Electrically Actuated, Local Reset, Deluge Valve

FDV - DE0

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-DE0 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-DE0 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 | Marine | Residential | Industry

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

- Ony three parts: body, diaphragm & cover plate. No wet metal spring inside the control chamber.
- Full-bore, unobstructed design
- Simple manual reset of the valve to standby position without closing OS & Y or other valves in the system.
- Open fail safe valve, maintained in standby closed position.
- Low maintenance cost: the valve can be serviced in-line and includes only one replaceable part — a long-life elastomeric diaphragm.
- Complies with NFPA 25, the standard for the inspection, testing, and maintenance of water-based fire protection systems.

CHARACTERISTICS

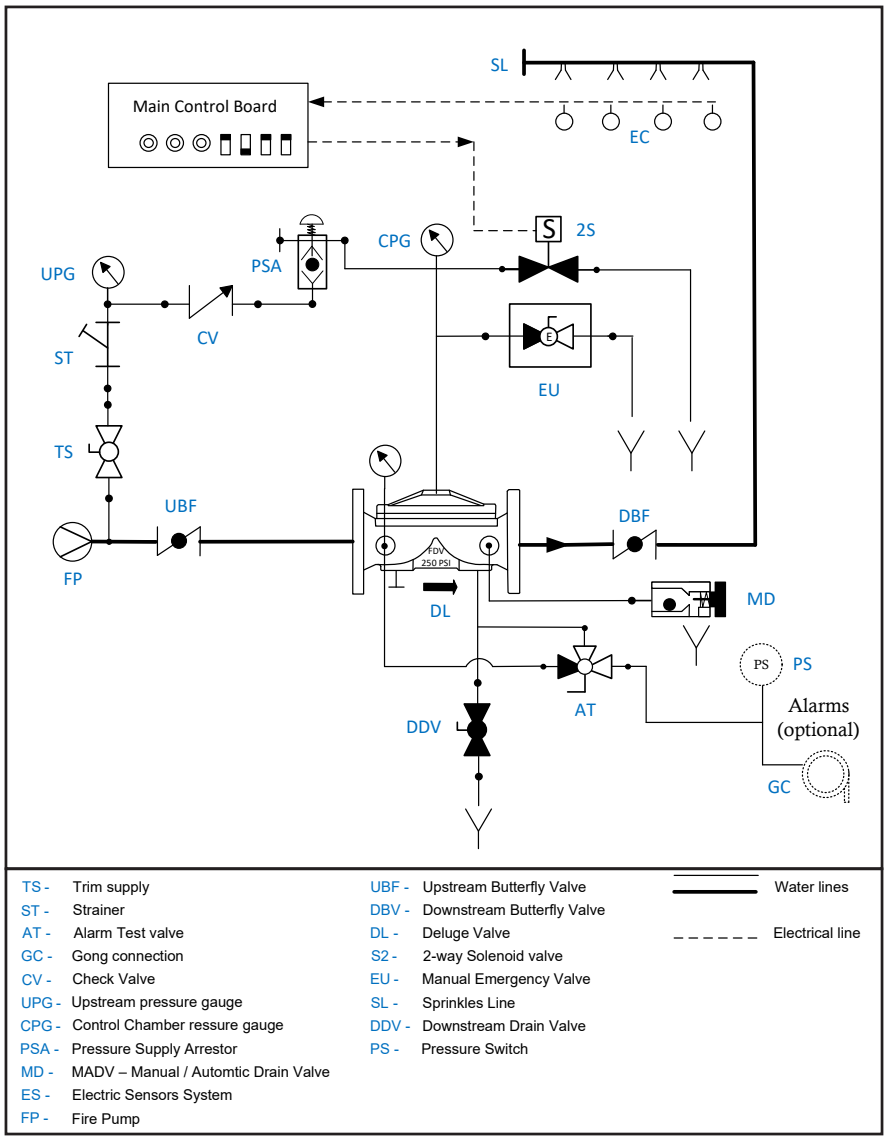
- Hydro-dynamic pattern design ensures high flow rates with minimum head loss.
- The valve trips open automatically upon a gradual release of water pressure from its control chamber. The valve is actuated by an electric signal transmitted to the valve's solenoid from the main control panel, due to a flame heat exposure of a sensors detection system.
- Soft closing upon pressurization of the valve's control chamber, by line pressure or other independent water source, prevents surges part which is long life elastomeric diaphragm.

The FDV-DE0 resets to stand-by close position by pressurizing the Dry Pilot Line and manually operating the PSA device.

Schematic drawing:

FDV-DEO

Set position



TS -	Trim supply	UBF -	Upstream Butterfly Valve		Water lines
ST -	Strainer	DBV -	Downstream Butterfly Valve		
AT -	Alarm Test valve	DL -	Deluge Valve		Electrical line
GC -	Gong connection	S2 -	2-way Solenoid valve		
CV -	Check Valve	EU -	Manual Emergency Valve		
UPG -	Upstream pressure gauge	SL -	Sprinkles Line		
CPG -	Control Chamber ressure gauge	DDV -	Downstream Drain Valve		
PSA -	Pressure Supply Arrestor	PS -	Pressure Switch		
MD -	MADV – Manual / Automtic Drain Valve				
ES -	Electric Sensors System				
FP -	Fire Pump				

OPERATION

SET POSITION:

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

FIRE SITUATION:

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

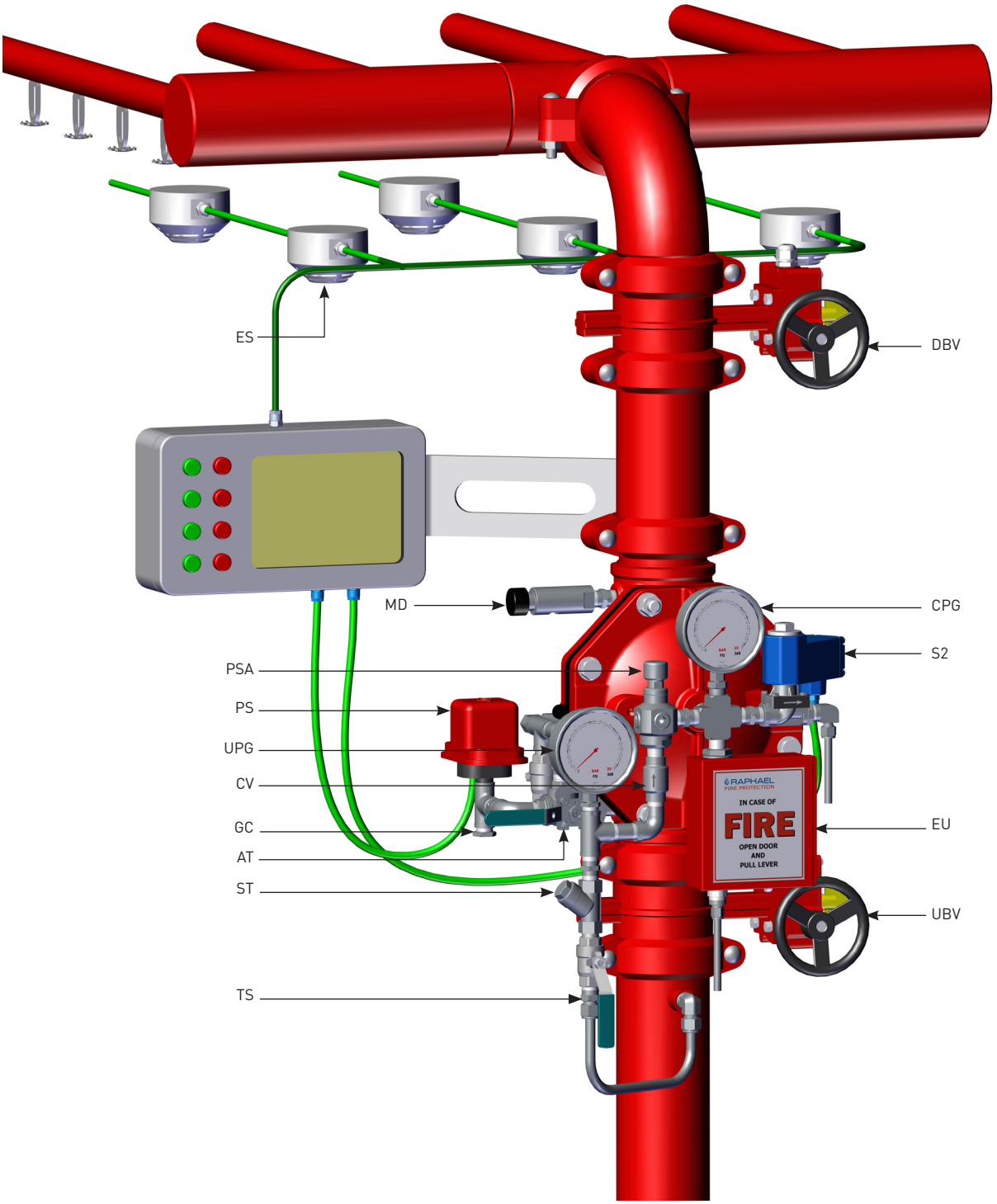
RESET POSITION

To reset the system, the electrical alarm system must be reset to de-energize and close the solenoid valve. This action stops the drainage of the FDV control chamber. The PSA (PSA) push button should then be pressed to allow upstream pressure to pass, pressurizing the control chamber and closing the FDV deluge valve.

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Typical installation

FDV - DE0



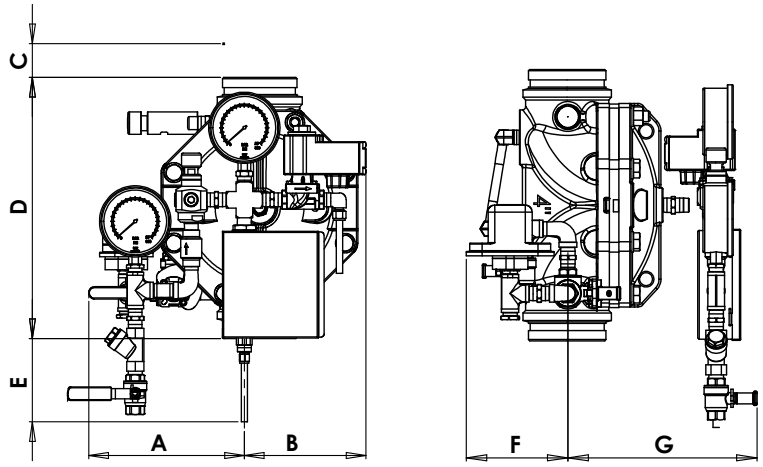
TS – Trim Supply
ST – Strainer
AT – Alarm Test valve
GC – Gong Connection
CV – Check Valve
EU – Emergency Unit

DDV – Downstream Drain Valve
PS – Pressure Switch
S2 – 2 way Solenoid
PSA – Pressure Supply Arrestor
MD – Manual Automatic Drain Valve
ASK – Air Supply Kit

ES – Electric Sensors
UPG – Upstream Pressure Gauge
CPG – Control chamber Pressure Gauge
UBV – Upstream Butterfly Valve
DBV – Downstream Butterfly Valve

Parametric drawing:

FDV-DE0



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	255	10	263	10.3	270	10.6	290	11.4	315	12.4	340	13.3	353	3.8
B	155	6.1	150	5.9	162	6.3	211	8.3	178	7	230	9	308	12.1
C	55	2.1	46	1.8	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	295	11.6	213	8.4	147	5.8	112	4.4	80	3.1	74	2.9	N/A	N/A
F	145	5.7	144	5.6	119	4.6	115	4.5	159	6.2	172	6.8	203	7.9
G	150	5.9	170	6.6	193	7.5	225	8.8	295	11.6	330	12.9	420	16.5
Kg/lb	10.2	22.5	12	26.4	30	66.1	35	77.1	55	121	101	223	230	

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:

- 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

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

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