

**BLAZE**

Pre-Action Valve

Model : BT 5915

Description:

The BT 5915 Pneumatically Actuated Double Interlocked Pre-Action Valve is designed for fire protection systems where accidental water discharge must be prevented. The valve operates using a pneumatic release system and supervisory air pressure within the sprinkler pipework.

The valve opens and allows water into the sprinkler system only when both the detection system is activated and the sprinkler system pressure is released. This double interlock design provides reliable protection against unwanted water discharge while ensuring a rapid response during a fire.

The valve can also be operated electrically or manually in an emergency. It is available in sizes from DN50 to DN300 (2" to 12"), with flanged or grooved end connections, and is suitable for both vertical and horizontal installation.

Specifications:

- Pneumatically Actuated Double Interlocked Pre-Action Valve.
- Utilises a Dry Pipe Deluge Valve with a pneumatic pilot release system.
- Can be operated Pneumatically, Electrically, or Manually in an emergency.

Size	DN 50 to DN 300 (2" - 12")
Maximum Working Pressure	20.7 bar (300 psi)
Approval	UL 260 Listed
Installation Orientation	Horizontal & Vertical
End Connection	Standard Supply - ANSI Class 150RF / Grooved Ends to AWWA C606 Standard. *Optional ANSI Class 125 / PN 16
Actuation Options	Pneumatic-Pneumatic (Std. Supply)
	Electric-Pneumatic/Electric Electric (Optional)
Temperature Range	0° C to 80°C (32°F to 176°F)
Coating	Fusion Bonded Epoxy Coated Interior and Exterior to AWWA C550 Standard. Average Coating Thickness 250 Microns

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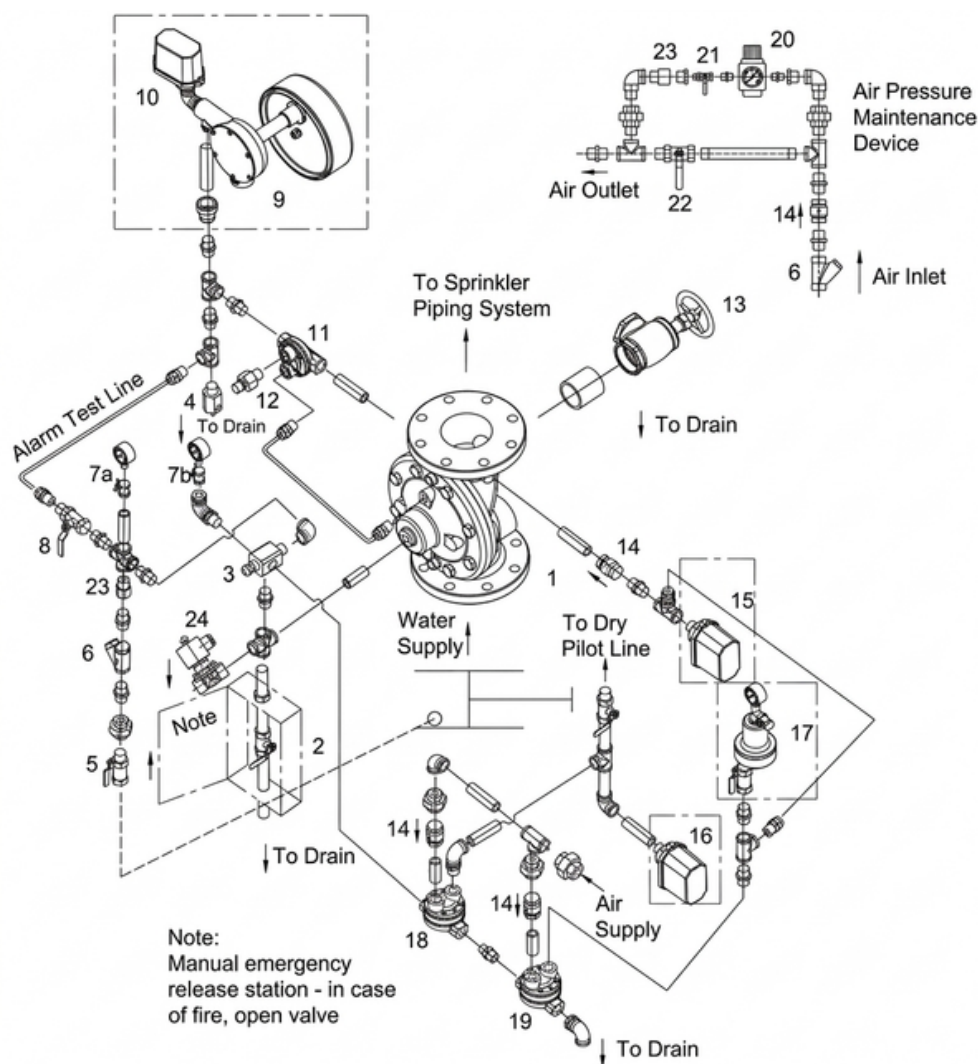
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Material Specifications :



No.	Parts Name
1	Deluge Valve
2	Emergency Manual Release Station
3	Water Relay
4	Automatic Drain Valve
5	Trim Valve
6	Y-Strainer
7a	Supply Pressure Gauge (0~300 psi)
7b	System Pressure Gauge (0~300 psi)
8	Alarm Test Valve
9	Water Motor Alarm (Optional)
10	Pressure Supervisory Switch (Optional)
11	Hydraulic Actuator
12	Low-Pressure Drain Valve
13	Drain Valve
14	Check Valve
15	Sprinkler Piping Air Pressure Supervisory Switch (Optional)
16	Pilot Line Air Pressure Supervisory Switch (Optional)
17	Accelerator (Optional)
18	Dry Pilot Pneumatic Actuator
19	Sprinkler Piping Pneumatic Actuator
20	Air Regulator
21	Slow Fill Valve
22	Fast Fill Valve
23	Restrictor
24	Solenoid Valve (Optional)

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Operation :

In normal operation, the Double Interlocked Pre-Action Valve remains closed while water pressure is maintained in the control chamber. The sprinkler pipework and pilot line are pressurised with compressed air or nitrogen through the Air Maintenance Device, keeping both pneumatic actuators closed.

If the dry pilot line operates, the pilot system air pressure falls, causing the pilot pneumatic actuator and air pressure supervisory switch to operate. However, the valve remains closed because the sprinkler pipework is still pressurised.

If a sprinkler operates, the air pressure in the sprinkler pipework falls, causing the sprinkler piping pneumatic actuator and supervisory switch to operate. The valve remains closed until the pilot release system has also operated.

Only when both pneumatic actuators have opened does the pressure in the control chamber reduce, allowing the Pre-Action Valve to open. Water then flows into the sprinkler system, activating the Water Motor Alarm and/or Alarm Pressure Switch. Once opened, the valve remains in the open position until the system is reset in accordance with the recommended reset procedure.

Installation :

1. Before installation, carefully unpack the Double Interlocked Pre-Action Valve and inspect it for any damage to the valve, trim, pipework or fittings.
2. Flush the pipework thoroughly to remove any dirt, debris or foreign material before installing the valve.
3. Position the valve downstream of the main water supply valve. Ensure the flow direction arrow on the valve body matches the direction of water flow. Install the valve in a position that allows easy access for inspection and maintenance.
4. Install the valve using suitable gaskets, bolts and fittings appropriate for the valve end connections.
5. Complete the trim assembly using the supplied preassembled sections or assemble the trim in accordance with the applicable trim drawing.
6. Connect the control trim water supply to the inlet side of the main water supply valve using a ½ in. (15 mm) pipe.
7. Connect the compressed air or nitrogen supply through the Air Pressure Maintenance Device. The air supply must be clean, dry, oil-free, regulated and continuously maintained.
8. Set the system air pressure to the value specified for the installation. The valve is designed to operate when the air pressure falls by approximately 5 psi (34 kPa). Incorrect air pressure may increase the valve operating time. The air supply must also be restricted to prevent it from replacing air faster than it escapes when a sprinkler operates.

Air Pressure Settings :

Water Pressure		Minimum	
psi	kPa	psi	kPa
20-60	138-414	9.5	65
61-100	415-690	12	83
101-140	691-966	15	103
141-175	967-1207	18	125
176-250	1208-1725	21	145
251-300	1726-2070	24	166

9. Set the Double Interlocked Pre-Action Valve by following the recommended reset procedure before placing the system into service.

Resetting :

- Close the main water supply valve to stop the water flow and reset the alarm devices.
- Close the trim valve.
- Close the slow-fill valve, fast-fill valve and pilot line valve.
- Open the drain valve and accelerator outlet valve to release all water and air from the system. Once fully drained, close both valves.
- Inspect the sprinkler system and replace any sprinklers that have operated, been damaged or exposed to fire.
- Inspect and clean the trim and alarm Y-strainers if required.
- Ensure the emergency manual release station is in the closed position.
- Close the Water Motor Alarm shut-off valve and ensure the Alarm Test Valve is fully closed.
- Adjust the air regulator on the Air Pressure Maintenance Device to the required pressure shown in Table 1. Open the fast-fill valve until the system pressure reaches the required setting, then close the fast-fill valve and open the slow-fill valve.
- Open the trim valve.
- Press and hold the reset knob on the water relay to allow water pressure to build up in the trim and control chamber. Lift the low-pressure drain valve until no water is discharged. Confirm that both pressure gauges show the same pressure.
- Release the reset knob on the water relay.
- Open the Water Motor Alarm shut-off valve to release any trapped air from the pipework.
- Open the pilot line valve to pressurise the pilot line with air.
- Repeat Step 11 to confirm the control chamber is fully charged.
- Slowly open the main water supply valve and check that there are no air or water leaks from the automatic drain valve or trim pipework.
- Record the water supply pressure and system air pressure.
- Confirm that all valves are in their normal operating positions before returning the system to service.

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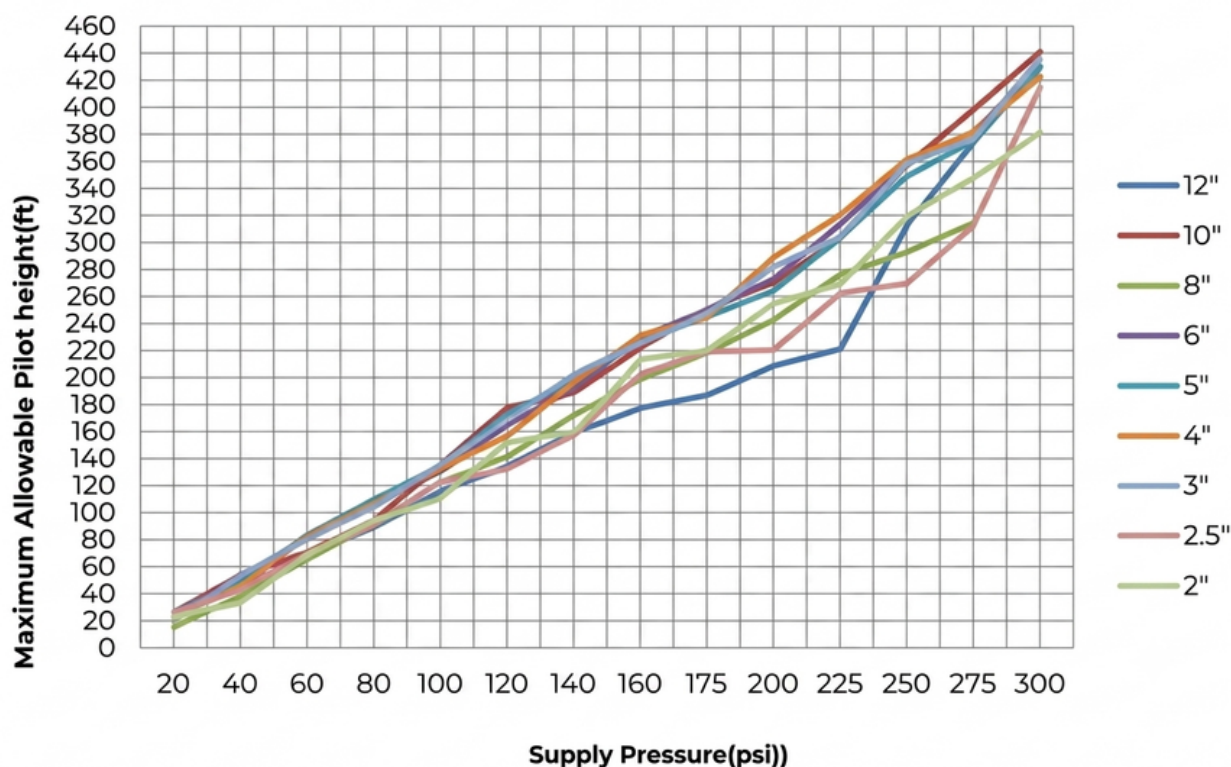
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Maximum Allowable Pilot Height :

Supply Pressure (psi)	Valve Size / Pilot height (ft)								
	2"	2.5"	3"	4"	5"	6"	8"	10"	12"
20	18.8	20.1	13.1	17.9	20.9	19.3	8.1	20.7	18.4
40	17.3	30.8	43.8	34.1	38.3	33.3	24.2	43.8	32.7
60	52.1	54.4	64.6	67.1	68.5	69.3	47.9	53.6	52
80	71.8	67.5	84.7	87.2	91	86.9	69.7	72.4	65.6
100	82.2	96.8	111.8	107.4	111	106.1	96.5	111.5	88.6
120	122.7	97.8	141.3	128.5	149.2	137.5	108.4	154.1	100.8
140	122	119.3	174.4	166.5	167.4	160.8	137.2	156.8	122
160	177.5	164.4	191.5	198.9	195.1	198.6	158.7	188.3	134.3
175	177.6	177.3	210.9	207.9	207.1	214.1	175.9	214.7	137.5
200	206.3	166.5	240.8	249.2	219.1	229.9	193.5	227.2	151.6
225	212.8	205.1	254.8	274.8	254.2	266.6	221.8	253.7	155.3
250	262.1	201.3	309	312.3	296.9	308.2	228.7	308.2	253.2
275	283.6	241.6	318.8	324.7	316.9	326.1	244.3	343.4	316.4
300	312.5	352.6	379.8	362.3	369.6	372.8	352.9	383.9	369.9

NOTE: Graph is based upon 1/2" (15 mm) pilot sprinklers installed on 1/2" (15 mm) schedule 40 galvanized release system piping and a 500 ft. maximum pilot line length



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Maintenance and Inspection :

Regular inspection and testing should be carried out by qualified personnel to ensure the Double Interlocked Pre-Action Valve and associated equipment remain in good working condition. Inspection and maintenance should be performed in accordance with NFPA standards, local regulations, and the Authority Having Jurisdiction (AHJ). It is recommended that the valve is inspected, tested, operated and cleaned at regular intervals.

Important!

If any operating problems are identified or field adjustments are required, contact the manufacturer or an authorised representative before carrying out any modifications.

Inspection :

- Ensure the main water supply valve and air supply valve are fully open and secured in the open position.
- Verify that the correct water supply pressure and system air pressure are maintained.
- Check that all pressure gauges are operating correctly and providing accurate readings.
- Confirm that the correct air (or nitrogen) to water pressure ratio is maintained.
- Visually inspect the valve, trim and associated components for leaks, damage, missing parts or any condition that may affect system performance.

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