulation
MBK13-NOZZLE-A2	A2 Discharge Nozzle with Silicon Cap
MBK13-NOZZLE-A3	A3 Discharge Nozzle with Silicon Cap
MBK13-NOZZLE-A4	A4 Discharge Nozzle with Silicon Cap
MBK13-NOZZLE-A8	A8 Discharge Nozzle with Silicon Cap
MBK13-NOZZLE-A9	A9 Discharge Nozzle with Silicon Cap
MBK12-MOBIK-DIAS-PANEL	Fire Detection-Suppression Panel with Battery including Extinguish Button, Siren with Beacon, Relay for Electrical Power Shut down & Extinguish Cancel Switch
BS-534	System Activation Call Point (electrical)

Important: The System consists of specific Components approved by MOBIAK. Any change on the components given on this Manual is forbidden by the manufacturer as it will affect system's operation.

The Discharge Nozzles (½" Male Thread) are made of Stainless Steel and come with white colour incombustible Silicon Protection Cap.



There are available five (5) nozzles of different flow rates A2 (1 Flow Unit), A3 (1.5 Flow Unit), A4 (1.5 Flow Unit), A8 (2 Flow Units) and A9 (2 Flow Units) discharging the extinguishing agent in mist propagation form (use of Internal Filter mounted by Metal Snap Ring).

Note: Each nozzle is designed so that to protect kitchen devices/appliances according to the following table – Engineers must choose the Nozzles strictly according the following

Device	Max Dimension	Disch. Nozzles	Flow Units
Air Duct	122cm Diameter/381 Perimeter	3pcs-A3	4,5
Air Duct	81cm Diameter/254 Perimeter	2pcs-A3	3
Air Duct	41cm Diameter/127cm Perimeter	1pcs-A3	1,5
Air Duct	61cm Diam/190cm Perim	1pcs-A9	2
Exhaust Hood	305cm Length	1pcs-A2	1
Deep Fryer	(48 x 64) cm	1pcs-A9	2
Cooking Plate	(76 x 122) cm	1pcs-A8	2
Cooking Plate	(76 x 107) cm	1pcs-A9	2
Cooking Plate	(76 x 91) cm	1pcs-A2	1
Electrical Oven	(31 x 61) cm	1pcs-A2	1
Electrical Oven	(61 x 61) cm	1pcs-A8	2
Oven	(72 x 72) cm	2pcs-A4	1,5
Electrical Grill	(52 x 61) cm	1pcs-A2	1
Propane/ Gas Grill	(52 x 61) cm	1pcs-A2	1
Ceramic Grill	(52 x 61) cm	1pcs-A2	1
Deep Frying Pan	(35 x 61) cm	1pcs-A2	1
Grill-Charcoal	(61 x 72) cm	1pcs-A3	1,5
Grill-Wood	(61 x 72) cm	1pcs-A3	1,5
Kebab Device	(78 x 73) cm	2pcs-A4	1,5

EXAMPLE

In a Professional Kitchen there are there is the following equipment:

- One (1) Air duct: 81cm diameter
- One (1) Kitchen Hood: 305cm length
- One (1) Deep Fryer: (48x64)cm
- One (1) Cooking Plate: (76x122)cm
- One (1) Oven: (72x72)cm
- One (1) Deep Frying Pan: (35x61)cm
- One (1) Grill-Charcoal: (61x72)cm

STEP.1: According to the Kitchen Equipment the Type & Number of Nozzles are the following

Device	Max. dimensions	Disch. Nozzles	Flow Units
Air Duct	81cm diameter	2pcs-A3	3
Kitchen Hood	305cm length	1pcs-A2	1
Deep Fryer	(48 x 64)cm	1pcs-A9	2
Cooking Plate	(76 x 122)cm	1pcs-A8	2
Oven	(72 x 72)cm	2pcs-A4	1,5
Deep Frying Pan	(35 x 61)cm	1pcs-A2	1

Grill-Charcoal	(61 x 72)cm	1pcs-A3	1,5
----------------	-------------	---------	-----

STEP.2: The Sum of Flow Units Sum of the selected nozzles is

➤ **Flow Units Sum:** $3 + 1 + 2 + 2 + 1,5 + 1 + 1,5 = 12 \text{ Flow Units}$

STEP.3: Divide the sum of flow units with the constant number 0.8 so that to calculate the Quantity of the Extinguishing Agent:

➤ **Extinguishing Agent Quantity:** $12 / 0.8 = 15\text{ltr}$

STEP.4: Choose the fire extinguisher of the system according to the calculated Agent quantity:

➤ **Extinguisher Type:** 10-16Ltr Fire Extinguisher filled with 15Ltr Extinguish Agent

Note: the quantity of the extinguishing agent always depends on the selected discharge nozzles.

HYDRAULIC PIPE NETWORK

Stainless Steel Flexible Hose, Copper tubes ($\phi 18$) and Copper Components as nipples, 90° corners and tee pieces consists the Hydraulic Pipe Network of MOBIAK DIAS System that leads the extinguishing agent from the fire extinguisher to the nozzles from where it is discharged.

Installation starts with the mounting of the fire extinguisher on to the heavy duty bracket. The fire extinguisher must be installed into an Easy-Access-Point inside the Kitchen in a safe distance from heat surfaces while the room temperature should not exceed the 60°C.

Flexible Stainless Steel Hose (*female thread at both ends*) is used for the connection of the Extinguisher Valve Outlet with the Hydraulic Pipe Network.

Soft Bearing is used for the construction of the Hydraulic Network - soft bearing must be according the following specifications

Freezing Point	Melting Point	Colour	Elongation	Durability
238°C	332°C	Silver	48%	6600–7400psi

Note: The Pipe Network must not exceed nine (9) meters length

Discharge Nozzles must be installed at 1-1.2m height above Kitchen Devices, behind Kitchen Hood Filters and inside the Kitchen Hood Air Ducts, as described in previous table.

Note: A2 Discharge Nozzle can protect up to 305cm Exhaust Hood Length - if the Kitchen Hood is longer than 305cm the number of A2 Nozzles must be calculated accordingly.

The Discharge Nozzles protecting of the Air Ducts of the Exhaust Hood must be installed at 20cm depth inside each Air Duct.

The Silicone Protection Cap of the Discharge Nozzles must never be removed because it prevents moisture, vapors, grease and other particles getting & stuck on the small hole from where the agent is been discharged.

Note: Copper Tubes and Copper Components required for the construction of the System's Pipe Network are not traded by MOBIAK and must be supplied from local market.

LINEAR HEAT DETECTION CABLE

Linear Heat Detection Cable is a fixed temperature sensor of activation temperatures 138°C, 180°C or 250°C. The selection of Activation Temperature of the Linear Heat Detection Cable in each kitchen must be performed after Temperature Measurement (*preferably digitally*) at 1-1.2m height above the under protection Kitchen Devices when the kitchen is in full operation.

Practically, the Installation of the Cable is Simple & Fast procedure as the Cable is mounted by Stainless Steel Straps (Fasteners) on the Copper Tubes of the Hydraulic Network of the System.

Fasteners should typically be spaced every 1-1.5m or as may be necessary to prevent the wire from excessive sagging which puts undue stress on the wire at the fastening points. Improper installation and fastening may also subject the Detector to physical damage.

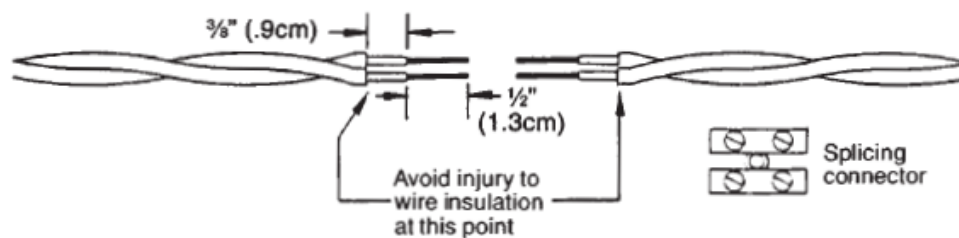
Note: Fasteners which are over-tightened apply excess stress that will eventually cause insulation damage to the Detector resulting in unwanted alarms.

Important Installation Instructions

- Do not over tighten the fasteners as this may breach the outer jacket or crush the inner insulation, causing unwanted alarms. All fasteners must allow the wire to expand and contract with temperature changes.
- Do not over stretch the Cable during installation - some wire “sag” between fasteners is normal.
- Do not make 90° bends in the detector.
- Do not hold the wire with pliers to make bends. All bends should be made with the fingers and consist of rounded turns with a minimum 6.4 cm radius.
- Do not use wire nuts or other similar devices. All connections must be made via MOBIAK’s porcelain splicing connectors.
- Do not paint this detector, per UL and FM requirements.

Porcelain Splice Connectors of two (2) contacts used to connect Cables of different activation temperatures. The connection is based on the following steps.

Step.1: Remove insulation from each wire leaving 1/2” (1.3cm) of bare Linear Heat Detector conductor, preserving 3/8” (.9cm) of insulation from bare wire back to the covering.



Step.2: Install wires as shown below making sure the entire 1/2” (1.3cm) portion of bare Linear Heat Detector conductor is embedded in splicing connector.



Step 3: Secure Linear Heat Detector by tightening the connector screws. Plastic screw turrets may be trimmed with snips or utility knife for easier taping.



Step.4: Using 10.1cm-12.7cm of Electrical Tape wrap the splice. Stretch and overlap each wrap of tape.



The installer must ensure proper connections and conductors proper insulation (*by special Fire Tape*) - in case that the conductor is not properly insulated during contact with metal surface (*e.g. exhaust hood surface*) there will be triggered false alarm signal.

There is continuous monitoring of Linear Heat Detection Cable (*from Control panel*) which ensures notification to the end user when cutting or disconnection.

The Detection Cable is been monitored by Control Panel by an Electric Resistor 2.2KΩ at the end of the detection line (*outside the exhaust hood*).

Note: installer must ensure that the Cable runs continuous – branches are forbidden because monitoring of the branch from the Control Panel will no longer exist.

Installer must ensure that Linear Heat Detection Cable adequately covers the whole area under the Kitchen Hood (*over Kitchen Devices*) and inside the Kitchen Hood Air Ducts.

Great advantages of Linear Heat Detection Cable compared to other Pneumatic Heat Detection Cables are indicated on the following table

Description	MOBIAK's Cable	Pneumatic Cables
Different Activation Temperatures	YES	NO
Cable Part replacement	YES	NO
Detection Device without Pressure	YES	NO
Maintenance Free	YES	NO
System Free from Moving Parts	YES	NO
Extinguish Time delay Option	YES	NO

The detection cable is not under pressure, and as a result the possibilities for alterations due to temperature changes in the Kitchen Hood are minimized.

As indicated on the above table, MOBIAK DIAS system offers the end user System Activation Time Delay Option (*which cannot exist in systems using Pneumatic Detection Tubes-Wires*).

This option is critical for the end user because it offers System Activation Cancel Option incase of a) false alarm and b) killing the fire with other means (*e.g. Portable EcoDare ABF-30C/M Extinguishers, Fireproof Blanket*).

FI RE DETECTI ON-SUPPRESSI ON PANEL

MOB-2001 is a Fire Detection-Suppression Panel that incorporates Siren with Beacon, Extinguish Button, Extinguish Cancel Switch, built-in Battery & Electrical Relay for shut down the Power Supply of Electrical Devices, Duct Fans as well as the Gas Valve.

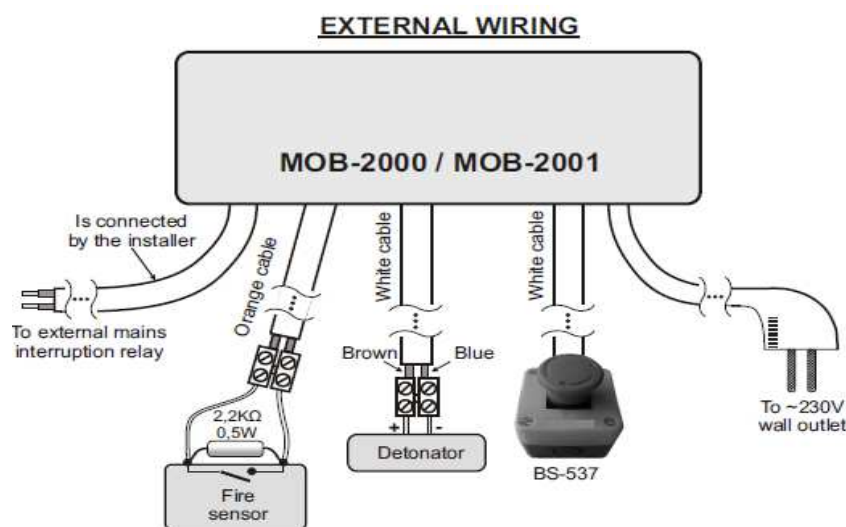
The connections on the Panel are easy, fast and take place outside the Panel (factory made *external wiring*). The Linear Heat Detection Cable must be connected to the Splicing Connector of the Orange Cable (*as shown in following pictogram*).

Note: in case of problem on the Detection Line (e.g. damaged cable or not proper connection) MOB-2001 sounds customized alarm signal warning the user about the problem on the system's Detection Line.

Extinguish Cancel Switch is been factory-connected to MOB-2001 by a 2m length cable (as shown in following pictogram).

Fuse of the Fire Extinguisher Valve must be connected to the Splicing Connector of the White Cable of the Fire Detection Panel (as shown in following pictogram)

MOB-2001 is been factory connected to Suko Plug so that to be directly connected to a usual plug of the kitchen (as shown in following pictogram)



Note: Fire Detection-Suppression Panel MOB-2001 is compatible only with the Linear Heat Detection Cable supplied by MOBI AK.

Panel LEDs (Green, Yellow & Red) are used for indicating Panel's Battery Status, Alarm Status and Fuse Proper Connection ensuring the Proper Operation of the System.

Important: the Control Panel must be installed on a stable position at least three (3) meters away from the warm surfaces of the kitchen.

SYSTEM INSPECTION

Visual Inspection of the System is recommended once per month by Kitchen Owner or Personnel.

Note: Inspection is possible to be performed from the Kitchen Owner or Personnel only in case the training has successfully been completed by MOBI AK or any of its Authorized System Integrators.

The procedures are the following:

- Visual check of the System's Manual Triggering Mechanisms (*Fire Extinguisher Valve Rod, Metal Wire Mechanism, System Activation Call Point*), which should be always in reach with ease and without any obstacles in front.
- Visual check of Linear Heat Detection Cable for defects.
- Visual check of the Fire Detection-Suppression Panel operational status (*indication LED's*)

- Visual check of the Fire Extinguisher Pressure Gauge so that to secure correct pressure indication which must always be inside the green area at 15Bar WP
- Check the Expiry Date of Fuse
- Check the Discharge Nozzles – the protective caps must always be in position and not damaged
- General check on the Hydraulic Network for possible damages which may lead to leakage.
- Check of the Stainless Steel Flexible Hose in order to secure that there are no defects or damage.
- Check of the predefined Inspection Date of the Fire Extinguisher

If case of damage on any System Component identified during Inspection the Owner or the Personnel of the Kitchen must immediately contact Authorized Maintenance Technicians properly qualified and trained by MOBIAK or by MOBIAK's Authorized System Integrators.

Upon the completion of the Inspection, the Owner or Personnel of the Kitchen executed the procedure must always fill in the Maintenance Form stating clearly the actions took place.

Inspection Forms should always be completed at the end of each inspection and is mandatory to include information such as the Full Details (*Name-Surname-Position*) of the person executed Inspection as well as the Inspection Date.

IMPORTANT: Inspection Forms should not be destroyed and is the Kitchen Owner's responsibility to keep them in a safe location.

SYSTEM SERVICE/ MAINTENANCE

System's maintenance must be always performed only by Authorized Maintenance Technicians properly qualified and trained by MOBIAK or by any of MOBIAK's Authorized System Integrators.

Note: Maintenance Technicians can be trained by owners of Fire Fighting Equipment Stores only in case that the owner holds a Training Certificate on the Fire Suppression System issued only by MOBIAK.

Maintenance Technicians should always have the System's Manual in order to be able to perform the predefined maintenance once (1) a year (minimum), as follows:

- Maintenance of the Local Application Fire Extinguisher according European Guidelines & Regulations for maintenance of low pressure fire extinguishers.
- Operational Check & Maintenance of Linear Heat Detection Cable which must be gently cleaned with a wet table cloth (use of clean water) so that to remove grease or fat.
- Replacement of the Fire Tape used for insulating the connections of the Linear Heat Detection Cable on the Connections
- Operational Check & Maintenance of System's Fire Detection-Suppression Panel according to Manufacturer's Manual.
- Replacement of Fire Detection-Suppression Panel battery every five (5) years, according to Manufacturer's Manual.
- Check the Expiry Date of the Fuse - replacement of the fuse if necessary based on the expiry date.
- Check for damages on the Electrical Wires and Connection Points and replacement if necessary.
- Check the White Silicon Caps of the Nozzles which must be replaced in case of defects.
- In case of System Activation and Agent Discharge, cleaning of the Copper Pipe Network with water must take place in order to make sure the proper operation of the system next time - the water must be connected to the Stainless Steel Flexible Hose and will be discharged from the Nozzles – this procedure must last 10 minutes for proper cleaning).

Important: during maintenance the Extinguish Cancel Switch should be activated so that to avoid accidental system activation.

In case of damaged or faulty components, these must be immediately replaced only with new Components listed on this manual.

Important: Any change on the components given on this Manual is forbidden by the manufacturer as it will affect system's operation.

Prior the beginning of maintenance and replacement of damaged components the Owner and Personnel of the Kitchen must be informed as the System will immediately declared as Non Functional until all necessary works have been carried out and the System has been fully returned to its original Functional Status.

Note: Maintenance Form must be filled in only when the Owner or a Representative of the Owner is present.

Maintenance documents must be kept on a file-form. These documents must never be damaged.

IMPORTANT: After system's maintenance, the technician must place a maintenance label in the kitchen on which it must be visible the date of maintenance as well as the full-name of the technician who executed the maintenance.

SYSTEM REFILLING

The local application Fire Extinguisher of the Fire Suppression System should always be refilled exclusively with Wet Chemical Agent approved by MOBIAK, in any of the following cases:

- Immediately after five (5) years from the production date of the Fire Extinguisher, according to European Regulation guidelines.
- Immediately after it is used from as a result of the System's activation in case of fire.

Note: the Pressure of the Local Application Fire Extinguisher must always be at 15 Bar.

The hydraulic test of the cylinder of the system's fire extinguisher of the system must be executed once after 10 years.



INSPECTION FORM

A/A	DATE	TECHNICIAN FULL NAME	DESCRIPTION OF SERVICES	SIGNATURE
<u>01</u>				
<u>02</u>				
<u>03</u>				
<u>04</u>				
<u>05</u>				
<u>06</u>				
<u>07</u>				
<u>08</u>				
<u>09</u>				
<u>10</u>				
<u>11</u>				
<u>12</u>				

MAINTENANCE FORM

A/A	DATE	TECHNICIAN FULL NAME	DESCRIPTION OF SERVICES	SIGNATURE
<u>01</u>				
<u>02</u>				
<u>03</u>				
<u>04</u>				
<u>05</u>				
<u>06</u>				
<u>07</u>				
<u>08</u>				
<u>09</u>				
<u>10</u>				
<u>11</u>				
<u>12</u>				