Electrically Actuated, Local Reset, Economic Deluge Valve

FDV - AE0

The FDV is a fire protection control valve for deluge fire sprinkler systems, designed for installation in hazardous environments.

It is suitable for vertical or horizontal installation and features a globe-pattern, line-pressure-operated design with a direct elastomeric diaphragm seal. The valve contains no balancing spring or internal metallic components in the wetted area. Its hydrodynamic flow path ensures high flow rates with minimal head loss.

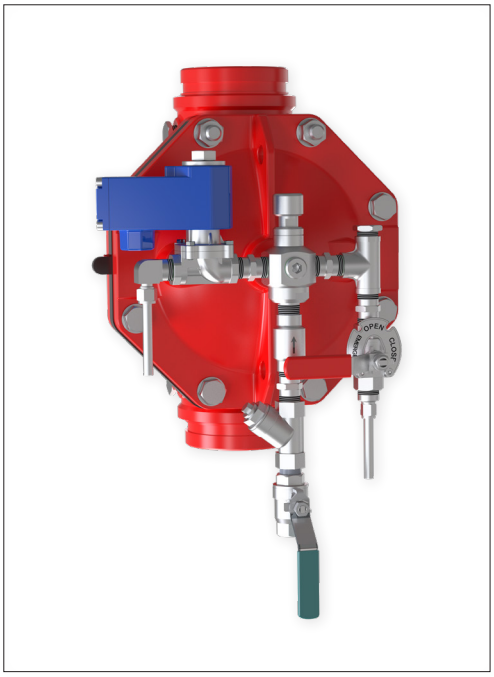
The FDV-AE0 deluge system is electrically actuated and can be reset locally.

An electric detection system activates a solenoid valve through a control panel, which in turn opens the FDV deluge valve.

The system includes an emergency manual override valve that bypasses the fire detection system, enabling manual activation when required.

In addition, the FDV-AE0 system is equipped with a PSA device that manually and locally pressurizes the deluge control chamber, keeping it closed, preventing re-pressurization during actuation (when the control chamber must be drained), and compensating for minor leakage-related pressure losses.

This configuration is suitable for open-nozzle water spray pipelines.



MARKETS

Commercial | Industry | Marine | Storage | Residential | Airport

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)

REGULATION RATIO: up to 5.1

SINSITIVITY: 1.4 spi (0.1 bar)

APPROVALS

FM APPROVED

ADVANTAGES

- Only three parts: body, diaphragm, and cover plate — with no wetted metal spring inside the control chamber.
- Full-bore, unobstructed design.
- Simple reset to standby position without draining or opening the valve.
- Low maintenance cost: the valve can be serviced in-line, with only one replaceable part — the long-life elastomeric diaphragm.
- Complies with NFPA 25, the standard for inspection, testing, and maintenance of water-based fire protection systems.

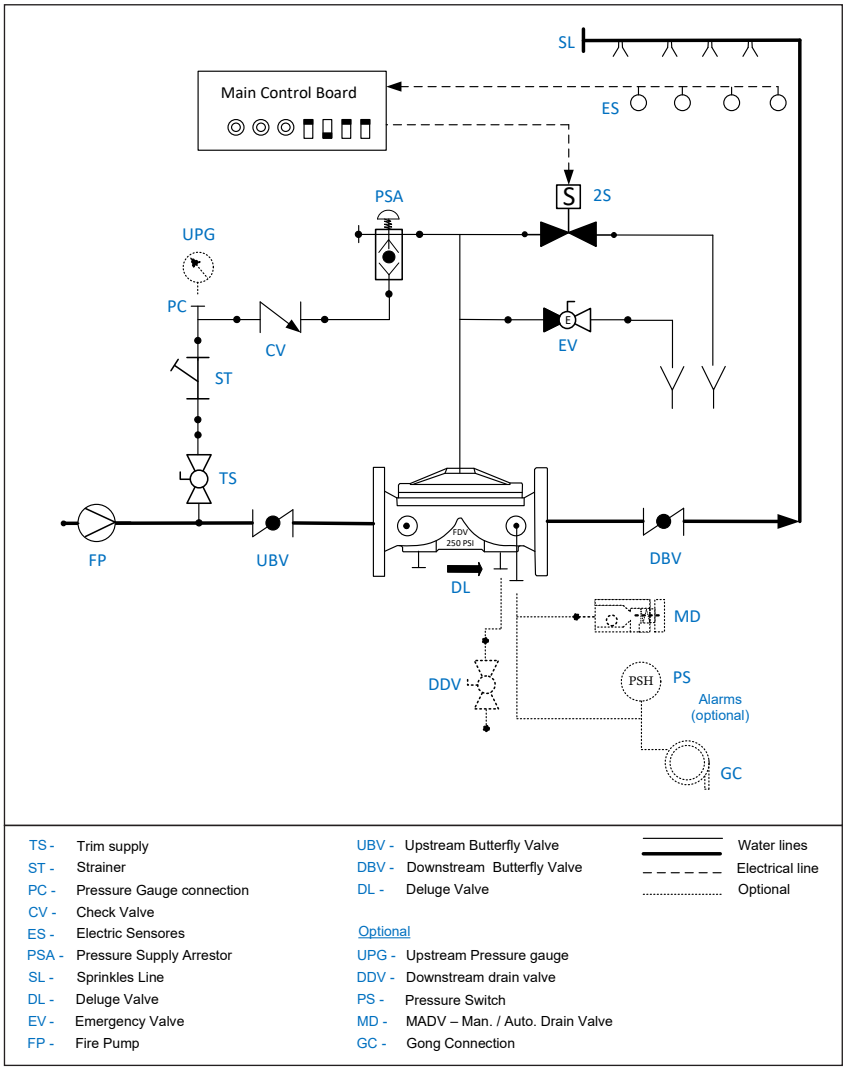
CHARACTERISTICS

- Hydro-dynamic pattern design ensures high flow rates with minimal head loss
- The valve trips open automatically upon a gradual release of water pressure from its control chamber when an electric signal is conveyed to the valve's solenoid
- Soft closing upon pressurization of the valve's control chamber, by line pressure or other independent water source to prevents surges

The FDV-AE0 resets to standby closed position when the solenoid coil is de-energized through the main control board.

Schematic drawing: FDV-AE0

Set position



TS -	Trim supply	UBV -	Upstream Butterfly Valve		Water lines
ST -	Strainer	DBV -	Downstream Butterfly Valve		Electrical line
PC -	Pressure Gauge connection	DL -	Deluge Valve		Optional
CV -	Check Valve				
ES -	Electric Sensores	Optional			
PSA -	Pressure Supply Arrestor	UPG -	Upstream Pressure gauge		
SL -	Sprinkles Line	DDV -	Downstream drain valve		
DL -	Deluge Valve	PS -	Pressure Switch		
EV -	Emergency Valve	MD -	MADV – Man. / Auto. Drain Valve		
FP -	Fire Pump	GC -	Gong Connection		

OPERATION

SET position

Pressurized water in the valve's control chamber (DL) is retained by the closed PSA (PSA), the closed 2-way solenoid valve (S2), and the closed emergency valve (EV), thereby keeping the FDV deluge valve shut.

FIRE situation

When the electric detection system (ES) senses heat or flames, it activates the main control panel, which then transmits an electric signal commanding the 2-way solenoid valve (S2) to open and drain the deluge valve's control chamber. Consequently, the FDV deluge valve opens, allowing water to flow into the spray sprinkler line.

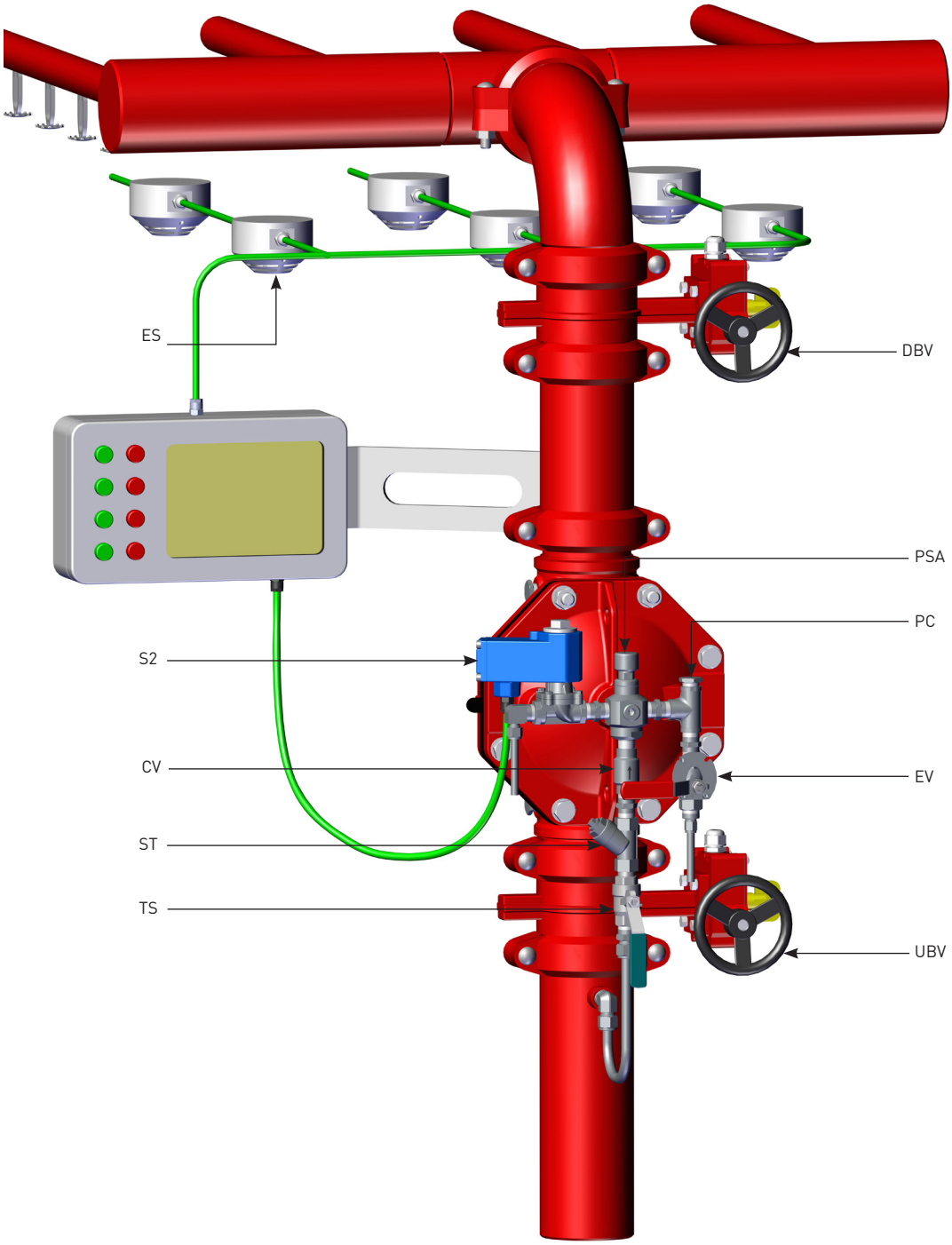
RESET position

To reset the system, the electrical alarm system must first be reset to de-energize and close the solenoid valve. This action stops the drainage of the FDV control chamber. Next, the PSA push button should be pressed to allow upstream pressure to enter and re-pressurize the control chamber, thereby closing the FDV deluge valve.

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FDV - AE0

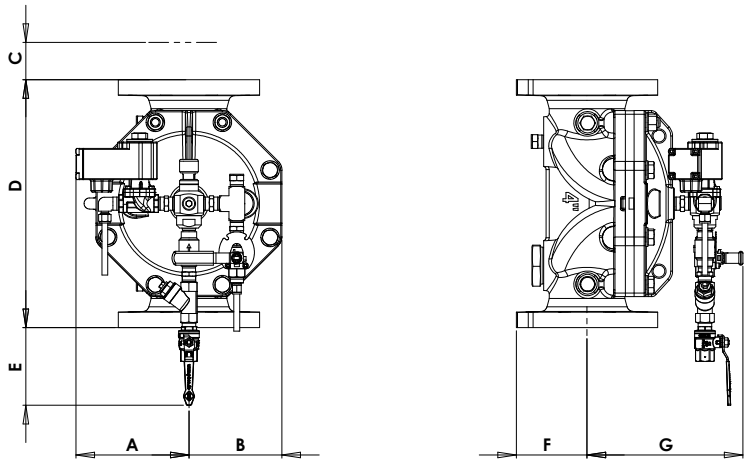
Typical installation



TS – Trim Supply
ST – Strainer
CV – Check Valve
EV – Emergency Valve
PC – Pressure gauge Connection
PSA – Pressure Surge Arrestor
S2 – 2-way Solenoid
ES – Electric Sensors
UBV – Upstream Butterfly Valve
DBV – Downstream Butterfly Valve

Parametric drawing:

FDV-AE0



Dimensions Table

Size	1.5"		2"		3"		4"		6"		8"		10"	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
A	182	7.1	182	7.1	182	7.1	184	7.2	197	7.8	250	9.8	324	12.7
B	105	4.1	105	4.1	115	4.5	150	5.9	177	7	231	98.5	308	12.1
C	13	0.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
D	204	8.0	220	8.6	324	12.7	400	15.7	464	18.2	570	22.4	766	30.1
E	224	8.9	214	8.4	163	6.4	125	6	93	3.6	40	1.6	N/A	N/A
F	52	2	58	2.3	100	3.9	114	4.5	143	5.6	172	6.8	203	8
G	172	6.7	186	7.3	215	8.5	232	9.1	300	11.8	333	13.1	442	17.4
Kg/lb	7	15.4	9	19.8	27	59.2	42	92.6	53	117	98	216	226	498

Factory Standard

MAIN VALVE

BODY & COVER

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

ELASTOMERS:

- NBR, 3-layered reinforced Natural Rubber
- EPDM, 3-layered reinforced

COATING:

- Base layer – high built Epoxy FBE
  Top layer – electrostatic Polyester powder RAL 3000
- Rilsan Polyamide based (Nylon 11)
- Internal – vitreous Enamel
  External – Epoxy/Polyester powder RAL 3000

TRIM

PIPING & TUBING:

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

FITTINGS:

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

ACCESSORIES:

- Stainless steel CF8M / 316
- Brass
- Nickel Aluminum Bronze
- SMO-245
- Monel®

PLEASE SPECIFY

- Working Media
- Ambiental conditions
- Min/Max operating flow
- Min/Max operating pressure
- System installation orientation
- Deluge valve ends and standard
- Deluge valve material and coating
- Trim materials
- Solenoid Voltage
- Solenoid Protection
- Additional accessories needed:
  Pressure gauge
  Pressure switch
  Drain valve (manual or automatic)
  Gong

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

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