





KITCHEN KNIGHT II Fire Suppression System

Maximize kitchen hazard protection, reliability and installation efficiency

- Customized appliance-specific design
- Wet agent technology
- Rapid flame knock-down
- Helps prevent reflash
- Flexible piping configurations
- Automatic detection and actuation
- Gas shut off valve
- UL/ULC listed

A mixture of flammable oils and greases with high efficiency heat sources creates an environment where restaurant and food service kitchen fires are continually a threat. With its wet agent technology, the PYRO-CHEM KITCHEN KNIGHT II Restaurant Fire Suppression System provides flexible, effective fire protection.

Time-Tested Kitchen Hazard Protection

The KITCHEN KNIGHT II Restaurant Fire Suppression System is a pre-engineered solution to appliance, ventilating hood and duct fires. The system employs a potassium carbonate-based wet agent that knocks down flames, cuts off air to the burning grease and cools the hazard area to help prevent reflash.

The system is designed to protect cooking appliances such as fryers, griddles, range tops, upright broilers, charbroilers and woks; and associated ventilating equipment including kitchen hoods, plenums, exhaust ducts and grease filters.

System Design Accommodates Kitchen Design

The KITCHEN KNIGHT II system is available in a variety of sizes suited to fit specific needs with flexibility to accommodate changes to appliance layout or the expansion of a cooking area. Flexible piping configurations offer a streamlined design that preserves valuable kitchen space.

The flexible agent distribution hose provides the freedom to clean beneath and behind castered appliances without disconnecting fire suppression piping. The hose allows up to 3 ft. (0.9 m) of movement and is supplied with a restraining cable to help prevent over-extension.

The system complies with NFPA Standard 17A and 96. Additional approvals and listings include UL, ULC, and NYC COA.







APPLICATIONS FOR THE KITCHEN KNIGHT II FIRE SUPPRESSION SYSTEM

Diners

Cafes

Casual and fine dining

Convenience stores

Delis

Fast food

Food courts

Food trailers and trucks

Guarding Hazard Areas 24/7

The KITCHEN KNIGHT II system provides efficient, reliable protection the moment a fire is detected via a versatile wet chemical distribution network, combined with dual, independent actuation capability. Automatic or manual system actuation releases a discharge of agent on the protected area in the form of fine droplets to suppress fire and help prevent reflash. The dedicated manual pull station allows immediate actuation and provides backup to the automatic detection system.

For added protection, KITCHEN ONE K-Class hand portable fire extinguishers, which utilize the same wet chemical agent, may be used as a backup to the system.

Superior Fire Protection for Countless Applications

Restaurant kitchens, gas stations, paint spray booths and countless other commercial and industrial applications are protected by PYRO-CHEM automatic suppression systems and fire extinguishers. Ask your Authorized PYRO-CHEM Distributor to provide the right solution for your fire protection challenges.

A Passion for Protection

Dedicated customer support. Extensive product portfolio. Engineering excellence. Trusted, proven brands. Johnson Controls offers all of these attributes, plus a passion for protection. It's what drives us to create solutions to help safeguard what matters most – your valued people, property and business.

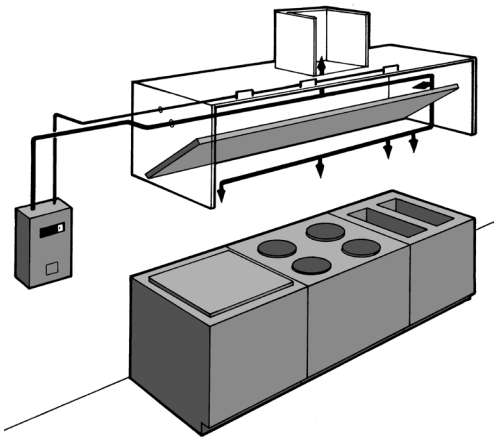
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Johnson Controls

KITCHEN KNIGHT II Restaurant Fire Suppression System

Features

- UL and ULC Approved
- Complies with NFPA Standard 17A and 96
- Meets the requirements of the Building Officials and Code Administrators (BOCA)
- Meets the requirements of the International Building Code (IBC)
- Approved by the New York City Fire Department by Certificate of Approval (COA) #5719
- CE Marked

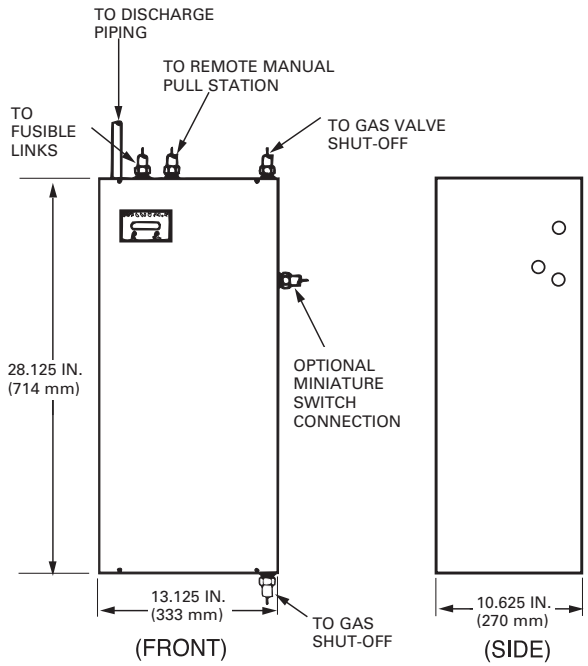


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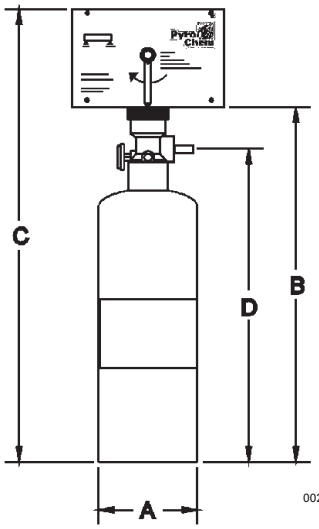
General

The KITCHEN KNIGHT II Restaurant Kitchen Fire Suppression System is a pre-engineered solution to appliance and ventilating hood and duct grease fires. The system is designed to maximize hazard protection, reliability, and installation efficiency. Automatic or manual system activation releases a throttle discharge of potassium carbonate solution on the protected area in the form of fine droplets to suppress the fire and help prevent re-ignition after the discharge is complete.

OPTIONAL CYLINDER ENCLOSURE



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Model No.	A in.	A (mm)	B in.	B (mm)	C in.	C (mm)	D in.	D (mm)	Flow Point Capacity	Weight lb	Weight (kg)	Mounting Bracket Used
PCL-160	8.00	(203)	17.75	(451)	23.50	(597)	15.44	(392)	5	34	(15)	MB-15
PCL-300	8.00	(203)	25.06	(637)	30.81	(783)	22.75	(578)	10	53	(24)	MB-15
PCL-460	10.00	(254)	25.06	(637)	30.81	(783)	22.75	(578)	15	83	(38)	MB-15
PCL-600	10.00	(254)	35.81	(910)	41.56	(1,056)	33.50	(851)	20	108	(49)	MB-1

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System Operation

The KITCHEN KNIGHT II Restaurant Kitchen Fire Suppression System has been designed for protecting kitchen hood, plenum, exhaust duct, grease filters, and cooking appliances (such as fryers, griddles, rangetops, upright broilers, charbroilers and woks) from grease fires. The versatile state-of-the-art wet chemical distribution technique, combined with dual, independent activation capability – automatic fusible link or manual release – provides efficient, reliable protection the moment a fire is detected. Once initiated, the pressurized wet chemical extinguishing agent cylinder discharges a potassium carbonate solution through a pre-engineered piping network and out the discharge nozzles. The wet chemical discharge pattern is maintained for a duration of time to ensure suppression and inhibit re-ignition. Expanded capability provides remote manual actuation, gas equipment shutdown, and electrical system shutdown. This optional equipment will enhance the basic system functions and be applicable when designing custom configurations to suit a particular customer's needs and/or comply with local codes.

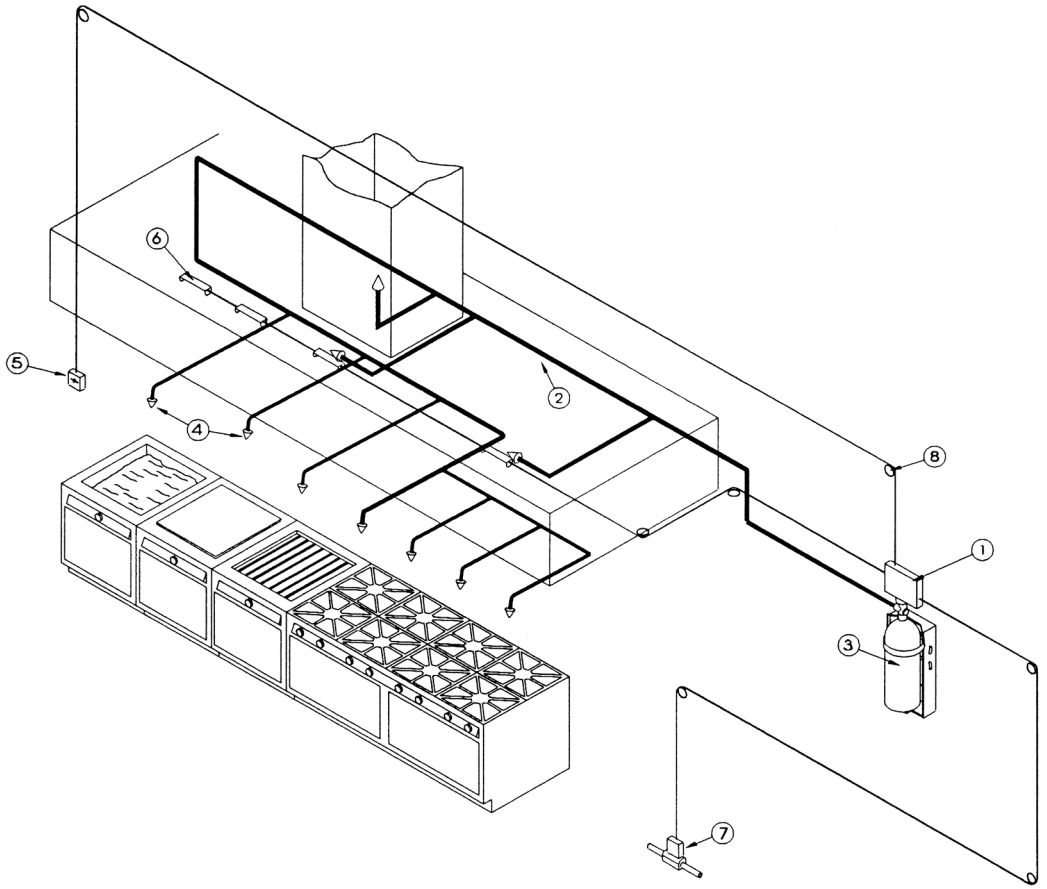
The operating temperature range of the PYRO-CHEM KITCHEN KNIGHT II System is 32 °F to 120 °F (0 °C to 49 °C).

Suggested Architect's Specifications

The fire suppression system shall be of the stored pressure, wet chemical pre-engineered fixed nozzle type manufactured by Johnson Controls. A carbon dioxide cartridge shall be used as the pneumatic releasing device for the system. The cartridge shall be an integral part of the control head assembly. The wet chemical storage cylinder shall be a DOT-rated cylinder for stored pressure of 225 psig (15.5 bar), and a pressure gauge shall be provided on the cylinder valve for visual inspection. The system shall be capable of automatic and manual actuation. Automatic actuation shall be provided by an appropriate number of fusible link detectors mounted in series on a stainless steel wire input line to the control head. Manual actuation shall be provided by turning a handle on the cylinder control head cover, if available, and/or remotely by a cable operated pull station with a dedicated stainless steel line connected between the pull station and the control head mechanism.

The system shall have been tested to the UL Standard for Fire Extinguishing Systems for Protection of Restaurant Cooking Area, UL300, and Listed by Underwriters Laboratories, Inc. It shall be installed in accordance with the National Fire Protection Association standards, NFPA 17A Standard for Wet Chemical Systems, and NFPA 96 Standard for Ventilation Control and Fire Protection of Commercial Cooking Operations, and comply with all local and/or state codes and standards. Refer to PYRO-CHEM KITCHEN KNIGHT II Restaurant Fire Suppression System Manual, Part No. 551274, for detailed installation and maintenance instructions.

Typical Installation



Typical Installation (Continued)

1. **Cylinder Control Head** – Integral design allows direct connection of the actuation pressure cylinder to the control head without the need of high pressure hose or pipe. Separate wire cable activation lines for automatic fusible links and remote pull station provide an added measure of safety. Unique technique for achieving necessary input wire cable tension.
2. **Piping** – Unbalanced piping network simplifies application design and installation. Requires no additional piping to connect system pressure cylinder to extinguishing agent container. Schedule 40 black iron, chrome-plated, or stainless steel pipe can be used.
3. **Cylinders** – Contain PYRO-CHEM Potassium Carbonate wet chemical solution stored at 225 psig (15.5 bar). Includes pressure gauge for visual maintenance checks. 1.6, 3.0, 4.6, and 6.0 gallon sizes provide 5, 10, 15, and 20 flow point coverage respectively, offering a broad range of application coverage.
4. **Nozzles** – Can be fixed or fitted with a swivel adaptor allowing the nozzle to be rotated approximately 30° in all directions.
5. **Remote Manual Pull Station** – Simple operating instructions with double action release minimizes accidental manual operation of the system. Maximum limitations of 150 ft (45.7 m) cable run with 1/16 in. cable and 40 corner pulleys apply. A dedicated wire cable input line to the cylinder control head provides manual operation in addition to automatic operation utilizing fusible link detection.

   The pull station is compatible with flexible conduit.
6. **Fusible Link Detection Equipment** – Accommodates both series and terminal placement to minimize inventory and simplify ordering. All necessary components are included for efficient assembly and installation. Fusible links rated for maximum ambient temperature must be ordered separately. Maximum limitations of 20 fusible links on a 150 ft (45.7 m) cable run with 40 corner pulleys provide substantial hazard coverage.
7. **Automatic Gas Shut-Off Valve** – Complies with requirements pertaining to the shut off of fuel as described by NFPA 17A. Can be reset at control head after regular maintenance/service check for convenience of service technician. Maximum limitations of 100 ft (45.7 m) cable run with 30 corner pulleys provide mounting flexibility.

   The gas shut-off valve is compatible with flexible conduit.
8. **Corner Pulleys And Accessories** – Designed to ensure reliable system function as tested by Underwriters Laboratories.
9. **Agent Distribution Hose (Not Shown)** – Kitchen appliances manufactured with or resting on caster (wheels/rollers) include an agent distribution hose as a component of the suppression system. This allows the appliance to be moved for cleaning purposed without disconnecting the appliance fire suppression protection. The hose assembly includes a restraining cable kit to limit the appliance movement within the range (length) of the flexible hose.
10. **Flexible Conduit (Not Shown)** – Flexible conduit allows for quicker installations and the convenience of being able to route the cable over, under and around obstacles. Flexible conduit can be used as a substitute for standard EMT conduit or can be used with EMT conduit.

    Flexible conduit can be used only with the Remote Manual Pull Station and Mechanical Gas Valves.

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Wet Chemical Extinguishing Agent

Features

- Fast flame knock-down and securement of grease-related fires
- Provides a cooling effect which further enhances its ability to prevent reflash
- Designed for a wide variety of restaurant hazards
- Listed by Underwriters Laboratories (UL) as part of the KITCHEN KNIGHT II Restaurant Fire Suppression System and KITCHEN ONE K-Class Fire Extinguishers
- Ease of recharge and post-fire cleanup

Application

PYRO-CHEM Wet Chemical is designed for use only in PYRO-CHEM Restaurant Fire Suppression Systems and K-Class Fire Extinguishers. This liquid agent will combat grease-related fires as found in restaurant appliances and ventilating equipment. It should not be used for fires involving energized electrical hazards

Description

PYRO-CHEM Wet Chemical is a specially formulated, aqueous solution of an inorganic salt. The agent is pre-mixed, eliminating the need for dilution before system charging. When used as an extinguishing agent, it will produce no toxic by-products.

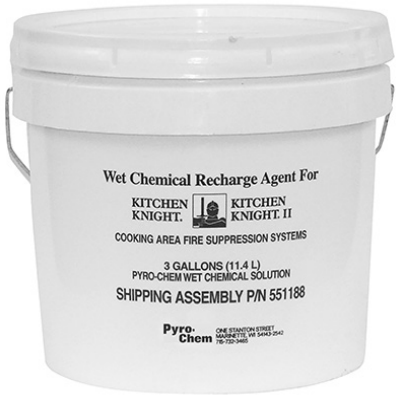
Agent Properties

Appearance	Clear, colorless liquid
Storage Life	12 Years
Refractive Index	1.39 – 1.41
Freeze Point	–40 °F (–40 °C)
Specific Gravity	1.32 – 1.52
Kinematic Viscosity	5.26 centistokes @ 25 °C
pH	12.5 – 13.5

Note: Care should be taken when handling the agent. If contact is made with the eyes or skin, flush with water for 15 minutes. If the agent is swallowed, dilute with water or milk and contact a physician.

Performance

When used in the KITCHEN KNIGHT II Restaurant Fire Suppression System or KITCHEN ONE K-Class Fire Extinguishers, PYRO-CHEM Wet Chemical is extremely effective on fires in restaurant ventilating equipment (hoods and ductwork), as well as in a variety of cooking appliances (deep-fat fryers, griddles, range tops, and several types of broilers and char-broilers).



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Suitable operating temperature is 32 °F to 120 °F (0 °C to 49 °C).

As the agent is sprayed in fine droplets (atomized) onto an appliance grease fire, it provides excellent flame knock-down, surface-cooling, and fire-securing capabilities. When the agent reacts with the hot grease, it forms a layer of foam on the surface of the fat. This soap-like blanket of foam acts as an insulator between the hot grease and the atmosphere, helping to prevent flammable vapors from escaping and reducing the chance for flame re-ignition. Post-fire cleanup can be readily accomplished by flushing the area with water or steam.

Approvals and Listings

PYRO-CHEM Wet Chemical has been tested and is listed as part of the KITCHEN KNIGHT II Restaurant Fire Suppression System with:

- Underwriters Laboratories (EX-3830)
- Underwriters Laboratories of Canada (CEX-812)
- New York City Fire Department Certificate of Approval (COA) #5719

The agent is also listed as part of KITCHEN ONE K-Class Fire Extinguishers with:

- Underwriters Laboratories (EX-5157)
- Underwriters Laboratories of Canada (CEX-1363)

Ordering Information

Part No. 553176 1.6 gal (6.1 L)
Part No. 551188 3.0 gal (11.4 L)

Recharge services are available from PYRO-CHEM Authorized distributors.

Safety Data Sheets (SDS) are available at www.ansul.com

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Model SL and Model A-PC Fusible Links

Features

- Tested and Listed for use with PYRO-CHEM KITCHEN KNIGHT II Restaurant Fire Suppression Systems, and the MONARCH Industrial Fire Suppression System through Underwriters Laboratories (UL/ULC)
- Manufactured in accordance with the applicable standards of Underwriters Laboratories (UL/ULC)
- Designed for straight pull load applications
- Fixed temperature releasing device

Model SL

- Maximum continuous load of 50 lb (22.7 kg)
- Minimum continuous load of 3 lb (1.4 kg)
- Color-coded for easy temperature rating identification

Model A-PC

- Maximum continuous load of 40 lb (18.1 kg)
- Minimum continuous load of 5 lb (2.3 kg)

Description

The Model SL and Model A-PC Fusible Links are fixed temperature releasing devices that are thermally actuated. They are tested and listed for use with PYRO-CHEM restaurant fire suppression systems and industrial fire suppression systems through Underwriters Laboratories (UL/ULC).

The fusible links are designed for straight pull load applications. The SL link can withstand a maximum continuous load of 50 lb (22.7 kg) and a minimum continuous load of 3 lb (1.4 kg). The A-PC link can withstand a maximum continuous load of 40 lb (18.1 kg) and a minimum continuous load of 5 lb (2.3 kg).

Both the SL and A-PC links operate in the same manner. When the fusible alloy melts due to exposure to heat, the fusible assembly compresses, allowing the assembly to release from between the two halves of the fusible link. The two halves of the link are then separated by the tension force exerted by the continuous duty load.

Application

The fusible links are installed over cooking appliances and in the ducts of kitchen cooking equipment in restaurant fire suppression systems. They are also installed in vehicle and open face paint spray booths, and in total flooding/local applications in industrial fire suppression systems.

MODEL SL FUSIBLE LINKS



008984

MODEL A-PC FUSIBLE LINKS



009386

The links must be installed and maintained in compliance with the applicable standards of the National Fire Protection Association (NFPA), in addition to any other authorities having jurisdiction.

Fusible links installed per NFPA 96, "Standard for Ventilation Control Fire Protection of Commercial Cooking Operations," are to be inspected and replaced in accordance with NFPA 96. For installations other than per NFPA 96, the applicable NFPA Standard and supporting technical manual recommendations must be followed.

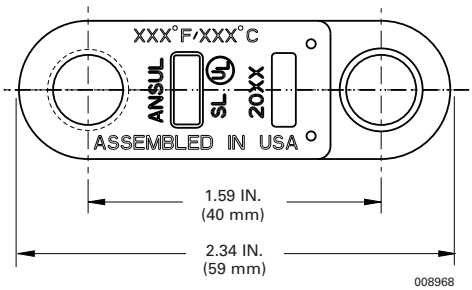
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Application (Continued)

MODEL SL FUSIBLE LINK

Part No.*	Link Temperature Rating °F	(°C)	Maximum Allowable Temperature Exposure °F	(°C)	Color of Link
439085	165	(74)	100	(38)	Black
439086	212	(100)	150	(66)	White
439087	280	(138)	225	(107)	Blue
439088	360	(182)	290	(143)	Red
439089	450	(232)	360	(182)	Green

*Part numbers listed are for the 25 pack assembly.

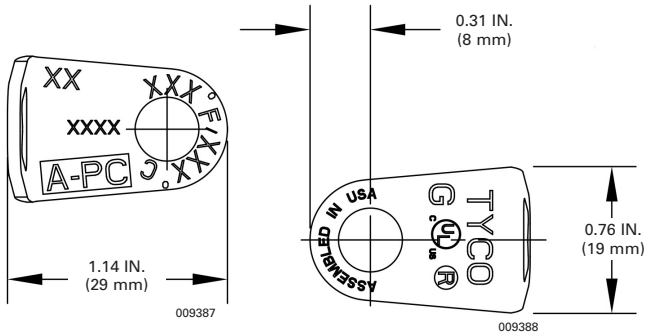


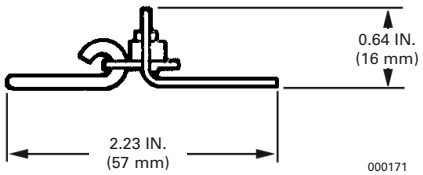
MODEL A-PC FUSIBLE LINK

Part No.	Link Temperature Rating °F	(°C)	Maximum Allowable Temperature Exposure °F	(°C)
439227**	165	(74)	100	(38)
439228**	212	(100)	150	(66)
439229**	280	(138)	225	(107)
439230**	360	(182)	290	(143)
439231**	450	(232)	360	(182)
439232***	500	(260)	400	(204)

** 10 pack assembly

***25 pack assembly





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