Deluge systems

Electric Actuated with Remote Reset Deluge Valve

FDV - DE1

The FDV is a Fire Protection control valve for Deluge fire sprinkler systems, designed for installations in hazardous environments.
The FDV-DE1 Deluge system is actuated electrically and resets remotely.
An electric detection systems activates a solenoid valve through a control panel to open the FDV deluge 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-DE1 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

Marine
Storage
P.O.G.
Tunnels
Airports

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)

APPROVALS

ADVANTAGES

- Only three parts: body, diaphragm & cover plate, no wet metal spring inside the control chamber
- Full bore unobstructed
- Simple 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

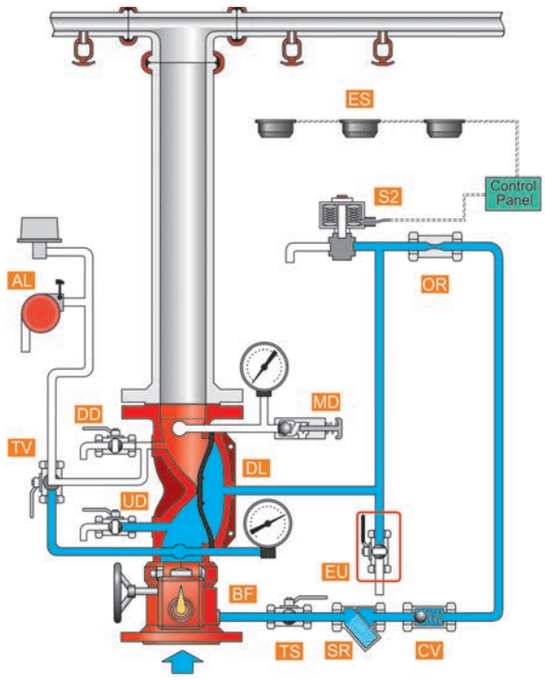
CHARACTERISTICS

- Hydro-dynamic pattern design ensures high 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

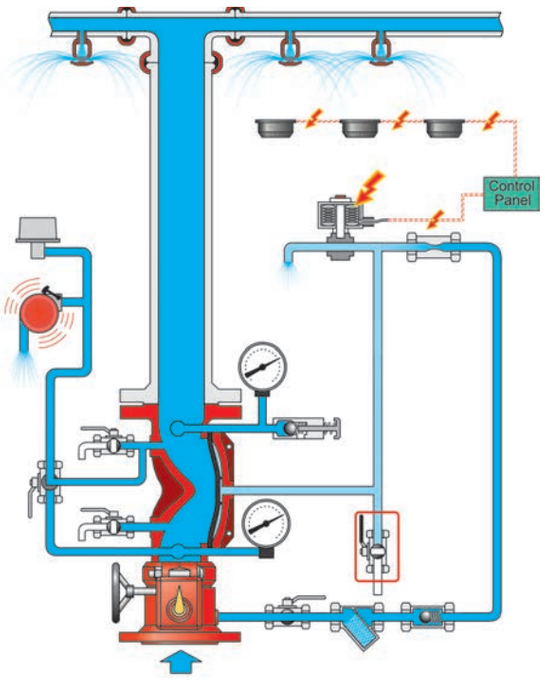
The FDV-DE1 resets to stand-by close position by de-energizing the alarm system solenoid's coil through the main control panel.

Schematic drawing

Set position



Fire position



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
MD - MADV – Manual Automatic Drain Valve
TV - Alarm test valve
EU - Emergency Manual Unit
S2 - Solenoid 3 way
ES - Electric Sensors system

OPERATION

SET position

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

FIRE situation

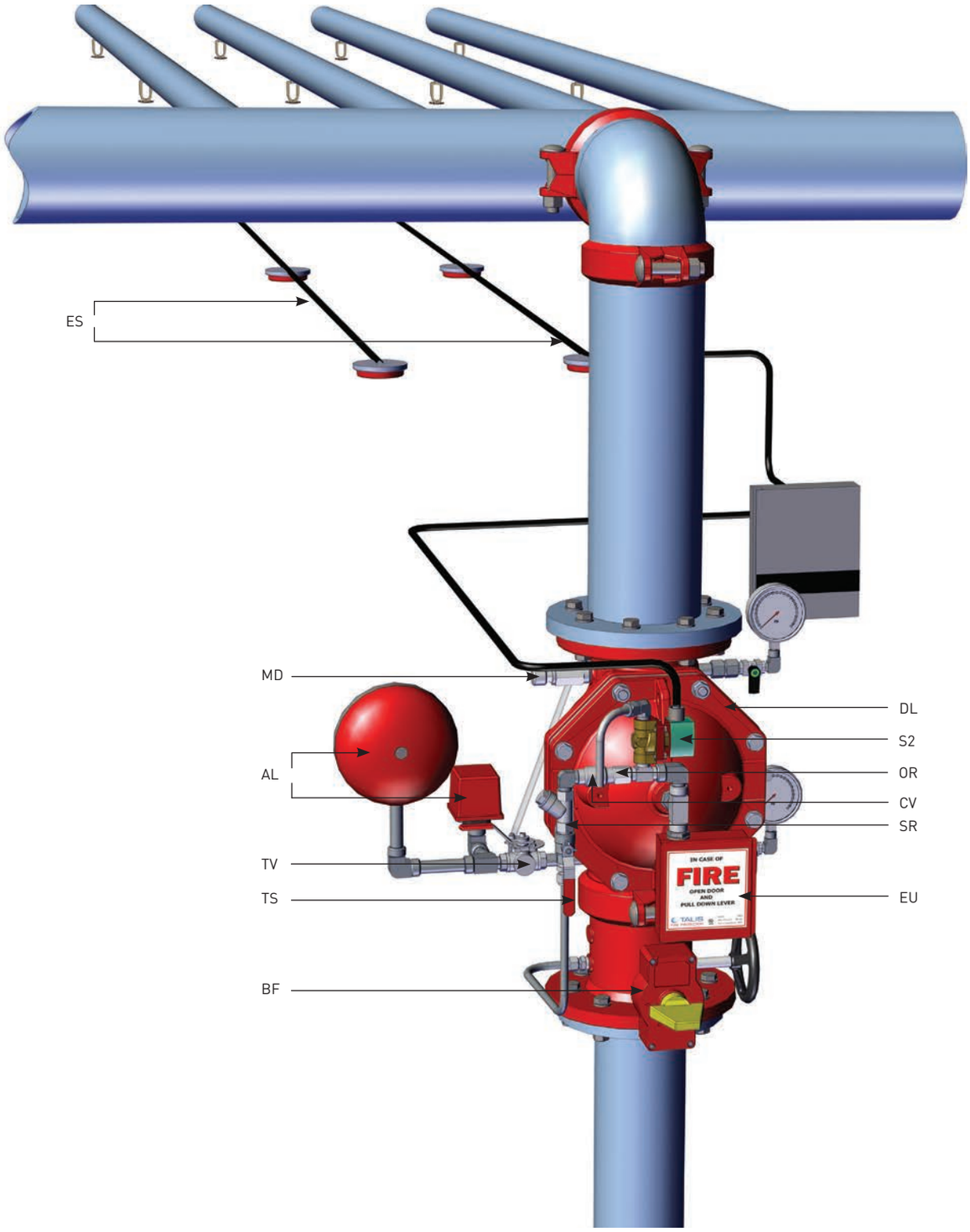
When an electric detection system senses flame heat, it triggers the main control panel that in turn, transmits an electric signal commanding the 2 way solenoid valve (S2) to open and drain the deluge valve's control chamber. The FDV Deluge valve opens and admits water to the spray sprinklers line.

RESET position

System reset requires the reset of the electrical alarm system to de-energize and close the solenoid valve not allowing the FDV control chamber to drain. Upstream water ingresses the FDV Deluge control chamber through the orifice (OR), and the valve closes.

FDV - DE1

Typical installation



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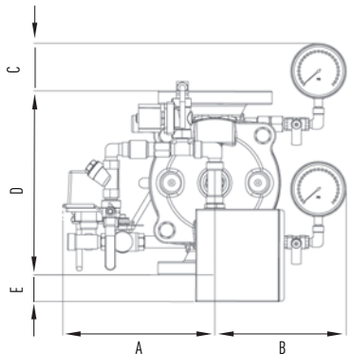
Dimensions Table

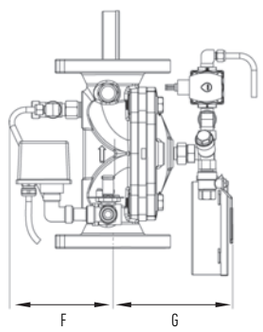
Vertical

Size	1 1/2" 2"		3"		4"		6"		8"	
	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
A	249	9.8	265	10.4	275	10.8	374	14.7	308	12
B	271	10.7	231	9	246	9.7	269	10.6	269	10.6
C	93	3.7	84	3.3	73	2.8	68	2.7	62	2.4
D	224	8.8	325	12.8	400	15.7	462	18.2	580	22.8
E	98	3.8	47	1.8	12	0.5	-	-	-	-
F	160	6.3	170	6.6	207	8	232	9	258	10
G	225	8.8	258	10	291	11	317	12.5	357	14
Kg/lb	16	35.2	28.3	62.4	45.2	99.6	64	141.1	103.8	228.8



Horizontal

Size	1 1/2" 2"		3"		4"		6"		8"	
	mm	Inch	mm	Inch	mm	Inch	mm	Inch	mm	Inch
A	369	14.5	381	15	279	11	304	12	307	12
B	189	7.4	202	7.9	216	8.5	240	9.5	241	9.5
C	74	2.9	24	0.9	-	-	-	-	-	-
D	224	8.8	325	12.8	400	15.7	462	18	580	22.8
E	98	3.8	47	1.8	12	0.5	-	-	-	-
F	160	6.3	172	6.8	207	8	232	9	264	10.4
G	187	7.4	216	8.5	247	9.7	310	12.2	340	13.4
Kg/lb	16	35.2	28.4	62.6	45.2	99.6	64.3	141.7	103.8	228.8



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
- Solenoid Voltage
- Solenoid Enclosure
- Solenoid Protection
- Pneumatic working pressure
- System installation orientation
- Additional accessories needed

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