OCV Model 116-5MR

Deluge Valves

Aquestia
Directing the Flow

General representation

Fire Protection

Pressure Reducing, Solenoid Shut-Off 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 3w solenoid valve is energized. The valve must be manually reset following automatic activation using the ball valve manual reset lever. When tripped, the valve regulates to a steady, preset downstream pressure, regardless of upstream pressure or flow rate fluctuations. An emergency manual release valve is fitted as standard.

Certification & Compliance

ABS Type Approval

ANSI FCI 70-2 Class VI seat leakage class

Features & Benefits

- Opens quickly when the solenoid valve is activated
- Reduces a higher upstream pressure to a lower downstream pressure
- Constant downstream pressure over a wide flow range
- Downstream pressure is adjustable with single screw
- Adjustable opening speed control
- Manual override to open the valve fully
- Local ball valve manual reset assembly prevents closure using solenoid valve
- Visual indicator identifies valve position
- Large supply drain port to drain sprinkler main
- Factory tested
- Can be installed vertically or horizontally
- Wide range of materials available

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.

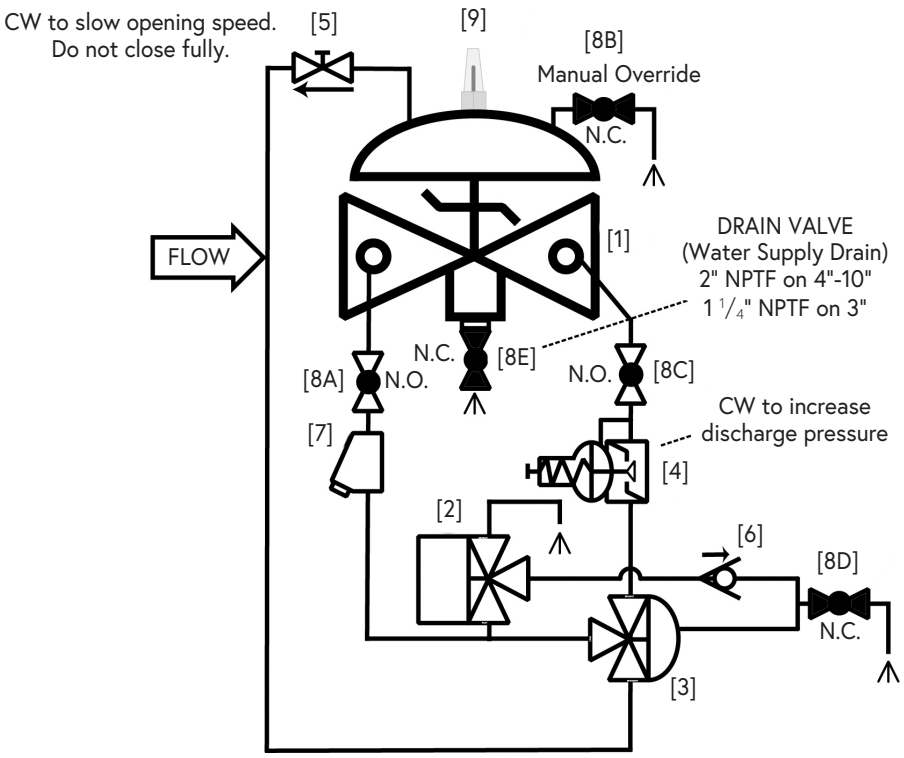
In the standby position, the deluge valve is held closed by the upstream water pressure, trapped in the valve's control chamber. The water pressure enters the control chamber through the priming line ball valve [8A], a Y-type strainer [7], a 3-way auxiliary pilot [3] and an opening speed control valve [5].

Under fire conditions, a fire alarm control panel energizes the 3/2-way N.C. solenoid [2] (or de-energizes the coil of a continuously energized ED 100% normally open solenoid for SIL 3-4 rated systems). The auxiliary pilot shifts position and allows the water to begin to drain from the deluge valve's control chamber through the pressure reducing pilot [4]. The deluge valve opens instantly, regulating to a steady, preset downstream pressure, regardless of upstream pressure or flow rate fluctuations. This 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 [8B]. The deluge valve opens instantly and fully, and allows water to flow into the pipeline and through the open sprinklers over the protected area.

The valve must be manually reset following automatic actuation, using the ball valve manual rest lever [8D].

A visual indicator (optional) [9] provides indication of the valve's position at a glance.

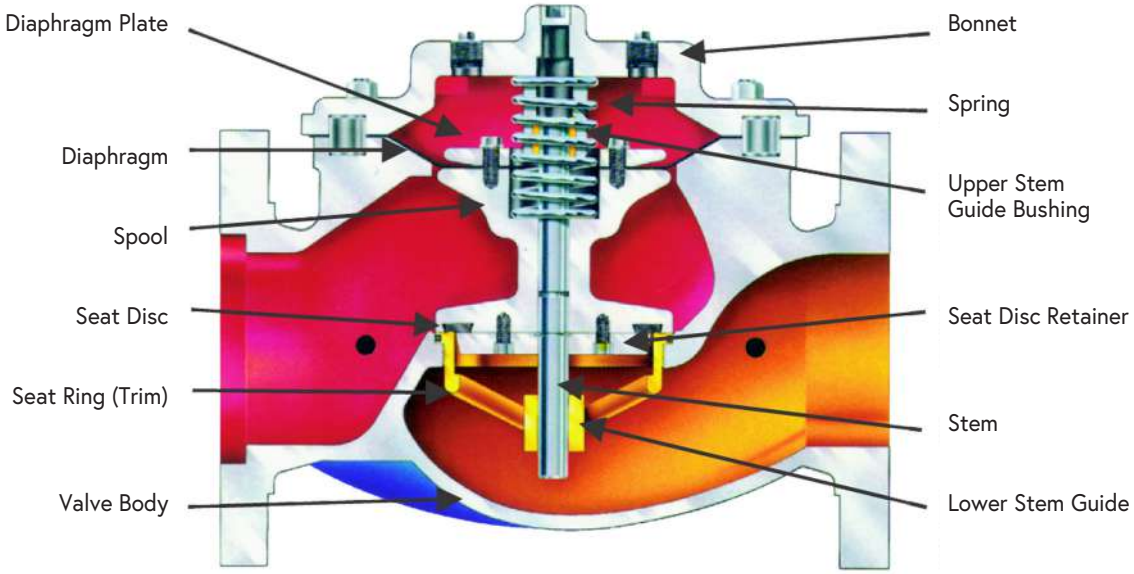


Resetting, maintenance, and periodic testing instructions must be followed as described in detail in the applicable OCV IOM (Installation, Operation & Maintenance) Manual.

Components & Typical Materials

The OCV 116-5MR 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.
3-Way Auxiliary Pilot	Bronze	Stainless Steel, Duplex Stainless Steel
Solenoid Valve	Stainless Steel	---
Tubing/Fittings	Copper, Bronze/Brass	Stainless Steel, Monel



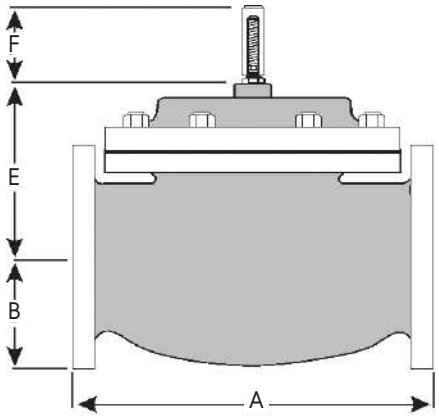
General Arrangement & Dimensions

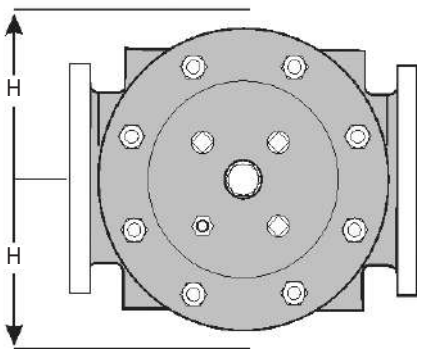
Standard Sizes						
DIM	END CONNECTIONS	3"	4"	6"	8"	10"
A	150# Flanged	12	15	17 3/4	25 3/8	29 3/4
	300# Flanged	12 3/4	15 5/8	18 5/8	26 3/8	31 1/8
B	150# Flanged	3 3/4	4 1/2	5 1/2	6 3/4	8
	300# Flanged	4 1/8	5	6 1/4	7 1/2	8 3/4
E	ALL	6 1/2	8	10	11 7/8	15 3/8
F	ALL	3 7/8	3 7/8	3 7/8	6 3/8	6 3/8
H	ALL	11	12	13	14	17

Approximate Dimensions.

Metric Sizes						
DIM	END CONNECTIONS	DN80	DN100	DN150	DN200	DN250
A	150# Flanged	305	381	451	645	756
	300# Flanged	324	397	473	670	791
B	150# Flanged	95	114	140	171	203
	300# Flanged	105	127	159	191	222
E	ALL	165	203	254	302	391
F	ALL	98	98	98	162	162
H	ALL	279	305	330	356	432

Approximate Dimensions.





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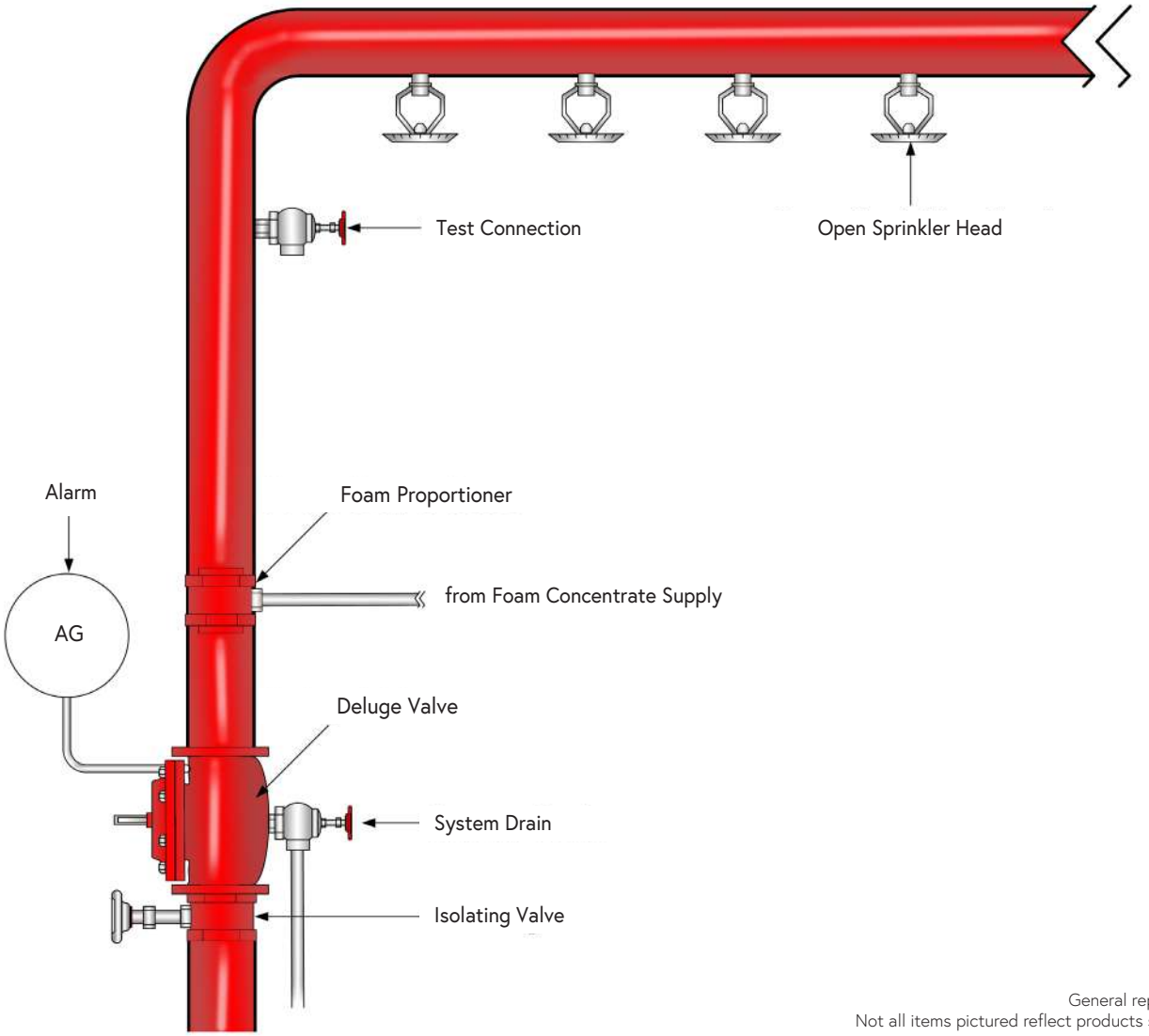
Typical Installation

The typical installation of the OCV 116-5MR is as shown:



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

Flow Characteristics

Standard Sizes	3"	4"	6"	8"	10"
Globe Cv	120	200	450	760	1250
Metric Sizes	DN80	DN100	DN150	DN200	DN250
Globe Kv	103 $^{4}/_{5}$	173	389 $^{3}/_{10}$	657 $^{2}/_{5}$	1081 $^{1}/_{5}$

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Technical Data

Temperature (Elastomers)	
Media	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	3", 4", 6", 8", 10"
Pressure Rating (ANSI at 100°F)	
250psi for Class 150#	
Class 300# ANSI flanges are available	
End Connections	
Flanged	ANSI Class 150# & 300#
	Additional options available upon request

Body & Cover Material	
Ductile Iron	Stainless Steel
Cast Steel	Duplex Stainless Steel
NAB	
Trim Material	
3-Way Auxiliary Pilot	Bronze
3-Way Auxiliary Pilot Optional	Stainless Steel, Duplex Stainless Steel
Solenoid Valve	Stainless Steel
Tubings/Fittings	Copper, Bronze/Brass
Optional Fittings	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. 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 116-5MR, as manufactured by OCV, an Aquestia Ltd. brand, Tulsa, OK, USA.

Aquestia USA

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