



RANGE GUARD

WET CHEMICAL FIRE SUPPRESSION SYSTEM

for

Commercial Cooking Application

Systems Specifications

1. GENERAL

- 1.1 A pre-engineered, fixed pipe, automatic wet agent fire suppression system provided and installed for the kitchen exhaust hood(s) and plenum(s), and cooking appliances requiring protection.
- 1.2 The system conform to and is in accordance with the following:
 - UL 300, Underwriters Laboratories Standard for Fire Extinguishing Systems for Protection of Restaurant Cooking Areas,
 - NFPA 17A Standard on Wet Chemical Extinguishing Systems,
 - NFPA 96, Standard for Vapor Removal from Cooking Equipment,
 - The system is listed by the Singapore Productivity & Standard Board (PSB).
 - The system is approved by Bomba.

2. AGENT

- 2.1 The system uses "KARBALLOY" wet chemical agent. The agent works by a process involving:
 - i) the saponification of surface grease (turning it into combustion resistant soap),
 - ii) the cooling effects of water vaporization,
 - iii) the inerting effects of resultant steam formation and
 - iv) the interruption of the chemical chain reaction of combustion.

3. CYLINDER AND VALVE ASSEMBLIES

- 3.1 The "KARBALLOY" wet agent is contained in the pressured DOT rated steel cylinder and valve assemblies. The Cylinder and valve assemblies have the following features:
 - i) The cylinder(s) is sized according to the Manufacturer Instruction Manual and filled with the required amount of "KARBALLOY" wet agent.
 - ii) The cylinder(s) have a tin-nickel alloy plated brass valve, with pressure gauge. The pressure gauge has a stainless steel Bourdon tube. The valve contains a check stem which is operated by the action of the control head.
 - iii) The cylinder and valve assemblies is pressurized to 175PSIG with nitrogen. The cylinder and valve assemblies is capable of being stored and operated at room temperatures between 0°F (-17.8°C) and 120°F (49°C).
 - iv) Sufficient cylinder and valve assemblies is provided to protect the entire hazard area. Bracket is provided to mount the cylinder securely to the intended mounting surface.

4. CONTROL EQUIPMENT

- 4.1 The system control equipment is capable of all functions associated with automatically and manually discharging the wet agent from all cylinder and valve assemblies, including automatically shutting off the fuel to all protected cooking appliances upon system discharge.
- 4.2 The system control equipment includes the control box which can operate up to five system cylinder valves simultaneously. The control box operates the pressure operated control head(s) that are attached with two bolts to the cylinder valve. The operation of the pressure operated control head(s) is provided by the actuation, in the control box, of a Carbon Dioxide cartridge conforming to MIL-C-601G, TYPE II. All mechanical components of the control box is totally enclosed.
- 4.3 The control box is actuated automatically by mechanical means. The control box is equipped with micro-switch contacts for fuel gas shutdown. All cylinders protecting one hazard area are connected for simultaneous discharge upon actuation of the control box.
- 4.4 For mechanical automatic actuation, the system control box is activated by fusible link fire detectors. A mechanical fusible link system requires no outside source of power for operation. Fusible links is located over the protected cooking appliance and in the exhaust hood(s).
- 4.5 The system is provided with a mechanical means of systems manual activation.
- 4.6 Gas fueled appliances shall be shut off by a system gas shutoff valve installed in the gas line to the appliances (by others).

5. NOZZLES

- 5.1 Nozzles are located to protect the exhaust duct(s), plenum(s), and all cooking appliances requiring protection. Nozzle choice, coverage and location are per the applicable U.L. listed instruction manual.
- 5.2 All nozzles are equipped with strainers to prevent foreign matter inside the distribution tubing from clogging the nozzle orifice. All nozzles shall be equipped with foil seals which prevent entry of grease and foreign matter into the nozzles and piping. The foil seals are to be ruptured by pressure of system discharge.

6. DISTRIBUTION SYSTEM

- 6.1 The distribution system is NPT Schedule 40 black steel / Stainless Steel pipe or tubing.

7. OPERATION SEQUENCES

- 7.1 Fire is detected by the fusible links heat detectors, which activate the A+ control box (or the activation of the manual pull station)...causing the cylinder valve to open and also send signal to the solenoid of the gas valve to shut it. Pressure stored in the cylinder propels the "Karbalo" Wet Chemical through the system piping and out of strategically located nozzles onto the fire. Karbaloy wet chemical knocks down flames quickly and forms a protective layer that suppresses fire and prevent fire reflash.