Electrically Actuated, Remote Reset Deluge Valve

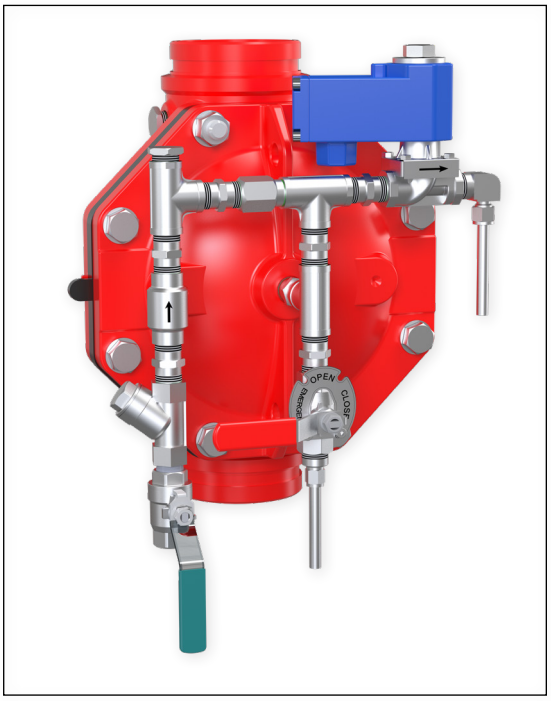
FDV - AE1

The FDV is a deluge fire sprinkler system, designed for installation in hazardous environments. Suitable for both vertical and horizontal installation, the globe-pattern, line-pressure-operated FDV valve features a direct elastomeric diaphragm seal, with no balancing spring or internal metallic components in the wetted area. Its hydrodynamic design ensures high flow rates with minimal head loss.

The FDV-AE1 fire protection deluge system is electrically actuated and can be reset remotely.

An electric detection system activates a solenoid valve through a control panel, opening the FDV deluge valve.

The deluge system also incorporates an emergency valve that bypasses the fire detection system for manual operation. This system is suitable for water spray pipelines with open nozzles.



MARKETS

Commercial · Industry · Marine · Storage · Residential · Airport

TECHNICAL DATA

FLUID:
Water, Brackish water, Sea water, Foam

SIZE RANGE:
40 mm to 250 mm (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, and cover plate - with no wet metal spring inside the control chamber.
- Full-bore, unobstructed design.
- Simple reset of the valve to standby position without draining or opening the valve itself.
- 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 the inspection, testing, and maintenance of water-based fire protection systems.

CHARACTERISTICS

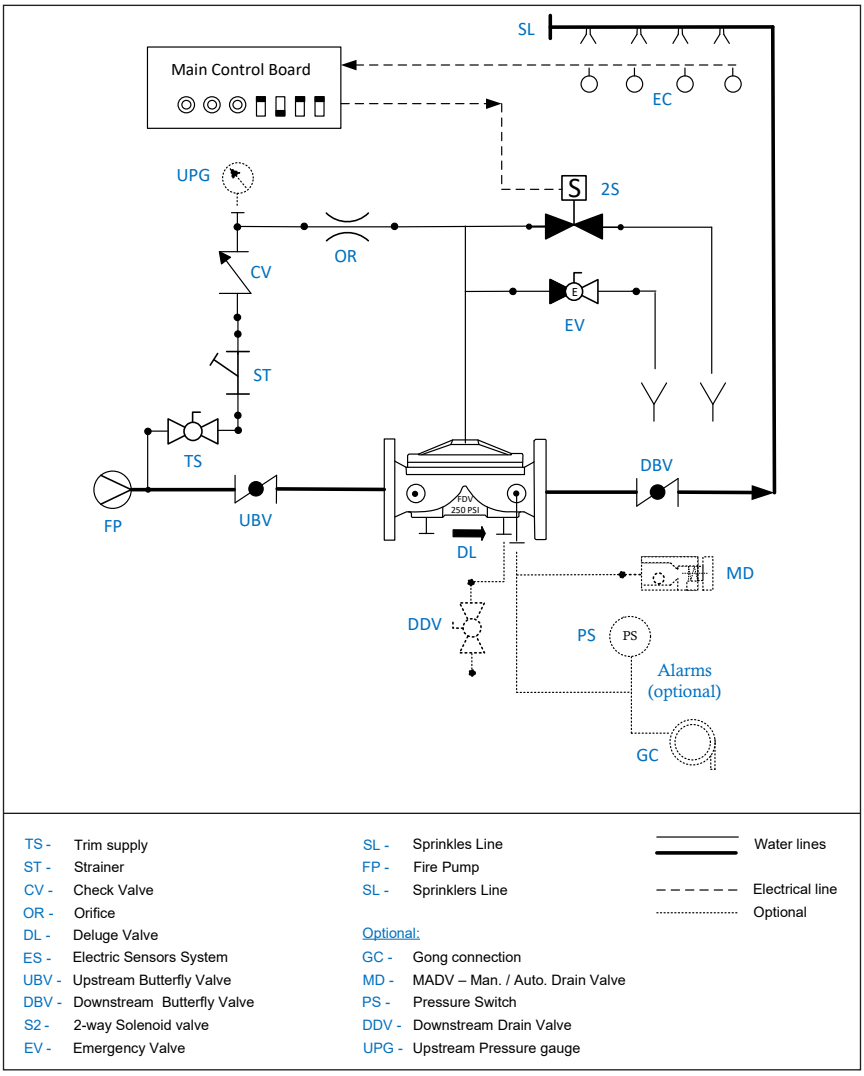
- Hydrodynamic pattern design ensures high flow rates with minimal head loss.
- The valve automatically trips open upon gradual release of water pressure from its control chamber, when an electric signal is conveyed to the valve's solenoid.
- Soft closing occurs upon pressurization of the valve's control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

The FDV-AE1 resets to the standby closed position when the solenoid coil is de-energized through the main control board.

Schematic drawing:

FDV-AE1

Set position



TS -	Trim supply	SL -	Sprinkles Line		Water lines
ST -	Strainer	FP -	Fire Pump		
CV -	Check Valve	SL -	Sprinklers Line		Electrical line
OR -	Orifice				Optional
DL -	Deluge Valve	Optional:			
ES -	Electric Sensors System	GC -	Gong connection		
UBV -	Upstream Butterfly Valve	MD -	MADV – Man. / Auto. Drain Valve		
DBV -	Downstream Butterfly Valve	PS -	Pressure Switch		
S2 -	2-way Solenoid valve	DDV -	Downstream Drain Valve		
EV -	Emergency Valve	UPG -	Upstream Pressure gauge		

OPERATION

SET POSITION

Pressurized water in the valve's control chamber is trapped by the check valve (CV), the closed 2-way solenoid valve (S2), and the closed emergency valve (EU), maintaining the FDV deluge valve (DL) in a closed state.

FIRE SITUATION

When the electric detection system (ES) senses flame heat, it triggers the main control panel, which 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 to the spray sprinklers line.

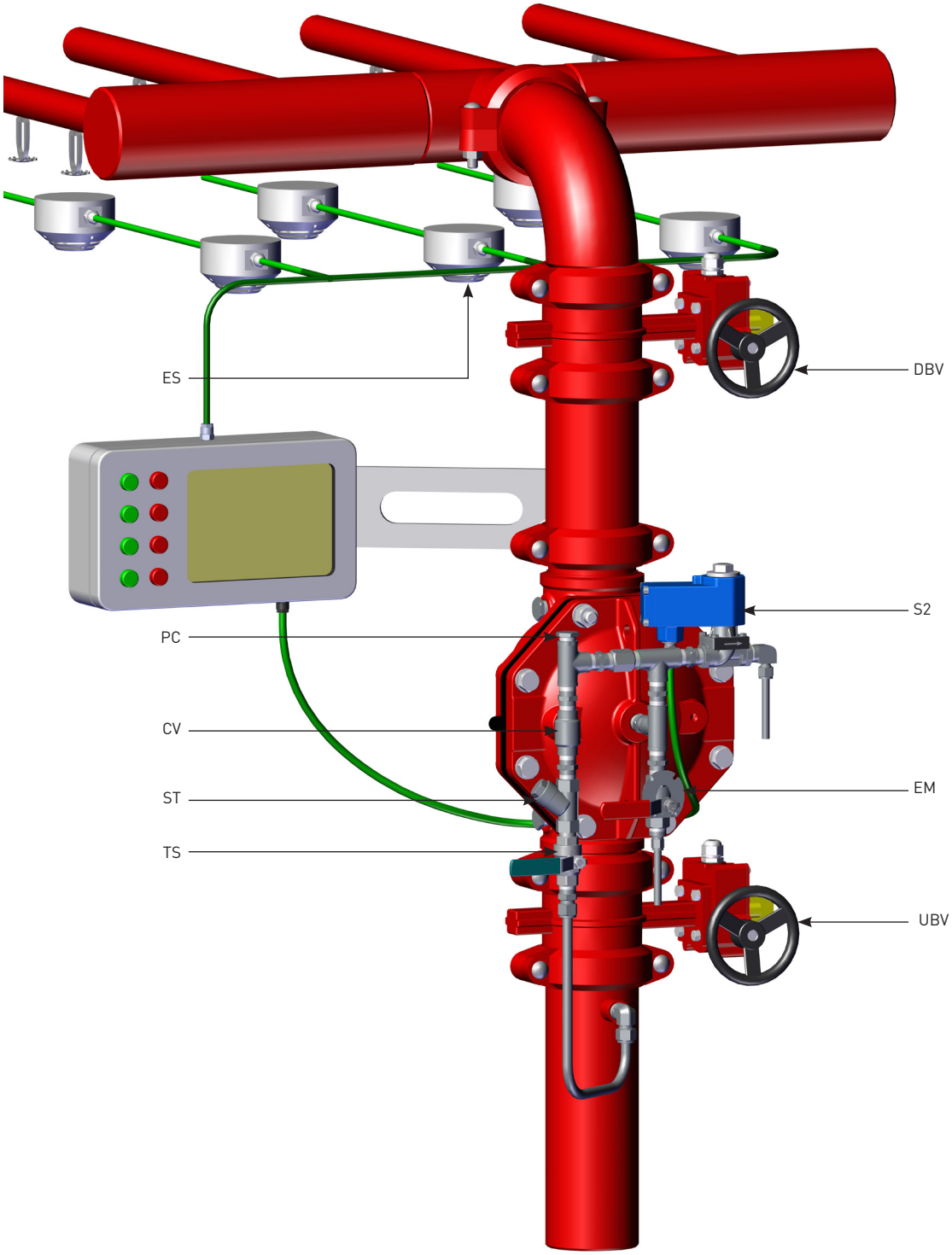
RESET POSITION

System reset requires the electrical alarm system to be reset to de-energize and close the solenoid valve, preventing the FDV control chamber from draining. Upstream water enters the FDV deluge control chamber through the orifice (OR), closing the valve.

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Typical installation

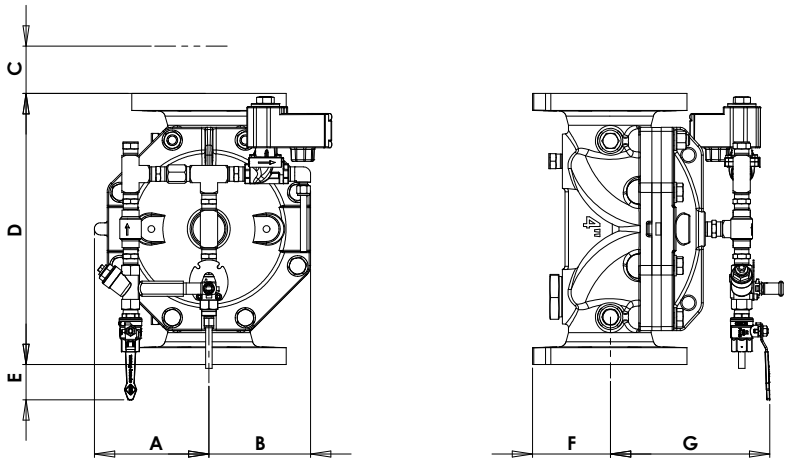
FDV - AE1



TS – Trim Supply
ST – Strainer
CP – Pressure Gauge Connection
CV – Check Valves
OR – Orifice
S2 – 2-way Solenoid
ES – Electric Sensors
UBV – Upstream Butterfly Valve
DBV – Downstream Butterfly Valve

Parametric drawing:

FDV-AE1



Dimensions Table

Size	1½"		2"		3"		4"		6"		8"		10"	
	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
A	163	6.4	163	6.4	163	6.4	169	6.6	196	7.7	248	9.8	325	12.8
B	150	5.9	150	5.9	150	5.9	181	7.1	178	7	232	9.1	308	12.1
C	90	3.5	82	.2	32	1.2	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	155	6.1	142	56	88	3.5	52	2	N/A	N/A	N/A	N/A	N/A	N/A
F	21	0.8	58	2.3	100	3.9	114	4.5	143	5.6	172	6.8	203	8
G	176	7	190	7.5	220	87	256	10	302	11.9	355	13.9	442	17.4
Kg/lb	6.9	15.2	8.6	20	25.8	56.8	42	92.6	52	115	97	214	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:

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

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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