

SPECIFICATIONS FOR ANSUL® R-102™ RESTAURANT FIRE SUPPRESSION SYSTEM

PART 1 – GENERAL

1.01 References

- A. Underwriters Laboratories, Inc. (UL)
 - 1. UL Standard 1254
 - 2. UL Standard 300
- B. Underwriters Laboratories of Canada (ULC)
 - 1. ULC/ORD-C 1254.6
- C. National Fire Protection Association (NFPA)
 - 1. NFPA 96
 - 2. NFPA 17A

1.02 Submittals

- A. Submit two sets of manufacturer's data sheets
- B. Submit two sets of piping design drawings

1.03 System Description

- A. The system shall be an automatic fire suppression system using a wet chemical agent for grease related fires.
- B. The system shall be capable of suppressing fires in the following areas associated with cooking equipment: ventilating equipment including hoods, ducts, plenums, and filters; fryers; griddles and range tops; upright, natural charcoal, or chain-type broilers; electric, lava rock, mesquite or gas-radiant char-broilers.
- C. The system shall be the pre-engineered type having minimum and maximum guidelines established by the manufacturer and listed by Underwriters Laboratories, Inc. (UL).
- D. The system shall be installed and serviced by personnel trained by the manufacturer.
- E. The system shall be capable of protecting cooking appliances by utilizing either dedicated appliance protection and/or overlapping appliance protection.

1.04 Quality Control

- A. Manufacturer: The R-102™ Restaurant Fire Suppression System shall be manufactured by a company with at least thirty years experience in the design and manufacture of pre-engineered fire suppression systems. The manufacturer shall be ISO 9001 registered.
- B. Certificates: The wet agent shall be a specially formulated, aqueous solution of organic salts with a pH range between 7.7 – 8.7, designed for flame knockdown and foam securement of grease-related fires.

1.05 Warranty, Disclaimer, and Limitations

- A. The pre-engineered restaurant fire suppression system components shall be warranted for five years from date of delivery against defects in workmanship and material.

1.06 Delivery

- A. Packaging: All system components shall be securely packaged to provide protection during shipment.

1.07 Environmental Conditions

- A. The R-102 system shall be capable of operating in a temperature range of 32 °F to 130 °F (0 °C to 54 °C).

PART 2 – PRODUCT

2.01 Manufacturer

- A. Tyco Fire Suppression & Building Products, One Stanton Street, Marinette, Wisconsin 54143-2542, Telephone (715) 735-7411.

2.02 Components

- A. The basic system shall consist of an ANSUL® AUTOMAN® regulated release assembly which includes a regulated release mechanism and a wet chemical storage tank housed within a single enclosure. Nozzles, blow-off caps, detectors, cartridges, agent, fusible links, and pulley elbows shall be supplied in separate packages in the quantities needed for fire suppression system arrangements. Additional equipment shall include remote manual pull station, mechanical and electrical gas valves, pressure switches, and electrical switches for automatic equipment and gas line shut-off.
- B. Wet Chemical Agent: The extinguishing agent shall be a specially formulated, aqueous solution of organic salts with a pH range between 7.8 – 8.2, designed for flame knockdown and foam securement of grease related fires.
- C. Agent Tank: The agent tank shall be installed in a stainless steel enclosure or wall bracket. The tank shall be constructed of stainless steel. Tanks shall be available in two sizes; 1.5 gallon (5.7 L) and 3.0 gallon (11.4 L). The tanks shall have a working pressure of 110 psi (7.6 bar), a test pressure of 330 psi (22.8 bar), and a minimum burst pressure of 600 psi (41.4 bar). The tank shall include an adaptor/tube assembly containing a burst disc union.
- D. Regulated Release Mechanism: The regulated release mechanism shall be a spring-loaded, mechanical/pneumatic type capable of providing the expellant gas supply to one or two agent tanks depending on the capacity of the gas cartridge used. It shall contain a factory installed regulator deadset at 110 psi (7.6 bar) with an external relief of approximately 180 psi (12.4 bar).
It shall have the following actuation capabilities: automatic actuation by a fusible link detection system and remote manual actuation by a mechanical pull station.
The regulated release mechanism shall contain a release assembly, regulator, expellant gas hose, and agent storage tank housed in a stainless steel enclosure with cover. The enclosure shall contain knock-outs for 1/2 in. conduit. The cover shall contain an opening for a visual status indicator.
It shall be compatible with mechanical gas shut-off devices; or, when equipped with a field or factory-installed switch, it shall be compatible with electric gas line or appliance shut-off devices.
- E. Regulated Actuator Assembly: When more than two agent tanks are required, the regulated actuator shall be available to provide expellant gas for additional tanks. It shall be connected to the cartridge receiver outlet of the regulated release mechanism providing simultaneous agent discharge. The regulator shall be deadset at 110 psi (7.6 bar) with an external relief of approximately 180 psi (12.4 bar). The regulated actuator assembly shall contain a regulated actuator, regulator, expellant gas hose, and agent tank housed in a stainless steel enclosure with cover. The enclosure shall contain knockouts to permit installation of the expellant gas line.
- F. Discharge Nozzles: Each discharge nozzle shall be tested and listed with the R-102 system for a specific application. Nozzles tips shall be stamped with the flow number designation (1/2, 1, 2, and 3). Each nozzle shall have a metal or rubber blow-off cap to keep the nozzle tip orifice free of cooking grease build-up.
- G. Distribution Piping: Distribution piping shall be Schedule 40 black iron, chrome-plated, or stainless steel pipe conforming to ASTM A120, A53, or A106.
- H. Detectors: The detectors shall be the fusible link style designed to separate at a specific temperature.

PART 2 – PRODUCT (Continued)

- I. Cartridges: The cartridge shall be a sealed steel pressure vessel containing either carbon dioxide or nitrogen gas. The cartridge seal shall be designed to be punctured by the releasing device supplying the required pressure to expel wet chemical agent from the storage tank.
- J. Agent Distribution Hose: Kitchen appliances manufactured with or resting on casters (wheels/rollers), which have the Fire Suppression System hard piped, shall include a UL Listed agent distribution hose as a component of the suppression system. This shall allow the appliance to be moved for cleaning purposes without disconnecting the appliance fire suppression protection. Hose assembly shall include a restraining cable kit to limit the appliance movement within the range (length) of the flexible hose.
- K. Flexible Conduit: The manufacturer supplying the Restaurant Fire Suppression System shall offer flexible conduit as an option to rigid EMT conduit for the installation of pull stations and/or mechanical gas valves. The flexible conduit shall be UL Listed and include all approved components for proper installation.
- L. Pull Station Assembly: The Fire Suppression System shall include a remote pull station for manual system actuation. The pull station shall be designed to include a built-in guard to protect the pull handle. The pull station shall also be designed with a pull handle to allow for three finger operation and shall be red in color for quick visibility.

PART 3 – IMPLEMENTATION

3.01 Installation

- A. The R-102 fire suppression system shall be designed, installed, inspected, maintained, and recharged in accordance with the manufacturer's listed instruction manual.

3.02 Training

- B. Training shall be conducted by representatives of the manufacturer.

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