

Refrigerated Area Sprinkler Systems

A refrigerated area sprinkler system affords fire protection in refrigerated rooms or buildings and includes special safeguards against accidental filling with water and subsequent freezing of the system. A fire detection system shall actuate and one or more automatic sprinklers in the piping shall operate before water will enter the sprinkler system. An alarm sounds if the detection system only is actuated while pneumatic pressure is maintained in the sprinkler piping. An alarm also sounds if the pneumatic pressure in the sprinkler piping is not properly maintained. In either case, water does not enter the system piping. These systems should be installed in accordance with FM Global Loss Prevention Data Sheet 8-29, "Refrigerated Storage". System calculations regarding required system air capacity should be performed if only one air maintenance device is contemplated for several sprinkler systems.

Refrigerated area sprinkler systems which are operated pneumatically/hydraulically are FM Approved as complete systems. Only the listed components for a given system may be used in combination.

Fire detection systems which are operated electrically are FM Approved on a component basis. Only compatible components may be used in combination. Compatible FM Approved Release Control Panels for use with electric release refrigerated area sprinkler system(s) are listed under RELEASE CONTROL PANEL COMPATIBILITY.

Type D Double Interlock Preaction System

Type D Double Interlock Preaction System. Electric/electric, consists of Model DDX Deluge Valves in sizes 2, 2-1/2, 3, 4, 6 and 8 inch (50, 65, 80, 100, 150 and 200 mm) NPS. The system rated working pressure is dependent on the solenoid valve used. Grooved inlet and outlet, installed vertically. Major trim components consist of the following:

- Model B emergency station / manual pull boxes
- Model A-2 pressure maintenance device
- System Sensor Model EPS10-2 supervisory low air pressure switch
- Any compatible FM Approved Fire Alarm/Releasing Control Panel and associated batteries
- Water flow alarm switch
- FM Approved thermal detector
- Solenoid valve:

- o Solenoid part number 6871020000 for systems rated at 175 psi (1205 kPa)
- o Solenoid part number 6871020020 for systems rated at 250 psi (1725 kPa)

- System Main Drain Valve:

- o Model DDX automatic water control valves in sizes 2, 2-1/2, and 3 inch NPS a 1-1/4 inch NPS drain valve is used.
- o Model DDX automatic water control valves in sizes 4, 6 and 8 inch NPS a 2 inch NPS drain valve is used.

Optional components include:

- Reliable nitrogen regulating device
- Model C mechanical sprinkler alarm
- Butterfly or OS&Y water supply control valve
- Tamper switch for water supply control valve
- System Sensor EPS10-2 waterflow alarm pressure switch
- Trouble & alarm annunciators
- Tank mounted air compressor

Type D Double Interlock Preaction Systems are available factory assembled in the Reliable Pre-Pak enclosure in sizes 2, 2-1/2, 3, 4 and 6 inch (50, 65, 80, 100 and 150 mm) NPS. Consists of a cabinet containing all system components and accessories, and requires only the connection to the water supply inlet, water outlet (to system), main drain, the alarm and detection connections, and the electrical power supply. Integral components of the Type D Double Interlock Preaction System in a Pre-Pak enclosure consist of the following:

- Water Supply Control Valve
- Alarm Test Valve
- Main Drain Valve, trim shutoff ball valves, and ball drip valve
- 120/220 VAC terminal box for control panel and air compressor with internal factory wired connections
- 24 VDC terminal box with internal factory wired connections for solenoid release valve, low system air pressure switch, supply valve position indicator switch, backup power, heat and smoke detector initiating circuits, and alarm pressure switch
- Model DDX automatic water control valve in size 2, 2-1/2, 3, 4, and 6 inch (50, 65, 80, 100, and 150 mm) NPS with Type D Double Interlock Preaction Trim set
- One Gast air compressor as shown below:

- o Model 1HAB-11T-M100X 1/6 hp air compressor for the 2 and 2-1/2 inch (50 and 65 mm) NPS sizes
- o Model 3HEB-13T-M345 1/3 hp air compressor for the 3 inch (80 mm) NPS size
- o Model 5HCD-108-M550NGX 3/4 hp air compressor for the 4 or 6 inch (100 150 mm) size
- o Optional Model 7HDD-16-M750X 1-1/2 hp air compressor for the 6 inch (150 mm) NPS size

- One air tank

- o 2 gallon (9.1 liters) air tank for the 2, 2-1/2, and 3 inch (50, 65, or 80 mm) NPS sizes
- o 8 gallons (30.3 liters) air tank for the 4 and 6 inch (100 and 150 mm) NPS sizes

- One Potter Model PFC-4410-RC Releasing/Control Panel
- One Pressure Maintenance Device for system air supervision (contains regulator, check valve, strainer, and rapid-fill option).

- All required fittings, gauges, electrical connectors, and electrical devices to utilize the system in single interlock, single interlock cross-zoned, double interlock, and double interlock cross-zoned applications.

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