

Deluge Valves



General representation



Fire
Protection

Electrically Actuated, Manual Reset Deluge Valve (Chinese Standard)

Description

Electrically controlled deluge/pre-action valve, actuated by the pipeline pressure. The valve is closed in its normal, set position and opens when a 2w solenoid valve is energized. The valve must be manually reset following automatic actuation. An emergency manual release valve is fitted as standard.

Certification & Compliance

Chinese Standard Certified



ANSI FCI 70-2 Class VI seat leakage class

Fire tested to EN ISO 6182-5:2006 (2"-6" only)

Features & Benefits

- High pressure (PN25/375psi), high flow deluge systems
- Automatic or local manual emergency actuation
- Hazardous, flammable & explosion classified area fire suppression
- Superior design featuring exceptionally low pressure losses at high flow rates
- Low lifelong maintenance costs due to straightforward design
- Applicable for fresh or brackish water, seawater & foam
- Out of box fully assembled & tested valves
- Factory trimmed for vertical & horizontal installations without modification
- Extensive valve & trim materials selection and corrosion protection coating

Typical Applications

Automatic or Manual Actuated Fire Suppression Systems

Petrochemical, Oil & Gas Installations

Tunnels

Power Generation, Transformer & Transmission Plants



Flammable Storage

Hangers & Airport Terminals

Onshore/Offshore

Mining



Operation

The basic control valve [1] used in this deluge system is a direct-sealing elastomeric diaphragm, hydraulically operated control valve engineered specifically for fire protection systems. The system includes a 2/2-way N.C. solenoid [9] as the interface between the fire alarm control panel - monitoring heat, smoke or flames - and the deluge valve.

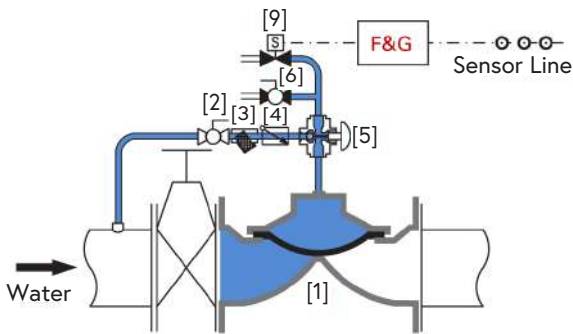
In the stand-by position, the deluge valve is held closed by the upstream water pressure, trapped in the valve's control chamber. The water pressure enters the control chamber through the priming line ball valve [2], a Y-Type strainer [3], a check valve [4] and a DMR (Manual Reset Latching Device) [5].

Under fire conditions, a fire alarm control panel energizes the 2/2-way N.C. solenoid (or de-energizes the coil of a continuously energized ED 100% normally open solenoid for SIL 3-4 rated systems). Water is drained from the deluge valve's control chamber through the 2/2-way N.C. solenoid. The deluge valve opens instantly and allows water to flow into the pipeline and through the open sprinklers over the protected area.

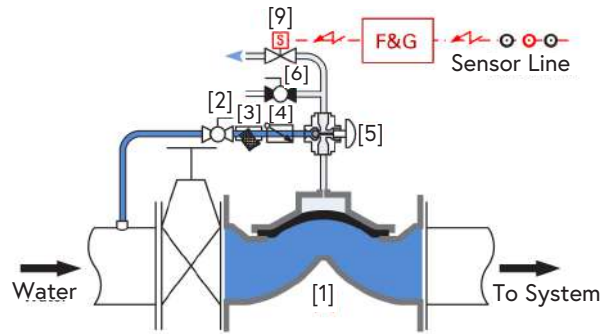
Manual emergency actuation is enabled by opening the emergency manual activation valve [6]. The deluge valve opens instantly and allows water to flow into the pipeline and through the open sprinklers over the protected area.

When the valve trips open, the DMR isolates the control chamber from the upstream pressure source. Reconnecting the upstream pressure to enable the deluge valve to close can only be achieved by pressing the DMR's knob.

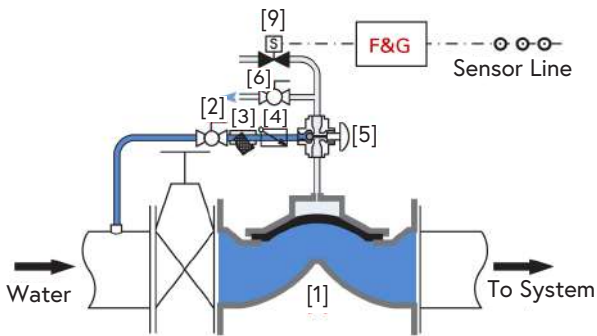
Standby Position



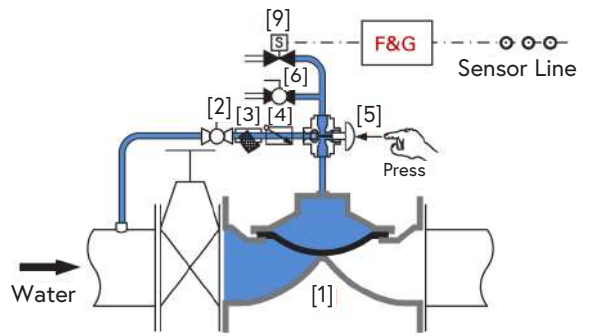
Electrically Actuated



Manually Actuated



Reset to Close



Resetting, maintenance, and periodic testing instructions must be followed as described in detail in the applicable OCV IOM (Installation, Operation & Maintenance) Manual.

Components & Typical Materials

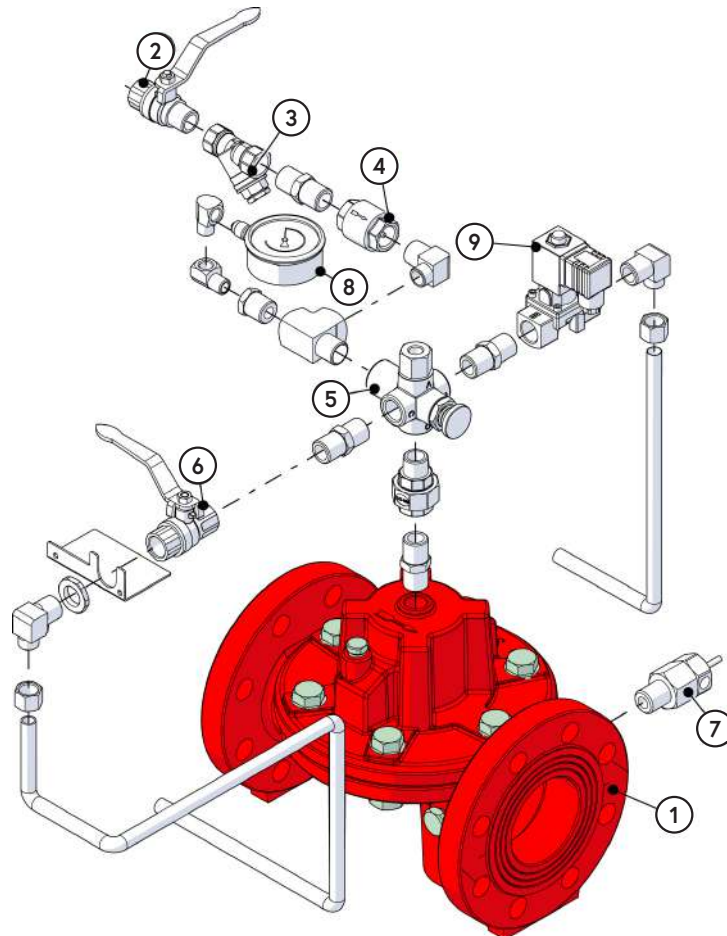
The OCV 68 DE\EL (CN) consists of the following components, arranged as shown on the schematic diagram below.

ID	Part	Standard Material	POG (1) Applications
1	Valve Body	See OCV S100 Engineering Data (2)	
2	Ball Valve	Bronze, Stainless Steel Ball	Stainless Steel 316
3	Y-Type Strainer	Bronze, Stainless Steel Screen	Stainless Steel 316
4	Check Valve	Bronze	Stainless Steel 316
5	DMR (Manual Reset Latching Device)	Brass	Stainless Steel 316
6	Manual Emergency Valve	Bronze	Stainless Steel 316
7	Drip Valve	Brass	Stainless Steel 316
8	Pressure Gauge	Stainless Steel	Stainless Steel 316
9	2/2 Way N.C. Solenoid (3)	Brass	Stainless Steel 316

(1) Petrochemical, Oil & Gas

(2) Refer to materials selection guidelines, Engineering Data - Materials: Ductile Iron A-536 65-45-12; Cast Steel A-216 WCB; Cast Steel A-352 LCB; Austenitic Stainless Steel A-351/CF8M; Super Duplex 2507; Nickel-Aluminum-Bronze B-148 UNS C95800

(3) Consult factory



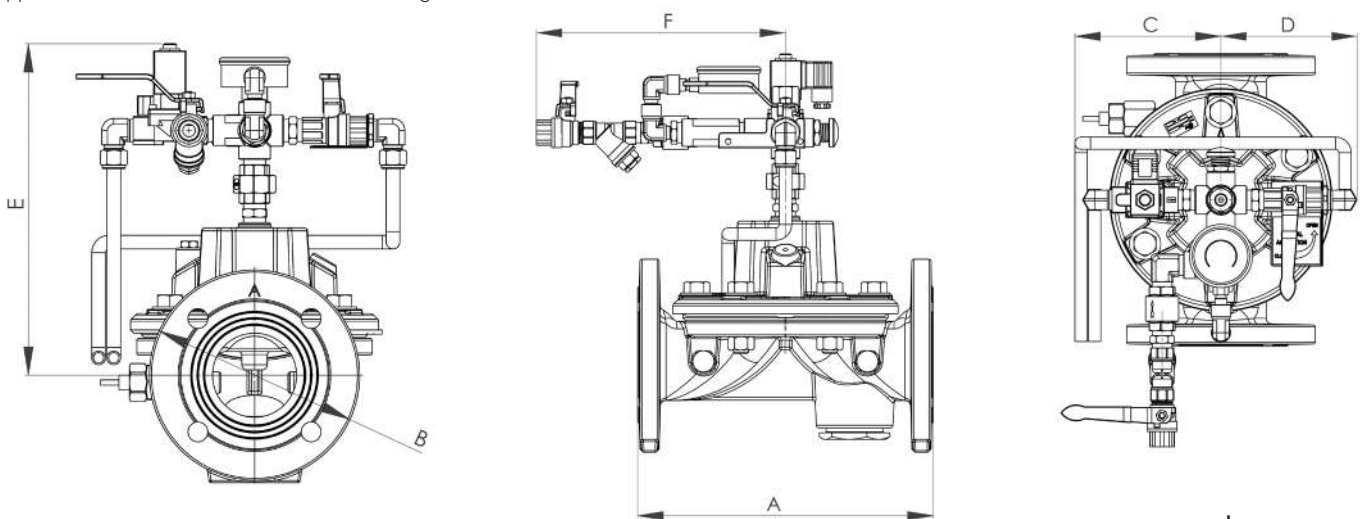
General Arrangement & Dimensions


Standard Sizes							
DIM	2"	2 1/2"	3"	4"	6"	8"	10"
A	9 5/8	9 3/16	12 3/16	14	17 3/16	20 7/8	25
A _G ⁽¹⁾	9 5/8	10	13 3/16	15	17 5/16	21 7/8	--
B	6 5/8	7 3/8	7 7/8	9 3/8	12 1/8	14 3/16	16 7/8
C	4 13/16	4 13/16	6 1/8	6	7 11/16	9 3/8	11 5/16
D	5 11/16	5 11/16	5 11/16	5 11/16	6 5/16	7 7/8	9 13/16
E	9 11/16	9 11/16	12 3/8	12 3/8	15 3/8	16 5/16	17 1/8
F	10 3/8	10 3/8	10 3/8	10 3/8	10 3/8	10 3/8	12 1/2

Approximate Dimensions. ⁽¹⁾ Grooved model length.

Metric Sizes							
DIM	DN50	DN65	DN80	DN100	DN150	DN200	DN250
A	243	233	310	356	436	530	635
A _G ⁽¹⁾	243	253	336	380	440	556	--
B	168	185	200	238	306	360	430
C	122	122	155	154	198	238	287
D	145	145	145	145	160	200	249
E	247	247	313	309	392	412	435
F	262	262	262	262	262	265	317

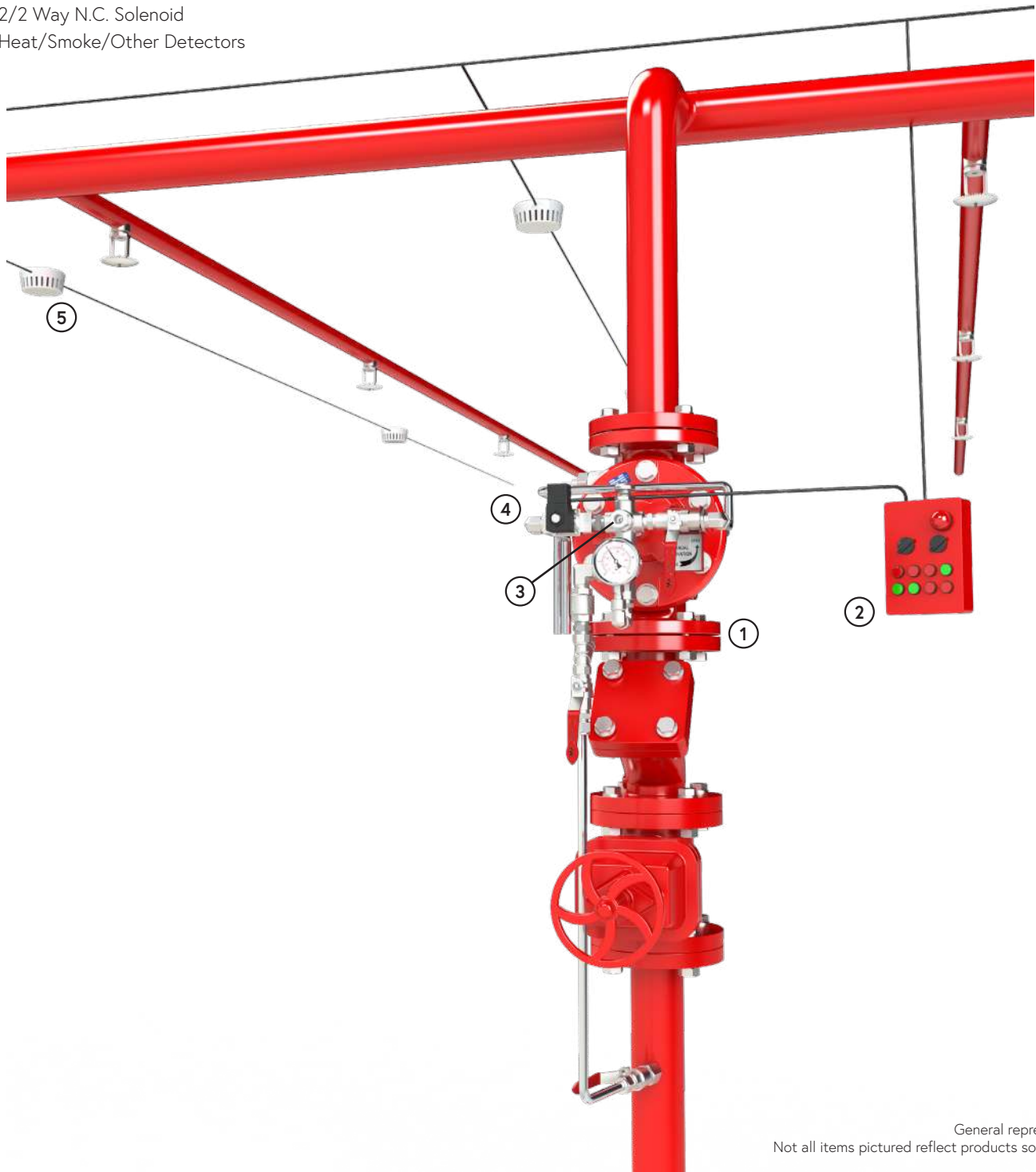
Approximate Dimensions. ⁽¹⁾ Grooved model length.



 Typical Installation

The typical installation of the OCV 68 DE\EL (CN) is as shown:

- 1 Electrically Actuated, Remote Reset Deluge Valve
- 2 Fire Alarm Control Panel
- 3 DMR (Manual Reset Latching Device)
- 4 2/2 Way N.C. Solenoid
- 5 Heat/Smoke/Other Detectors



General representation.
Not all items pictured reflect products sold by OCV.

Technical Data

Temperature (Elastomers)	
Media	up to 80°C = 176°F
Elastomers	suitable for extreme climates (available upon request)
Sizes	
Chinese Standard Certified	2" - 24"
Pressure Rating (ANSI at 100°F)	
250psi for Class 150#	
375psi for Class 300#	
End Connections	
Flanged	ISO-PN16 & ISO-PN25
	ANSI B16.42 & B16.5 Class 150# & 300#
	Additional options available upon request
Grooved	Sizes: 2"-8"

Body & Cover Material	
Ductile Iron	Stainless Steel
Cast Steel	NAB
Trim Material	
Bronze/Brass - Copper	
Stainless Steel	
Monel	
Optional Components	
Position Indicator	
Alarm Test Trim	
Pressure Switch	
Limit/Proximity Switch	
Items to Specify	
Electrical features other than standard (24VDC, IP65/NEMA4)	
If explosion proof accessories are required such as solenoids, pressure switches, etc., please define classification	
Control trim material other than standard	
Required standards, certifications and approvals	

Engineering Specifications

The deluge valve shall be hydraulically operated, direct elastomeric diaphragm-seal, single chamber weir type. The valve shall consist of three major components: the body, the cover and the diaphragm assembly. The diaphragm assembly shall be the only moving part. The diaphragm forms a sealed control chamber in the upper portion of the valve, separating operating pressure from line pressure. Packing glands, stuffing boxes and dynamic o-ring seals are not permitted and there shall not be shafts, discs, bearings or pistons operating the valve. No hourglass shaped disc retainers shall be permitted, and no V-type, U-type or other slotted type disc guides shall be used. The valve shall contain a nylon reinforced rubber diaphragm, elastic & resilient through its entire surface without vulcanized radial seals and/or reinforcements. The diaphragm assembly shall

not be guided by any shafts or bearings and shall not be in close contact with other valve parts except for its sealing surface. The deluge valve shall be fully trimmed, hydrostatically and operationally tested at the factory. Maintenance, disassembly and reassembly of all the valve's components shall be made possible on-site and in-line, without the need to remove the valve from the line. Standard material valves such as ductile iron and cast steel should be coated with high-built fusion-bonded epoxy (FBE). Naval quality/very high corrosivity protection grade conforming to EN12944 C5M is available upon request. Additional coatings and special materials are available upon request. The deluge valve shall be an OCV 68 DE\EL (CN), Chinese Standard Certified, as manufactured by OCV, an Aquestia Ltd. brand, Tulsa, OK, USA.