SHIELD

DELUGE SINGLE & DOUBLE SUPERVISED PRE-ACTION SYSTEM

INTRODUCTION

Competence and innovation driven by consistent market development and customer requirements have shaped the successful development of the SHIELD Brand. The extensive product range of the market leader in the field of fire protection technology contains single, individually integrable system performances. In this way, a customized overall fire protection concept can be planned and realized for every need with optimally synchronized products.

Performance is in international demand, SHIELD is among the highly accredited fire protection companies that meet rigorous British and American standards for all projects from small conventional system to multi-site networks.

Certifications such as UL and FM approvals have earned SHIELD a world-renowned reputation with quality products and powerful solutions.

A strong brand is generally known to be a secure basis for close and lasting customer relationships. In accordance with this, SHIELD uses available potential in order to keep on growing in a dynamic competitive environment. And at the same time, SHIELD stands for innovative and high quality fire protection systems.

We invite you to explore and visit our website **www.shieldglobal. com.** You can also send us your feedback and inquiry through our user-friendly online forms.

In line with SHIELD policy for continuous product development, SHIELD has the right to change specifications without prior notice.
Images shown in this catalogue are for illustrations purposes only.

SHIELD DELUGE SINGLE AND DOUBLE SUPERVISED PRE-ACTION SYSTEMS

SHIELD Supervised Deluge Pre-action System are used to protect areas where water damage from damaged sprinklers or piping must be avoided. A pre-alarm of a possible fire allows time for alternate fire extinguishment prior to a sprinkler discharge. They are designed for application such as refrigerated areas that require maximum protection against inadvertent operation of the sprinkler system.

SD-DVH2S SERIES

SKID MOUNTED

SD-DVH2C SERIES

CABINET MOUNTED

TYPES OF DELUGE PRE-ACTION SYSTEMS:

- Single Interlock Pre-Action System with Electric Release.
- Single Interlock Pre-Action System with Dry Pilot Activation.
- Single Interlock Pre-Action System with Wet Pilot Activation.
- Double Interlock Pre-Action System with Electric/Electric Release
- Double Interlock Pre-Action System with Electric/Pneumatic Release

APPLICATIONS OF PRE-ACTION SYSTEMS:

- Flammable Liquid Handling
- Storage Areas for Valuable Artifacts
- Aircraft Hangers
- High-Hazard Installations using water as Extinguishing Agent
- Computer Rooms
- Libraries
- Archives
- Refrigerated Areas

SPECIFICATIONS

SL. NO.	DESCRIPTION	MODEL
1	Size	50, 80, 100, 150 & 200 NB (2”,3”,4”,6”,8”)
2	Deluge Valve	SD-DVH2, UL Listed
3	Riser Check Valve	SD-NRV250GG-D
4	Maximum Working Pressure	250Psi
5	System End Connection	Flanged/Grooved (Optional)
6	Release Panel (SHIELD)	S230R-EXT (AX-T) Panel UL Listed
7	Water Flow Switch (SHIELD)	SD-PS 1001 UL Listed / SD-PS4001 (optional)
8	Low Pressure Alarm Switch (SHIELD)	SD-PS 1001 UL Listed / SD-PS4001 (optional)
9	Solenoid Valve	ASCO 8210G227, UL Listed
10	Automatic Air Supply	Oil Less Riser Mount Compressor (Optional)
11	Manual System Shut off Valve	Butterfly Valve or Gate Valve, UL Listed w/ UL Listed Tamper Switch (optional)
12	Cabinet, Red Finish	Red RAL 3000/3001/3020 (Epoxy Finish) Painting Suitable for Sea Water Application (Optional)
13	Trim Assembly	Galvanized Iron, SS, Monel (Optional For Sea Water Application)
14	Approval	UL Listed

SKID MOUNTED FEATURES

- Quick & Convenient Installation
- Rigid Construction
- Compatibility assembled and tested
- Internally wired
- Custom Manufactured
- UL Listed

CABINET MOUNTED FEATURES

- Quick & Convenient Installation
- Rigid Construction
- Compatibility assembled and tested
- Internally wired
- All gauges and panel display are externally visible
- Removable side panels for ease of maintenace
- Removable side & back cabinet covers for ease of maintenace
- Custom Manufactured
- UL Listed

SHIELD DELUGE SINGLE INTERLOCK SUPERVISED PRE-ACTION SYSTEMS WITH WET PILOT RELEASE

Skid Mounted - SD-DVH2S-SW
Cabinet Mounted - SD-DVH2C-SW

PRODUCT DESCRIPTION

The SHIELD Deluge Single Interlock Supervised Pre-action 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. 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.

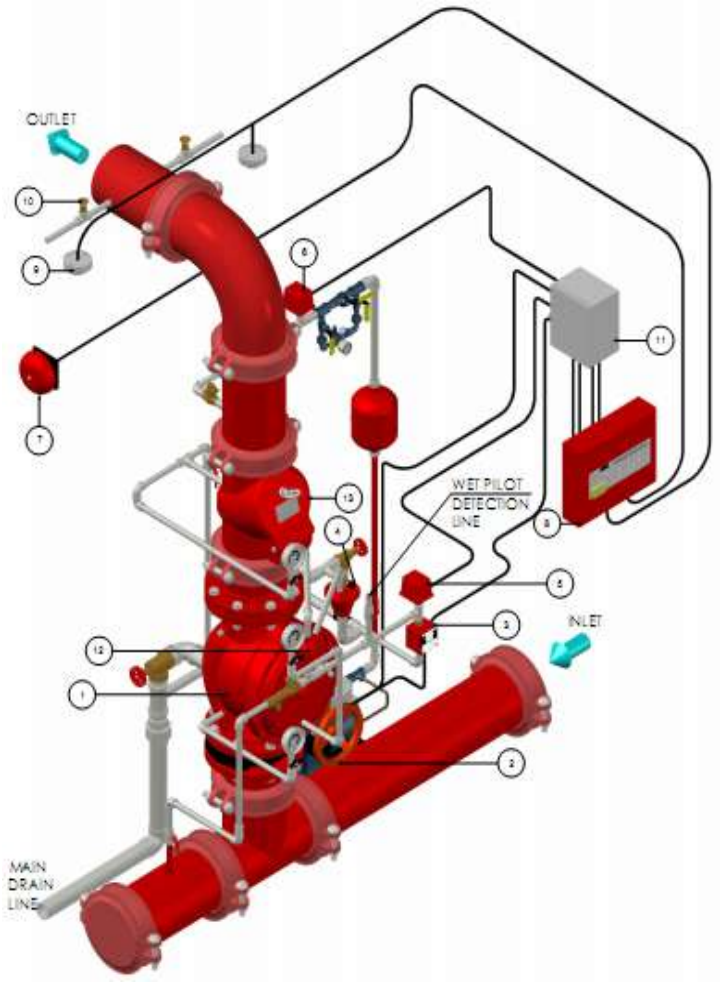
It uses an automatic sprinkler with supplemental detection system. In the event when fire cannot be extinguished by hand held fire extinguishing equipment, the increase in temperature will open one or more sprinkler heads to discharge water. In normal condition, pre-action system does not contain water 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 system designer selects the detection components for single interlock pre-action 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 Pre-action 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, and 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 provided to control the shutdown of equipment such as computers or startup of the second alarm devices. In normal condition the integrity of system is automatically supervised by the automatic air supervisory means. Air or nitrogen pressure is maintained in the sprinkler system up to the downstream of the riser check valve. The supervisory low alarm switch is set at 4PSI.



PART LIST

1	Deluge Valve	8	Fire Alarm Control Panel
2	Isolation Valve	9	Smoke/Heat Detector
3	Manual Emergency Release	10	Sprinkler
4	Drip Check Valve	11	Electrical Junction Box
5	Pressure Switch (for Trim Line)	12	Anti-Rest Valve
6	Pressure Switch (for Air Line)	13	Riser Check Valve
7	Fire Alarm Bell		

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

SHIELD DELUGE SINGLE INTERLOCK SUPERVISED PRE-ACTION SYSTEMS WITH DRY PILOT RELEASE

Skid Mounted - SD-DVH2S-SD
Cabinet Mounted - SD-DVH2C-SD

PRODUCT DESCRIPTION

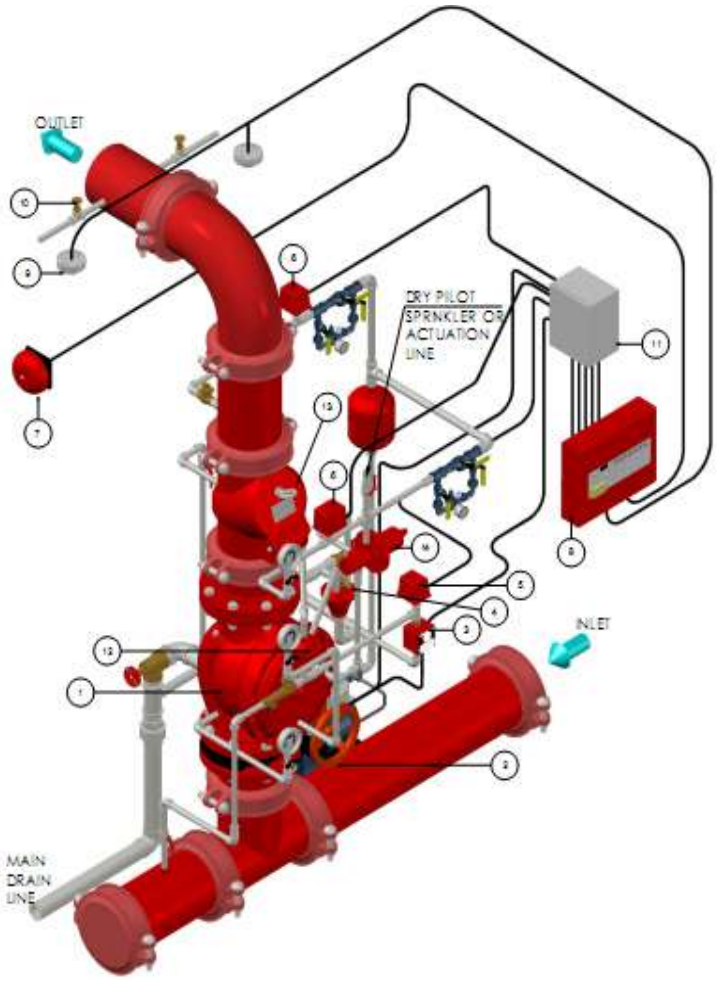
The SHIELD Deluge Single Interlock Supervised Pre-action System with Dry Pilot actuation is generally used to protect water sensitive areas such as computer rooms, storage areas, libraries, archives, banks, etc., to avoid water damage due to damaged sprinklers or damaged sprinkler piping. Pre-action 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 dry-pilot system in single interlock Pre-action system will respond to a fire faster than the automatic sprinkler. When fire is detected through Dry Pilot Detection 4NB, 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 SHIELD Deluge Single Interlock Supervised Pre-action 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 Dry Pilot Sprinkler System also operates due to fire condition, and 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 provided to control the shutdown of equipment such as computers or startup of the second alarm devices. In normal condition the integrity of system is automatically supervised by the automatic air supervisory means. Air or nitrogen pressure is maintained in the sprinkler system up to the downstream of the riser check valve. The supervisory low alarm switch is setat4PSI.Thedecreasingpressurewillgivetroubleannunciation 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. The compressor is compact and is supplied along with the Pre-action system.



PART LIST

1	Deluge Valve	8	Fire Alarm Control Panel
2	Isolation Valve	9	Smoke/Heat Detector
3	Manual Emergency Release	10	Sprinkler
4	Drip Check Valve	11	Electrical Junction Box
5	Pressure Switch (for Trim Line)	12	Anti-Reset Valve
6	Pressure Switch (for Air Line)	13	Riser Check Valve
7	Fire Alarm Bell	14	Dry Pilot Detector

SHIELD DELUGE DOUBLE INTERLOCK SUPERVISED PRE-ACTION SYSTEMS WITH ELECTRIC PNEUMATIC ACTUATION

Skid Mounted - SD-DVH2S-DEP
Cabinet Mounted - SD-DVH2C-DEP

PRODUCT DESCRIPTION

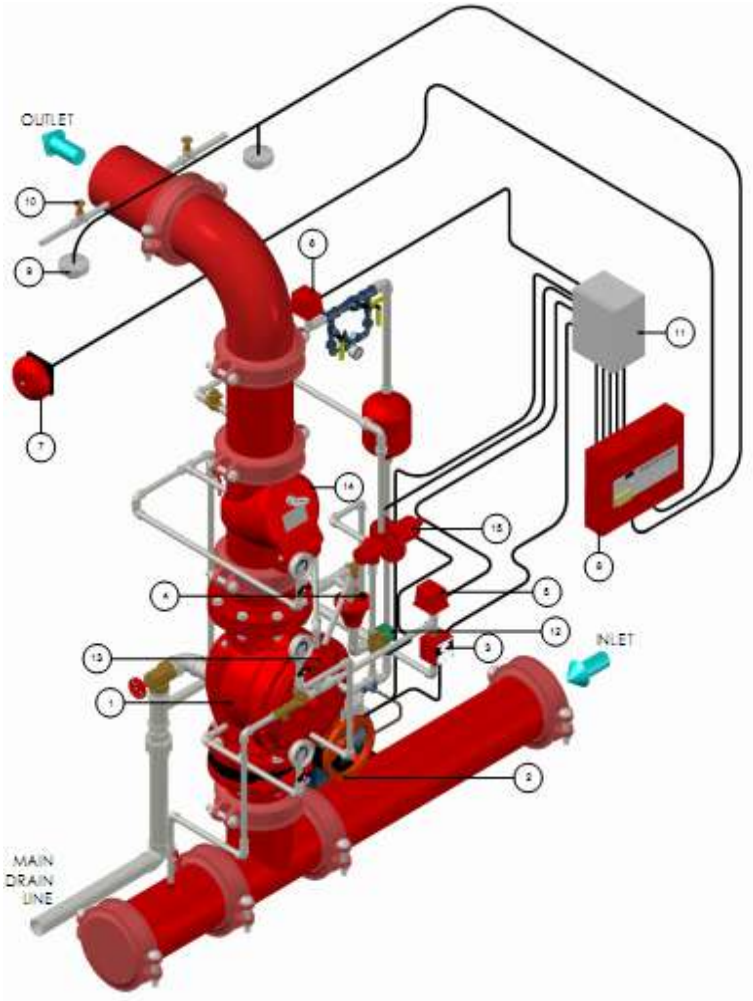
The SHIELD Deluge Double Interlock Pre-action System with Electric/ Pneumatic Release is generally used to protect water sensitive areas such as computer rooms, storage areas, refrigerated areas etc., to avoid water damage due to inadvertent flooding of the sprinkler system piping. In normal condition,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

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. A supervisory low pressure alarm switch can be set at nominally 4psi, 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.

SYSTEM OPERATION

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 Fire Alarm Control Panel (automatic control unit). The Fire Alarm Control Panel is operated either by a fire detection device or manual release. In order for the Double Interlock Pre-Action System to automatically actuate, two independent events must occur. The Deluge Valve Fire Alarm Control 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.



PART LIST

1	Deluge Valve	9	Smoke/Heat Detector
2	Isolation Valve	10	Sprinkler
3	Manual Emergency Release	11	Electrical Junction Box
4	Drip Check Valve	12	Solenoid Valve
5	Pressure Switch (for Trim Line)	13	Anti-Reset Valve
6	Pressure Switch (for Air Line)	14	Riser Check Valve
7	Fire Alarm Bell	15	Dry Pilot Actuator
8	Fire Alarm Control Panel		

SHIELD DELUGE SINGLE INTERLOCK SUPERVISED PRE-ACTION SYSTEMS WITH ELECTRIC ACTUATION

Skid Mounted - SD-DVH2S-SE
Cabinet Mounted - SD-DVH2C-SE

PRODUCT DESCRIPTION

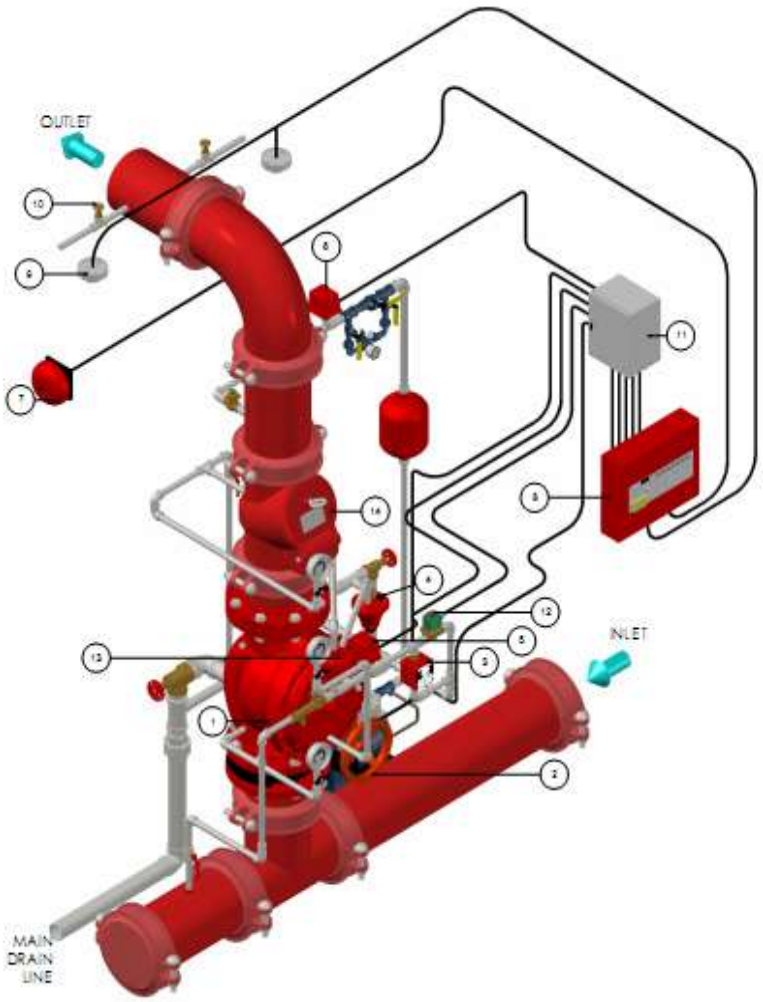
The SHIELD Deluge Single Interlock Supervised Pre-action System is generally used to protect water sensitive areas such as computer rooms, storage areas, libraries, archives, banks, etc., to avoid water damage due to damaged sprinklers or damaged sprinkler piping. Pre-action System is also effectively 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 Fire Alarm Control Panel activates fire alarm devices and latches solenoid valve in open position. 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 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 pressure is maintained in the sprinkler system up to the downstream of the riser check valve.



PART LIST

1	Deluge Valve	8	Fire Alarm Control Panel
2	Isolation Valve	9	Smoke/Heat Detector
3	Manual Emergency Release	10	Sprinkler
4	Drip Check Valve	11	Electrical Junction Box
5	Pressure Switch (for Trim Line)	12	Solenoid Valve
6	Pressure Switch (for Air Line)	13	Anti-Reset Valve
7	Fire Alarm Bell	14	Riser Check Valve

SHIELD DOUBLE INTERLOCK SUPERVISED PRE-ACTION SYSTEM WITH ELECTRIC/ELECTRIC ACTUATION

Skid Mounted - SD-DVH2S-DEE
Cabinet Mounted - SD-DVH2C-DEE

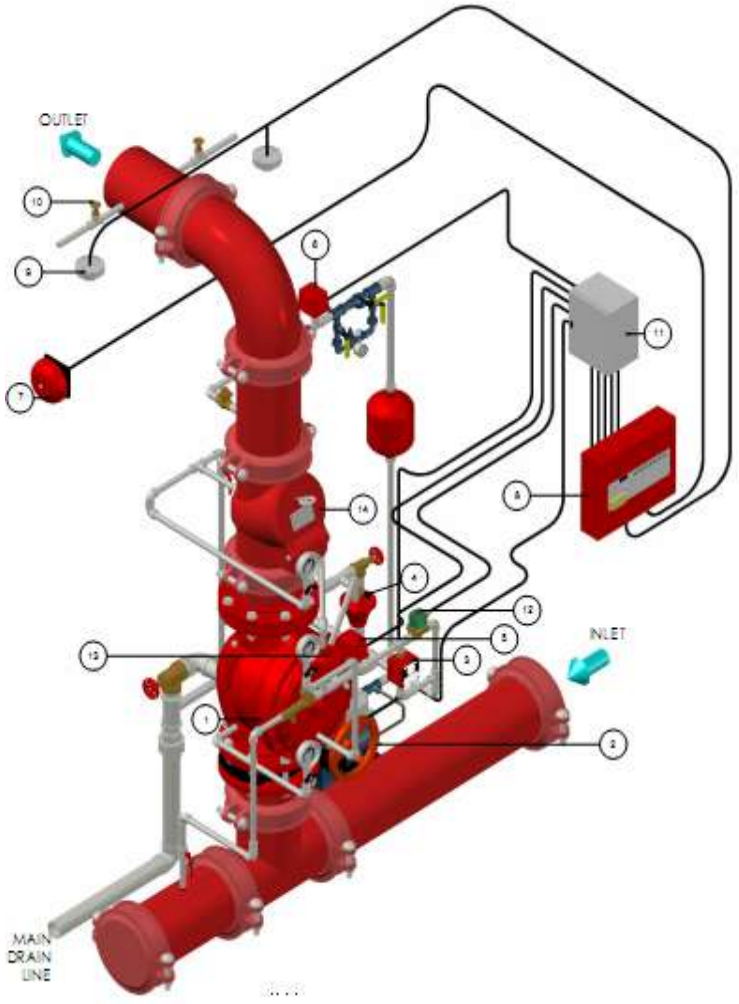
PRODUCT DESCRIPTION

The Double Interlock Pre-action 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, 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. 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. A supervisory low pressure alarm switch can be set at nominally 4 psi, 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 Fire alarm Control panel. The system air pressure holds the Riser Check Valve closed, whereas the Solenoid Valve remains closed until it is electrically energized by a Deluge Valve Fire Alarm Control Panel (automatic control Unit). The Fire Alarm Control Panel is operated by either a fire detection device or manual release.

SYSTEM OPERATION

Double Interlock Pre-action System to automatically actuate, two independent events must occur. Zone 1 of the Fire Alarm Control 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 Fire Alarm Control 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 Pre-action System will automatically actuate only when both the Zone 1 and zone 2 of the Fire Alarm Control Panel have operated, energizing the solenoid valve.



PART LIST

1	Deluge Valve	8	Fire Alarm Control Panel
2	Isolation Valve	9	Smoke/Heat Detector
3	Manual Emergency Release	10	Sprinkler
4	Drip Check Valve	11	Electrical Junction Box
5	Pressure Switch (for Trim Line)	12	Solenoid Valve
6	Pressure Switch (for Air Line)	13	Automatic Shut-Off Valve
7	Fire Alarm Bell	14	Riser Check Valve