OCV Model 115-4DV

Deluge Valves

Aquestia
Directing the Flow

General representation

Fire Protection

Electrically Actuated Deluge Valve

Description

Electrically controlled deluge valve, actuated by the pipeline pressure. The valve is closed in its normal, set position and opens when a 3-way solenoid valve is energized. It closes drip-tight when the solenoid valve is de-energized. An emergency manual release valve is fitted as standard.

Certification & Compliance

ABS Type Approval

ANSI FCI 70-2 Class VI seat leakage class

Fire tested to EN ISO 19921

Features & Benefits

- Opens quickly when the solenoid valve is activated (specify energize-to-open or energize-to-close)
- Manual override to open the valve regardless of solenoid position
- Visual indicator identifies valve position
- Large supply drain port to drain inlet side piping - globe only
- Solenoid operated main valve
- No adjustments are necessary
- Factory tested
- Standard sizes 1 1/4" (DN32) through 16" (DN400)
- Wide range of materials available - including for seawater service
- Options available including opening and/or closing speed controls, limit switch assembly and pressure gauge(s)

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

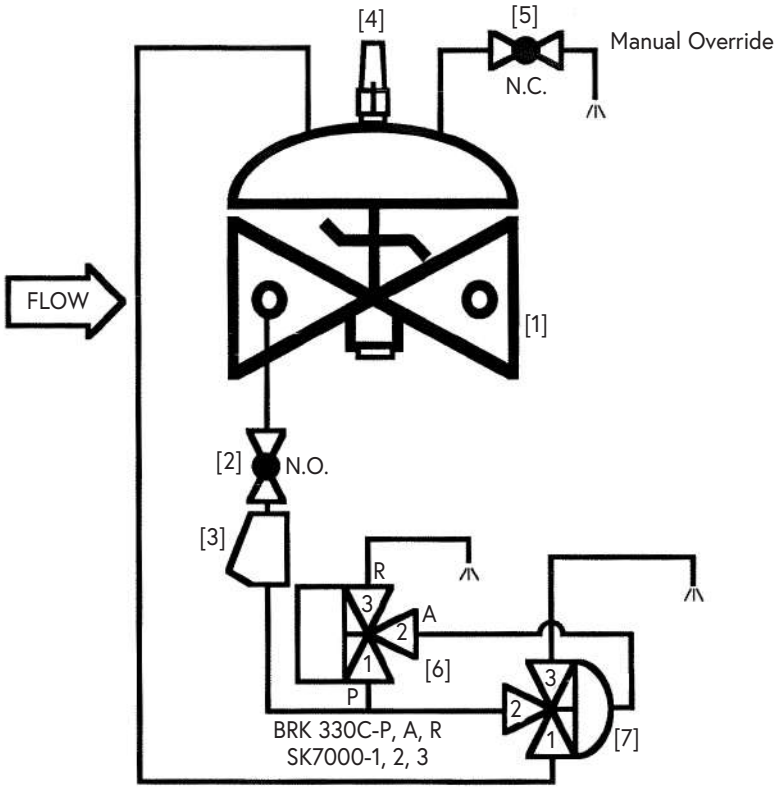
The basic control valve [1] used in this deluge system is a diaphragm actuated globe valve that closes with an elastomer-on-metal seal, hydraulically operated control valve engineered specifically for fire protection systems.

In the standby 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 3/2-way N.C. solenoid [6] and an auxiliary pilot valve [7].

Under fire conditions, a fire alarm control panel energizes the 3/2-way N.C. solenoid (or de-energizes the coil of a continuously energized ED 100% normally open solenoid for SIL 3-4 rated systems). The pressure in the auxiliary pilot valve increases, causing it to shift position allowing the water to drain from the deluge valve's control chamber. 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 [5]. The deluge valve opens instantly and allows water to flow into the pipeline and through the open sprinklers over the protected area.

A visual indicator [4] provides indication of the valve's position at a glance.

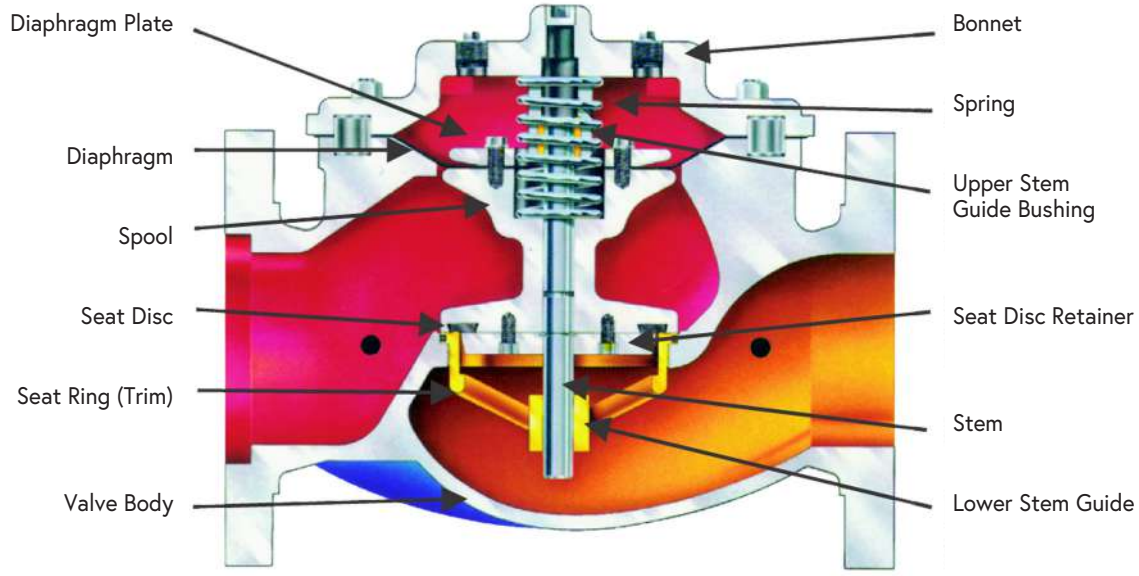


Resetting, maintenance, and periodic testing instructions must be followed as described in detail in the applicable OCV IOM (Installation, Operation & Maintenance) Manual.

Components & Typical Materials

The OCV 115-4DV consists of the following components, arranged as shown on the schematic diagram below.

Part	Standard Material	Optional
Valve Body	Ductile Iron	Cast Steel, Stainless Steel, NAB, Duplex Stainless Steel
Seat Ring	Bronze	Stainless Steel, NAB, Duplex Stainless Steel
Stem	Stainless Steel	Monel
Spring	Stainless Steel	Elgiloy/MP35N
Diaphragm	Nylon Reinforced Buna-N	E.P.D.M.
Solenoid Valve	Stainless Steel	---
Tubing/Fittings	Copper, Bronze/Brass	Stainless Steel, Monel
Pilot	Bronze	Stainless Steel, Monel



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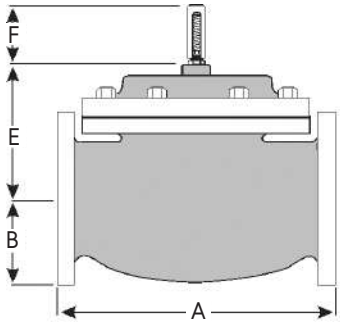
General Arrangement & Dimensions

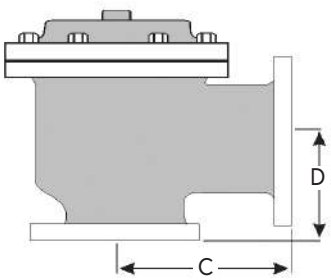
Standard Sizes											
DIM	END CONNECTIONS	1 1/4" - 1 1/2	2"	2 1/2"	3"	4"	6"	8"	10"	12"	16"
A	150# Flanged	8 1/2	9 3/8	10 1/2	12	15	17 3/4	25 3/8	29 3/4	34	40 3/8
	300# Flanged	8 3/4	9 7/8	11 1/8	12 3/4	15 5/8	18 5/8	26 3/8	31 1/8	35 1/2	42
B	150# Flanged	2 5/16 - 2 1/2	3	3 1/2	3 3/4	4 1/2	5 1/2	6 3/4	8	9 1/2	11 3/4
	300# Flanged	2 5/8 - 3 1/16	3 1/4	3 3/4	4 1/8	5	6 1/4	7 1/2	8 3/4	10 1/4	12 3/4
C	150# Flanged	4 1/4	4 3/4	6	6	7 1/2	10	12 11/16	14 7/8	17	20 13/16
	300# Flanged	4 3/8	5	6 3/8	6 3/8	7 13/16	10 1/2	13 3/16	15 9/16	17 3/4	21 5/8
D	150# Flanged	3	3 7/8	4	4	5 1/2	6	8	11 3/8	11	15 11/16
	300# Flanged	3 1/8	4 1/8	4 3/8	4 3/8	5 13/16	6 1/2	8 1/2	12 1/16	11 3/4	16 1/2
E	ALL	6	6	7	6 1/2	8	10	11 7/8	15 3/8	17	19
F	ALL	3 7/8	3 7/8	3 7/8	3 7/8	3 7/8	3 7/8	6 3/8	6 3/8	6 3/8	6 3/8
G	ALL	6	6 3/4	7 11/16	8 3/4	11 3/4	14	21	24 1/2	28	34 1/2
H	ALL	10	11	11	11	12	13	14	17	18	20

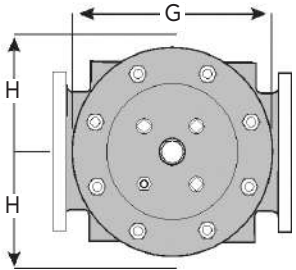
Approximate Dimensions.

Metric Sizes											
DIM	END CONNECTIONS	DN32-DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN400
A	150# Flanged	216	238	267	305	381	451	645	756	864	1026
	300# Flanged	222	251	283	324	397	473	670	791	902	1067
B	150# Flanged	59-64	76	89	95	114	140	171	203	241	298
	300# Flanged	67-78	83	95	105	127	159	191	222	260	324
C	150# Flanged	108	121	152	152	191	254	322	378	432	529
	300# Flanged	111	127	162	162	198	267	335	395	451	549
D	150# Flanged	76	98	102	102	140	152	203	289	279	398
	300# Flanged	79	105	111	111	148	165	216	306	298	419
E	ALL	152	152	178	165	203	254	302	391	432	483
F	ALL	98	98	98	98	98	98	162	162	162	162
G	ALL	152	171	195	222	298	356	533	622	711	876
H	ALL	254	279	279	279	305	330	356	432	457	508

Approximate Dimensions.







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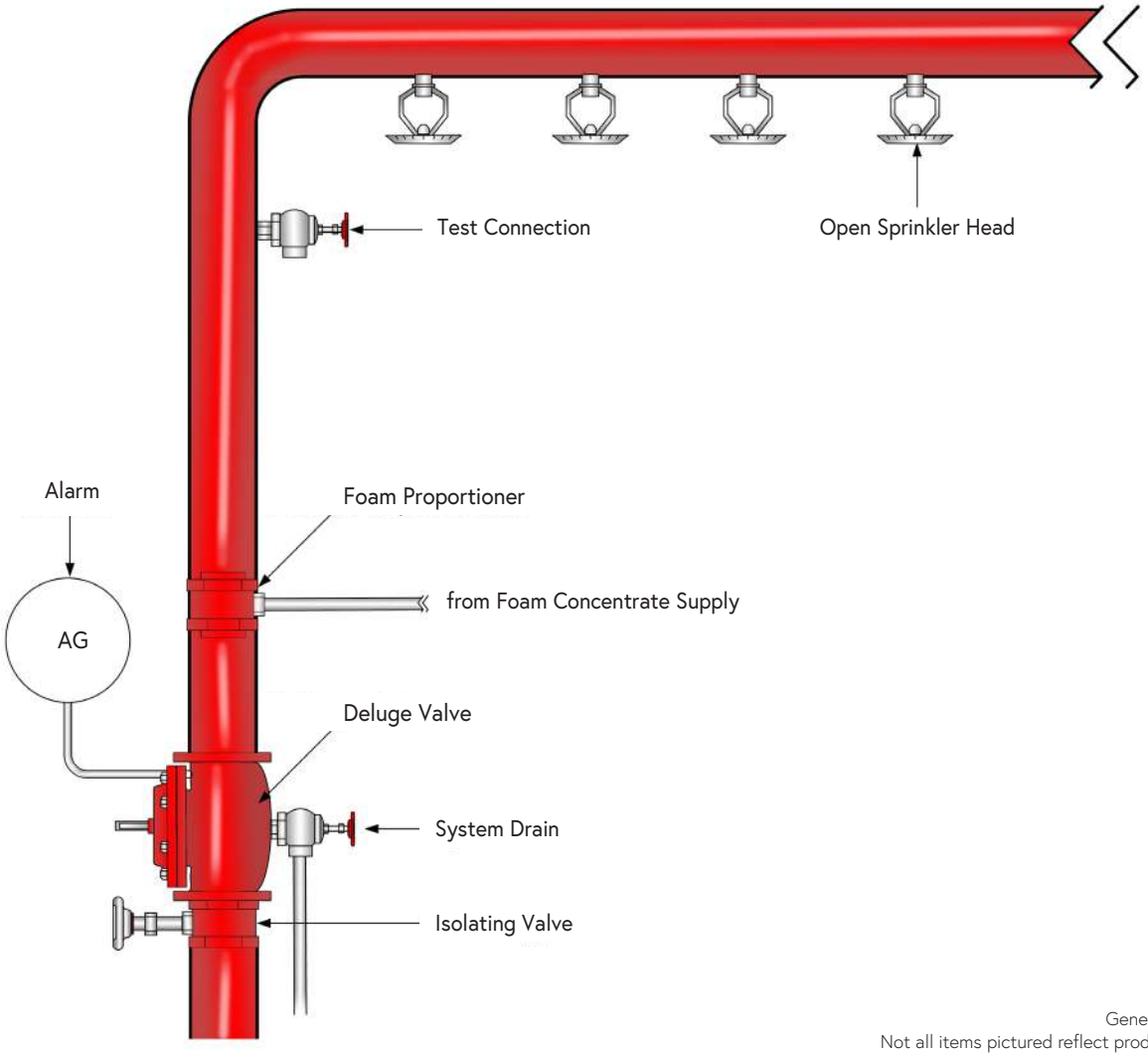
Typical Installation

The typical installation of the OCV 115-4DV is as shown:



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

Flow Characteristics

Standard Sizes	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"
Globe Cv	23	27	47	68	120	200	450	760	1250	1940	2200	2850
Angle Cv	30	35	65	87	160	270	550	1000	1600	2400	--	4000
Metric Sizes	DN32	DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN350	DN400
Globe Kv	20	23 3/10	40 3/5	58 4/5	103 4/5	173	389 1/4	657 2/5	1081 1/5	1678	1903	2465 1/5
Angle Kv	26	30 3/10	56 1/5	75 1/5	138 2/5	233 1/2	475 4/5	865	1384	2076	--	3460

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Technical Data

Temperature (Elastomers)	
Buna	32°F to 180°F
EPDM	32°F to 230°F
Solenoid Valve Voltage:	
24VDC Standard	all other standard voltages available, AC and DC
Sizes	
Globe & Angle	1 1/4", 1 1/2", 2", 2 1/2", 3", 4", 6", 8", 10", 12", 16"
Globe	14"
Pressure Rating (at 100°F)	
250psi for Class 150#	ANSI flanged Ductile Iron
285psi for Class 150#	Steel & Stainless Steel
Class 300# ANSI flanges are available	
End Connections	
Flanged	ANSI Class 150# & 300#

Body & Cover Material	
Ductile Iron	Stainless Steel
Cast Steel	Duplex Stainless Steel
NAB	
Trim Material	
Copper Tubing	Bronze/Brass Trim Connections
Stainless Steel	Monel
Optional Components	
Alarm Test Trim	
Upstream Drain Valve	
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 a single-seated, line pressure operated, diaphragm actuated, globe valve. The deluge valve shall seal by means of a corrosion resistant seat and resilient, rectangular seat disc. 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. The stem of the main valve shall be guided top and bottom by integral bushings. Alignment of the body, bonnet and diaphragm assembly shall be by precision dowel pins. The diaphragm shall not be used as a seating surface, nor shall pistons be used as an operating means. The deluge valve shall be fully trimmed, hydrostatically and operationally tested at the factory. The main valve body and bonnet standard material shall be ductile iron or cast steel. Main valve body and bonnet surfaces shall include a fire red epoxy coating. Other materials and coatings available upon request. The main valve seat ring shall be bronze (other materials available upon request). Elastomers (diaphragms, resilient seats, and o-rings) shall be Buna-N or E.P.D.M. Control pilot shall be bronze or stainless steel. The solenoid valve shall be stainless steel. The control line tubing shall be copper (other materials available upon request). Additional coatings and special materials are available upon request. The deluge valve shall be an OCV 115-4DV, as manufactured by OCV, an Aquestia Ltd. brand, Tulsa, OK, USA.