

SPECIFICATIONS
GUARDIAN MODEL #G300A
AUTOMATIC FIRE EXTINGUISHING SYSTEM
FOR
RESIDENTIAL RANGE TOP PROTECTION

SCOPE:

This specification includes minimum requirements for fire extinguishing systems which discharge chemical from fixed nozzles by means of expellant gas. It contains essentials necessary to ensure compliance with the National Fire Protection Association (NFPA) standards and Underwriters Laboratories Incorporated (U.L.).

PURPOSE:

This specification is prepared for the use and guidance of those charged with the purchasing, designing, and approving fire extinguishing systems pre-engineered for residential kitchen range top protection.

DEFINITIONS:

For the purpose of clarification, the following general terms used with special technical meanings in this specification are defined:

WET CHEMICAL: Normally a solution of water and potassium carbonate-based chemical, potassium acetate-based chemical or a combination thereof, which forms an extinguishing agent.

LISTED: Equipment or materials included in a list published by Underwriters Laboratories Incorporated (U.L.)

SHALL: Indicates a mandatory requirement.

SHOULD: Indicates a recommendation or that which is advised but not required.

APPLIANCE: For the purpose of this specification, appliance means a residential type kitchen range supplied by gas or electricity to power and heat range top burners.

GENERAL DESCRIPTION:

The fire extinguishing system shall be capable of detecting a cooking grease fire originating on the range top, extinguish the fire, and prevent reignition, while at the same time, shut-off the gas or electric supply to surface elements on the kitchen range top. Each system shall be provided with a means to distribute the chemical agent, fire detection components, container for storing the chemical, valve assembly with pressure gauge, enclosure assembly for container, and appliance shut-off device. These components shall be provided factory assembled and ready for installation and installed in accordance with an approved owner's manual.

CERTIFICATION:

The fire extinguishing systems shall have a current U.L. listing under the category “Residential Range Top Fire Protection” in the most recent Fire Protection Equipment Directory (FPED).

CHEMICAL AGENT:

WET CHEMICAL: Shall conform to the requirements of National Fire Protection Association (NFPA) Standard No. 17A for Wet Chemical Fire Extinguishing Systems.

SYSTEM COMPONENTS:

SYSTEM ENCLOSURE: The system enclosure shall consist of the pressurized extinguisher cylinder with wet chemical fire suppressant, central processing unit control board with terminal block connections, electronic release valve, cylinder pressure gauge, enclosure base, and enclosure cover.

Operation of the extinguisher unit is controlled by the supervised electronic control panel, which is battery powered. Detection is initiated through the heat sensors, activating the alarm and the extinguisher. The electric or gas shutdown devices can either be sonically operated by the control panel, or hardwired to the central processing unit control board.

CYLINDER AND VALVE ASSEMBLY: The extinguisher cylinder and valve assembly shall be provided fully charged with chemical and pressurized with dry nitrogen in accordance with listed requirements. A pressure gauge attached to the valve assembly shall be positioned to allow visual inspection when installed within a kitchen cabinet. Maximum allowable height of container (including the enclosure assembly) shall not exceed 12 inches. The container and valve assembly shall be of the reserviceable type and provide maintenance requirements synonymous with that required for portable hand-held fire extinguishers, according to National Fire Protection Association (NFPA) Standard 10. The container and valve assembly shall be provided factory assembled to the enclosure. Assembly shall include a pre-mounted CPU control board for the appliance shut-off device and necessary attachment for the Fire Detection Unit.

The complete extinguisher cylinder and valve assembly shall be installed in a protected area above the range hood (normally, kitchen cabinets). Installations which expose extinguisher cylinder and valve assembly to direct cooking heat and grease will not be accepted.

CENTRAL PROCESSING UNIT CONTROL BOARD:

The CPU control board is housed/attached inside the system enclosure. The control board’s circuitry is powered by a 9V DC battery and has the following features:

SUPERVISED CIRCUITRY: The audible 106DB alarm on the CPU control board will “alarm” to warn of possible trouble in the electronic circuitry including the heat sensors, if there is an open circuit.

SYSTEM OPERATION LIGHT: The red “power” light will blink approximately every 45 seconds to confirm the system is operating.

AUDIBLE ALARM: The system 106DB alarm is designed to continuously sound once the system has been activated by a stove top fire.

LOW BATTERY WARNING: The audible alarm on the CPU control board will “chirp” approximately every 45 seconds when a low battery condition exists. If this condition exists, 9V DC battery must be replaced immediately to insure proper system operation.

AUXILIARY OUTPUTS: Can be connected to automatic telephone dialers, monitored security alarm systems or other warning/protective equipment. Auxiliary outputs provide one (1) second impulses to activate above items. These connections are rated at 5 AMP at 250V AC.

TEMPERATURE ACTIVATED SENSOR ASSEMBLY:

The sensor assembly shall consist of two (2) metal housed detector assemblies containing diode-type heat sensors, affixed to the side of the magnetic nozzle bases, and connected to the CPU control board with two (2) different wire lengths.

DISTRIBUTION ASSEMBLY:

The distribution assembly shall consist of two (2) teflon-lined stainless steel braided hoses and two (2) magnetic based adjustable nozzle assemblies. The use of copper tubing shall not be accepted. Hose and nozzles shall comply with NFPA Standard No. 17A for Wet Chemical Extinguishing Systems and shall have been investigated by Underwriters Laboratories, Inc. (U.L.) and listed for this service.

APPLIANCE NOZZLES:

Wet System: Appliance nozzles shall be constructed of brass. Appliance nozzles with painted surfaces shall not be accepted. Appliance nozzles shall not extend below the lowest component of the range hood. Design shall provide equal distribution of chemical agent and allow chemical to flow effectively with low velocity to avoid splattering of burning grease.

APPLIANCE SHUT-DOWN DEVICE:

Each system shall be provided with a listed device to automatically shut-off the gas or electric supply to surface burners on the kitchen range top upon activation of the alarm from the fire detection unit. The gas or electric supply shall remain “off” until manually reset. Electrical power cut-off to kitchen range hood exhaust fan shall not be required for Underwriters Laboratories Incorporated (U.L.) listed extinguishing systems.

SONIC ACTIVATED ELECTRIC RANGE SHUT-OFF:

All wiring, fittings, and connections shall comply with NFPA Standard 70 and local codes and ordinances. Each electrically supplied kitchen range appliance shall be provided with a U.L. Listed wireless sonic activated shut-off.

The electric stove sonic shut-off unit continuously monitors for an alarm from the central processing unit control board. The alarm sounds to activate the sonic shut-off unit. Once activated, all electrical power to the stove is shut off, and must be reset.

SONIC ACTIVATED GAS RANGE SHUT-OFF:

Each gas supplied kitchen range appliance shall be provided with a U.L. Listed or U.L. Recognized Components as follows:

VALVE: Coil rated 9V DC, 1.4W

PRINTED WIRING BOARD: The sonic gas shut-off unit continuously monitors for an alarm from the central processing unit control board. The alarm sounds to activate the sonic gas shut-off unit. Once activated, the gas valve shall remain in the closed position and shall require manual reset by depressing the reset button located on the bottom of the valve.

The sonic gas shut-off unit is powered with a 9V DC battery. Internal circuitry monitors the condition of the battery and will cause the alarm to “chirp” approximately every 45 seconds when a low battery condition exists.

OWNER’S MANUAL:

Each system shall be provided with a comprehensive owner’s manual that shall contain procedures for post clean-up, parts identification, complete wiring diagram, system installation with pictorials for step-by-step procedures, system limitation, inspection and maintenance requirements. Reservicing/recharging procedures shall also be contained in the owner’s manual.

OPTIONAL EQUIPMENT:

MANUAL REMOTE PULL STATION: Device shall be U.L. Listed or Recognized Component supplied complete with wire leads and listed with the residential system.

REMOTE AUDIBLE ALARM: Where a cabinet design or material thickness prohibits the DB (loudness) level from activating the shut-off a remote 106 DB alarm shall be installed under the range hood. Only a remote alarm listed and compatible with the central processing unit control board shall be used.

AC/DC WALL PLUG IN POWER SUPPLY: Where a constant 9 volt power source is required an AC/DC wall plug in transformer can be supplied. Only a U.L. Listed AC/DC wall plug in power supply that has been tested and listed with the central processing control board shall be used.