



Reviewed for Code Compliance  
Inspections Division  
Approved with Conditions

Date: 05/16/13

Planner: Benjamin Wallace  
JR



# Fire Suppression System

## Restaurant System Specifications

The Amerex Restaurant Fire Suppression System is a pre-engineered, automatic, fire suppression system tested and designed for the protection of commercial cooking operations covering the hood, ducts, plenum and appliances. The system is designed for use in restaurants, assisted living facilities, schools and universities, hospitals, day care facilities, etc.

The Amerex Restaurant Fire Suppression System shall be installed indoors only. The system shall not be installed in temperatures below 32° F (0° C) or above 120° F (49° C).

**General:** The restaurant fire suppression system shall be the Amerex KP series pre-engineered, wet chemical, stored pressure type with a fixed nozzle agent distribution network. The KP system shall be listed with Underwriters Laboratories, Inc. – USA per UL 300 fire test specification; Underwriters Laboratories of Canada, Inc. per ULC/ORD 1254.6 – 1995 and Loss Prevention Certification Board – UK per LPS 1223 rev. B. Systems which were listed prior to UL 300 shall not be accepted. The system components manufacturer shall be registered under ISO 9001-2000 and hardware shall be manufactured to comply with the "Made in U.S.A." standard. The system shall be designed, installed, and maintained in accordance with the Amerex Design, Installation, and Maintenance Manual, NFPA 96, NFPA 17A, local codes and ordinances by an Authorized Amerex Restaurant Systems distributor using factory trained personnel who hold a current Amerex Certificate.

Upon completion of system installation and final testing with the local Authority Having Jurisdiction, an Owner's Manual for the system shall be provided to the owner or owner's agent. The Authorized Amerex Systems Distributor shall give instruction on the use of the system to those employee designated by the owner or owner's agent.

**Fire Suppression Agent – Wet Chemical (Material Safety Data Sheet provided upon request):** The system shall be the Amerex KP liquid fire suppressant, a potassium acetate based solution that suppresses cooking grease fires both through saponification and cooling. The agent shall have a pH of 9 or less and shall not harm stainless steel surfaces.

**Agent Cylinders (2.75, 3.75, 4.75, & 6 Gallons):** The agent cylinders shall be mild steel cylinders pressurized with dry nitrogen or argon gas to 240 PSI (1655 kPa) at 70 F filled with KP liquid fire suppression agent. The agent cylinder with discharge valve assembly shall be fully charged and pressurized at the factory with Amerex KP liquid agent and pressurized to 240 PSI (1655 kPa).

**Nozzles:** Nozzles shall be made of chrome-plated brass, and shall consist of a one piece tip/body, strainer and blow-off cap.



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- factory filled with Amerex KP Liquid Agent. The agent cylinder shall be installed in a wall bracket or a stainless steel enclosure. The cylinders shall be available in four sizes (2.75, 3.75, 4.75 & 6 Gallons). The agent cylinder shall come complete with valve assembly.
- iv. The Mechanical Release Module (MRM) control device shall be of the spring loaded type using a mechanical input and electrical, mechanical or pneumatic output. It shall be capable of actuating from one to ten agent cylinders, depending on the combination of agent cylinders, using one nitrogen cylinder and is operated either automatically by the detection network or manually by a remote manual pull station. It shall come complete with a red or stainless steel enclosure. The enclosure shall have a system status indicator and a window to observe the nitrogen cylinder pressure. The enclosure shall have provisions for applying tamper seals after final testing and periodic maintenance. The MRM shall have two snap action switches pre-installed.
  - v. The Pneumatic Release Module (PRM) control device shall offer superior detection by using a linear pneumatic detection system. The PRM detection shall consist of the PRM, tubing, and end of line fitting. The tubing shall be pressurized through a small "accumulator" inside the enclosure, routed through the hazard area. When exposed to a fire condition, the tubing ruptures, relieving all of the pressure in the tubing and accumulator thus firing the system using a nitrogen cylinder. The PRM shall come complete with red or stainless steel enclosure, accumulator, end of line fitting, connector for mechanical manual pull, and two snap action switches. It shall be capable of actuating from one to ten agent cylinders, depending on the combination of agent cylinders.
  - vi. The actuation cartridge shall be a filled pressure vessel containing nitrogen and shall be a 10 cu. in. cylinder with a pressure gauge which can be viewed when installed in the MRM or PRM control device.
  - vii. The nozzles shall be made of chrome-plated brass, and shall consist of a one piece tip/body, strainer and blow-off cap.
  - viii. The distribution pipe shall be schedule 40 black iron, chrome, or stainless steel pipe. Galvanized pipe shall not be allowed.
  - ix. The MRM detectors shall be the fusible link or bulb type designed to separate at a specific temperature.
  - x. The PRM detection shall be the linear detection tubing designed to burst at a specific temperature.

### III. IMPLEMENTATION

#### a. Installation

- i. The Amerex Restaurant Fire Suppression System shall be designed, installed, maintained, inspected and recharged in accordance with the manufacturer's listed manual, NFPA 96 and NFPA 17A by an Authorized Amerex distributor.

#### b. Training

- i. Training for the Amerex Restaurant Fire Suppression System shall be performed by representatives from the factory. A certificate shall be provided to the Authorized Amerex distributor by the factory to prove certification.



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## SPECIFICATIONS

An Amerex Restaurant Fire Suppression System shall be used. The system shall be capable of protecting all hazards associated with a commercial kitchen.

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### I. GENERAL

- a. References
  - i. Underwriters Laboratories, Inc. (UL)
    1. UL Standard 300
  - ii. Underwriters Laboratories, Inc. (ULC)
    1. ULC/ORD 1254.6
  - iii. National Fire Protection Association (NFPA)
    1. NFPA 96
    2. NFPA 17A
  - iv. Loss Prevention Certification Board UK (LPCB)
    1. LPCB – LPS 1223 Rev B
- b. Submittals
  - i. Submit two sets of manufacturers data sheets
  - ii. Submit two sets of piping limitations
- c. System Description
  - i. The system shall be an automatic fire suppression system utilizing a wet chemical agent for grease related fires.
  - ii. The system shall be capable of extinguishing fires in protected areas of commercial kitchens such as: hoods, plenums, ducts, and appliances.
  - iii. The system shall be the pre-engineered type having specific guidelines set and listed by Underwriters Laboratories (UL).
  - iv. The system shall be installed and serviced by an Authorized Amerex Restaurant System distributor.
  - v. The system shall be capable of protecting cooking equipment by either specific appliance coverage or zone defense protection.
- d. Quality Assurance
  - i. The Amerex Restaurant Fire Suppression System shall be manufactured by a company with extensive knowledge in fire testing. The manufacturer shall be ISO 9001-2000 registered.
- e. Warranty
  - i. The system components shall have a warranty of three years from the date of delivery against manufacturer's defect in material and workmanship.
- f. Environmental Conditions
  - i. The Amerex Restaurant Fire Suppression System shall be capable of operating at temperatures not below 32 F (0 C) not above 120 F (49 C).

### II. PRODUCT

- a. Manufacturer
  - i. Amerex Inc., 7595 Gadsden Highway, Trussville, Alabama 35173  
Phone: 205-655-3271
- b. Components
  - i. The basic system shall consist of an MRM or PRM control device, nitrogen cylinder, and a stored pressure agent cylinder. Other components include nozzles, blow-off caps, corner pulleys, detector brackets, fusible links or linear detection tubing, manual pull station, gas shut off valve (if required), and snap action switches.
  - ii. The wet chemical agent shall be a potassium acetate based solution having a pH of 9 or less capable of suppressing cooking grease fires both through saponification and cooling.
  - iii. The agent cylinder shall be the stored pressure type made from mild steel pressurized with dry nitrogen or argon gas to 240 PSI (1655 kPa)



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**Control Mechanism – MRM:** The MRM (Mechanical Release Module) shall be spring loaded type using a mechanical input and electrical, mechanical or pneumatic output. It shall be capable of actuating from one to ten agent cylinders depending on the combination of one nitrogen cylinder and is operated either automatically by the detection network or manually by a remote manual pull station. It shall come complete with a red or stainless steel enclosure. The enclosure shall have a system status indicator and a window to observe the nitrogen cylinder pressure. The enclosure shall have provisions for applying tamper seals after final testing and periodic maintenance. The MRM shall have two snap action switches pre-installed.

**Control Mechanism – PRM:** The PRM (Pneumatic Release Module) shall offer superior detection by using a linear pneumatic detection system. The PRM detection shall consist of the PRM, tubing, and end of line fitting. The tubing shall be pressurized through a small "accumulator" inside the enclosure, routed through the hazard area. When exposed to a fire condition, the tubing ruptures, relieving all of the pressure in the tubing and accumulator thus firing the system using a nitrogen cylinder. The PRM shall come complete with red or stainless steel enclosure, accumulator, end of line fitting, connector for mechanical manual pull, and two snap action switches. It shall be capable of actuating from one to ten agent cylinders depending on the combination used.

**Nitrogen Cylinder:** The nitrogen cylinder shall be a 10 cu. in. cylinder with an integral pressure gauge which can be observed when installed in the MRM/PRM. The nitrogen cylinder shall be capable of being refilled in the field by an Authorized Amerex Restaurant Systems Distributor.

**Agent Cylinder Bracket:** The agent cylinder bracket shall be made of steel and painted red.

**Stainless Steel Enclosure Optional:** An enclosure made of stainless steel housing an MRM and one agent cylinder is available. The pressure gauge for the nitrogen cylinder and the agent cylinder shall be visible without removing the front cover of the cabinet.

**Manual Pull Station:** The manual pull stations shall be the "dual action" type. Both a ring pin and lever must be pulled in order to discharge the system manually.

**Mechanical Gas Valve – 3/4" to 3" sizes:** A mechanical gas valve, specifically listed by UL for the use with Amerex Restaurant Systems shall be provided for automatic shut off of gas whenever gas appliances are used. The valve shall be the "pull to release" design requiring a pull force to trip a latch which holds the valve in the open position. The cover of the gas valve shall have a visual indicator showing the valve's position.

**Electric Gas Valves – 3/4" to 3" sizes:** If an electric gas valve is required it shall be UL listed for use with Amerex Restaurant Systems and operate using a snap action switch and a UL listed manual reset relay. Upon system actuation current to the solenoid is to be interrupted by a snap action switch causing the gas valve to close. A UL listed manual reset relay shall be used with an electric gas valve.

**Electric Snap Action Switch:** UL listed electric snap action switches shall be provided to accomplish system output functions. The switches shall be stackable inside the MRM/PRM without requiring extra mounting hardware. Two snap action switches shall be provided with the MRM/PRM with the capability of four.