SINGLE INTERLOCK, SUPERVISED PREACTION SYSTEM WITH ELECTRIC RELEASE

MODEL: SD-DVH3

TECHNICAL SPECIFICATION

Size	50, 80, 100, 150 & 200 NB
Deluge Valve	Model SD-DVH3, UL Listed
Check Valve	UL Listed
Sprinkler Alarm	UL Listed (optional)
Release Panel	UL Listed (optional)
Water Flow Switch	UL Listed
Solenoid Valve	24V DC, UL Listed
Automatic Air Supervisor	Oil-Less Riser Mount Compressor (Optional)
Air Pressure Maintenance Device	AMD-1 (optional)
Manual System Shut Off Valve	UL Listed, Butterfly Valve -Standard Supply. (Gate Valve - Optional)
Maximum Working Pressure	17.5 kg./sq.cm. (250 psi)
System End Connection	Grooved (Standard Supply) Flanged (Optional Supply)

DESCRIPTION

The Single Interlock Supervised Pre-Action System is generally used to protect water sensitive areas such as computer rooms, storage areas, libraries, archives, banks, etc., to avoid water damage due to damaged sprinklers or damaged sprinkler piping. Pre-action System is also effectively used to have Pre-alarm of a possible fire condition and allows time to extinguish fire by hand held fire extinguishing equipment, prior to water discharge through sprinkler heads.

It uses an automatic sprinkler with supplemental detection system. In the event when fire cannot be extinguished by hand held fire extinguishing equipment, the increase in temperature will open one or more sprinkler heads to discharge water

In normal condition, Pre-Action system does not contain water in the sprinkler piping. The sprinkler piping contains air pressure for the purpose of supervising its leak tightness. As per NFPA, the pre-action system employing more than 20 automatic sprinklers is to have the sprinkler piping automatically supervised.

The electric detection system in single interlock Pre-action system will respond to a fire faster than the automatic sprinkler. When fire is detected through electric system, the primary water control deluge valve opens, allowing water flow into the sprinkler piping in readiness for possible subsequent opening of one or more sprinklers.

SYSTEM OPERATION

The Electric Actuated, Supervised Single Interlock Pre-Action System utilizes automatic sprinklers and an additional electric detection system. Electric detection system utilizes 24V.DC heat detectors or smoke detectors. When one electric detector senses the presence of fire, the releasing control panel activates fire alarm devices and latches solenoid valve in open position. If two detectors are cross zoned, then operation of the two detectors will be required to activate the fire alarm device and latch open the solenoid valve. Opening of solenoid valve will drain the water from deluge valve diaphragm chamber, thereby reducing the diaphragm chamber pressure and actuation of the deluge valve, allowing the water flow in the sprinkler system.

The water flow will also produce water pressure in the alarm trim of deluge valve. This may actuate the pressure switch if additionally provided to control the shutdown of equipment such as computers or startup of the second alarm devices. The flow of water converts the dry system into the wet system at this stage. The water discharge will start only when one or more automatic sprinkler opens due to increase in temperature. In normal condition the integrity of system is automatically supervised by the automatic air supervisory means. Air or nitrogen at 0.7 ± 0.14 Kg./Sq. Cm. (10 ± 2 PSI) pressure is maintained in the sprinkler system up to the downstream of the riser check valve.

The supervisory low alarm switch is set at 0.42 ± 0.07 Kg/Sq.Cm. (6 ± 1 PSI). The decreasing pressure will give trouble annunciation due to the loss of pressure, due to abnormal leakage in the sprinkler system piping as a result of the damaged sprinkler or broken pipeline.

This will not open the deluge valve. The air pressure is for supervisory alarm only. The automatic supervisory air supply can be maintained through factory set air compressor. The compressor is compact and can be riser mounted or floor mounted. The supervisory air can be maintained with the tank mounted compressor and air maintenance device.

If continuous plaint air supply or regulated Nitrogen source is available, then air maintenance device shall be used to maintain the supervisory air supply.

The major benefits of this system as compared to the wet pipe system are,

1. A fire alarm sounds prior to operation of a sprinkler, which may enable to extinguishing of the fire by hand held means, before operation of any sprinkler head. This can eliminate water damage.
2. Whenever integrity of the piping or sprinkler is disturbed, no water flows, only trouble annunciation alarm signals. This will avoid water damage to valuable property.
3. Early fire alarm is provided by electric detection system, without the delay of water delivery time.

INSTALLATION & COMMISSIONING

The Pre-Action system valves, panel, indicators must be installed in a readily visible and accessible location. The system valves and accessory shall not be installed in an area having temperature less than 4°C (40°F). Heat tracing to system valve and accessory is not permissible. The system must be installed and operated carefully by

a trained person, having good knowledge of equipment. All system piping must be flushed thoroughly before commissioning.

After initial successful tests, an authorized person must be trained to perform inspection, testing and maintenance of the system.

NOTE: The system may have arrangement of electric detectors in a cross-zoned array. The arrangement will prevent false activation of one detector, causing water to flow into the sprinkler piping. Few approving authorities do not permit cross zoning; hence system designer must design the system as per Local Authority having Jurisdiction. The system to be hydraulically calculated as a wet pipe system.

It is strongly recommended that Detection System must be designed to operate sooner than the automatic sprinkler heads.

RECOMMENDED SEQUENCE OF INSTALLATIONS

1. Install the Deluge Valve on Riser.
2. Install the Riser Check Valve above Deluge Valve as shown in installation drawing.
3. On completion of system piping, install all the trims as per trim drawing. Care must be taken to ensure that Check Valves, Strainers, Valves etc. are installed with the flow arrows in the proper direction.
4. Connect all drain piping as shown in the drawing.
5. All unused opening on valve or trim parts must be plugged.
6. Connect air supply line.
7. Connect all electrical to control panel as per wiring drawing.
8. Make sure that all the nut bolts, fittings are screwed properly.
9. Follow the valve resetting and test procedure.

RESETTING PROCEDURE

1. Close the upstream side stop valve of the Deluge Valve.
2. Open drain valves and allow water to drain (if water flow was establish) & close drain valve when water flow has ceased.
3. Check all release devices are closed. Inspect the release devices if system was subject to fire condition.
4. Open the priming line so that the diaphragm chamber reads the system water pressure. Open the manual release station partly to vent the air & then close it.
5. Open the upstream side of stop valve to read the Deluge Valve Inlet water supply pressure. The Deluge Valve is set.
6. Open the air supply line and check the pressure is maintained up to 0.7 Kg./Sq.Cm. (10 PSI) and Control Panel is kept on.
7. Check all the trim parts for possible leak.

INSPECTION AND MAINTENANCE

Inspection and testing is to be carried out only by an authorized and trained personnel. DO NOT TURN OFF the water supply or close any valve to make repair(s) or test the valve, without placing a roving fire patrol in the area covered by the system. Also inform the local security personal and central alarm station, so that there is no false alarm signal. It is recommended to carry out physical inspection of the system at least twice a week. The inspection should verify that no damage has taken place to any components and check for following normal condition of the system.

NORMAL CONDITION

1. All main valves are open and sealed with tamper proof seal.
2. All drain valves are in closed condition.
3. No leak or drip is detected from drip valve.
4. All water gauge of deluge valve, should show the required pressure.
5. No leak in any trim or other piping.
6. Release panel is on and no abnormal indication are seen.

CAUTION: *Procedure outlined below will result in operation of associated alarm. Concerned authorities to be informed about the tests before conducting the tests.*

QUATERLY TEST - WATER FLOW ALARM TEST

Open the sprinkler alarm gong test valve, the water will flow through sprinkler alarm and/or water flow switch. On satisfactory observation close the alarm test valve.

SOLENOID VALVE TEST

1. Close the system water supply valve provided at inlet of deluge valve. Open the main drain valve.
2. Energize the solenoid valve through release panel as per instruction of panel manufacturers. Water flow must start through solenoid valve and deluge valve diaphragm chamber pressure must drop down and water will get discharged through Solenoid Valve continuously.
3. De-energize to close the solenoid valve and follow resetting procedure.

AIR SUPPERVISORY LOW PRESSURE ALARM

Release air pressure gradually through valve provided on check valve. When air pressure drops to 0.42 ± 0.07 Kg./Sq.Cm. (6 PSI ± 1), the supervisory low pressure alarm must be observed. Close the valve & observe that air pressure has been established to 0.7 ± 0.14 Kg. / Sq. Cm. (10 ± 2 PSI), the supervisory air pressure alarm must come to normal condition. If required reset the release panel.

ANNUAL OPERATION TEST

Testing valve operation without causing water supply to the deluge valve.

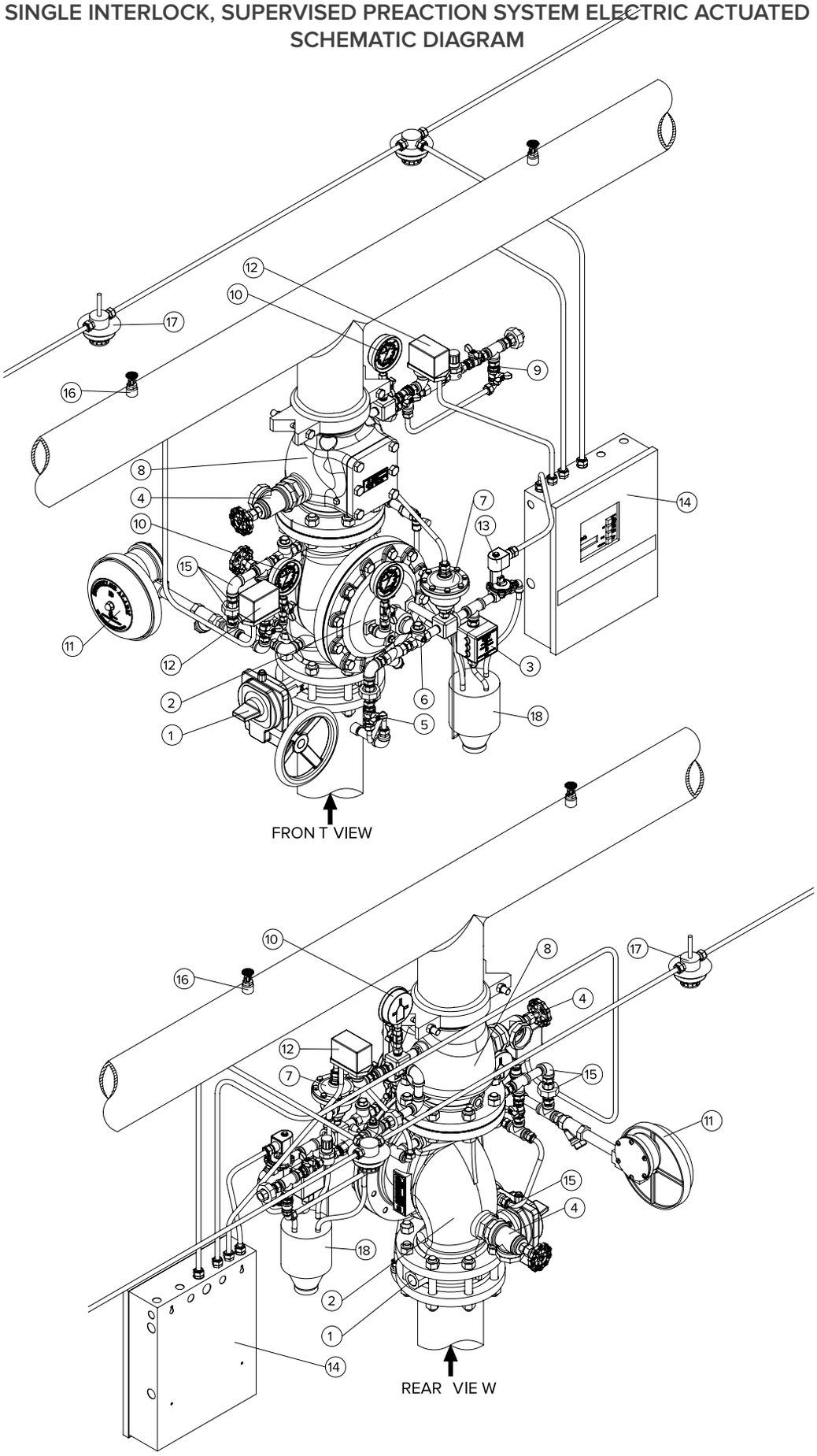
1. Close the main system valve controlling water supply to the deluge valve.
2. Open the main drain valve provided on deluge inlet side and allow water to drain. When water flow from drain valve has stopped crack open the main system valve and close the main drain valve partly allowing the water pressure at inlet of deluge valve to raise up to 1.4 Kg. / Sq. Cm.(20 PSI) and no more pressure is rising.
3. Actuate the solenoid valve from control panel as per instruction of control panel manufacturer. deluge valve must open and water flow must be noticed through drip valve and through solenoid valve. Close the main supply control valve immediately and allow water to drain from drain valve.
4. When water flow has stopped, reset the deluge valve as per resetting procedure.

CAUTION: The steps 2 & 3 must be performed very quickly to prevent water flow to riser.

NOTE: For abnormal condition of deluge valve.

CAUTION: The system must be inspected, tested and maintained as instructed above, in addition to the requirement of NFPA or as per requirement of authority having jurisdiction. The owner is responsible for the inspection, testing and maintenance of the system and devices.

SINGLE INTERLOCK, SUPERVISED PREACTION SYSTEM ELECTRIC ACTUATED SCHEMATIC DIAGRAM



SINGLE INTERLOCK, SUPERVISED PREACTION SYSTEM ELECTRIC ACTUATED - PART LIST

Item No.	Description	Size	200 NB	150 NB	100 NB	80 NB	50 NB
1	BFV Wafer Type with Tamper Switch*	2”	1	1	1	1	1
2	Deluge Valve Flange End	2”	-	-	-	-	1
2	Deluge Valve Flange End	3”	-	-	-	1	-
2	Deluge Valve Flange End	4”	-	-	1	-	-
2	Deluge Valve Flange End	6”	-	1	-	-	-
2	Deluge Valve Flange End	8”	1	-	-	-	-
3	Emergency Release Station	½”	1	1	1	1	1
4	Angle Valve	1¼”	-	-	-	1	1
4	Angle Valve	2”	1	1	1	-	-
5	Priming Valve	½”	1	1	1	1	1
6	Restricted Check Valve	½”	1	1	1	1	1
7	Anti Reset Valve	½”	1	1	1	1	1
8	Check Valve - Flange To Groove	2”	-	-	-	-	1
8	Check Valve - Flange To Groove	3”	-	-	-	1	-
8	Check Valve - Flange To Groove	4”	-	-	1	-	-
8	Check Valve - Flange To Groove	6”	-	1	-	-	-
8	Check Valve - Flange To Groove	8”	1	-	-	-	-
9	Pressure Maintenance Device*	½”	1	1	1	1	1
10	Pressure Gauge	0-300 PSI	1	1	1	1	1
11	Sprinkler Aalrm (Gong Bell)*		1	1	1	1	1
12	Pressure Switch		1	1	1	1	1
13	Solenoid Valve		1	1	1	1	1
14	DV Releasing Panel*		1	1	1	1	1
15	Trim Fittings		1	1	1	1	1
16	Automatic Sprinkler**		1	1	1	1	1
17	Heat Detector/ Smoke Detector**		1	1	1	1	1
18	Splash Proof Funnel		1	1	1	1	1

* Optional supplly
** Not suppllied

NOTE:

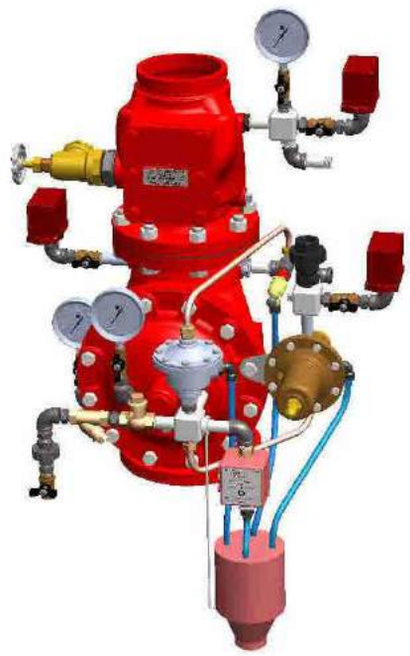
- *Deluge valve end connection (optional - G x G/ F x F)*
- *Check valve end connection (optional - G x G/ F x G / F x F)*
- *Butterfly valve end connection (optional - G x G/ Wafer Type / Lug Type)*
- *Optional trim supply - loose / semi assembled)*
- *Shape of fittings / valves may change.*
- *System piping, sprinkler, detector not supplied*
- *Priming line by others*

SINGLE INTERLOCK, SUPERVISED PREACTION SYSTEM WITH DRY PILOT ACTUATION

MODEL: SD-DVH3

TECHNICAL SPECIFICATION

Size	50, 80, 100, 150 & 200 NB
Deluge Valve	Model SD-DVH3, UL Listed
Check Valve	UL Listed
Sprinkler Alarm	UL Listed (optional)
Release Panel	UL Listed (optional)
Water Flow Switch	UL Listed
Solenoid Valve	24V DC, UL Listed
Automatic Air Supervisor	Oil-Less Riser Mount **Compressor (Optional)**
Air Pressure Maintenance Device	AMD-1 (optional)
Manual System Shut Off Valve	UL Listed, Butterfly Valve -Standard Supply. (Gate Valve - Optional)
Maximum Working Pressure	17.5 kg./sq.cm. (250 psi)
System End Connection	Grooved (Standard Supply) Flanged (Optional Supply)



DESCRIPTION

The Single Interlock Supervised Preaction System with Dry Pilot Actuation is generally used to protect water sensitive areas such as computer rooms, storage areas of valuable articles, to avoid water damage due to damaged sprinklers or damaged sprinkler piping. Preaction System is also effectively used to have Pre-alarm of a possible fire condition and allows time to extinguish fire by hand held fire extinguishing equipment, prior to water discharge through sprinkler heads. It uses an automatic sprinkler with supplemental detection system. In the event when fire cannot be extinguished by hand held fire extinguishing equipment, the increase in temperature will open one or more sprinkler heads to discharge water.

In normal condition, preaction system does not contain water in the sprinkler piping. The sprinkler piping contains air pressure for the purpose of supervising its leak tightness. As per NFPA, the preaction system employing more than 20 automatic sprinklers is to have the sprinkler piping automatically supervised.

The dry pilot system in single interlock preaction system will respond to a fire faster than the automatic sprinkler. The system designer selects the detection components for single interlock preaction system to detect the fire faster than automatic sprinkler.

When fire is detected through dry pilot sprinkler system, the primary water control deluge valve opens, allowing water flow into the sprinkler piping in readiness for possible subsequent opening of one or more sprinklers.

SYSTEM OPERATION

The Single Interlock Supervised Preaction System with Dry Pilot Actuation utilizes automatic sprinklers and an additional pneumatic detection sprinkler system. When the pneumatic detection system sprinkler operates due to rise in temperature, the loss of air pressure will operate the pneumatic actuator of deluge valve and activate fire alarm devices. The sprinkler system also operates due to fire condition, then water flows through the sprinkler system.

The water flow will also produce water pressure in the alarm trim of deluge valve. This may actuate the pressure switch if additionally provided to control the shut down of equipment such as computers or start up of the second alarm devices. In normal condition the integrity of system is automatically supervised by the automatic air supervisory means. Air or nitrogen at 0.7 ± 0.14 Kg./Sq.Cm. (10 ± 2 PSI) pressure is maintained in the sprinkler system up to the downstream of the riser check valve.

The supervisory low alarm switch is set at 0.42 ± 0.07 Kg/Sq.Cm. (6 ± 1 PSI). The decreasing pressure will give trouble annunciation due to the loss of pressure, due to abnormal leakage in the sprinkler system piping as a result of the damaged sprinkler or broken pipeline. This will not open the deluge valve. The air pressure is for supervisory alarm only. The automatic supervisory air supply can be maintained through factory set air compressor.

The compressor is compact and can be riser mounted or floor mounted. The supervisory air can be maintained with the tank mounted compressor and air maintenance device.

If continuous plaint air supply or regulated Nitrogen source is available, then air maintenance device shall be used to maintain the supervisory air supply.

The major benefits of this system as compared to the wet pipe system are,

1. A fire alarm sounds prior to operation of a sprinkler, which may enable to extinguishing of the fire by hand held means, before operation of any sprinkler head. This can eliminate water damage.
2. Whenever integrity of the piping or sprinkler is disturbed, no waterflows, only trouble annunciation alarm signals. This will avoid water damage to valuable property.
3. Early fire alarm is provided by electric detection system, without the delay of water delivery time.

INSTALLATION & COMMISSIONING

The preaction system valves, panel, indicators must be installed in a readily visible and accessible location. The system valves and accessory shall not be installed in an area having temperature less than 4°C (40°F). Heat tracing to system valve and accessory is not permissible. The system must be installed and operated carefully by a trained person, having good knowledge of equipment.

All system piping must be flushed thoroughly before commissioning. After initial successful tests, an authorized person must be trained to perform inspection, testing and maintenance of the system.

RECOMMENDED SEQUENCE OF INSTALLATIONS

1. Install the Deluge Valve on Riser.
2. Install the Riser Check Valve above Deluge Valve as shown in installation drawing.
3. On completion of system piping, install all the trims as per trim drawing. Care must be taken to ensure that Check Valves, Strainers, Valves etc. are installed with the flow arrows in proper direction.
4. Connect all drain piping as shown in the drawing.
5. All unused opening on valve or trim parts must be plugged.
6. Connect air supply line.
7. Connect all electrical to control panel as per wiring drawing.
8. Make sure that all the nu bolts, fittings are screwed properly.
9. Follow the valve resetting and test procedure.

RESETTING PROCEDURE

1. Close the upstream side stop valve of the Deluge Valve.
2. Open drain valves and allow water to drain (if water flow was establish) & close drain valve when water flow has ceased.
3. Check all release devices are closed. Inspect the release devices if system was subject to fire condition.
4. Open the priming line so that the diaphragm chamber reads the system water pressure. Open the manual release station partly to vent the air & then close it.
5. Open the upstream side of stop valve to read the Deluge Valve Inlet water supply pressure. The Deluge Valve is set.
6. Open the air supply line and check the pressure is maintained up to 0.7 Kg./Sq.Cm. (10 PSI) and Control Panel is kept on.
7. Check all the trim parts for possible leak.

INSPECTION AND MAINTENANCE

Inspection and testing is to be carried out only by an authorized and trained personnel. DO NOT TURN OFF the water supply or close any valve to make repair(s) or test the valve, without placing a roving fire patrol in the area covered by the system.

Also inform the local security personal and central alarm station, so that there is no false alarm signal. It is recommended to carry out physical inspection of the system at least twice a week. The inspection should verify that no damage has taken place to any components and check for following normal condition of the system.

NORMAL CONDITION

1. All main valves are open and sealed with tamper proof seal.
2. All drain valves are in closed condition.
3. No leak or drip is detected from drip valve.
4. All water gauge of deluge valve, should show the required pressure.
5. No leak in any trim or other piping.
6. Release panel is on and no abnormal indication are seen.

CAUTION: *Procedure outlined below will result in operation of associated alarm. Concerned authorities to be informed about the tests before conducting the tests.*

QUATERLY TEST - WATER FLOW ALARM TEST

Open the sprinkler alarm gong test valve, the water will flow through sprinkler alarm and/or water flow switch. On satisfactory observation close the alarm test valve.

AIR SUPPERVISORY LOW PRESSURE ALARM

Release air pressure gradually through valve provided on check valve. When air pressure drops to 0.42 ± 0.07 Kg./Sq.Cm. (6 PSI ± 1), the supervisory low pressure alarm must be observed. Close the valve & observe that air pressure has been established to 0.7 ± 0.14 Kg. / Sq. Cm. (10 ± 2 PSI), the supervisory air pressure alarm must come to normal condition. If required reset the release panel.

ANNUAL OPERATION TEST

Testing valve operation without causing water supply to the deluge valve.

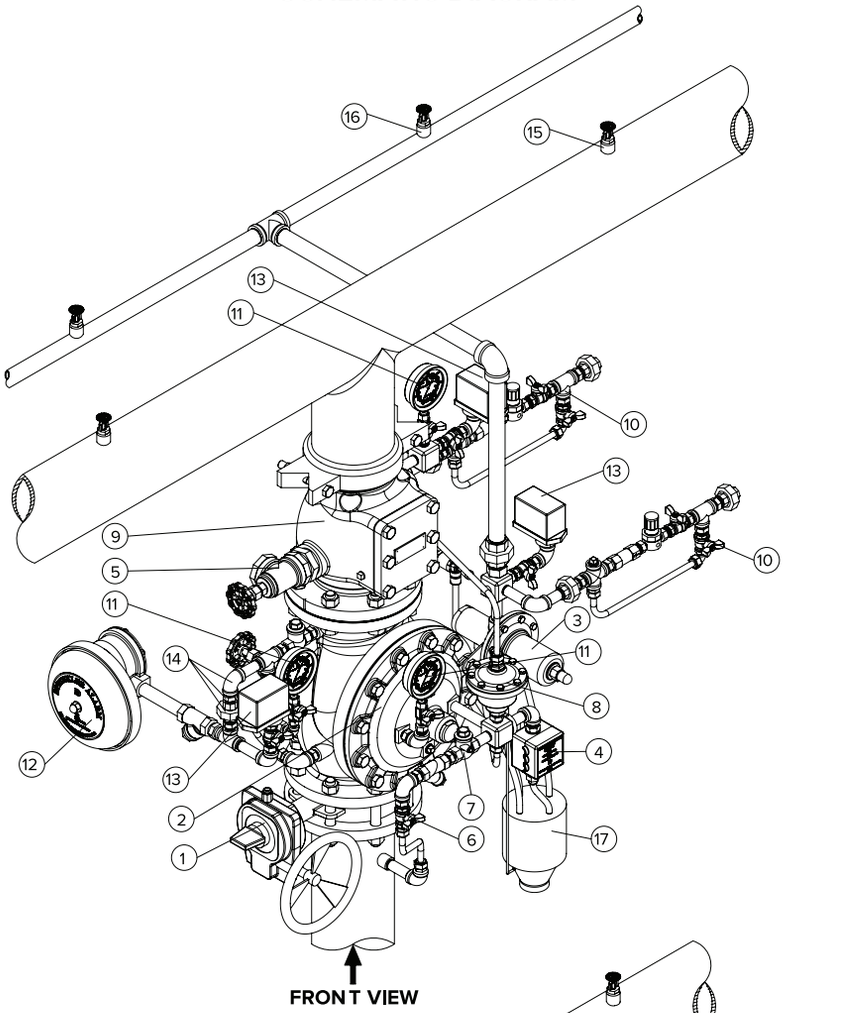
1. Close the main system valve controlling water supply to the deluge valve.
2. Open the main drain valve provided on deluge inlet side and allow water to drain. When water flow from drain valve has stopped crack open the main system valve and close the main drain valve partly allowing the water pressure at inlet of deluge valve to raise up to 1.4 Kg. / Sq. Cm.(20 PSI) and no more pressure is rising.
3. Actuate the solenoid valve from control panel as per instruction of control panel manufacturer. deluge valve must open and water flow must be noticed through drip valve and through solenoid valve. Close the main supply control valve immediately and allow water to drain from drain valve.
4. When water flow has stopped, reset the deluge valve as per resetting procedure.

CAUTION: The steps 2 & 3 must be performed very quickly to prevent water flow to riser.

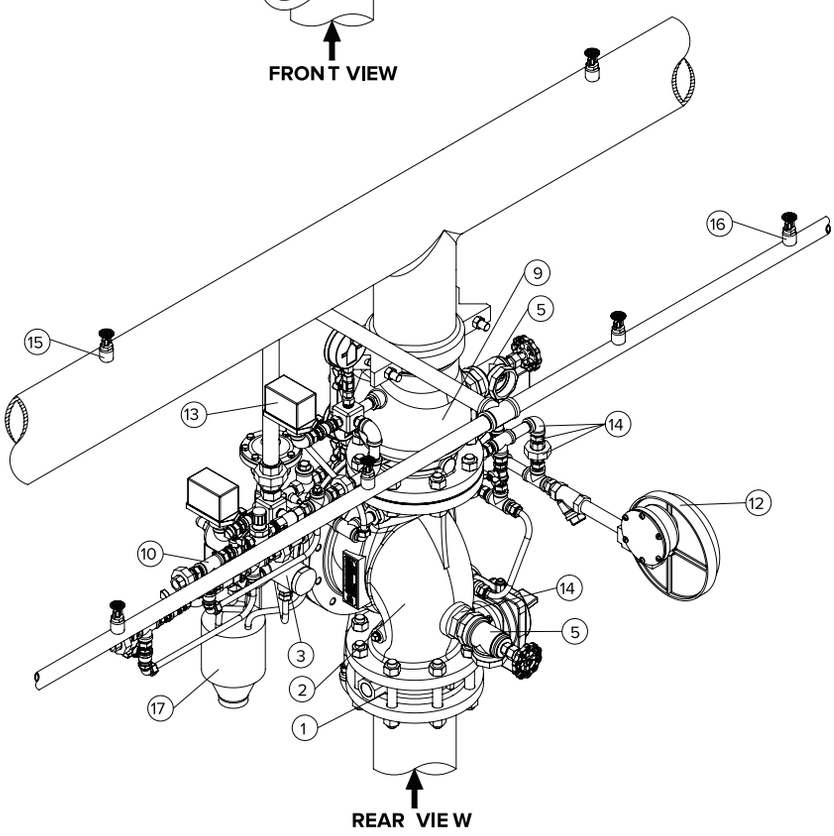
NOTE: For abnormal condition of deluge valve.

CAUTION: The system must be inspected, tested and maintained as instructed above, in addition to the requirement of NFPA or as per requirement of authority having jurisdiction. The owner is responsible for the inspection, testing and maintenance of the system and devices.

SINGLE INTERLOCK, SUPERVISED PREACTION SYSTEM DRY PILOT ACTUATED SCHEMATIC DIAGRAM



FRONT VIEW



REAR VIEW

SINGLE INTERLOCK, SUPERVISED PREACTION SYSTEM DRY PILOT ACTUATED - PART LIST

Item No.	Description	Size	200 NB	150 NB	100 NB	80 NB	50 NB
1	BFV Wafer Type with Tamper Switch*	2”	1	1	1	1	1
2	Deluge Valve Flange End	2”	-	-	-	-	1
2	Deluge Valve Flange End	3”	-	-	-	1	-
2	Deluge Valve Flange End	4”	-	-	1	-	-
2	Deluge Valve Flange End	6”	-	1	-	-	-
2	Deluge Valve Flange End	8”	1	-	-	-	-
3	Dry Pilot Actuator	½"	1	1	1	1	1
4	Emergency Release Station	½”	1	1	1	1	1
5	Angle Valve	1¼”	-	-	-	1	1
5	Angle Valve	2”	1	1	1	-	-
6	Priming Valve	½”	1	1	1	1	1
7	Restricted Check Valve	½”	1	1	1	1	1
8	Anti Reset Valve	½”	1	1	1	1	1
9	Check Valve - Flange To Groove	2”	-	-	-	-	1
9	Check Valve - Flange To Groove	3”	-	-	-	1	-
9	Check Valve - Flange To Groove	4”	-	-	1	-	-
9	Check Valve - Flange To Groove	6”	-	1	-	-	-
9	Check Valve - Flange To Groove	8”	1	-	-	-	-
10	Pressure Maintenance Device*	½”	1	1	1	1	1
11	Pressure Gauge	0-300 PSI	1	1	1	1	1
12	Sprinkler Aalrm (Gong Bell)*		1	1	1	1	1
13	Pressure Switch		1	1	1	1	1
14	Trim Fittings		1	1	1	1	1
15	Automatic Sprinkler**		1	1	1	1	1
16	Dry Pilot Line Sprinkler		1	1	1	1	1
17	Splash Proof Funnel		1	1	1	1	1

* Optional supplly
** Not suppllied

NOTE:

- *Deluge valve end connection (optional - G x G/ F x F)*
- *Check valve end connection (optional - G x G/ F x G / F x F)*
- *Butterfly valve end connection (optional - G x G/ Wafer Type / Lug Type)*
- *Optional trim supply - loose / semi assembled)*
- *Shape of fittings / valves may change.*
- *System piping, sprinkler, detector not supplied*
- *Priming line by others*

SINGLE INTERLOCK, SUPERVISED PREACTION SYSTEM WITH WET PILOT ACTUATION

MODEL: SD-DVH3

TECHNICAL SPECIFICATION

Size	50, 80, 100, 150 & 200 NB
Deluge Valve	Model SD-DVH3, UL Listed
Check Valve	UL Listed
Sprinkler Alarm	UL Listed (optional)
Release Panel	UL Listed (optional)
Water Flow Switch	UL Listed
Solenoid Valve	24V DC, UL Listed
Automatic Air Supervisor	Oil-Less Riser Mount **Compressor (Optional)**
Air Pressure Maintenance Device	AMD-1 (optional)
Manual System Shut Off Valve	UL Listed, Butterfly Valve -Standard Supply. (Gate Valve - Optional)
Maximum Working Pressure	17.5 kg./sq.cm. (250 psi)
System End Connection	Grooved (Standard Supply) Flanged (Optional Supply)

DESCRIPTION

The Single Interlock Supervised Preaction System with Wet Pilot Actuation is generally used to protect water sensitive areas such as computer rooms, storage areas of valuable articles, to avoid water damage due to damaged sprinklers or damaged sprinkler piping. Preaction System is also effectively used to have Pre-alarm of a possible fire condition and allows time to extinguish fire by hand held fire extinguishing equipment, prior to water discharge through sprinkler heads. It uses an automatic sprinkler with supplemental detection system. In the event when fire cannot be extinguished by hand held fire extinguishing equipment, the increase in temperature will open one or more sprinkler heads to discharge water.

In normal condition, preaction system does not contain water in the sprinkler piping. The sprinkler piping contains air pressure for the purpose of supervising its leak tightness. As per NFPA, the preaction system employing more than 20 automatic sprinklers is to have the sprinkler piping automatically supervised.

The wet pilot system in single interlock preaction system will respond to a fire faster than the automatic sprinkler. The system designer selects the detection components for single interlock preaction system to detect the fire faster than automatic sprinkler.

When fire is detected through wet pilot sprinkler system, the primary water control deluge valve opens, allowing water flow into the sprinkler piping in readiness for possible subsequent opening of one or more sprinklers.

SYSTEM OPERATION

The Single Interlock Supervised Preaction System with Wet Pilot Actuation utilizes automatic sprinklers and an additional wet pilot detection sprinkler system. The wet pilot sprinkler system operates faster than the automatic sprinkler system due to rise in temperature, by this the wet pilot pressure drops and deluge valve and actuate fire alarm devices. The sprinkler system also operates due to fire condition, then water flows through the sprinkler system.

The water flow will also produce water pressure in the alarm trim of deluge valve. This may actuate the pressure switch if additionally provided to control the shut down of equipment such as computers or start up of the second alarm devices. In normal condition the integrity of system is automatically supervised by the automatic air supervisory means. Air or nitrogen at 0.7 ± 0.14 Kg./Sq.Cm. (10 ± 2 PSI) pressure is maintained in the sprinkler system up to the downstream of the riser check valve.

The supervisory low alarm switch is set at 0.42 ± 0.07 Kg/Sq.Cm. (6 ± 1 PSI). The decreasing pressure will give trouble annunciation due to the loss of pressure, due to abnormal leakage in the sprinkler system piping as a result of the damaged sprinkler or broken pipeline. This will not open the deluge valve. The air pressure is for supervisory alarm only. The automatic supervisory air supply can be maintained through factory set air compressor.

The compressor is compact and can be riser mounted or floor mounted. The supervisory air can be maintained with the tank mounted compressor and air maintenance device.

If continuous plaint air supply or regulated Nitrogen source is available, then air maintenance device shall be used to maintain the supervisory air supply.

The major benefits of this system as compared to the dry pipe system are,

1. A fire alarm sounds prior to operation of a sprinkler, which may enable to extinguishing of the fire by hand held means, before operation of any sprinkler head. This can eliminate water damage.
2. Whenever integrity of the piping or sprinkler is disturbed, no waterflows, only trouble annunciation alarm signals. This will avoid water damage to valuable property.
3. Early fire alarm is provided by electric detection system, without the delay of water delivery time.

INSTALLATION & COMMISSIONING

The preaction system valves, panel, indicators must be installed in a readily visible and accessible location. The system valves and accessory shall not be installed in an area having temperature less than 4°C (40°F). Heat tracing to system valve and accessory is not permissible. The system must be installed and operated carefully by a trained person, having good knowledge of equipment.

All system piping must be flushed thoroughly before commissioning. After initial successful tests, an authorized person must be trained to perform inspection, testing and maintenance of the system.

RECOMMENDED SEQUENCE OF INSTALLATIONS

1. Install the Deluge Valve on Riser.
2. Install the Riser Check Valve above Deluge Valve as shown in installation drawing.
3. On completion of system piping, install all the trims as per trim drawing. Care must be taken to ensure that Check Valves, Strainers, Valves etc. are installed with the flow arrows in proper direction.
4. Connect all drain piping as shown in the drawing.
5. All unused opening on valve or trim parts must be plugged.
6. Connect air supply line.
7. Connect all electrical to control panel as per wiring drawing.
8. Make sure that all the nu bolts, fittings are screwed properly.
9. Follow the valve resetting and test procedure.

RESETTING PROCEDURE

1. Close the upstream side stop valve of the Deluge Valve.
2. Open drain valves and allow water to drain (if water flow was establish) & close drain valve when water flow has ceased.
3. Check all release devices are closed. Inspect the release devices if system was subject to fire condition.
4. Open the priming line so that the diaphragm chamber reads the system water pressure. Open the manual release station partly to vent the air & then close it.
5. Open the upstream side of stop valve to read the Deluge Valve Inlet water supply pressure. The Deluge Valve is set.
6. Open the air supply line and check the pressure is maintained up to 0.7 Kg./Sq.Cm. (10 PSI) and Control Panel is kept on.
7. Check all the trim parts for possible leak.

INSPECTION AND MAINTENANCE

Inspection and testing is to be carried out only by an authorized and trained personnel. DO NOT TURN OFF the water supply or close any valve to make repair(s) or test the valve, without placing a roving fire patrol in the area covered by the system.

Also inform the local security personal and central alarm station, so that there is no false alarm signal. It is recommended to carry out physical inspection of the system at least twice a week. The inspection should verify that no damage has taken place to any components and check for following normal condition of the system.

NORMAL CONDITION

1. All main valves are open and sealed with tamper proof seal.
2. All drain valves are in closed condition.
3. No leak or drip is detected from drip valve.
4. All water gauge of deluge valve, should show the required pressure.
5. No leak in any trim or other piping.
6. Release panel is on and no abnormal indication are seen..

CAUTION: *Procedure outlined below will result in operation of associated alarm. Concerned authorities to be informed about the tests before conducting the tests.*

QUATERLY TEST - WATER FLOW ALARM TEST

Open the sprinkler alarm gong test valve, the water will flow through sprinkler alarm and/or water flow switch. On satisfactory observation close the alarm test valve.

AIR SUPPERVISORY LOW PRESSURE ALARM

Release air pressure gradually through valve provided on check valve. When air pressure drops to 0.42 ± 0.07 Kg./Sq.Cm. (6 PSI ± 1), the supervisory low pressure alarm must be observed. Close the valve & observe that air pressure has been established to 0.7 ± 0.14 Kg. / Sq. Cm. (10 ± 2 PSI), the supervisory air pressure alarm must come to normal condition. If required reset the release panel.

ANNUAL OPERATION TEST

Testing valve operation without causing water supply to the deluge valve.

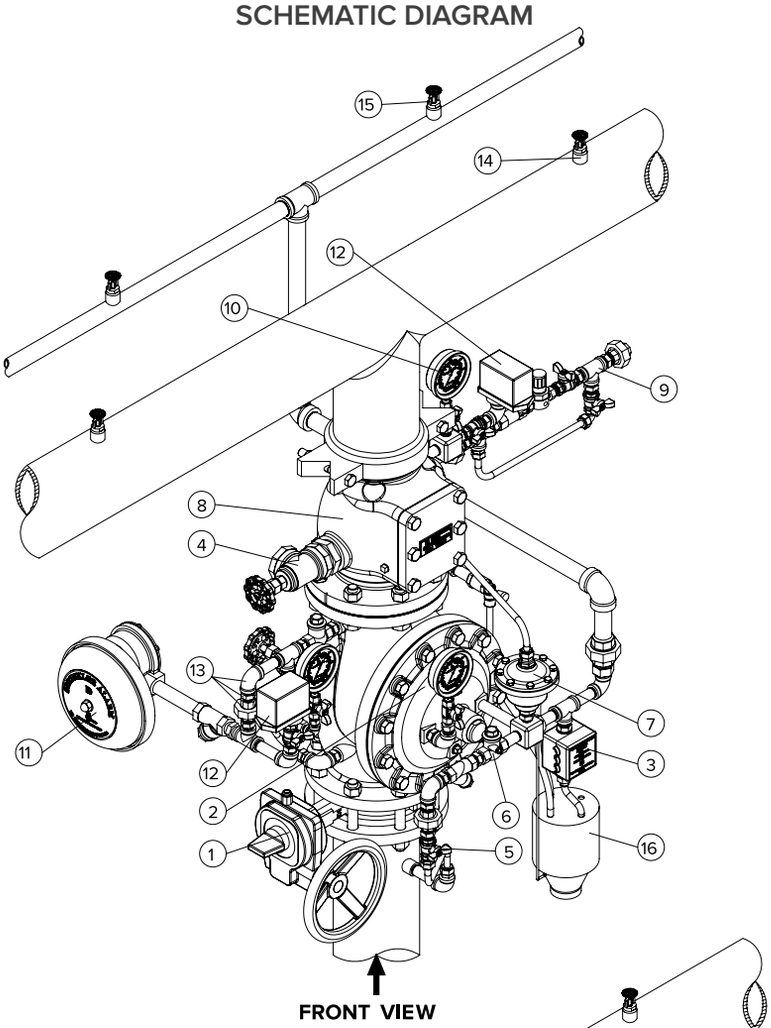
1. Close the main system valve controlling water supply to the deluge valve.
2. Open the main drain valve provided on deluge inlet side and allow water to drain. When water flow from drain valve has stopped crack open the main system valve and close the main drain valve partly allowing the water pressure at inlet of deluge valve to raise up to 1.4 Kg. / Sq. Cm.(20 PSI) and no more pressure is rising.
3. Actuate the solenoid valve from control panel as per instruction of control panel manufacturer. deluge valve must open and water flow must be noticed through drip valve and through solenoid valve. Close the main supply control valve immediately and allow water to drain from drain valve.
4. When water flow has stopped, reset the deluge valve as per resetting procedure.

CAUTION: The steps 2 & 3 must be performed very quickly to prevent water flow to riser.

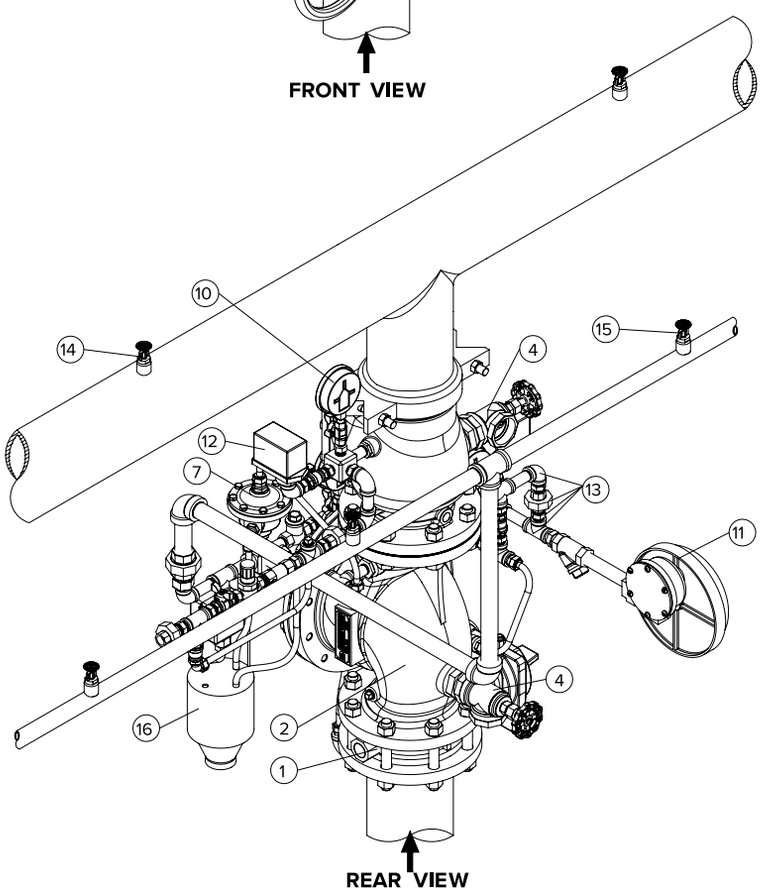
NOTE: For abnormal condition of deluge valve.

CAUTION: The system must be inspected, tested and maintained as instructed above, in addition to the requirement of NFPA or as per requirement of authority having jurisdiction. The owner is responsible for the inspection, testing and maintenance of the system and devices.

SINGLE INTERLOCK, SUPERVISED PREACTION SYSTEM WITH WET PILOT ACTUATION SCHEMATIC DIAGRAM



FRONT VIEW



REAR VIEW

SINGLE INTERLOCK, SUPERVISED PREACTION SYSTEM WET PILOT ACTUATED - PART LIST

Item No.	Description	Size	200 NB	150 NB	100 NB	80 NB	50 NB
1	BFV Wafer Type with Tamper Switch*	2”	1	1	1	1	1
2	Deluge Valve Flange End	2”	-	-	-	-	1
2	Deluge Valve Flange End	3”	-	-	-	1	-
2	Deluge Valve Flange End	4”	-	-	1	-	-
2	Deluge Valve Flange End	6”	-	1	-	-	-
2	Deluge Valve Flange End	8”	1	-	-	-	-
3	Emergency Release Station	½”	1	1	1	1	1
4	Angle Valve	1¼”	-	-	-	1	1
4	Angle Valve	2”	1	1	1	-	-
5	Priming Valve	½”	1	1	1	1	1
6	Restricted Check Valve	½”	1	1	1	1	1
7	Anti Reset Valve	½”	1	1	1	1	1
8	Check Valve - Flange To Groove	2”	-	-	-	-	1
8	Check Valve - Flange To Groove	3”	-	-	-	1	-
8	Check Valve - Flange To Groove	4”	-	-	1	-	-
8	Check Valve - Flange To Groove	6”	-	1	-	-	-
8	Check Valve - Flange To Groove	8”	1	-	-	-	-
9	Pressure Maintenance Device*	½”	1	1	1	1	1
10	Pressure Gauge	0-300 PSI	1	1	1	1	1
11	Sprinkler Alarm (Gong Bell)*		1	1	1	1	1
12	Pressure Switch		1	1	1	1	1
13	Trim Fittings		1	1	1	1	1
14	Automatic Sprinkler**		1	1	1	1	1
15	Wet Pilot Line Sprinkler		1	1	1	1	1
16	Splash Proof Funnel		1	1	1	1	1

* Optional supply
** Not supplied

NOTE:

- *Deluge valve end connection (optional - G x G/ F x F)*
- *Check valve end connection (optional - G x G/ F x G / F x F)*
- *Butterfly valve end connection (optional - G x G/ Wafer Type / Lug Type)*
- *Optional trim supply - loose / semi assembled)*
- *Shape of fittings / valves may change.*
- *System piping, sprinkler, detector not supplied*
- *Priming line by others*

DOUBLE INTERLOCK, PREACTION SYSTEM WITH ELECTRIC/ELECTRIC RELEASE

MODEL: SD-DVH3

TECHNICAL SPECIFICATION

Size	50, 80, 100, 150 & 200 NB
Deluge Valve	Model SD-DVH3, UL Listed
Check Valve	UL Listed
Sprinkler Alarm	UL Listed (optional)
Release Panel	UL Listed (optional)
Water Flow Switch	UL Listed
Solenoid Valve	24V DC, UL Listed
Automatic Air Supervisor	Oil-Less Riser Mount Compressor (Optional)
Air Pressure Maintenance Device	AMD-1 (optional)
Manual System Shut Off Valve	UL Listed, Butterfly Valve -Standard Supply. (Gate Valve - Optional)
Maximum Working Pressure	17.5 kg./sq.cm. (250 psi)
System End Connection	Grooved (Standard Supply) Flanged (Optional Supply)

DESCRIPTION

The Double Interlock Preaction System with Electric/ Electric Release is generally used to protect water sensitive areas such as computer rooms, storage areas, refrigerated areas etc., to avoid water damage due to inadvertent flooding of the sprinkler system piping.

In normal condition, preaction system does not contain water in the sprinkler piping. The sprinkler piping contains air pressure for the purpose of supervising its leak tightness.

This system utilizes a Deluge Valve and Riser Check Valve. The Riser Check Valve isolates the Deluge Valve from the system air pressure. Riser Check Valve provides an air check so that the system can be automatically pressurized with a nominal supervisory air or nitrogen pressure of 10 psi (0.69 bar). A supervisory low pressure alarm switch can be set at nominally 6 psi (0.42 bar), on decreasing pressure, to indicate whether there are any abnormal leaks in the sprinkler system piping. Loss of air pressure from the system due to accidental leakage will not cause Deluge Valve to open.

The releasing trim for the Deluge Valve utilizes a Solenoid Valve that is energized with cross-zone releasing circuit of release panel. The system air pressure holds the Dry Plot Actuator closed, whereas the Solenoid Valve remains closed until it is electrically energized by a Deluge Valve Releasing Panel (automatic control unit). The Releasing Panel is operated by either a fire detection device or manual electric pull station.

In order for the Double Interlock Pre-action System to automatically actuate, two independent events must occur. Zone 1 of the Releasing Panel must operate upon automatic operation of the electric fire detection initiating circuit or operation of the electric-manual pull initiating circuit, and Zone 2 of the Releasing Panel must operate via the Low Air Pressure Alarm Switch upon loss of air pressure from the sprinkler system piping, due to operation of one or more sprinklers. The Double Interlock Preaction System will automatically actuate only when both Zone 1 and Zone 2 of the Releasing Panel have operated, energizing the Solenoid Valve.

INSTALLATION & COMMISSIONING

The preaction system valves, panel, indicators must be installed in a readily visible and accessible location. The system valves and accessory shall not be installed in an area having temperature less than 4°C (40°F). Heat tracing to system valve and accessory is not permissible. The system must be installed and operated carefully by a trained person, having good knowledge of equipment.

All system piping must be flushed thoroughly before commissioning. After initial successful tests, an authorized person must be trained to perform inspection, testing and maintenance of the system

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RECOMMENDED SEQUENCE OF INSTALLATIONS

1. Install the Deluge Valve on Riser in vertical position.
2. Install the Riser Check Valve above Deluge Valve as shown in installation drawing.
3. On completion of system piping, install all the trims as per trim drawing. Care must be taken to ensure that Check Valves, Strainers, Valves etc. are installed with the flow arrows in the proper direction.
4. Connect all drain piping as shown in the drawing.
5. All unused opening on valve or trim parts must be plugged.
6. Connect air supply line.
7. Connect all electrical to control panel as per wiring drawing.
8. Make sure that all the nut bolts, fittings are screwed properly.
9. Follow the valve resetting and test procedure.
10. The pipe fittings and nipple must be cleaned. Use thread sealant on male threads only.
11. For common drain piping a check valve to be provided interconnecting main drain and the funnel.
12. The drain tubing to be drip funnel must be installed with smooth bends that will restrict flow.
13. The drain piping must be free-flow and care must be taken to direct the drain in proper area to avoid damage due to release of system.
14. A supervisory air (Nitrogen) supply is to be installed as given in the data sheet. An air dryer, if specified, needs to be installed as per authority having jurisdiction.
15. The electric connection through conduit is to be made as per authority having jurisdiction.

RESETTING PROCEDURE

1. Close the upstream side stop valve of the Deluge Valve.
2. Open drain valves and allow water to drain (if water flow was establish) & close drain valve when water flow has ceased.
3. Check all release devices are closed. Inspect the release devices if system was subject to fire condition.
4. Open the priming line so that the diaphragm chamber reads the system water pressure. Open the manual release station partly to vent the air & then close it.
5. Open the upstream side of stop valve to read the Deluge Valve Inlet water supply pressure. The Deluge Valve is set.
6. Open the air supply line and check the pressure is maintained up to 0.7 Kg./Sq.Cm. (10 PSI) and Control Panel is kept on.
7. Check all the trim parts for possible leak.

INSPECTION AND MAINTENANCE

Inspection and testing is to be carried out only by an authorized and trained personnel. DO NOT TURN OFF the water supply or close any valve to make repair(s) or test the valve, without placing a roving fire patrol in the area covered by the system. Also inform the local security personal and central alarm station, so that there is no false alarm signal. It is recommended to carry out physical inspection of the system at least twice a week. The inspection should verify that no damage has taken place to any components and check for following normal condition of the system. The owner is responsible for maintaining the pre-action system.

NORMAL CONDITION

1. All main valves are open and sealed with tamper proof seal.
2. All drain valves are in closed condition.
3. No leak or drip is detected from drip valve.
4. All water gauge of deluge valve, should show the required pressure.
5. No leak in any trim or other piping.
6. Release panel is on and no abnormal indication are seen.
7. All testing procedure to be verified

CAUTION: Procedure outlined below will result in operation of associated alarm. Concerned authorities to be informed about the tests before conducting the tests.

QUARTERLY TEST WATER FLOW ALARM TEST

Open the sprinkler alarm gong test valve, the water will flow through sprinkler alarm and/or water flow switch. On satisfactory observation close the alarm test valve.

SOLENOID VALVE TEST

1. Close the system water supply valve provided at inlet of deluge valve. Open the main drain valve.
2. Close the diaphragm chamber supply control valve and system air supply control valve.
3. Energize the solenoid valve through release panel as per instruction of panel manufacturers. Water flow must start through solenoid valve and deluge valve diaphragm chamber pressure must drop down and water will get discharged through Solenoid Valve continuously.
4. De-energize to close the solenoid valve and follow resetting procedure.

AIR SUPERVISORY LOW PRESSURE ALARM

Release air pressure gradually through valve provided on check valve. When air pressure drops to 0.42 ± 0.07 Kg./Sq.Cm. (6 PSI ± 1), the supervisory low pressure alarm must be observed. Close the valve & observe that air pressure has been established to 0.7 ± 0.14 Kg. / Sq. Cm. (10 ± 2 PSI), the supervisory air pressure alarm must come to normal condition. If required reset the release panel.

ANNUAL OPERATION TEST

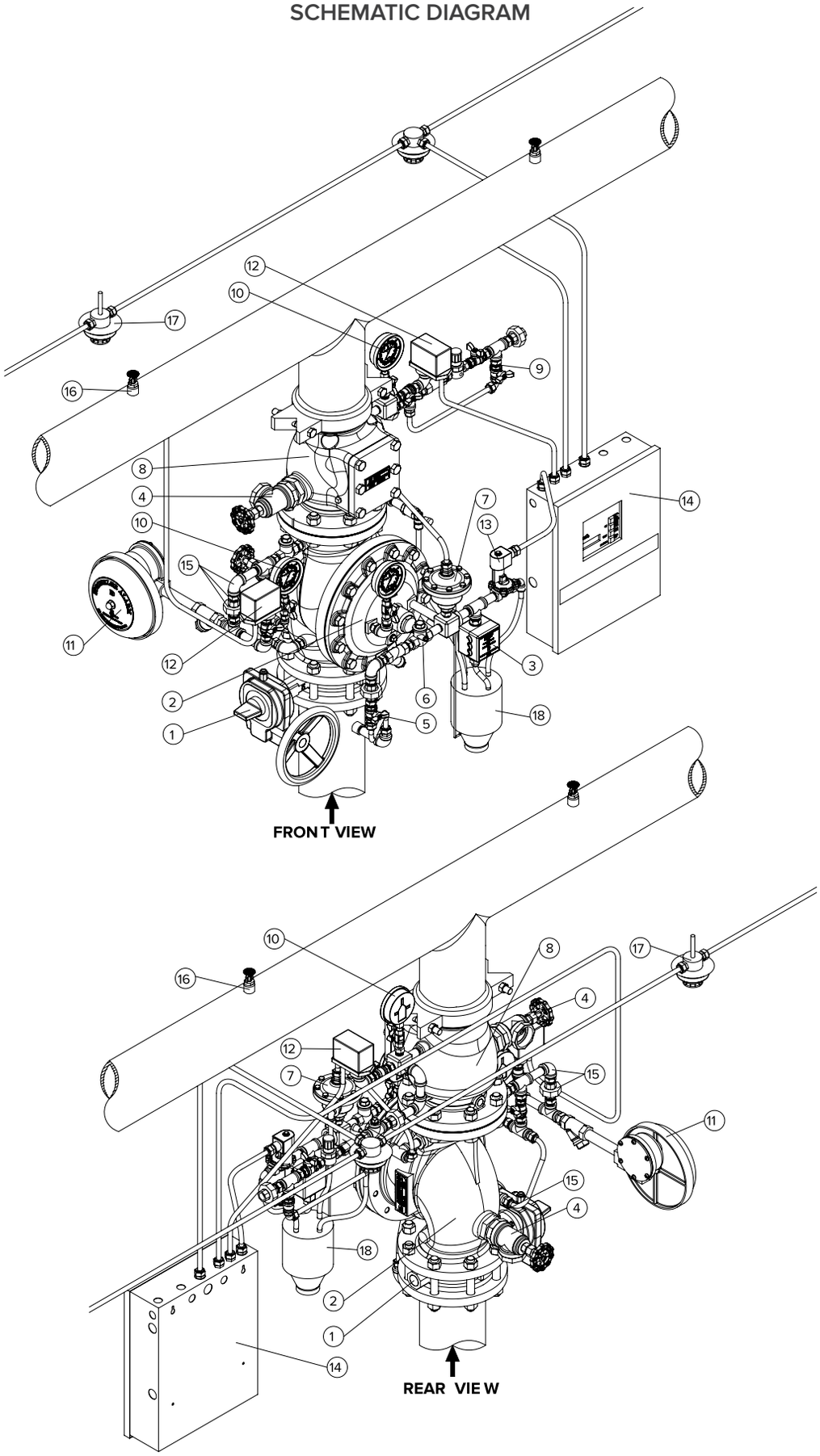
Testing valve operation without causing water supply to the deluge valve.

1. Close t he main system valve controlling water supply to the deluge valve.
2. Open the main drain valve provided on deluge inlet side and allow water to drain. When water flow from drain valve has stopped crack open the main system valve and close the main drain valve partly allowing the water pressure at inlet of deluge valve to raise up to 1.4 Kg. / Sq. Cm.(20 PSI) and no more pressure is rising.
3. Actuate the solenoid valve from control panel as per instruction of control panel manufacturer. Deluge valve must open and water flow must be noticed through drip valve and through solenoid valve. Close the main supply control valve immediately and allow water to drain from drain valve.
4. When water flow has stopped, reset the deluge valve as per resetting procedure.

CAUTION: The steps 2 & 3 must be performed very quickly to prevent water flow to riser.

CAUTION: The system must be inspected, tested and maintained as instructed above, in addition to the requirement of NFPA or as per requirement of authority having jurisdiction. The owner is responsible for the inspection, testing and maintenance of the system and devices.

DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/ELECTRIC RELEASE
SCHEMATIC DIAGRAM



DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/ELECTRIC RELEASE - PART LIST

Item No.	Description	Size	200 NB	150 NB	100 NB	80 NB	50 NB
1	BFV Wafer Type with Tamper Switch*	2”	1	1	1	1	1
2	Deluge Valve Flange End	2”	-	-	-	-	1
2	Deluge Valve Flange End	3”	-	-	-	1	-
2	Deluge Valve Flange End	4”	-	-	1	-	-
2	Deluge Valve Flange End	6”	-	1	-	-	-
2	Deluge Valve Flange End	8”	1	-	-	-	-
3	Emergency Release Station	½”	1	1	1	1	1
4	Angle Valve	1¼”	-	-	-	1	1
4	Angle Valve	2”	1	1	1	-	-
5	Priming Valve	½”	1	1	1	1	1
6	Restricted Check Valve	½”	1	1	1	1	1
7	Anti Reset Valve	½”	1	1	1	1	1
8	Check Valve - Flange To Groove	2”	-	-	-	-	1
8	Check Valve - Flange To Groove	3”	-	-	-	1	-
8	Check Valve - Flange To Groove	4”	-	-	1	-	-
8	Check Valve - Flange To Groove	6”	-	1	-	-	-
8	Check Valve - Flange To Groove	8”	1	-	-	-	-
9	Pressure Maintenance Device*	½”	1	1	1	1	1
10	Pressure Gauge	0-300 PSI	1	1	1	1	1
11	Sprinkler Alarm (Gong Bell)*		1	1	1	1	1
12	Pressure Switch		1	1	1	1	1
13	Solenoid Valve		1	1	1	1	1
14	Cross Zone DV Releasing Panel*		1	1	1	1	1
15	Trim Fittings		1	1	1	1	1
16	Automatic Sprinkler**		1	1	1	1	1
17	Heat Detector/ Smoke Detector**		1	1	1	1	1
18	Splash Proof Funnel		1	1	1	1	1

* Optional supply
** Not supplied

NOTE:

- *Deluge valve end connection (optional - G x G/ F x F)*
- *Check valve end connection (optional - G x G/ F x G / F x F)*
- *Butterfly valve end connection (optional - G x G/ Wafer Type / Lug Type)*
- *Optional trim supply - loose / semi assembled)*
- *Shape of fittings / valves may change.*
- *System piping, sprinkler, detector not supplied*
- *Priming line by others*

DOUBLE INTERLOCK, PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE

MODEL: SD-DVH3

TECHNICAL SPECIFICATION

Size	50, 80, 100, 150 & 200 NB
Deluge Valve	Model SD-DVH3, UL Listed
Check Valve	UL Listed
Sprinkler Alarm	UL Listed (optional)
Release Panel	UL Listed (optional)
Water Flow Switch	UL Listed
Solenoid Valve	24V DC, UL Listed
Automatic Air Supervisor	Oil-Less Riser Mount Compressor (Optional)
Air Pressure Maintenance Device	AMD-1 (optional)
Manual System Shut Off Valve	UL Listed, Butterfly Valve -Standard Supply. (Gate Valve - Optional)
Maximum Working Pressure	17.5 kg./sq.cm. (250 psi)
System End Connection	Grooved (Standard Supply) Flanged (Optional Supply)

DESCRIPTION

The Double Interlock Preaction System with Electric/ Pneumatic Release is generally used to protect water sensitive areas such as computer rooms, storage areas, refrigerated areas etc., to avoid water damage due to inadvertent flooding of the sprinkler system piping.

In normal condition, preaction system does not contain water in the sprinkler piping. The sprinkler piping contains air pressure for the purpose of supervising its leak tightness.

This is most commonly used system. This system utilizes a Deluge Valve and Riser Check Valve. The Riser Check Valve isolates the Deluge Valve from the system air pressure. Riser Check Valve provides an air check so that the system can be automatically pressurized with a nominal supervisory air or nitrogen pressure of 10 psi (0.69 bar). A supervisory low pressure alarm switch can be set at nominally 6 psi (0.42 bar), on decreasing pressure, to indicate whether there are any abnormal leaks in the sprinkler system piping. Loss of air pressure from the system due to accidental leakage will not cause Deluge Valve to open.

The releasing trim for Deluge Valve utilizes a Solenoid Valve and a Dry Pilot Actuator in a series configuration. The system air pressure holds the Dry Pilot Actuator closed, whereas the Solenoid Valve remains closed until it is electrically energized by a Deluge Valve Releasing Panel (automatic control unit).

The Releasing Panel is operated either by a fire detection device or manual electric pull station. In order for the Double Interlock Pre-Action System to automatically actuate, two independent events must occur. The Deluge Valve Releasing Panel must operate and open the Solenoid Valve upon automatic operation of the electric fire detection initiating circuit and the sprinkler system piping must lose air pressure due to operation of one or more sprinklers. The Double Interlock Pre-Action System will automatically actuate only when both the Dry Pilot Actuator and the Solenoid Valve are open at the same time. Unintended opening of just the Dry Pilot Actuator or the Solenoid Valve will only cause an alarm and not actuate the system or flood the sprinkler system piping.

INSTALLATION & COMMISSIONING

The preaction system valves, panel, indicators must be installed in a readily visible and accessible location. The system valves and accessory shall not be installed in an area having temperature less than 4°C (40°F). Heat tracing to system valve and accessory is not permissible. The system must be installed and operated carefully by a trained person, having good knowledge of equipment.

All system piping must be flushed thoroughly before commissioning. After initial successful tests, an authorized person must be trained to perform inspection, testing and maintenance of the system.

RECOMMENDED SEQUENCE OF INSTALLATIONS

1. Install the Deluge Valve on Riser in vertical position.
2. Install the Riser Check Valve above Deluge Valve as shown in installation drawing.
3. On completion of system piping, install all the trims as per trim drawing. Care must be taken to ensure that Check Valves, Strainers, Valves etc. are installed with the flow arrows in the proper direction.
4. Connect all drain piping as shown in the drawing.
5. All unused opening on valve or trim parts must be plugged.
6. Connect air supply line.
7. Connect all electrical to control panel as per wiring drawing.
8. Make sure that all the nut bolts, fittings are screwed properly.
9. Follow the valve resetting and test procedure.
10. The pipe fittings and nipple must be cleaned. Use thread sealant on male threads only.
11. For common drain piping a check valve to be provided interconnecting main drain and the funnel.
12. The drain tubing to be drip funnel must be installed with smooth bends that will restrict flow.
13. The drain piping must be free-flow and care must be taken to direct the drain in proper area to avoid damage due to release of system.
14. A supervisory air (Nitrogen) supply is to be installed as given in the data sheet. An air dryer, if specified, needs to be installed as per authority having jurisdiction.
15. The electric connection through conduit is to be made as per authority having jurisdiction.

RESETTING PROCEDURE

1. Close the upstream side stop valve of the Deluge Valve.
2. Open drain valves and allow water to drain (if water flow was establish) & close drain valve when water flow has ceased.
3. Check all release devices are closed. Inspect the release devices if system was subject to fire condition.
4. Open the priming line so that the diaphragm chamber reads the system water pressure. Open the manual release station partly to vent the air & then close it.
5. Open the upstream side of stop valve to read the Deluge Valve Inlet water supply pressure. The Deluge Valve is set.
6. Open the air supply line and check the pressure is maintained up to 0.7 Kg./Sq.Cm. (10 PSI) and Control Panel is kept on.
7. Check all the trim parts for possible leak.

INSPECTION AND MAINTENANCE

Inspection and testing is to be carried out only by an authorized and trained personnel. DO NOT TURN OFF the water supply or close any valve to make repair(s) or test the valve, without placing a roving fire patrol in the area covered by the system. Also inform the local security personal and central alarm station, so that there is no false alarm signal. It is recommended to carry out physical inspection of the system at least twice a week. The inspection should verify that no damage has taken place to any components and check for following normal condition of the system. The owner is responsible for maintaining the pre-action system.

NORMAL CONDITION

1. All main valves are open and sealed with tamper proof seal.
2. All drain valves are in closed condition.
3. No leak or drip is detected from drip valve.
4. All water gauge of deluge valve, should show the required pressure.
5. No leak in any trim or other piping.
6. Release panel is on and no abnormal indication are seen.
7. All testing procedure to be verified

CAUTION: Procedure outlined below will result in operation of associated alarm. Concerned authorities to be informed about the tests before conducting the tests.

QUARTERLY TEST WATER FLOW ALARM TEST

Open the sprinkler alarm gong test valve, the water will flow through sprinkler alarm and/or water flow switch. On satisfactory observation close the alarm test valve.

SOLENOID VALVE TEST

1. Close the system water supply valve provided at inlet of deluge valve. Open the main drain valve.
2. Close the diaphragm chamber supply control valve and system air supply control valve.
3. Energize the solenoid valve through release panel as per instruction of panel manufacturers. Water flow must start through solenoid valve and deluge valve diaphragm chamber pressure must drop down and water will get discharged through Solenoid Valve continuously.
4. De-energize to close the solenoid valve and follow resetting procedure.

AIR SUPERVISORY LOW PRESSURE ALARM

Release air pressure gradually through valve provided on check valve. When air pressure drops to 0.42 ± 0.07 Kg./Sq.Cm. (6 PSI ± 1), the supervisory low pressure alarm must be observed. Close the valve & observe that air pressure has been established to 0.7 ± 0.14 Kg. / Sq. Cm. (10 ± 2 PSI), the supervisory air pressure alarm must come to normal condition. If required reset the release panel.

ANNUAL OPERATION TEST

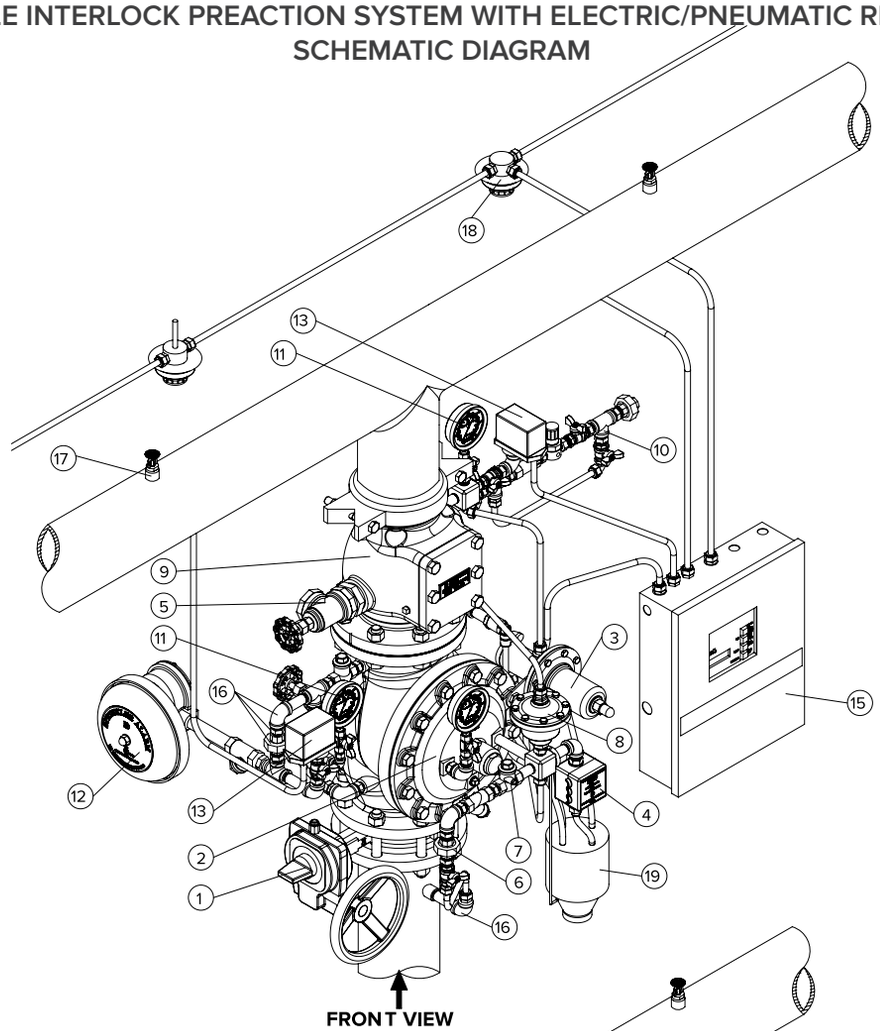
Testing valve operation without causing water supply to the deluge valve.

1. Close the main system valve controlling water supply to the deluge valve.
2. Open the main drain valve provided on deluge inlet side and allow water to drain. When water flow from drain valve has stopped crack open the main system valve and close the main drain valve partly allowing the water pressure at inlet of deluge valve to raise up to 1.4 Kg. / Sq. Cm.(20 PSI) and no more pressure is rising.
3. Actuate the solenoid valve from control panel as per instruction of control panel manufacturer. Deluge valve must open and water flow must be noticed through drip valve and through solenoid valve. Close the main supply control valve immediately and allow water to drain from drain valve.
4. When water flow has stopped, reset the deluge valve as per resetting procedure.

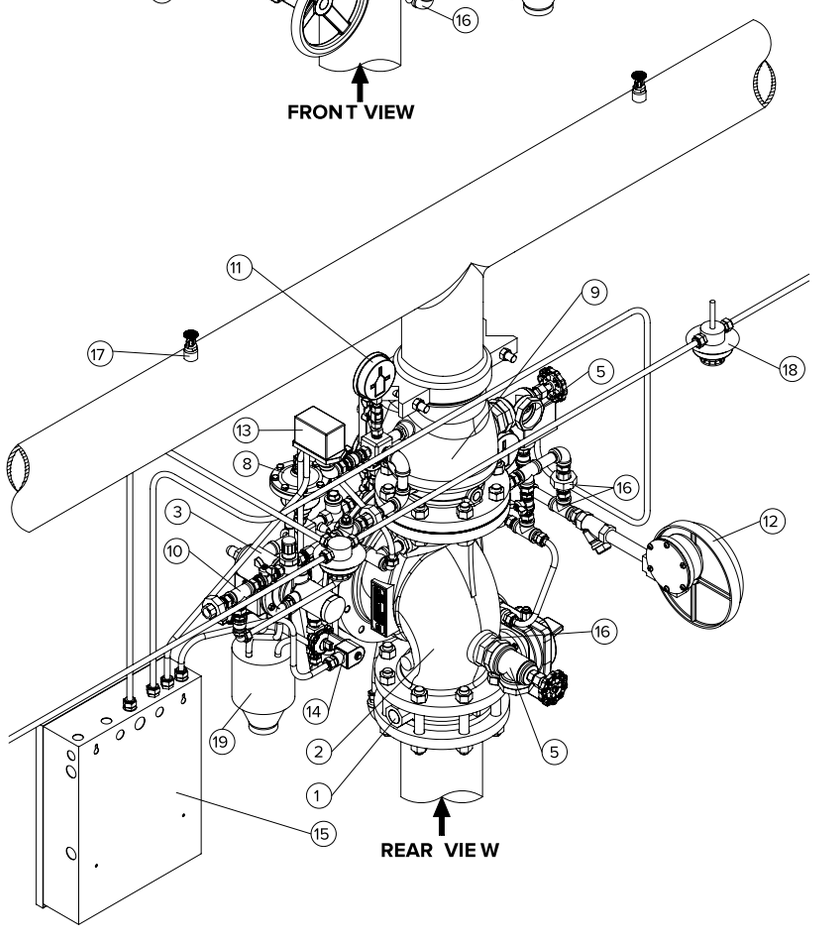
CAUTION: The steps 2 & 3 must be performed very quickly to prevent water flow to riser.

CAUTION: The system must be inspected, tested and maintained as instructed above, in addition to the requirement of NFPA or as per requirement of authority having jurisdiction. The owner is responsible for the inspection, testing and maintenance of the system and devices.

DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE
SCHEMATIC DIAGRAM



FRONT VIEW



REAR VIEW

DOUBLE INTERLOCK PREACTION SYSTEM WITH ELECTRIC/PNEUMATIC RELEASE - PART LIST

Item No.	Description	Size	200 NB	150 NB	100 NB	80 NB	50 NB
1	BFV Wafer Type with Tamper Switch*	2”	1	1	1	1	1
2	Deluge Valve Flange End	2”	-	-	-	-	1
2	Deluge Valve Flange End	3”	-	-	-	1	-
2	Deluge Valve Flange End	4”	-	-	1	-	-
2	Deluge Valve Flange End	6”	-	1	-	-	-
2	Deluge Valve Flange End	8”	1	-	-	-	-
3	Dry Pilot Actuator	½"	1	1	1	1	1
4	Emergency Release Station	½”	1	1	1	1	1
5	Angle Valve	1¼”	-	-	-	1	1
5	Angle Valve	2”	1	1	1	-	-
6	Priming Valve	½”	1	1	1	1	1
7	Restricted Check Valve	½”	1	1	1	1	1
8	Anti Reset Valve	½”	1	1	1	1	1
9	Check Valve - Flange To Groove	2”	-	-	-	-	1
9	Check Valve - Flange To Groove	3”	-	-	-	1	-
9	Check Valve - Flange To Groove	4”	-	-	1	-	-
9	Check Valve - Flange To Groove	6”	-	1	-	-	-
9	Check Valve - Flange To Groove	8”	1	-	-	-	-
10	Pressure Maintenance Device*	½”	1	1	1	1	1
11	Pressure Gauge	0-300 PSI	1	1	1	1	1
12	Sprinkler Alarm (Gong Bell)*		1	1	1	1	1
13	Pressure Switch		1	1	1	1	1
14	Solenoid Valve		1	1	1	1	1
15	Cross Zone DV Releasing Panel*		1	1	1	1	1
16	Trim Fittings		1	1	1	1	1
17	Automatic Sprinkler**		1	1	1	1	1
18	Heat Detector/ Smoke Detector**		1	1	1	1	1
19	Splash Proof Funnel		1	1	1	1	1

* Optional supply
** Not supplied

NOTE:

- *Deluge valve end connection (optional - G x G/ F x F)*
- *Check valve end connection (optional - G x G/ F x G / F x F)*
- *Butterfly valve end connection (optional - G x G/ Wafer Type / Lug Type)*
- *Optional trim supply - loose / semi assembled)*
- *Shape of fittings / valves may change.*
- *System piping, sprinkler, detector not supplied*
- *Priming line by others*