




DELUGE VALVE FIRE PROTECTION PRODUCTS (UL – LISTED)



PROTECTOR SPRINKLER

An  9001 certified company

<http://www.protector.com.tw>

Model P

UL 、 CUL Listed Deluge Valve 2" & 2-1/2" & 3" Size Designed For

Horizontal

Easy Trimming & Installation;

Small Size

PRODUCT DESCRIPTION

The Protector Model P deluge valve is a quick opening hydraulically operated valve. The valve may be actuated manually(at the valve location or remotely), hydraulically through the use of a wet pilot sprinkler, or electrically using electric type detector and / or electric control stations to actuate solenoid valve.

OPERATION

Model P deluge valve consists of diaphragm, valve stem which divide the internal space into close area, differential area and open area. The close area connects to water supply system, the differential area links to detection device, and open area to draining system.

When the valve is in normal operation position, the close area connects with differential area through the orifice of valve stem, and the pressure in two areas are equal, the valve closed because of the weight of valve stem as well as the pressure difference between the top and low part of valve stem. There is no water pressure in open area, and the sprinkler system is in off-operation position.

In case of fire signal from detection devices will release the water pressure in differential area, the pressure in differential area will lift the valve stem and open the valve stem gate. Then water flows into an open area to sprinkler system piping to extinguish fire.

The close area links to differential area through an orifice, so the slight pressure loss in differential area will be recovered through the orifice without opening the valve, and this also can avoid wrong opening of valve which is caused by slight leakage. The valve will not be opened when the water pressure in the sprinkler system surges suddenly.

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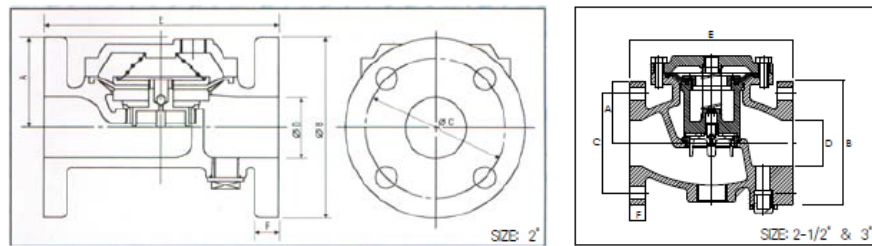
<http://www.protector.com.tw>



DIMENSIONS

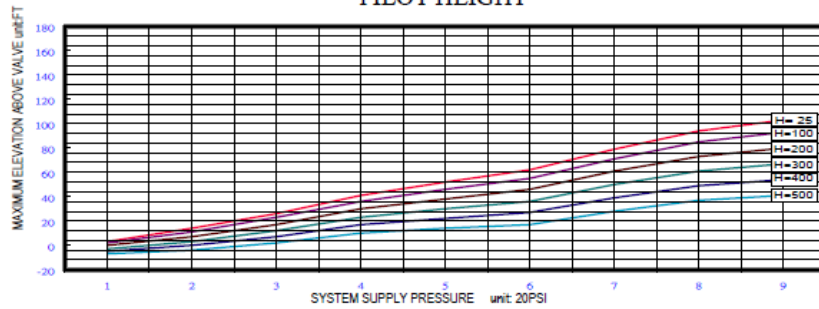
Dimension	unit:mm					
Size	A	B	C	D	E	F
2"	76.5	155	120	50	200	20
2-1/2"	89	178	139.5	65	230	22
3"	95	190	152.5		230	22

3" D=65

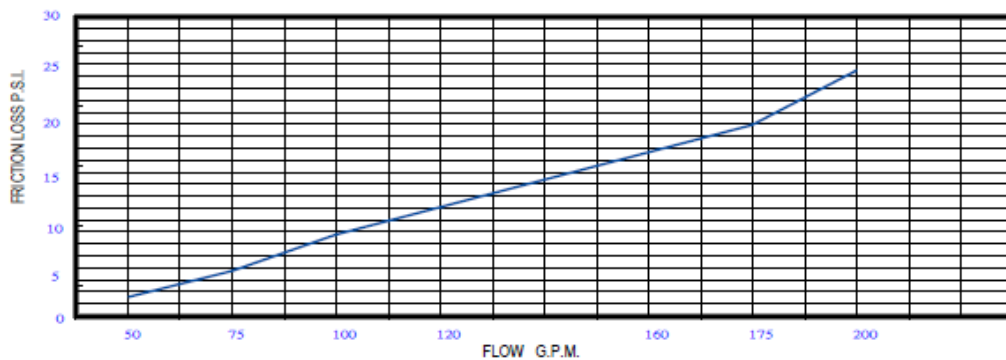


PERFORMANCE

PILOT HEIGHT



FLOW VS. FRICTION LOSS



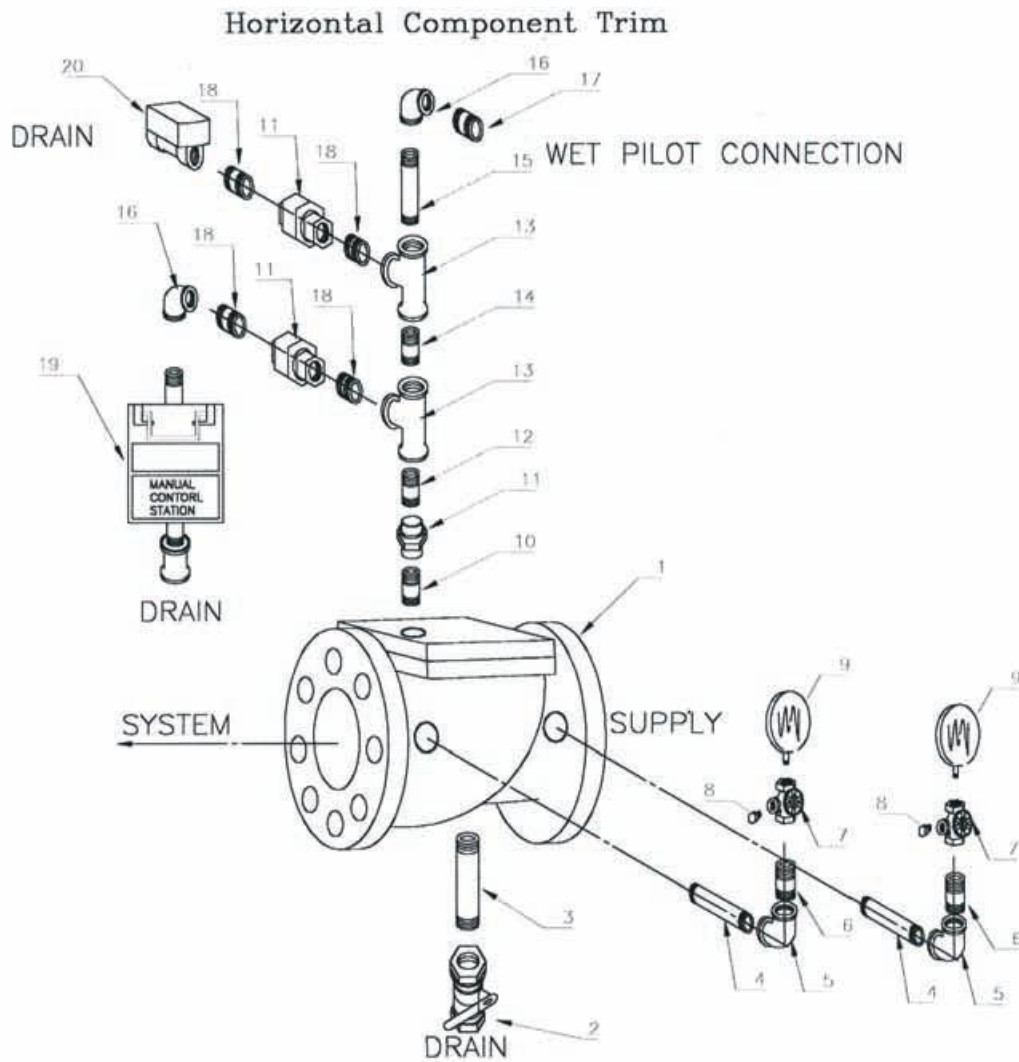
DELU VALV

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2" DELUGE VALVE Horizontal Component Trim



10	1/2" Nipple	1	20	1/2" Solenoid Valve	1
9	3-1/2" Water Gauge	2	19	Manual Control Station	1
8	1/4" Plug	2	18	1/2" Nipple	4
7	1/4" 3-Way Valve	2	17	1/2" Nipple	1
6	1/4" Nipple	2	16	1/2" Elbow	2
5	1/4" Elbow	2	15	1/2" Nipple	1
4	1/4" Nipple	2	14	1/2" Nipple	1
3	3/4" Nipple	1	13	1/2" Tee	2
2	3/4" Ball Valve	1	12	1/2" Nipple	1
1	Deluge Valve	1	11	1/2" Union	3
ITEM	DESCRIPTION	QTY.	ITEM	DESCRIPTION	QTY.

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MATERIAL SPECIFICATIONS

Body: Cast Iron, ASTM A48 Class 35

Cover: Cast Iron, ASTM A48 Class 35

Seat Rubber : NBR

Diaphragm Holder : AISI 304

Seat O-Ring : NBR

Seat : ASTM C83600 B584

The connection of Model P deluge valve is flange-flange and its installation pattern is horizontal. Please follow the applicable requirements of NFPA Standard 13 to install the deluge valve and its equipment. The water flow in sprinkler system should be completely cleaned and without external elements such as sand and dirt.

*** Caution :** The installation direction of deluge valve must be correct. The arrow on the valve body indicates the way of water flow. No reverse installation is allowed.

Model P deluge valve have three types of actuating devices: automatic sprinkler, solenoid valve, and emergency manual control station. The user can select per his own needs, but the emergency manual control station is always necessary. The heights of all the detection devices are limited, please follow the attached graph to install it. If the height is over its limitation, the valve opening will become undependable. The emergency manual control station should be installed at the height that people can reach (the recommended height is 1.5m above ground). The friction loss of the deluge valve equals that of 75.6(2") and 82.7(2-1/2") feet of schedule 40, C=120 long steel pipe with same diameter. See figure.

After the installation of deluge valve is completed, please start the system as follows:

1. Close the system control valve.
2. Open the emergency manual control station.
3. Open the system control valve slowly.

Caution : Open the valve partially at the beginning of water flow into the system, do not open it completely at this moment because a water hammer may be occurred which possibly damage the piping or trap large volumes of air into the system.

4. Continue to fill water into the system until flow is discharging steadily from the opened sprinklers.
5. Close the manual control station.
6. Turn the system control valve to its full open, at same time observe the pressure gauge.

Note : The system is filled when the reading is same as that of system pressure gauge.

7. Conduct a main drain test to make sure the water supply is satisfied.
8. Secure the system control valve and the system is ready for service.

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TESTING

1. The starting test of deluge valve and its relative equipment.

NFPA Standard 25 recommends that the deluge valve and its relative equipment shall be tested at least quarterly to ensure the valve is in proper operation conditions.

1.1 Open the emergency manual control station, the water should discharge from the sprinklers.

1.2 Close the manual control station and water flow from sprinklers shall be slow down and then stop totally.

1.3 Repeat the above steps to check the reliability of valve starting.

2. Flow test at main drain

NFPA Standard 25 recommends that a water flow test shall be made at least quarterly at main drain, the purpose of the test is to show whether or not the normal water supply is available for the system. The main drain test also can indicate the possibility of obstructions in valves or other supply piping. The procedure is as follows:

2.1 When the main drain closed, note and record the reading of deluge valve pressure gauge.

2.2 Open the manual control station.

2.3 Slowly open the system control valve until completed open, check and make sure that a steady water flow is discharging from the sprinkler head.

Note : If a full steady stream is not discharging, check for possible obstructions.

2.4 Allow the water to flow until the reading of pressure gauge drops and stabilizes, then record the reading.


2.5 Close the manual control valve.

2.6 Compare the pressure reading with previously established or normal readings.

Note : If the pressure readings vary to any great extend, the condition should be investigated to determine the cause, some possible causes are:

- * Partially or totally closed system control valve.
- * Clogged or frozen water mains.
- * Serious leakage at valves or mains.

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MAINTENANCE

The owner is responsible for the proper operating condition of all fire protection devices and accessories. The NFPA Standard 25 contains guidelines and minimum maintenance requirements. Furthermore, the Authority Having Jurisdiction may have additional regulations and requirements for maintenance, testing and inspection that must be followed.

Model P deluge valve and its related equipment should be examined periodically to ensure proper operation and trouble free service, the procedure is as follows:

1. Close the system control valve.
2. Open the manual control valve.
3. Open the plugs of draining to drain water in the system.
4. Disassemble the joint between the valve and detection device.
5. Take away the cover and bolts.
6. Take out the whole valve stem.
7. Check the rubber surface of elastic ring for wear or damage. If found to be wrong or damage, the elastic ring should be replaced, if it is dirty, it should be cleaned.
8. Take out the clapper and thoroughly clean the gasket and steel ball, make sure the clapper is not restricted by foreign matter.
9. Thoroughly clean the foreign matter such as sand, dirt which may have imbedded in the hole of valve stem.
10. Take out the director and clean the dirt on it.
11. Take out the seat and check the rubber surface for wear and damage, if found to be worn or damaged (e.g. Foreign mater imbedded in the surface), the seat should be replaced, if it is dirty it should be cleaned.
12. Check the seat ring to make sure that no foreign matter accumulated on the surface, it should be thoroughly cleaned, if accumulated on the surface, it should be thoroughly cleaned, if the seat ring surface is seriously damaged, it should be replaced.
13. Check the detection device to ensure that the mouth is not obstructed by external elements.

Note : The deluge valve and its related equipment should be properly maintained, the owner is responsible for the conditions. The whole system should be kept in good conditions of operation.


Technical Data

Water working pressure rating 175PSI(12.3bar).

Factory hydrostatic test pressure 350PSI(24.6 bar).

Japanese standard flanged inlet an outlet mate with JIS 10K FF.

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