

The ATTENDANT Dry Chemical Gasoline Station Fire Suppression System

General

The ATTENDANT Gasoline Station Fire Suppression System is a fire control system designed to aid and help enable occupants to evacuate parked vehicles subjected to fire resulting from spilled fuel in the protected area of gasoline service stations. A secondary purpose is to suppress small spill fires in the protected area.

Gasoline service station vehicle fueling area fires are unique hazards, having environmental and physical variables that can affect the suppression capability of The ATTENDANT Gasoline Station Fire Suppression System. These variables include:

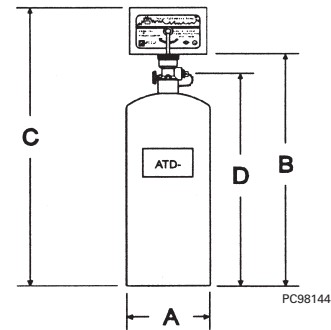
1. Unusual wind or weather conditions.
2. Spills that extend beyond the protected area.
3. Sources of ignition beyond the protected area.
4. Sources of ignition that continue past the end of the discharge.
5. Large trucks and unforeseen obstacles to the discharge pattern.

System Operation

The ATTENDANT Gasoline Station Fire Suppression System has been designed and tested to the September 29, 1998 revision of **UL 1254 Standard for Pre-Engineered Dry Chemical Extinguishing System Units** and is Listed by Underwriters Laboratories for main island protection and end-of-island protection.

A modular concept of protection is used. A nozzle pair (called a "cluster") protects a specific hazard module determined by the hazard size and the cluster's positioning within the module. Sets of clusters are located to protect adjacent hazard modules that make up the hazard area. A dedicated, stored-pressure cylinder containing monoammonium phosphate-based dry chemical suppressing agent supplies the clusters with the necessary fire fighting agent through a fixed piping network. Electrical fixed temperature thermal detectors are strategically positioned over the dispenser island. These detectors monitor the ambient temperature of the hazard area, and initiate a signal in the event that the rated temperature is exceeded. The control head receives this signal and responds by initiating a pneumatic actuation system. This actuation system opens the valve assemblies on the agent storage cylinders and releases the agent into the discharge piping network. A mechanical means of manually activating the system without electrical power is provided. This manual actuation may be either by turning the lever on the control head, or pulling the handle on a remote manual release device.

Expanded capability is available to provide supervision of the detection/initiation circuit, remote electrical manual actuation, gas dispenser shut down, and audible alarm. Optional equipment will enhance the basic system functions and be applicable when designing custom configurations to suit a particular customer's needs or to comply with local codes.



Model No.	A in. (mm)	B in. (mm)	C in. (mm)	D in. (mm)	Approx. Weight lb (kg)	Mounting Brackets
ATD-35	10.00 (254)	30.00 (762)	35.75 (908)	27.75 (704)	70 (31)	MB-ATD or MBU10
ATD-75	12.00 (305)	34.75 (882)	40.50 (1028)	32.50 (825)	137 (62)	MB-ATD or MBU12

Suggested Architect's Specifications

1. General

1.1 The fire suppression system shall be the stored pressure dry chemical pre-engineered fixed nozzle type manufactured by Johnson Controls. This system shall provide for protection of the gasoline station vehicle fueling area(s) described and defined in drawing ____ (Note drawing number and revision).

1.2 The system shall be capable of automatic and manual actuation. It shall be tested in accordance with the September 29, 1998 revision of **U.L. 1254 Standard for Pre-Engineered Dry Chemical Extinguishing System Units**, and be Listed by Underwriters Laboratories. The system shall be installed and maintained in accordance with NFPA 17 *Standard for Dry Chemical Extinguishing Systems*, NFPA 30 *Flammable and Combustible Liquids Code*, the manufacturer's UL Listed Technical Manual, and all local and/or State Codes and Standards.

1.3 The system shall be designed for operation at ambient temperatures from -40 °F to 120 °F (-40 °C to 49 °C).

1.4 The system shall be designed for operation in a minimum 10 mile per hour wind.

2. Cylinder and Agent

2.1 - Agent. The suppressing agent shall be PYRO-CHEM monoammonium phosphate-based dry chemical agent (ABC type).

2.2 - Cylinders. Steel cylinders manufactured, tested, and marked in accordance with DOT 4BW350 shall be used to store the suppressing agent. Cylinder Models ATD-35 and ATD-75 shall be used with suppressing agent fill weight of 35 lbs (16 kg) and 75 lbs (34 kg), respectively. All models are charged with dry nitrogen to 350 psig at 70 °F (24 bar at 21 °C.)

2.3 - Cylinder valve. A pressure sealed poppet-type valve having a brass body, stainless steel stem with rubber seat washer, fusible safety relief assembly, and pressure gauge shall be used on all agent cylinders.

Suggested Architect's Specifications (Continued)

2. Cylinder and Agent (Continued)

2.4 - Cylinder bracketing. Cylinders shall be mounted vertically. The cylinders shall be secured by use of a steel mounting bracket affixed to a rigid bracket capable of supporting the weight of the filled cylinder and the concussion of cylinder discharge.

3. Actuation Controls

3.1 - Control Head. The system control head shall include a Model ECH-Series Control Head. The control head shall be mounted directly on the valve of a pneumatic actuating cylinder. A carbon dioxide pilot cartridge that complies with MIL-C0601G shall be used as an integral component of the control head. Control head status shall be visually indicated by a SET/FIRED indicator.

3.2 - Detection. The ambient temperature of the hazard area shall be monitored by fixed temperature electrical thermal detectors. When the temperature of the hazard area exceeds the rating of any detector, the detector shall close a normally open switch element within the detector, sending a signal to the control head. This signal shall energize a solenoid in the control head which exercises the control head and actuates the system.

3.3 - Pneumatic actuation. The system shall have a PAC-Series Pneumatic Actuating Cylinder whose valve opens upon activation of the control head. The valve shall release nitrogen from the PAC cylinder into the pneumatic pipe and tubing network. This nitrogen shall depress a piston above the valve stem in each agent cylinder, opening each agent cylinder valve and releasing the pressurized agent.

3.4 - Manual actuation. The system shall have mechanical manual actuation capability requiring no electrical power. This is accomplished locally by twisting the handle on the cover of the ECH-Series Control Head, or remotely by means of a Model RPS-M remote mechanical pull station.

3.5 - Auxiliary output. The system shall shut off power to all fuel dispensing units in the event of system actuation. This is accomplished by means of dry contacts on a Model MS-DPDT

micro switch installed in the ECH-Series Control Head. The micro switch may also be used for auxiliary functions such as audible alarms or alarm signaling.

3.6 - Supervision. A Model SM Series Solenoid Monitor shall be used to supervise the integrity of all electrical actuation circuits, whether automatic or manual.

3.7 - Manual electrical actuation (optional). The system can have electrical manual actuation capability. This is accomplished by the use of a Model RPS-E2 Remote Electrical Pull Station installed in the automatic detection circuit.

4. Distribution Nozzles

4.1 - Nozzles. The system shall utilize Model N-ATD Discharge Nozzles to distribute agent throughout the hazard area. The quantity, location, and orientation of nozzles shall be in accordance with The ATTENDANT Gasoline Station Fire Suppression System Technical Manual (Part No. 550670, latest revision).

4.2 - Nozzle covers. All nozzles shall be installed with nozzle covers to prevent foreign matter from clogging the discharge nozzles.

5. Pipe and Fittings

5.1 - Pipe. All pipe shall be Schedule 40 black, galvanized, chrome plated or stainless steel pipe in compliance with NFPA 17. All pipe ends shall be thoroughly reamed after cutting, and all oil, chips, and debris shall be removed prior to nozzle installation.

5.2 - Fittings. Standard weight malleable, galvanized, chrome plated or stainless steel fittings shall be used.

5.3 - Size. All system pipe and fittings will be sized in accordance with the system Technical Manual. No substitutions are allowed.

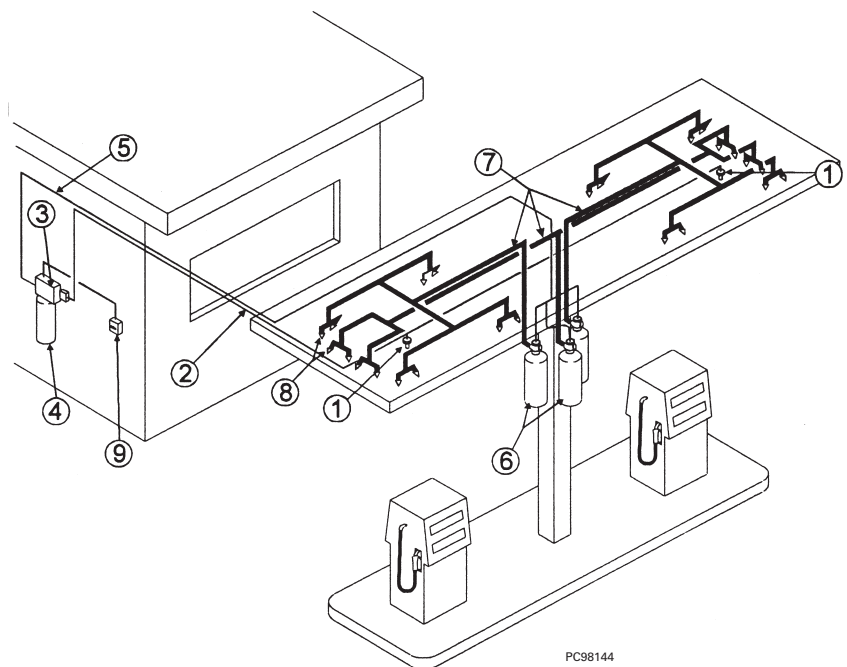
5.4 - Joints. No joint sealant shall be used in the discharge piping. Exception: Teflon tape may be used to help ensure a snug fit.

5.5 - Straps. All system discharge pipe shall be securely fastened by means of pipe hangers and/or pipe straps. UL listed pipe hangers shall be used.

5.6 - Union. A union shall be installed in the discharge piping conveniently close to the cylinder valve to permit disconnection for inspection and service.

TYPICAL MAIN ISLAND PROTECTION

1. Fixed temperature electrical thermal detectors
2. Electrical conduit protecting wiring
3. Model ECH-Series Control Head
4. Model PAC-10/200 Pneumatic Actuating Cylinder
5. Pneumatic actuation line
6. Model ATD-35/75 Agent Storage Cylinders
7. Fixed agent distribution piping
8. Model N-ATD Discharge Nozzles
9. Model RPS-M Remote Mechanical Pull Station



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

Note: The converted values in this document are provided for dimensional reference only and do not reflect an actual measurement.

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