

Modulating Deluge systems

Pneumatic Actuated with Local Reset, Pressure Reducing Deluge Valve **FDV - PP0**

The FDV is a Fire Protection control valve for Deluge fire sprinkler systems, designed for installations in hazardous environments.

The FDV-PP0 is a pressure control Deluge system, actuated pneumatically and resets locally.

When the pneumatic dry pilot fire detection line is exposed to flame heat, its automatic fire sprinklers shatter-open, venting the air pressure from the FDV-PP0's actuator, commanding the deluge valve to open. Once open, the valve reduces the inlet high pressure to a predetermined fixed outlet pressure.

The Deluge system incorporates an emergency valve, bypassing the fire detection systems for manual operation. Designed for vertical or horizontal installation, a globe pattern, line pressure operated FDV-PP0 valve features a direct elastomeric diaphragm seal. It has no balancing spring or internal metallic wet components in the valve body. The hydrodynamic pattern design, ensures high flow rates with minimum head loss.



MARKETS



Commercial



Industry



Marine



P.O.G.



Residential

TECHNICAL DATA

FLUID:

Water, Brackish water, Sea water, Foam

PNEUMATICS: Air, Nitrogen

SIZE RANGE:

40mm to 250mm (1½" to 10")

AVAILABLE CONNECTIONS ENDS:

Flange*Flange, Groove*Groove, Flange*Groove, Groove*Flange, Thread*Thread

PRESSURE NOMINAL:

250 psi (17.2 bar)

REGULATION RATIO: up to 5:1

SENSITIVITY: 1.45 psi (0.1 Bar)

APPROVALS



ADVANTAGES

- Only three parts: body, diaphragm & cover plate, no wet metal spring inside the control chamber
- Full bore unobstructed
- Simple Locally manual reset of the valve to standby position without draining or opening the valve itself, neither closing OS&Y or other valves in the system
- Open fail safe valve, maintained in stand-by closed position
- Low maintenance cost: the valve is serviced in-line and only one replaceable part which is long life elastomeric diaphragm
- Conforms with inspection, Testing and Maintenance Standard of water-based Fire Protection Systems, NFPA 25

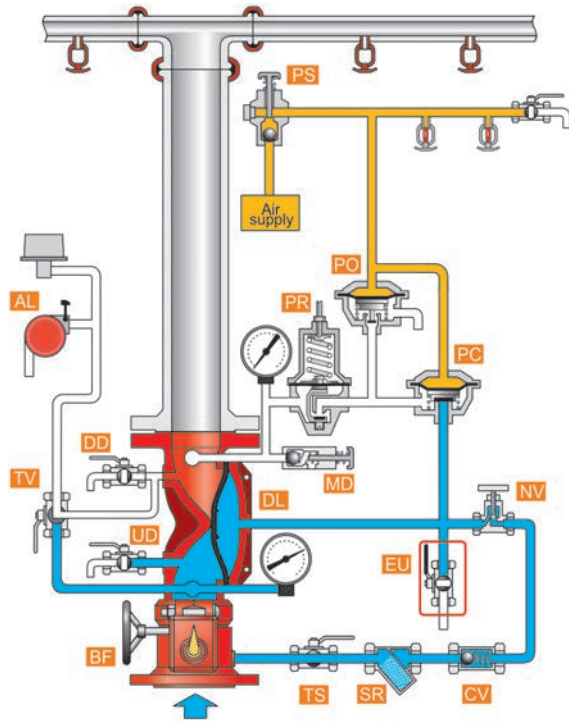
CHARACTERISTICS

- Hydro-dynamic pattern design ensures high flowrates with minimum head loss
- The valve trips open automatically upon a gradual release of water pressure from its control chamber. The valve is actuated by Dry Pilot Line's pneumatic pressure release due to its exposure to flame heat
- Soft closing upon pressurization of the valve's control chamber, by line pressure or other independent water source prevents surges
- A pressure reducing pilot enables a full control over the downstream pressure and ensures a steady set in a wide pressure range

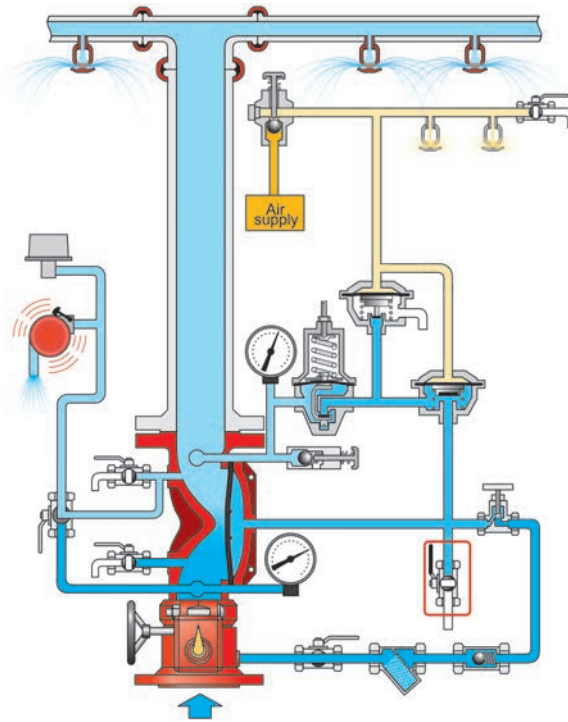
The FDV-PP0 resets to stand-by close position by pressurizing the Dry Pilot Line and manually operating the PSA device.

Schematic drawing

Set position



Fire position



- | | | |
|--|--|--|
| BF - Butterfly valve | CV - Check valve | EU - Emergency Manual Unit |
| DL - FDV Deluge valve | OR - Orifice | PC - PA-PTC-Pneumatic Actuator-
Pressure To Close |
| UD - Upstream drain valve | NV - Needle valve | PO - PA-PTO - Pneumatic Actuator-
Pressure To Open |
| DD - Downstream drain valve | PS - PSA – Pressure Supply Arrestor | PR - PRPV – Pressure Reducing
Pilot Valve |
| AL - Acoustic & Electric alarms | MD - MADV – Manual Automatic
Drain Valve | |
| TS - Trim supply valve | TV - Alarm test valve | |
| SR - "Y" strainer | | |

OPERATION

SET position

Pressurized water in the valve's control chamber (DL) is trapped by check valve (CV), the closed PA-PTC drain actuator (PC) and by the closed emergency valve (EU), maintaining the deluge valve in its closed position.

FIRE situation

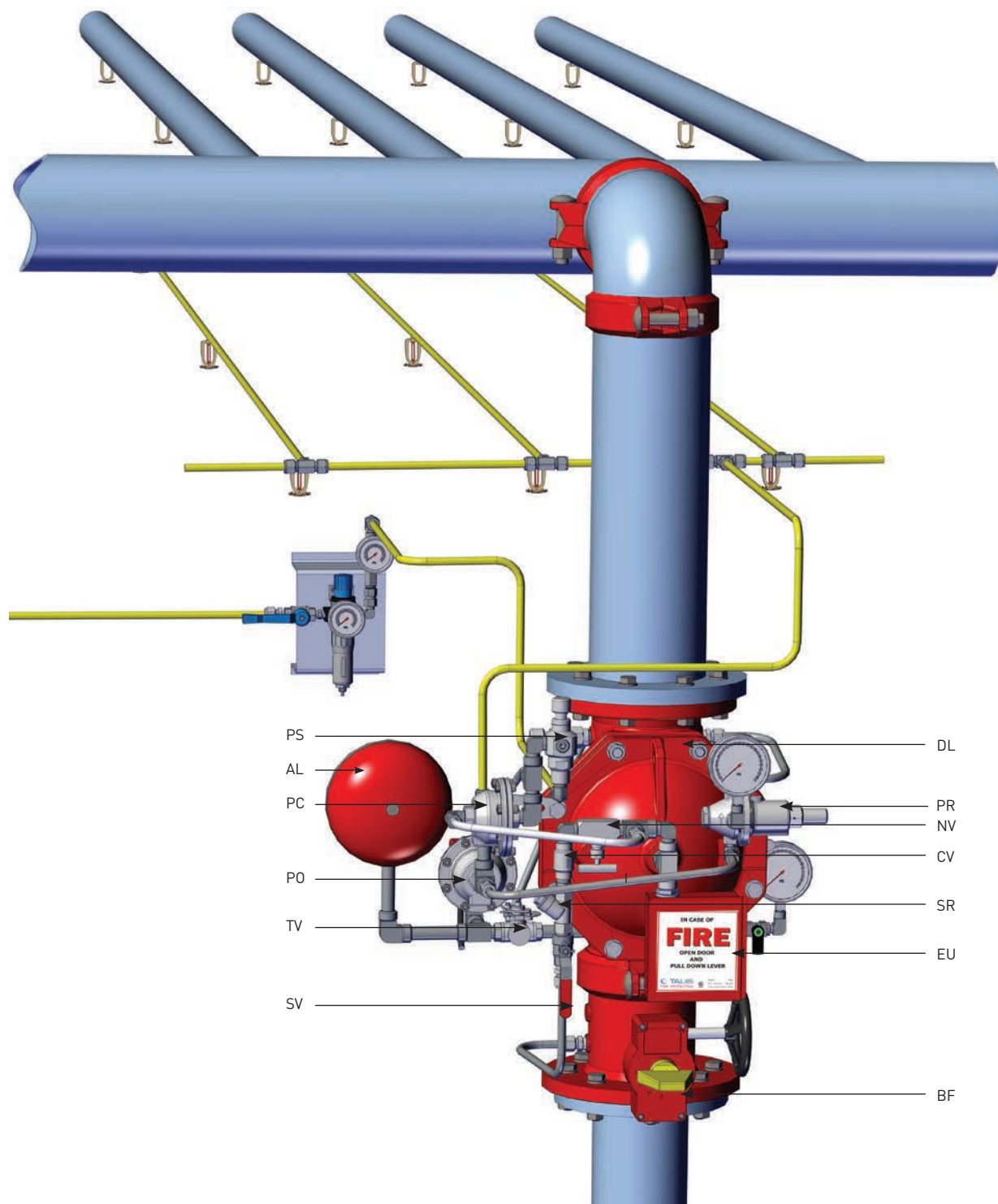
When some of the Dry pilot detection line's automatic fire sprinklers are subjected to flames heat and shatter-open, the pilot detection line depressurizes and the PA-PTC (PC) opens and drains the deluge valve's control chamber through the pressure reducing pilot (PR). The FDV deluge valve opens and admits water at set pressure to the spray sprinklers line.

RESET position

Initiating a system reset requires the replacement of all the dry pilot detection Line's shattered-open automatic fire sprinklers. The PSA (PS) push button should be pressed, to enable air supply intake to pressurize the Dry Pilot Line. By that, the PA-PTC actuator closes and upstream pressurizes the FDV deluge valve's control chamber through the needle valve (NV). Consequently, The Deluge valve closes and water spray stops.

FDV - PP0

Typical installation



- BF** - Butterfly valve
- DL** - FDV Deluge valve
- UD** - Upstream drain valve
- DD** - Downstream drain valve
- AL** - Acoustic & Electric alarms
- TS** - Trim supply valve
- SR** - "Y" strainer

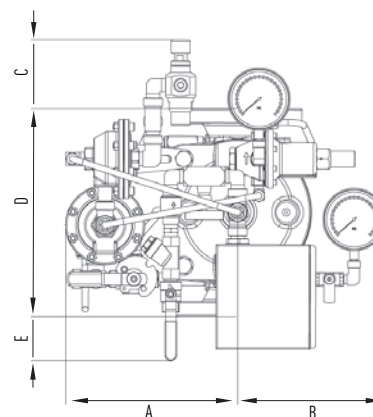
- CV** - Check valve
- OR** - Orifice
- NV** - Needle valve
- PS** - PSA - Pressure Supply Arrestor
- MD** - MADV - Manual Automatic Drain Valve
- TV** - Alarm test valve

- EU** - Emergency Manual Unit
- PC** - PA-PTC-Pneumatic Actuator-Pressure To Close
- PO** - PA-PTO - Pneumatic Actuator-Pressure To Open
- PR** - PRPV - Pressure Reducing Pilot Valve

Dimensions Table

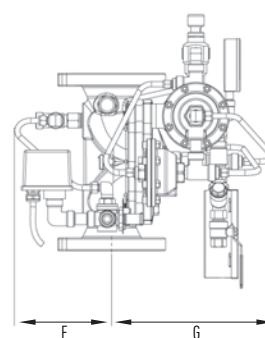
Vertical

Size	1 1/2" 2"		3"		4"		6"		8"	
	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
A	272	10.7	267	10.5	315	12.4	343	13.5	397	15.6
B	269	10.6	231	9.1	246	9.7	269	10.6	304	12
C	81	3.2	108	4.2	38	1.5	21	0.8	-	-
D	224	8.8	325	12.8	400	15.8	462	18.2	580	22.8
E	120	4.7	69	2.7	32	1.2	4	0.2	-	-
F	160	6.3	171	6.7	208	8.2	238	9.4	264	10.4
G	268	10.5	313	12.3	337	13.2	400	15.7	430	16.9
Kg/lb	25.1	55.3	37.6	82.9	55	121.2	73.6	162.3	113	249.1



Horizontal

Size	1 1/2" 2"		3"		4"		6"		8"	
	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
A	347	13.7	359	14.1	315	12.4	420	16.5	475	18.7
B	255	10	325	12.8	267	10.5	294	11.6	343	13.5
C	46	1.8	62	2.4	38	1.5	-	-	-	-
D	224	8.8	325	12.8	400	15.8	462	18.2	580	22.8
E	204	8	69	2.7	32	1.2	-	-	-	-
F	155	6.1	171	6.7	207	8.1	238	11.7	258	10.1
G	315	12.4	367	14.4	337	13.2	400	15.7	430	16.9
Kg/lb	25.5	56.2	38	83.8	54.8	120.8	73.8	162.7	113.2	249.6



Factory Standard

MAIN VALVE:

BODY & COVER

- Ductile iron
- Cast Steel WCB
- Stainless Steel CF8
- Stainless Steel CF8M
- Nickel Aluminum Bronze

ELASTOMERS:

- NR, fabric reinforced Natural Rubber
- EPDM, fabric reinforced
- NBR, fabric reinforced Nitrile Rubber

COATING:

- Rilsan Polyamide based (Nylon 11)
- Polyester based EPC
- High built Epoxy FBE
- Vitreous Enamel (internal only)

TRIM

PIPING & TUBING:

- Stainless Steel 316
- Copper/Brass
- Cupro-Nickel
- Monel®

FITTINGS:

- Stainless Steel 316
- Brass
- Super Duplex
- Cupro-Nickel
- Monel®

ACCESSORIES:

- Brass Nickel plated
- Nickel Aluminium bronze
- Stainless steel CF8M
- Monel®
- Cupro-Nickel

PLEASE SPECIFY

- Working Media
- Ambient conditions
- Min/Max operating flow
- Min/Max operating pressure
- Downstream set pressure
- Pneumatic working pressure
- System installation orientation
- Additional accessories needed

For more detailed technical information, please refer to chapter Engineering Data.