

## Deluge systems

### Hydraulic actuated & Anti-Columning Local Reset Deluge Valve

### FDV - DA0

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

The FDV-DA0 Deluge system is actuated hydraulically and resets locally.

When a hydraulic detection system, a Wet Pilot Detection Line, is exposed to predetermined temperature level, automatic fire sprinklers shatter open causing a pressure drop that activate a pilot valve commanding the FDV-DA0 Deluge valve to open.

The Anti Columning feature ensures system operation, regardless of the Detection line's height and distance from the Control valve. 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-DA0 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



Marine



Residential

#### TECHNICAL DATA

##### FLUID:

Water, Brackish water, Sea water, Foam

##### 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)

#### APPROVALS



#### ADVANTAGES

- Only three parts: body, diaphragm & cover plate, no wet metal spring inside the control chamber
- Full bore unobstructed
- Simple 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
- Full Anti Columning property enables a nearly unlimited pilot line height
- 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

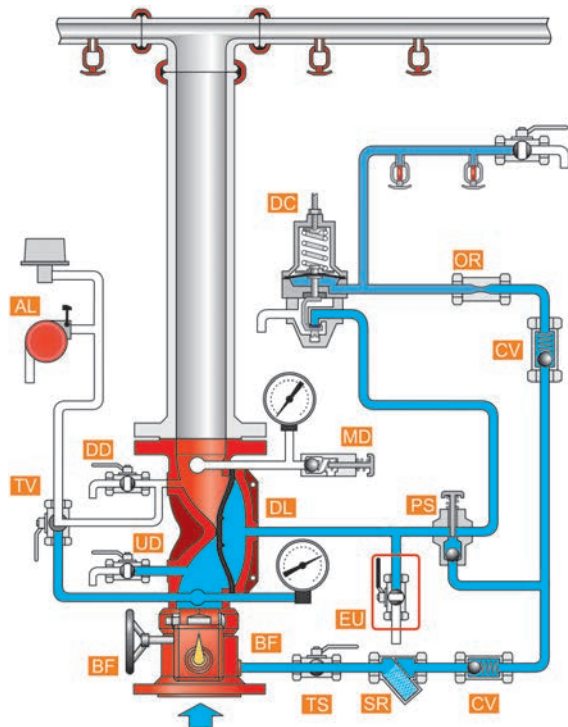
#### CHARACTERISTICS

- Hydro-dynamic pattern design ensures high flow rates with minimum head loss
- The valve trips open automatically upon a gradual release of water pressure from its control chamber. The trip is actuated by a Wet Pilot Line's hydraulic pressure release due to its exposure to flame heat. The Anti-Columning properties guarantees an immediate system trip, regardless of the Wet Pilot height
- Soft closing upon pressurization of the valve's control chamber, by line pressure or other independent water source to prevents surges

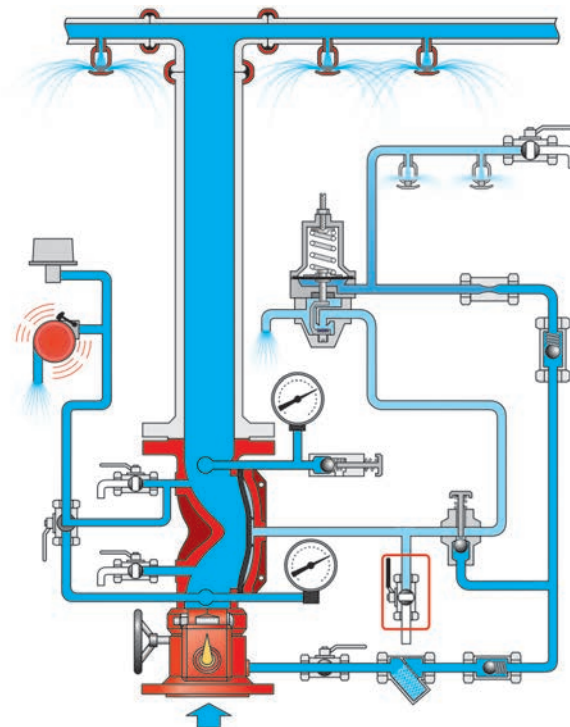
The FDV-DA0 resets to stand-by close position by pressurizing the Dry Pilot Line and manually operating the PSA device.

## Schematic drawing

### Set position



### Fire position



**BF** - Butterfly valve

**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

**PS** - PSA - Pressure Supply Arrestor

**MD** - MADV - Manual Automatic  
Drain Valve

**TV** - Alarm test valve

**EU** - Emergency Manual Unit

**DC** - DCPV = Drain Control Pilot Valve

## OPERATION

### SET position

Pressurized water in the valve's control chamber (DL) is trapped by the closed PSA (PA), by the closed emergency valve (EU) and by the closed DCPV drain pilot valve (DC). The hydraulic pressure that is accumulated in the Wet pilot line keeps this device in its close position, maintaining the FDV deluge valve (DL) closed.

### FIRE situation

When some of the Wet pilot detection line's automatic fire sprinklers are subjected to the predetermined temperature levels and shutter-open, the pilot line pressure drops and the DCPV opens its drain port regardless of the residual column pressure.

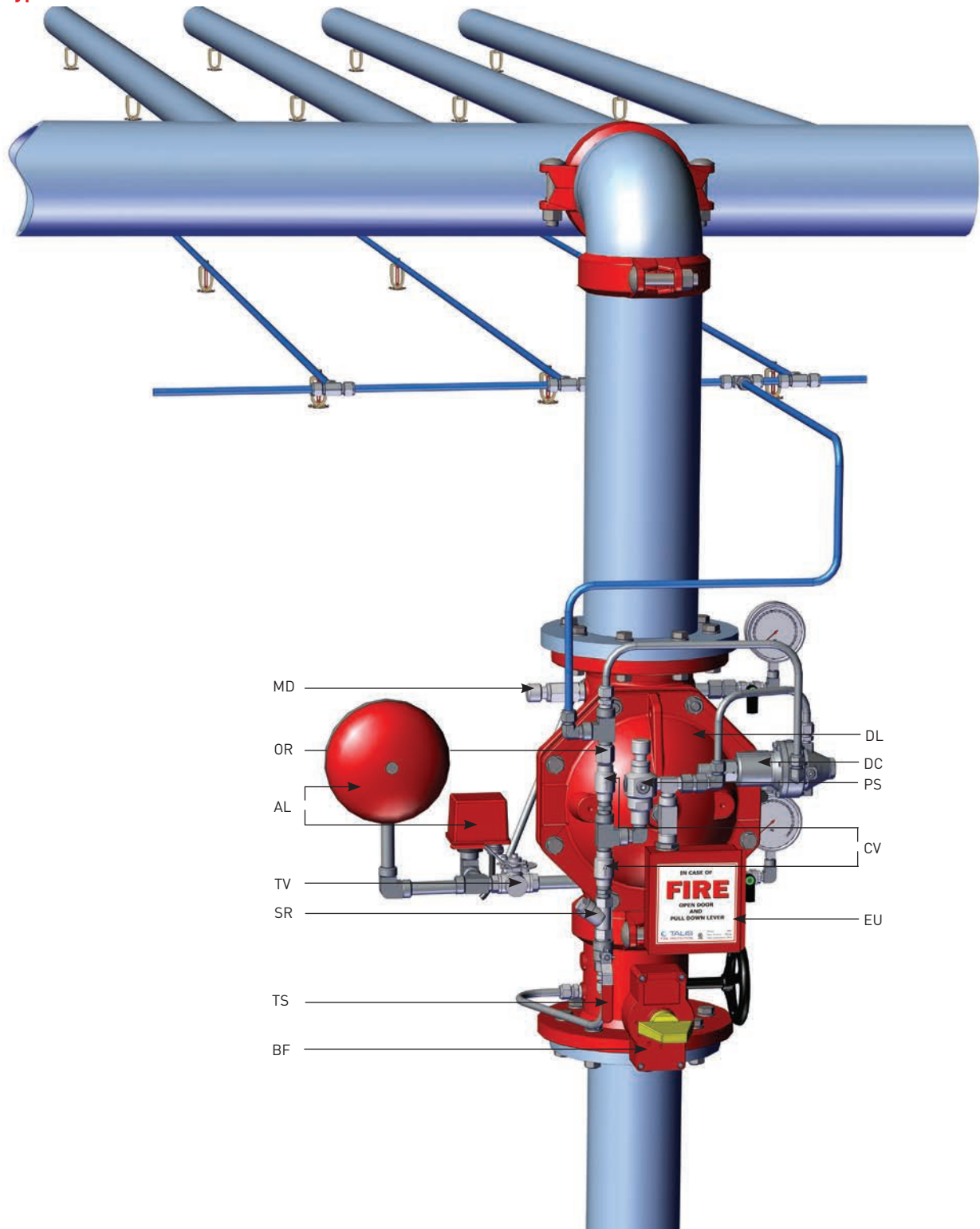
Opening its drain port, the DCPV releases the FDV control chamber pressure causing it to open and admit water into the spray sprinklers pipeline.

### RESET position

System reset requires the replacement of all Shattered-open Fire sprinklers in the Detection pilot line. The wet pilot line is then pressurized to reset the DCPV to closed position. The PSA (PS) push button should be pressed to enable upstream pressure passage close the FDV's main valve.

# FDV - DAO

## Typical installation



- BF** - Butterfly valve
- DL** - FDV Deluge valve
- UD** - Upstream drain valve
- DD** - Downstream drain valve
- AL** - Acoustic & Electric alarms

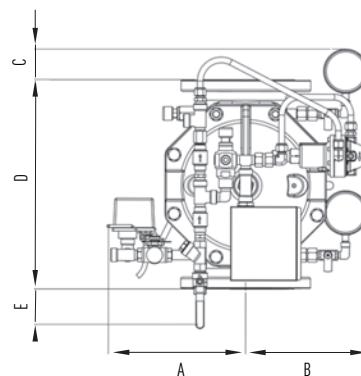
- TS** - Trim supply valve
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- OR** - Orifice
- PS** - PSA - Pressure Supply Arrestor

- MD** - MADV - Manual Automatic Drain Valve
- TV** - Alarm test valve
- EU** - Emergency Manual Unit
- DC** - DCPV = Drain Control Pilot Valve

## Dimensions Table

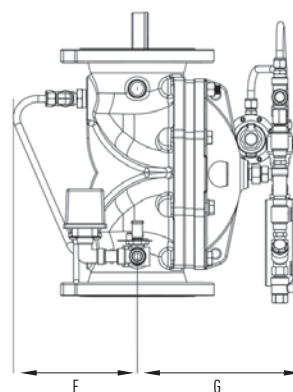
### Vertical

Size	1 1/2" 2"		3"		4"		6"		8"	
	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
A	251	9.9	262	10.3	297	11.7	303	11.9	355	14.0
B	234	9.2	243	9.6	282	11.1	278	10.9	228	9.0
C	136	5.3	85	3.3	79	3.1	67	2.6	61	2.4
D	224	8.8	325	12.8	400	15.7	462	18.2	580	22.8
E	69	2.7	150	5.9	115	4.5	69	2.7	27	1.1
F	232	9.1	162	6.4	145	5.7	232	9.1	212	8.3
G	326	12.8	203	8.0	238	9.4	326	12.8	330	13.0
Kg/lb	20.5	45.1	32.9	72.5	49.8	109.7	68.3	150.7	107.9	237.9



### Horizontal

Size	1 1/2" 2"		3"		4"		6"		8"	
	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
A	356	14.0	367	14.4	395	15.6	420	16.5	454	17.9
B	197	7.8	213	8.4	221	8.7	278	10.9	278	10.9
C	151.3	5.9	97	3.8	61	2.4	31	1.2	-	-
D	224	8.8	325	12.8	400	15.7	462	18.2	580	22.8
E	124	4.9	72	2.8	30	1.2	-	-	-	-
F	107	4.2	123	4.8	146	5.7	171	6.7	198	7.8
G	400	15.7	426	16.8	402	15.8	465	18.3	470	19.7
Kg/lb	20.6	45.5	33	72.8	49.9	110	68.5	151.1	108	238.2



## 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
- Ambiental conditions
- Min/Max operating flow
- Min/Max operating pressure
- Energize to Open/Close valve
- Wet Pilot's height
- System installation orientation
- Additional accessories needed

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