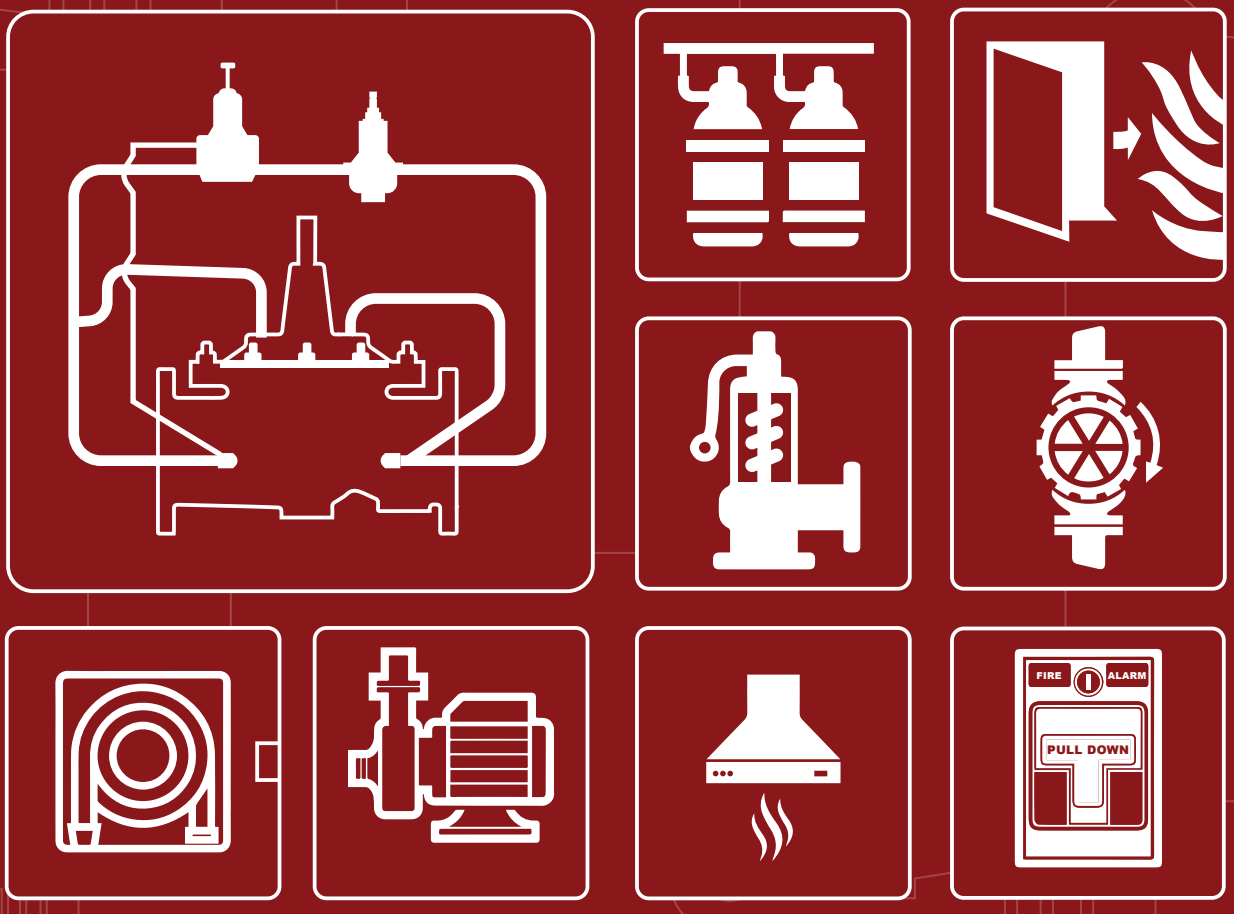
Nasr Awwadeh Factory

For Fire Fighting and Safety Equipment

FIRE FIGHTING SPECIAL VALVES



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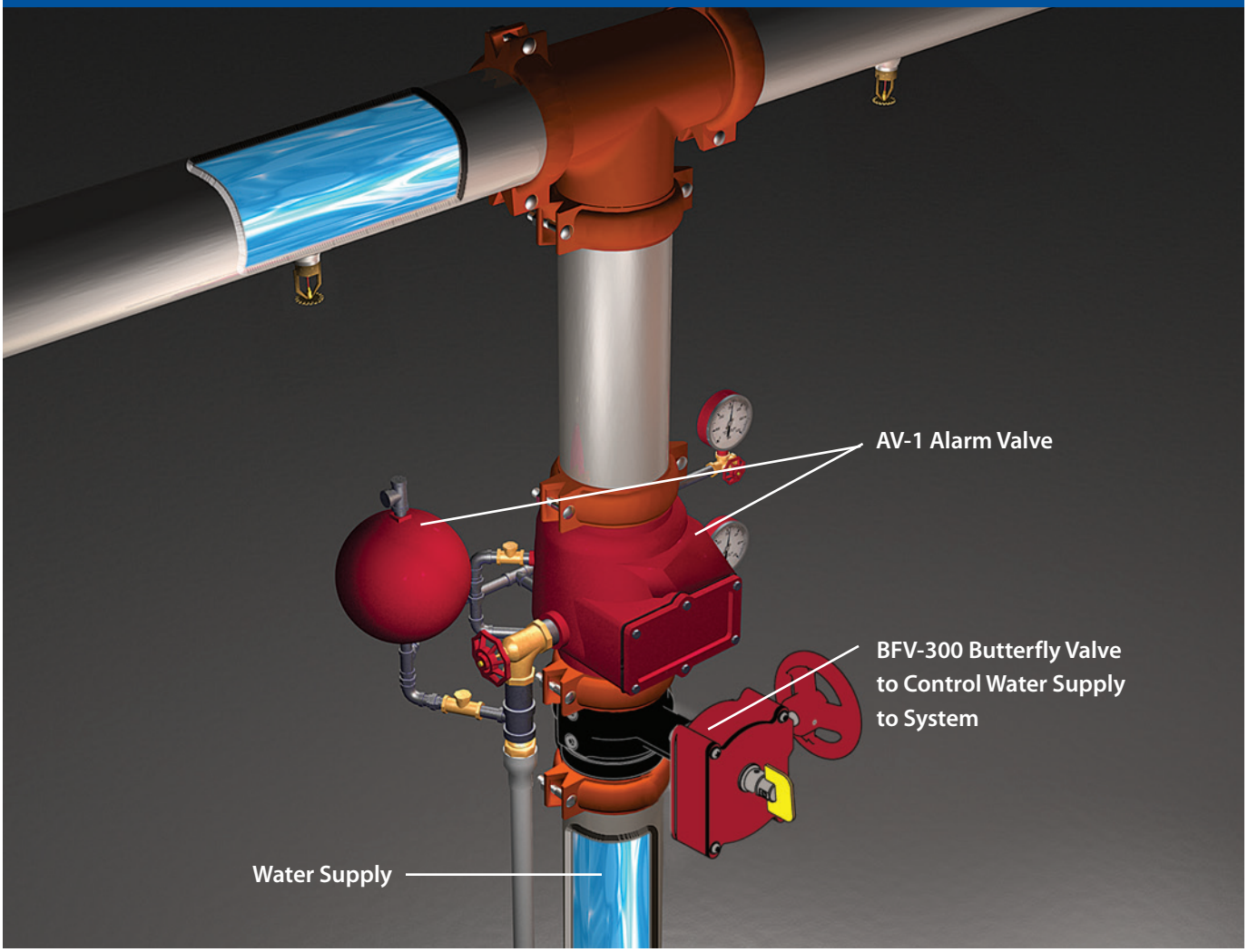
SEAMLESS SAFETY

Wet Pipe Sprinkler Systems

Designed for use in wet pipe sprinkler systems.

- Heated Warehouses
- Factories
- Hospitals
- Shopping Centers
- Apartment or Condominium Complexes
- Single Family Residences

Wet System Valves & Devices



AV-1-300

Alarm Valve

Size Range	2½" thru 8" (DN65 thru DN200)
Approvals	UL, C-UL Listed & FM Approved
Working Water Pressure	20 to 300 psi (1,4 to 20,7 bar)
System	For use in wet pipe (automatic sprinkler) fire protection systems
End Connection	Groove x Groove, Flange x Flange, Flange x Groove
Flange Drilling	ANSI, ISO, AS, & JIS
Tech Data Sheet	**TFP910**

AV-1 Alarm Valves may be installed vertically or horizontally ■ Alarm Valves are divided seat ring, rubber-faced clapper, check type, water flow alarm valves ■ Automatically actuates electrically and/or hydraulically operated alarms when there is a steady flow equivalent to the discharge rate for one or more sprinklers ■ Optional Retard Chamber used in installations subject to variable pressure (generally associated with public water supplies) to help prevent false alarms ■ Available pre-assembled with modular trim to provide a quick and convenient method for trimming valve risers. Contact TFP for details

Always refer to the product's Technical Data Sheet for a complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines, and our limited warranty.

RC-1

Retard Chamber

Approvals	UL, ULC, & FM for use with: Model AV-1-300 Alarm Check Valves UL, ULC, FM, VdS, & LPCB for use with the following Alarm Check Valves: Model AV-1-175, Gem Model F20/F200/F2001, Gem Model A, Star Model S30/S300/S3001
Maximum Working Pressure	300 psi (20,7 bar)
System	For use in a wet type automatic sprinkler system riser
Tech Data Sheet	**TFP920**

The Model RC-1 Retard Chamber is required in installations that will be subject to pressure variations, as are generally associated with public water supplies, in order to help prevent false alarms

CV-1FR

Riser Check Valve

Size Range	2" thru 12" (DN50 thru DN300)
Approvals	UL, C-UL Listed & FM Approved
Maximum Working Pressure	300 psi (20,7 bar)
System	For use in a wet type automatic sprinkler system riser
End Connection	Groove x Groove
Tech Data Sheet	**TFP950**

Can be installed using GRINNELL Grooved Couplings or GRINNELL Figure 71 Flange Adapters ■ Designed with a removable cover for ease of field maintenance ■ Standard seal is grade "E" EPDM

RM-1

Riser Manifolds

Size Range	NFPA 13 - 1-1/2" thru 6" (DN40 thru DN150) NFPA 13D - 1" (DN25) NFPA 13R - 1-1/2" thru 2" (DN40 thru DN50)
Approvals	UL, C-UL Listed & FM Approved Listed by California State Fire Marshall
Maximum Working Pressure	300 psi (20,7 bar)
System	For use in commercial or residential sprinkler systems
End Connection	Thread x Thread, Groove x Groove
Tech Data Sheet	**TFP963**

Riser Manifolds may be installed either horizontally or vertically orientation, for both single sprinkler rises and floor control in high-rises. ■ Optional Pressure Relief Kits feature a 175 psi pressure relief valve and trim components for convenient integration into commercial and residential riser manifold assemblies.

Always refer to the product's Technical Data Sheet for a complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines, and our limited warranty.

Wet System Valves & Devices

RSV-1

Residential Shutoff Valve

Size Range	NFPA 13D – 1" (DN25) NFPA 13R or NFPA 12D – 2" (DN50)
Approvals	UL, C-UL, & NSF-61
Maximum Working Pressure	175 psi (12,1 bar)
System	For use in residential sprinkler systems
End Connection	Thread x Thread
Tech Data Sheet	**TFP980**

During the design of a residential sprinkler system, domestic water use should be taken into consideration unless the domestic supply can be stopped when a sprinkler operates ■ When a sprinkler operates, water supply is automatically diverted from the domestic system to the sprinkler system ■ Eliminates the need for pumps, pressurized storage tanks, or electrically operated domestic shutoff valves ■ Valve automatically resets after the fire protection system is returned to normal service

Resi-Riser

Residential

Size Range	1" thru 2" (DN25 thru DN50)
Maximum Working Pressure	175 psi (12,1 bar)
System	For use in residential sprinkler systems
End Connection	Thread x Thread
Tech Data Sheet	**Contact Tyco for details**

Compact, pre-assembled, ready to install sprinkler riser ■ Brass construction for use in potable water supply ■ Integral test and drain assembly, flow switch with retard mechanism, 300 psi gauge, and check valve ■ Compact size allows for easy installation between 2" x 4" (50-100 mm) studs ■ Molded mounting points allow for fast and easy left or right hand installation ■ Available with or without pressure relief valve or flow switch retard mechanism features

WMA-1

Water Motor Alarm

Size Range	NFPA 13D – 1" (DN25) NFPA 13R or NFPA 12D – 2" (DN50)
Approvals	UL, ULC Listed & FM, VdS, & LPCB Approved
Maximum Working Pressure	300 psi (20,7 bar)
System	For use in a wet type automatic sprinkler system riser
Tech Data Sheet	**TFP921**

Hydraulically operated outdoor alarm for use with appropriate fire protection system valves (alarm, dry, deluge) ■ Supplied by dedicated outlet in valve trim line or retard chamber ■ Uses energy-efficient lightweight impeller design capable of producing very high sound level ■ Corrosion-resistant aluminum alloy gong, gong-mount, and water motor housing ■ Furnished with approved ¾" (20 mm) Y-strainer for use in alarm line

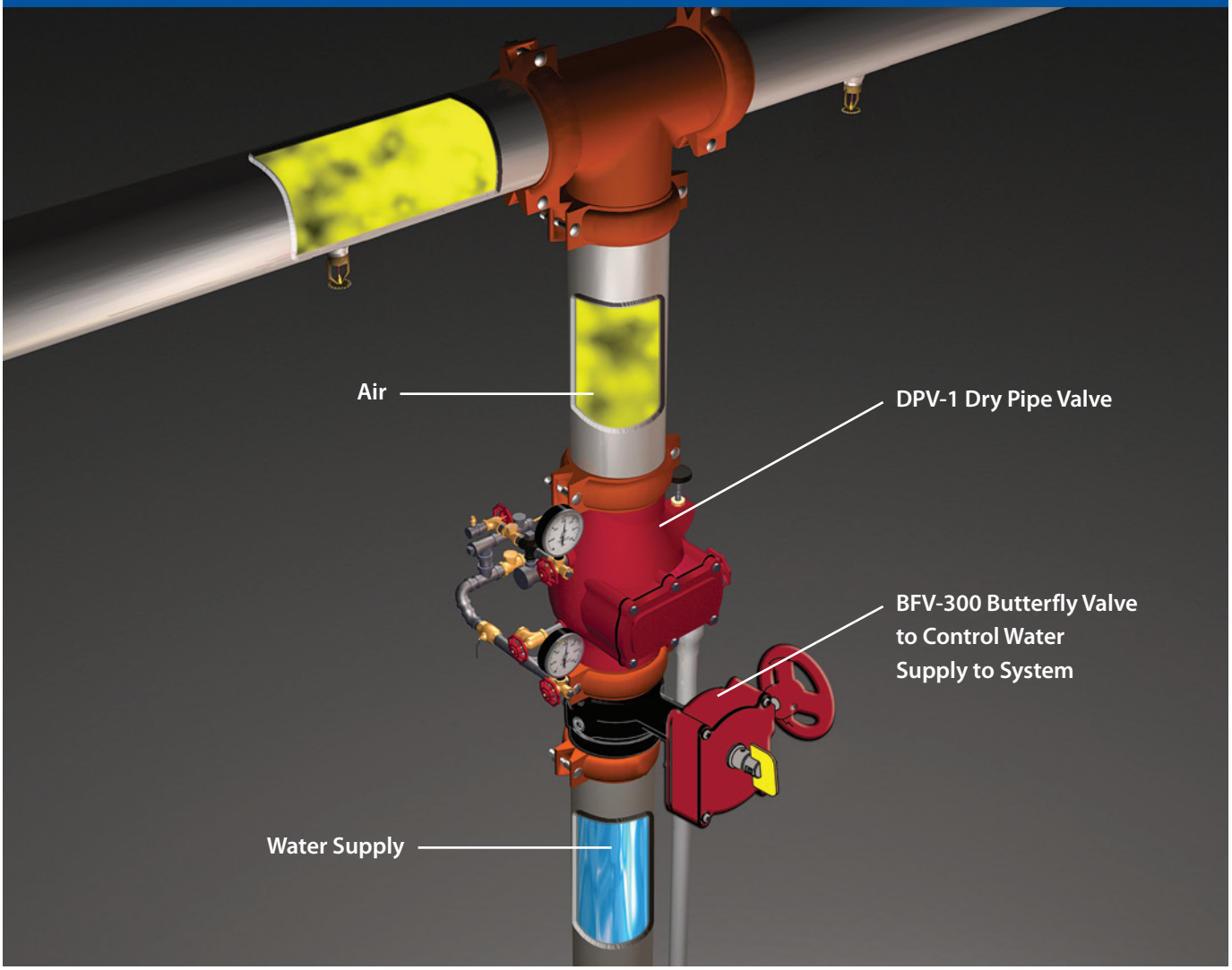
Always refer to the product's Technical Data Sheet for a complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines, and our limited warranty.

Dry Pipe Sprinkler Systems

Designed for use in dry pipe sprinkler systems where piping and sprinklers are subjected to freezing temperatures.

- Unheated Warehouses
- Parking Garages
- Store Windows
- Attic Spaces
- Loading Docks

Dry System Valves & Devices



DPV-1

Dry Pipe Valve

Size Range	2½" thru 6" (DN65 thru DN150)
Approvals	UL, C-UL Listed & FM Approved
Maximum Service Pressure	250 psi (17,2 bar)
System	For use in dry pipe fire protection systems
End Connection	Groove x Groove, Flange x Flange, Flange x Groove
Flange Drilling	ANSI, ISO, AS, & JIS
Tech Data Sheet	**TFP1020**

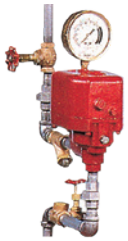
External reset differential dry pipe valves ■ Unique offset single clapper design enabling a simple compact valve to minimize installation labor ■ Used to supply sprinkler installations in which sprinklers are subjected to freezing conditions (40˚F / 4˚C or less) ■ Ductile iron construction to ensure a lightweight valve to minimize shipping cost. ■ Compact, Pre-Trimmed, and Semi-Assembled, easy to operate valve trim. ■ Simple reset procedure through the elimination of priming water.

Always refer to the product's Technical Data Sheet for a complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines, and our limited warranty.

Dry System Valves & Devices

ACC-1

Dry Pipe Valve Accelerator



Approvals	UL, C-UL Listed & FM, LPCB Approved
Maximum Working Air Pressure	70 psi (4,8 bar)
System	For use in dry pipe fire protection systems
End Connection	Threaded
Tech Data Sheet	**TFP1112**

Model ACC-1 Accelerator reduces the time for valve operation following the operation of one or more automatic sprinklers. ■ Automatically adjusts to small or slow changes in system pressure but trips upon a rapid and steady drop in pressure ■ Designed to trip when system air pressure drops at a rate exceeding approximately 1 psi/minute (0.07 bar/min) ■ Upon tripping, it transmits system air pressure to the intermediate chamber of the dry pipe valve, which neutralizes the differential pressure holding the valve closed and opens the waterway clapper ■ Rated for use at a maximum water supply pressure of 250 psi (17,2 bar) and a maximum system air (or nitrogen) pressure of 70 psi (4,8 bar)

QRS

Electronic Accelerator

Approvals	UL Listed & FM Approved
Maximum Working Air Pressure	70 psi (4,8 bar)
System	For use in dry pipe fire protection systems
End Connection	Threaded
Tech Data Sheet	**TFP1100**

Quick opening device intended to reduce the time for dry pipe valve operation following the operation of one or more automatic sprinklers. ■ Automatically adjusts to both small and slow changes in system pressure, but trips with a steady drop in pressure (as in the case of sprinkler operation) ■ Can be used to retro-fit existing mechanical accelerators ■ Fully assembled package includes switch, solenoid, control panel, and accelerator trim pipe and fittings ■ Built-in low and high pressure alarm supervision ■ Proven electronic release technology as used for electrically operated deluge and preaction systems ■ Battery back-up in the event of primary power failure ■ Eliminates re-setting problems often incurred with traditional mechanical accelerators

VIZOR

Electronic Dry Pipe Accelerator

Approvals	UL, C-UL Listed & FM Approved
Max. Water Pressure	300 psi (20,7 bar)
Air Pressure	10 psi (0,7 bar) to 65 psi (4,5 bar)
System	For use in dry pipe fire protection systems
End Connection	Threaded
Tech Data Sheet	**TFP1105**

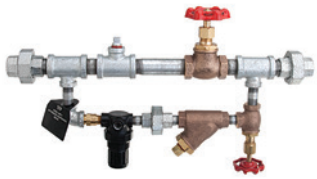
Direct mounting to the riser ■ Installation consistent with the installation of mechanical devices ■ Easy test-and-reset function, as compared to mechanical accelerators ■ Battery back-up in the event of primary power failure ■ Electronically self-supervising technology, similar to that used in typical alarm panels for alarm and detection systems ■ Built-in low-pressure and high pressure alarm supervision

Always refer to the product's Technical Data Sheet for a complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines, and our limited warranty.

Dry System Valves & Devices

AMD-1

Air Maintenance Device, Pressure Reducing Type



Approvals	UL, C-UL Listed & FM Approved & NYC Approved under MEA 206-02-E
Field-Adjustable Outlet Pressure Range	5 to 70 psi (0,4 to 4,8 bar)
Maximum Inlet Air Supply Pressure	200 psi (13,8 bar)
System	For use in dry pipe fire protection systems
Tech Data Sheet	**TFP1221**

Field adjustable ■ Used in systems where compressed air source is available ■ Used in systems in which the air supply is at a higher pressure than is desired for a sprinkler system or dry pilot line system

AMD-2

Air Maintenance Device, Compressor Control Type

Approvals	UL, C-UL Listed & FM Approved & NYC Approved under MEA 206-02-E
Field-Adjustable Pressures	Minimum Cut-In (On) 14 psi (1,0 bar) Maximum Cut-Out (Off) 60 psi (4,1 bar)
NEMA Rating	The housing of the Pressure Switch meets NEMA 1 requirements.
System	For use in dry pipe fire protection systems
Tech Data Sheet	**TFP1231**

Field adjustable ■ Used in conjunction with a small, non-tank-mounted air compressor ■ Monitors sprinkler system or dry pilot line detection for deluge system air pressure and automatically cycles the compressor to maintain system pressure within preset limits

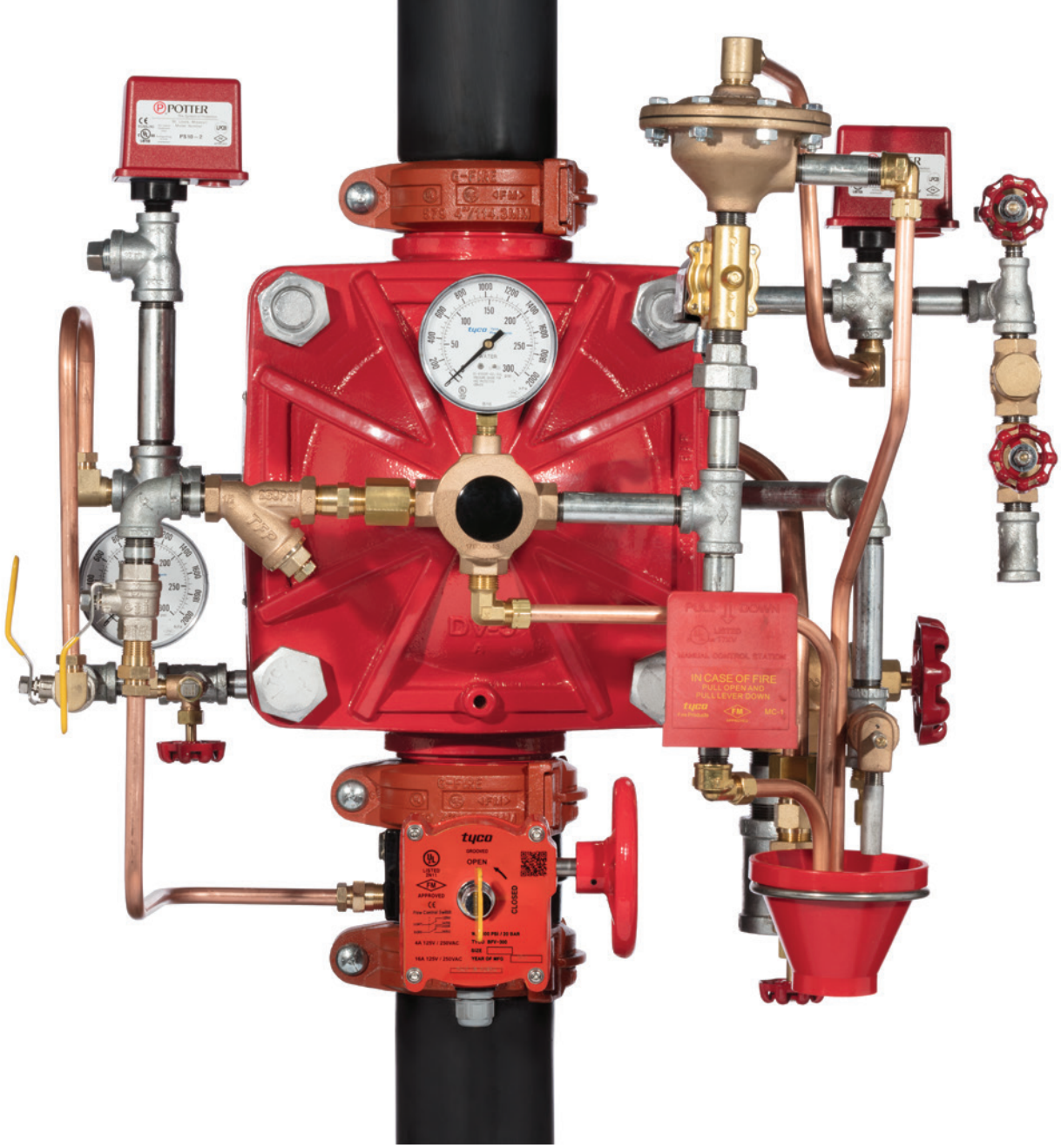
AMD-3

Nitrogen Maintenance Device, High Pressure (Cylinder) Reducing Type

Approvals	UL, C-UL Listed & FM Approved & NYC Approved under MEA 206-02-E
Field-Adjustable Outlet Pressures Range	4 to 60 psi (0,4 to 4,1 bar)
Maximum Inlet Nitrogen Supply Pressure	3000 psi (200 bar)
System	For use in dry pipe fire protection systems
Tech Data Sheet	**TFP1241**

Field adjustable ■ Used in conjunction with a cylinder of high pressure nitrogen to control the nitrogen pressure in a sprinkler system or a dry pilot line detection for deluge systems

Always refer to the product's Technical Data Sheet for a complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines, and our limited warranty.



Deluge & Preaction Systems

For use in deluge and preaction fire sprinkler systems.

- Aircraft Hangars
- Refrigerated Areas
- Flammable Liquid Handling
- High-Hazard Installations Using Water as Extinguishing Agent
- Archives
- Libraries

Deluge & Preaction Systems

DV-5A

Deluge Valve, External Resetting Diaphragm Style – 1 1/2" thru 8"

The TYCO DV-5A Automatic Water Control Valves are diaphragm type valves that can be used in deluge fire protection systems. When properly trimmed, the double seat design of the DV-5A Valve also provides actuation of fire alarms upon system operation.

The diaphragm style design of the DV-5A Valve allows external resetting, providing for easy resetting of a deluge system without having to open a valve handhole cover to manually reposition a clapper and/or latch mechanism. Simply re-pressurizing the diaphragm chamber resets the valve.

The DV-5A features internal and external coating of the valve to provide corrosion resistance. The external corrosion resistance of the epoxy coating permits the use of the DV-5A in corrosive atmospheres associated with many types of industrial processing plants and outdoor installations.

Size Range	1 1/2" thru 8" (DN40 thru DN200)
Approvals	UL, C-UL Listed & FM, VdS & LPCB Approved
Maximum Service Pressure	20 psi (1,4 bar) to 300 psi (20,7 bar)
Types of System	**Deluge Systems: (TFP1306 & TFP1325)** - Wet Pilot Actuation - Dry Pilot Actuation - Electric Actuation **Single Interlock Preaction Systems: (TFP1425)** - Wet Pilot Actuation - Dry Pilot Actuation - Electric Actuation **Double Interlock Preaction Systems: (TFP1450)** - Electric/Pneumatic Actuation - Electric/Electric Actuation
End Connection	Thread x Thread, Groove x Groove, Flange x Flange, Flange x Groove
Flange Drilling	ANSI, ISO, AS, & JIS
Tech Data Sheet	**TFP1306**

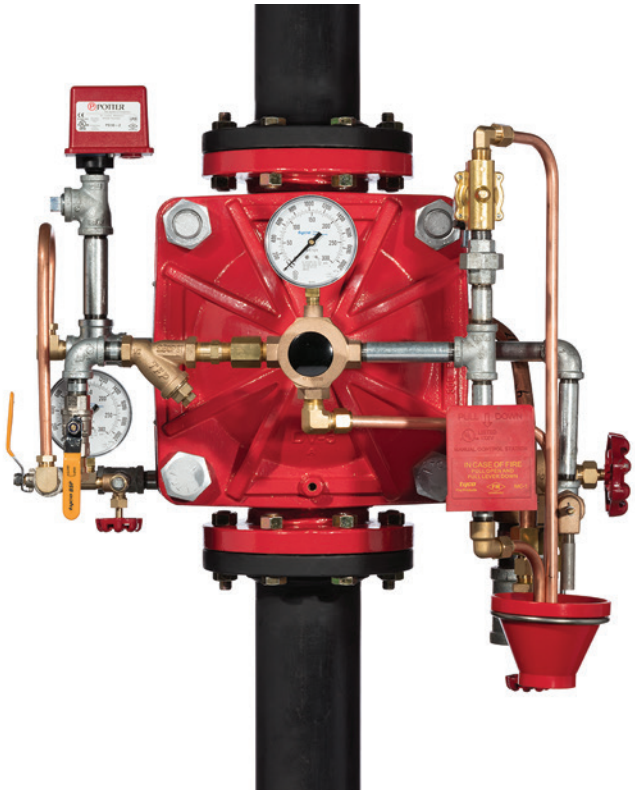
Vertical installation ■ One internal working part, Diaphragm operation ■ No linkage or clapper assembly ■ Light weight ductile iron body ■ Available with deluge and single & double interlock preaction trim ■ Internally & externally coated ■ Features external resetting ■ For deluge, preaction & foam systems

Always refer to the product's Technical Data Sheet for a complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines, and our limited warranty.

Deluge Systems

Wet Pilot, Dry Pilot, or Electric Actuation, Remote Resetting, or Remote Resetting Pressure Reducing

Deluge fire protection systems are normally used in special hazard installations where an entire area application of water or foam is required for protection. Applications may include flammable liquid handling and storage areas, aircraft hangars, and other high-hazard installations where water is the most effective extinguishing agent. Deluge systems employ open sprinklers or spray nozzles attached to a piping system. The system is connected to a water supply through the deluge valve. This valve is opened by the operation of a fire detection system installed in the same areas as the open sprinklers or nozzles. Deluge systems may be activated by wet or dry pilot sprinklers, or electric detectors. When the deluge valve opens, water flows into the piping system and discharges from all open sprinklers and nozzles.



(Electric Actuation Trim Shown)

(Remote Resetting Trim Shown)

DV-5A Size Range	1½" thru 8" (DN40 thru DN200)
Approvals	UL, C-UL Listed & FM, VdS & LPCB Approved
Maximum Service Pressure	Wet Pilot Actuation: 300 psi (20,7 bar) Dry Pilot Actuation: 250 psi (17,2 bar) Electric Actuation: Per Solenoid, see TFP2180
End Connection	Thread x Thread, Groove x Groove, Flange x Flange, Flange x Groove
Flange Drilling	ANSI, ISO, AS, & JIS
Tech Data Sheet	**TFP1306 -** DV-5A **TFP1325 -** DV-5A Remote Resetting **TFP1326 -** DV-5A Remote Resetting, Pressure Reducing

Vertical installation ■ One internal working part, Diaphragm operation ■ No linkage or clapper assembly ■ Light weight ductile iron body ■ Available with deluge and single & double interlock preaction trim ■ Internally & externally coated ■ Features external resetting ■ For deluge, preaction & foam systems

Always refer to the product's Technical Data Sheet for a complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines, and our limited warranty.

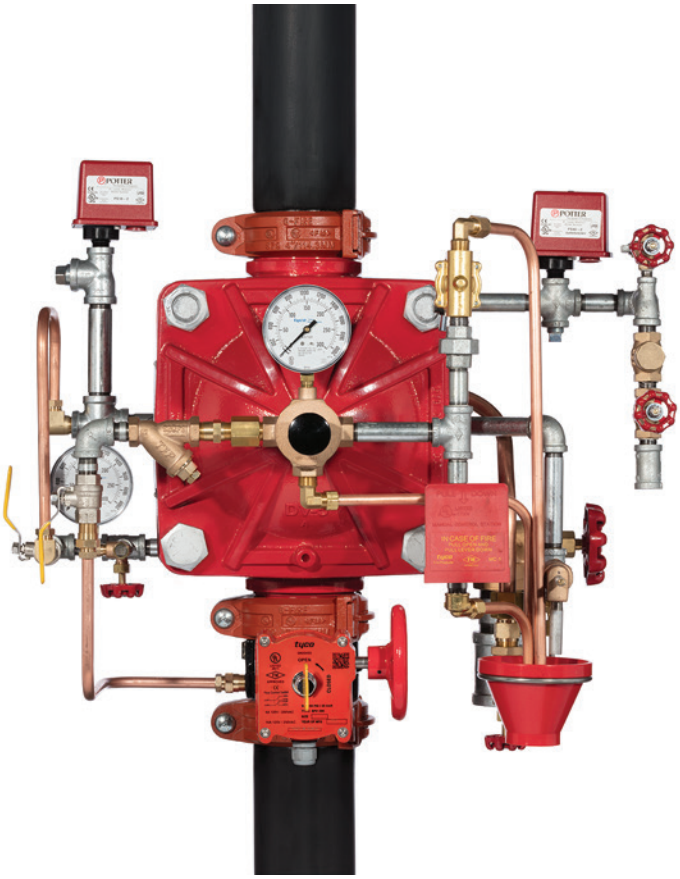
Deluge & Preaction Systems

Single Interlock Preaction Systems

Wet Pilot, Dry Pilot, or Electric Actuation

The DV-5A Supervised single interlock preaction systems are used to protect areas where there is danger of serious water damage that might result from damaged automatic sprinklers or piping. Typically, such areas include computer rooms, storage areas for valuable artifacts, libraries and archives. Also, preaction systems are effectively used to protect properties where a prealarm of a possible fire condition may allow time for fire extinguishment by alternate suppression means, prio to a sprinkler discharge. In the event the fire cannot be extinguished, the preaction sprinkler system will then perform as the primary fire protection system.

Single interlock preaction systems employ automatic sprinklers attached to a piping system containing 10 psi (0,7 bar) supervisory pressure, with a supplemental electric fire detection system installed in the same area as the sprinklers. Preaction systems with 10 psi (0,7 bar) supervisory pressure may also be activated by either wet or dry pilot sprinklers instead of electric detectors. Actuation of the fire detection system from a fire opens the deluge valve, allowing water to flow into the sprinkle piping system and to be discharged only from those sprinklers that have been operated by heat over the fire. Loss of supervisory pressure from the system piping as a result of damaged sprinklers or broken piping will activate a trouble alarm to indicate impairment of the system. The deluge valve will not open due to loss of supervisory pressure.



DV-5A Size Range	1½" thru 8" (DN40 thru DN200)
Approvals	UL, C-UL Listed & FM Approved
Maximum Service Pressure Preaction Single Interlock Trim	Wet Pilot Actuation: 300 psi (20,7 bar) Dry Pilot Actuation: 250 psi (17,2 bar) Electric Actuation: Per Solenoid, see TFP2180
End Connection	Thread x Thread, Groove x Groove, Flange x Flange, Flange x Groove
Flange Drilling	ANSI, ISO, AS, & JIS
Tech Data Sheet	**TFP1425**

Vertical installation ■ One internal working part, Diaphragm operation ■ No linkage or clapper assembly ■ Light weight ductile iron body ■ Internally & externally coated ■ Features external resetting ■ For deluge, preaction & foam systems

Always refer to the product's Technical Data Sheet for a complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines, and our limited warranty.

Double Interlock Preaction Systems

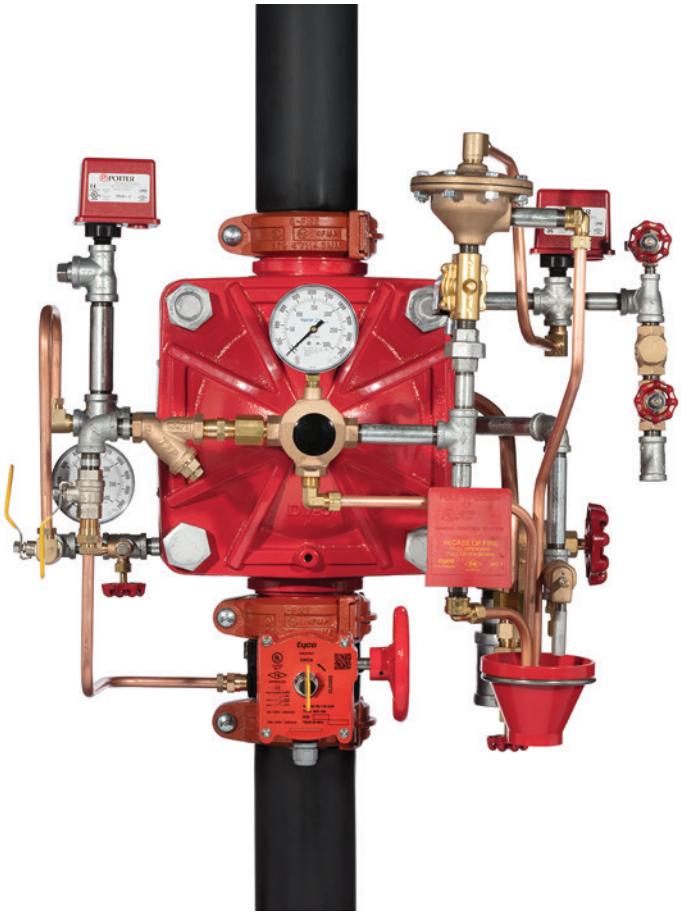
Electric/Electric or Electric/Pneumatic Actuation

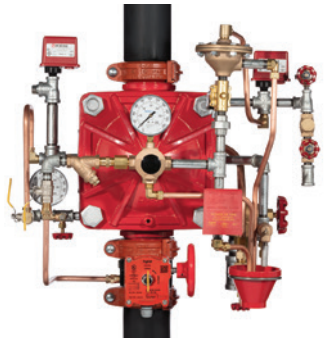
The DV-5A Double Interlock Preaction Systems are designed for applications such as refrigerated areas that require the maximum degree of protection against inadvertent flooding of the sprinkler system piping.

The double interlock system consists of a deluge valve and swing check valve with releasing trim featuring both a solenoid valve and a dry pilot actuator in a series configuration. The swing check valve isolates the body of the deluge valve from the system air or nitrogen pressure that holds the dry pilot actuator closed. The solenoid valve remains closed until it is electrically energized by a deluge releasing panel that responds to the operation of a fire detection device.

In order to actuate the double interlock preaction system, two independent events, caused by a fire condition, must occur. The sprinkler system piping must lose air or nitrogen pressure due to the operation of one or more sprinklers, and the deluge releasing panel must energize and open the solenoid valve upon the operation of a fire detection device.

The double interlock system will operate only when both the dry pilot actuator and the solenoid valve are open at the same time. Opening of the dry pilot actuator only (for example: a forklift truck accidentally dislodges a sprinkler) or of the solenoid valve only (for example: accidental operation of an electric manual pull station) will cause an alarm, and will not trip the system or flood the sprinkler system piping.





DV-5A Size Range	1 1/2" thru 8" (DN40 thru DN200)
Approvals	UL, C-UL Listed & FM Approved
Preaction Double Interlock Trim	Electric/Electric Actuation, Electric/Pneumatic Actuation
End Connection	Thread x Thread, Groove x Groove, Flange x Flange, Flange x Groove
Flange Drilling	ANSI, ISO, AS, & JIS
Tech Data Sheet	**TFP1450**

Vertical installation ■ One internal working part, Diaphragm operation ■ No linkage or clapper assembly ■ Light weight ductile iron body ■ Internally & externally coated ■ Features external resetting ■ For deluge, preaction & foam systems

Always refer to the product's Technical Data Sheet for a complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines, and our limited warranty.

Deluge & Preaction Systems

RED-E-Cabinet®

Integrated Fire Protection Packages

The TYCO DV-5A Red-E Cabinet is a pre-assembled fire protection valve package enclosed within a free-standing cabinet designed to occupy minimal floor space and to provide an aesthetically pleasing enclosure for a fire protection valve riser. The entire package is pre-wired and the water inlet and outlets to the valve riser are grooved to provide minimal installation time. The valve package includes the system (manual) shut-off control valve, automatic water control valve, and waterflow/supervisory switches. When dry pilot actuation is utilized, a built-in air compressor with associated controls provides an automatic air supply for the dry pilot lines.

Integral to the DV-5A Red-E Cabinet is a control panel and back-up batteries for providing electrical alarm, supervisory, and trouble functions. All switches within the cabinet are pre-wired to the control panel, making the electrical connections for power, detection circuits (as applicable), and alarms the only remaining connections to complete the system.

In addition to the control panel being integral to the DV-5A Red-E Cabinet, windows have been provided in the door for viewing the releasing panel functions and essential system pressure gauges. A lock for the control panel access door is standard, and a lock for the cabinet door is optional.

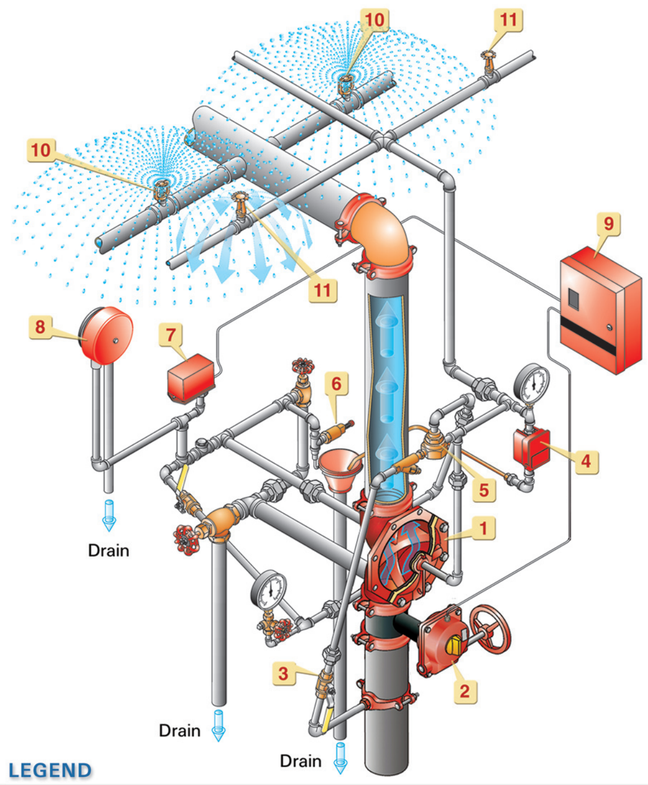
Size Range	1½" thru 8" (DN40 thru DN200) valve risers
Approvals	UL, C-UL Listed & FM Approved
Maximum Service Pressure	300 psi (20.7 bar)
Types of System	**Deluge Systems: TFP1301** - Wet Pilot Actuation - Dry Pilot Actuation - Electric Actuation - Remote Reset - Remote Reset Pressure Reducing **Single Interlock Preaction Systems: TFP1401** - Wet Pilot Actuation - Dry Pilot Actuation - Electric Actuation **Double Interlock Preaction Systems: TFP1401** - Electric/Pneumatic Actuation - Electric/Electric Actuation
End Connection	Groove x Groove
Tech Data Sheet	**TFP1301** – Deluge Systems Cabinet **TFP1401** – Preaction Systems Cabinet **DV-5A Deluge Valve Tech Data Sheets** Deluge Wet / Dry /Electric - TFP1306 Remote Reset - TFP1325 Remote Reset Pressure Reducing - TFP1326 Single Interlock Wet / Dry / Electric - TFP1425 Double Interlock E/E E/P - TFP1450 Type A - TFP1485

Aesthetically pleasing appearance ■ Professionally assembled ■ Minimal installation time ■ Internally wired ■ Custom manufactured ■ Model DV-5A deluge valve (standard) ■ All gauges and panel display are externally visible

Always refer to the product's Technical Data Sheet for a complete description of all Listing and Approval criteria, design parameters, installation instructions, care and maintenance guidelines, and our limited warranty.

DELUGE SYSTEMS

WET PILOT ACTUATION (DV-5)

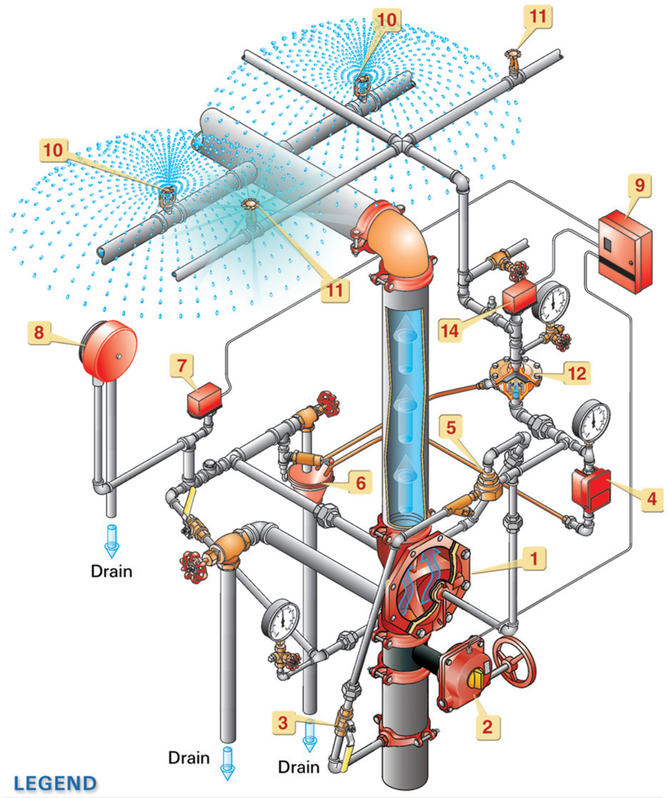


LEGEND

1 Deluge Valve (DV-5)
2 Isolation Valve
3 Diaphragm Supply Valve
4 Manual Control Station
5 Automatic Shut-off Valve
6 Automatic Drain Valve
7 Pressure Switch
8 Water Motor Gong
9 Releasing Panel
10 Spray Nozzle
11 Closed-head Sprinkler

The ***Deluge Valve*** is used to control water flow into deluge, preaction, and special types of fire protection systems in response to a fire.

DRY PILOT ACTUATION (DV-5)

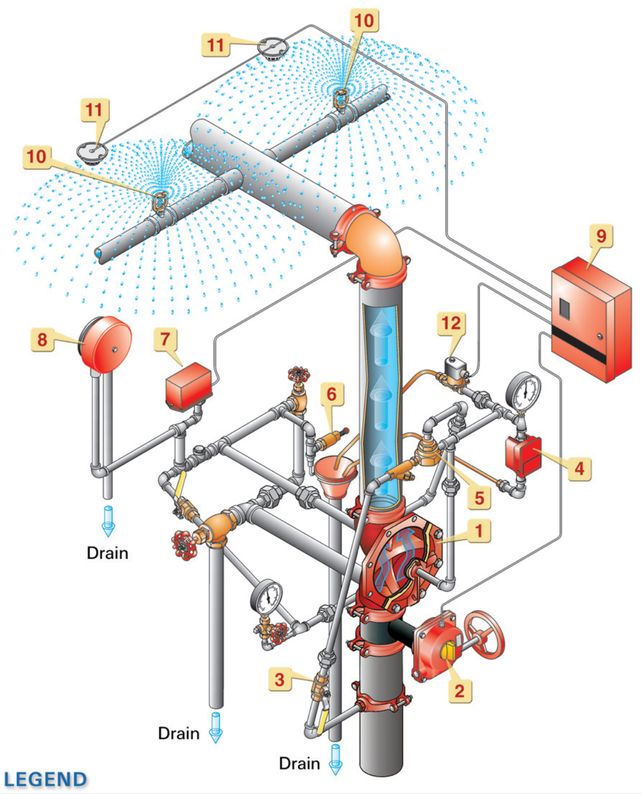


LEGEND

1 Deluge Valve (DV-5)
2 Isolation Valve
3 Diaphragm Supply Valve
4 Manual Control Station
5 Automatic Shut-off Valve
6 Automatic Drain Valve
7 Pressure Switch (Water)
8 Water Motor Gong
9 Releasing Panel
10 Spray Nozzle
11 Pneumatic Detector
12 Air-water Actuator
13 Air Supply Inlet
14 Pressure Switch (Air)

Deluge Systems are normally used in special hazard installations where water must be applied to an entire area for protection. They use open sprinklers or spray nozzles attached to a piping system connected to a water supply through the deluge valve.

ELECTRIC ACTUATION (DV-5)



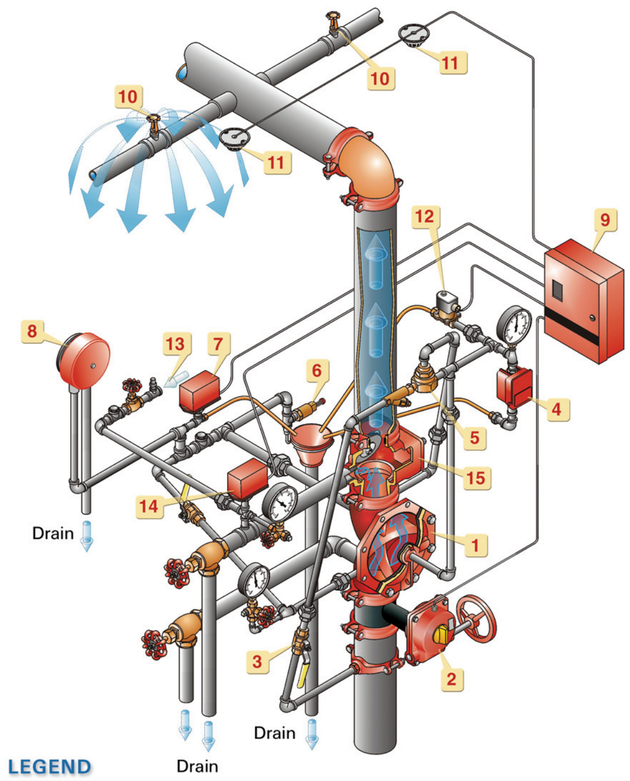
LEGEND

1 Deluge Valve (DV-5)
2 Isolation Valve
3 Diaphragm Supply Valve
4 Manual Control Station
5 Automatic Shut-off Valve
6 Automatic Drain Valve
7 Pressure Switch
8 Water Motor Gong
9 Releasing Panel
10 Spray Nozzle
11 Smoke/Heat Detector
12 Solenoid Valve

This valve is opened by a fire detection system installed in the same areas. Deluge fire detection systems may be wet or dry pilot sprinklers, or electric detectors.

PREACTION SYSTEMS

SINGLE INTERLOCK ACTUATION (DV-5)



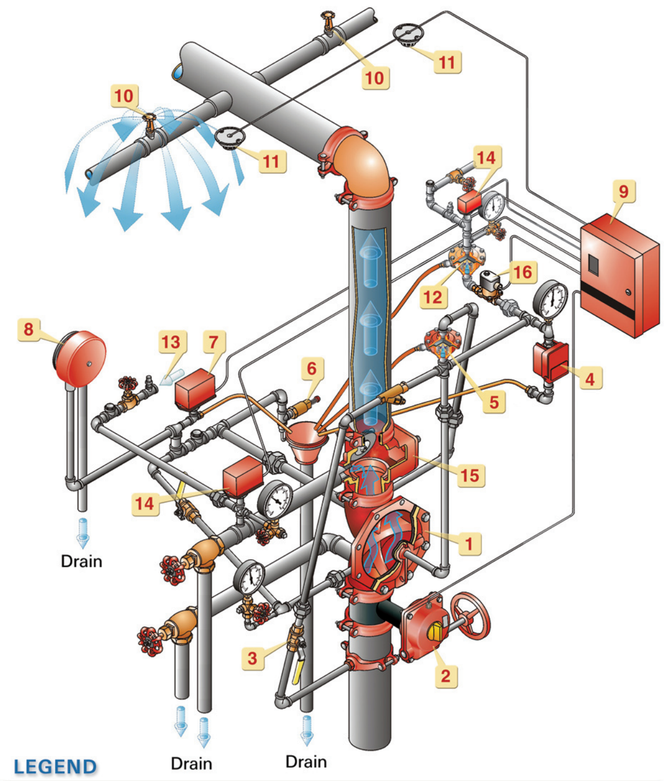
LEGEND

1 Deluge Valve (DV-5)
2 Isolation Valve
3 Diaphragm Supply Valve
4 Manual Control Station
5 Automatic Shut-off Valve
6 Automatic Drain Valve
7 Pressure Switch Water
8 Water Motor Gong
9 Releasing Panel
10 Sprinkler Head
11 Smoke/Heat Detector
12 Solenoid Valve
13 Air Supply Inlet
14 Pressure Switch (Air)
15 Check Valve

SINGLE Interlock Preaction Systems are used to protect areas where water damage from damaged sprinklers or piping must be avoided. A prealarm of a possible fire allows time for alternate fire extinguishment prior to a sprinkler discharge.

Automatic sprinklers are attached to a piping system containing supervisory pressure, with an electric fire detection system installed in the same area. Wet or dry pilot sprinklers may also be used instead of electric detectors. The fire detection system controls the deluge valve, allowing water to flow into the sprinkler piping system and to be discharged from sprinklers activated by heat over the fire. Loss of supervisory pressure from the system piping due to damaged sprinklers or broken piping activates a trouble alarm, but the deluge valve will not open.

DOUBLE Interlock ACTUATION (DV-5)



LEGEND

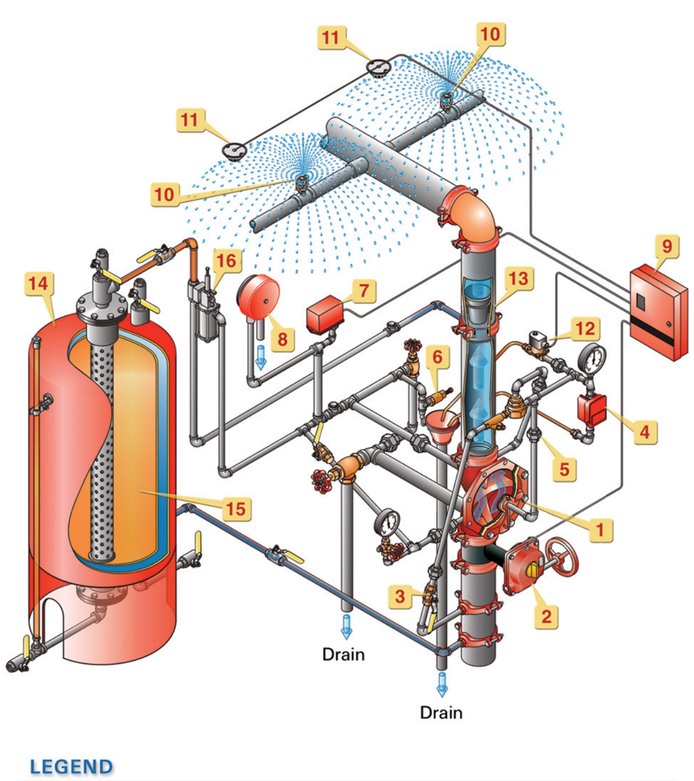
1 Deluge Valve (DV-5)
2 Isolation Valve
3 Diaphragm Supply Valve
4 Manual Control Station
5 FSV (Fail-Safe Valve)
6 Automatic Drain Valve
7 Pressure Switch Water
8 Water Motor Gong
9 Releasing Panel
10 Sprinkler Head
11 Smoke/Heat Detector
12 Air-Water Actuator
13 Air Supply Inlet
14 Pressure Switch (Air)
15 Check Valve
16 Solenoid Valve

DOUBLE Interlock Preaction Systems are designed for applications such as refrigerated areas that require maximum protection against inadvertent operation of the sprinkler system.

The system consists of a deluge valve and swing check valve with releasing trim featuring both a solenoid valve and a dry pilot actuator. The solenoid valve remains closed until triggered by operation of a fire detection device.

Double interlock preaction systems require two independent events, caused by a fire condition, to activate. The sprinkler piping loses air or nitrogen pressure due to the operation of one or more sprinklers, and the solenoid valve is triggered by the operation of a fire detection device. Double Interlock Systems operate only when both the dry pilot actuator and the solenoid valve are open at the same time.

ELECTRIC ACTUATION (Foam Water) (DV-5)



LEGEND

1 Deluge Valve (DV-5)
2 Isolation Valve
3 Diaphragm Supply Valve
4 Manual Control Station
5 Automatic Shut-off Valve
6 Automatic Drain Valve
7 Pressure Switch
8 Water Motor Gong
9 Releasing Panel
10 Spray Nozzle
11 Smoke/Heat Detector
12 Solenoid Valve
13 Foam Proportioner
14 Foam Bladder Tank
15 Foam Concentrate
16 Hydraulic Ball Valve

Foam Water Systems

When a fire is detected a signal is sent to the releasing panel to open the deluge valve allowing water to flow. At the same time, piping to the bladder tank flows and pressurizes the outer shell of the bladder tank which forces foam concentrate to travel into the system piping and then into the Foam Proportioner. The foam solution produced by system water and foam concentrate flows into the system piping and through the open nozzles or sprinklers and onto the fire hazard.

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