

General representation



Fire
Protection

Single or Double-Interlock Pre-Action, Electrically Actuated, Manual Reset Valve

Description

The OCV 68F DE\EL-MR Pre-action is an electrically controlled, single or double-interlock, 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 electric interlock functionality is controlled through the fire control panel. The valve must be manually reset following automatic actuation. An emergency manual release valve is fitted as standard.

Certification & Compliance

FM approved



Typical Applications

Automatic or Manual Actuated Fire Suppression Systems

Petrochemical, Oil & Gas Installations

Tunnels

Power Generation, Transformer & Transmission Plants



Features & Benefits

- High pressure (PN25/375psi), high flow systems
- Automatic or manual emergency actuation
- Industrial & commercial fire suppression
- 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 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

Flammable Storage

Hangers & Airport Terminals

Onshore/Offshore

Mining



Operation

The basic control valve [1] used in this pre-action system is a direct-sealing elastomeric diaphragm, hydraulically operated control valve engineered specifically for fire protection systems.

In the standby position, the pre-action 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 (F&G panel) energizes the 2/2-way N.C. Solenoid [9] (or de-energizes the coil of a continuously energized ED 100% normally open solenoid for SIL 3-4 rated systems).

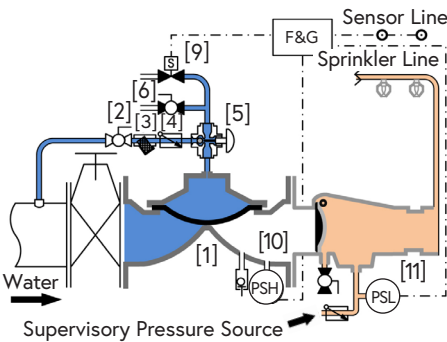
In single-interlock systems the solenoid is energized upon activation of the detection system. In double-interlock systems the solenoid is energized upon activation of the detection system and a drop in supervisory pressure, following bursting of one (or more) of the automatic sprinklers. When this happens, water is drained from the pre-action valve's control chamber through the 2/2-way N.C. Solenoid. The pre-action valve opens instantly and allows water to flow into the pipeline and through any open sprinklers over the protected area.

Pressure switches on the pre-action valve's downstream port [10] and the check valve's downstream port [11] provide electrical indication to the fire alarm control panel of rising water pressure (the valve has opened) and drop in air (or gas) pressure (one or more sprinklers have burst).

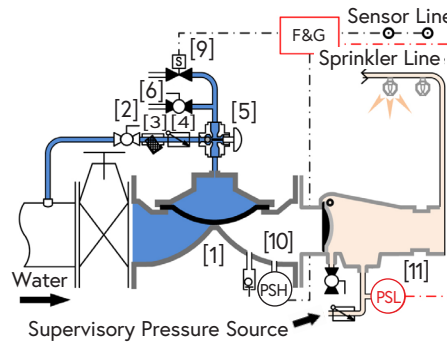
Manual emergency actuation is enabled by opening the emergency manual activation valve [6]. The pre-action valve opens instantly and allows water to flow into the pipeline and through any open sprinklers over the protected area.

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

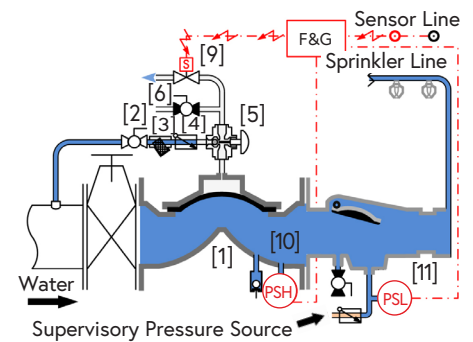
Standby Position



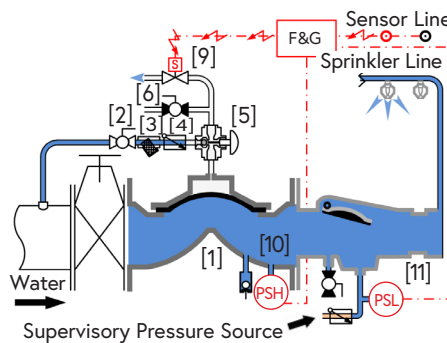
Sprinkler Burst
(Valve Remains Closed)



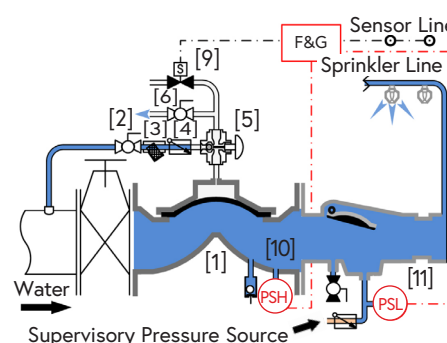
Sensor Line Activated - Pipeline Filled
(Single-Interlock Only)



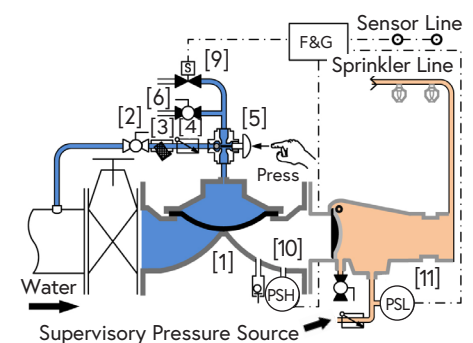
Sprinkler Burst & Sensor Line Activated



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.

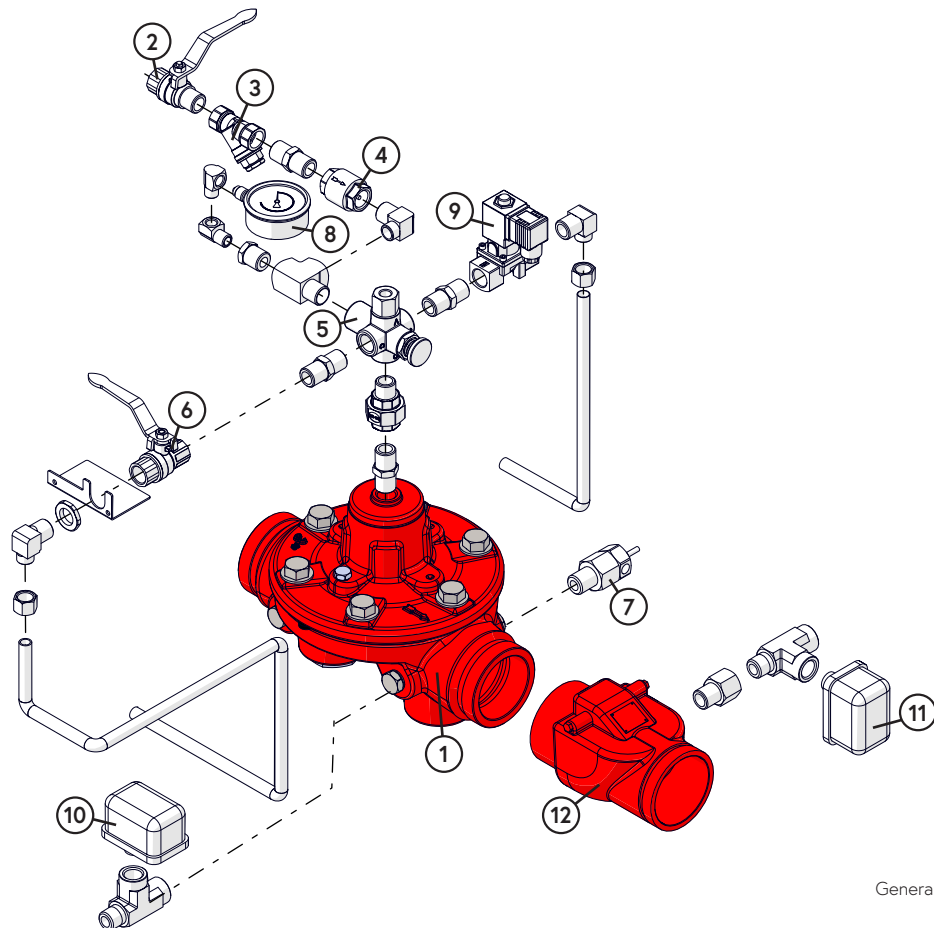
Components & Typical Materials

The OCV 68F DE\EL-MR consists of the following components, arranged as shown on the schematic diagram below.

ID	Part	Standard Material	Material per request
1	Valve Body	See OCV S100-68F Engineering Data ⁽¹⁾	
2	Ball Valve	Bronze, Stainless Steel Ball	Stainless Steel, Monel, NAB
3	Y-Type Strainer	Bronze, Stainless Steel Screen	Stainless Steel, Monel, NAB
4	Check Valve	Bronze	Stainless Steel, Monel, NAB
5	DMR (Manual Reset Latching Device)	Brass	Stainless Steel, Monel, NAB
6	Manual Emergency Valve	Bronze	Stainless Steel, Monel, NAB
7	Drip Valve	Brass	Stainless Steel, Monel, NAB
8	Pressure Gauge	Stainless Steel	Stainless Steel, Monel, NAB
9	2/2 Way N.C. Solenoid ⁽²⁾	Brass	Stainless Steel, Monel, NAB
10	PSH (Pressure Switch High)	Specified Upon Request	Specified Upon Request
11	PSL (Pressure Switch Low)	Specified Upon Request	Specified Upon Request
12	Riser Check Valve	Ductile Iron	Ductile Iron

(1) 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

(2) Consult factory



General representation of valve.

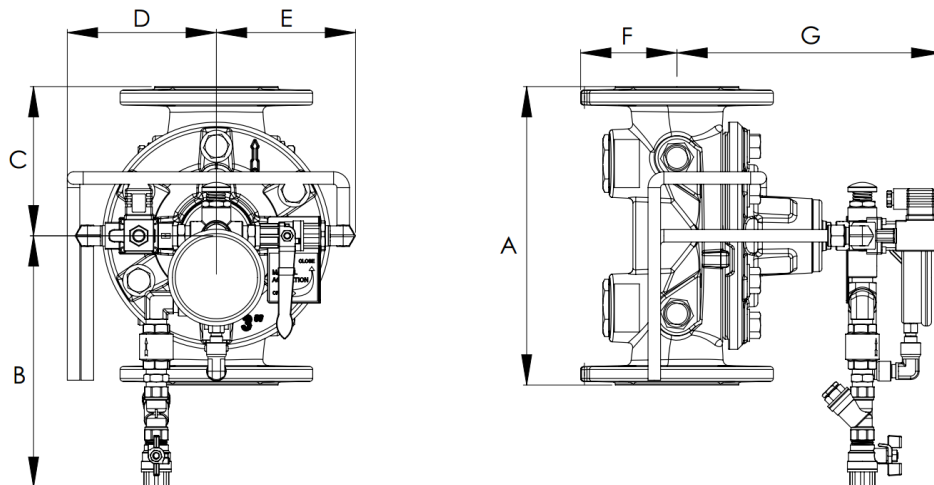
General Arrangement & Dimensions

Standard Sizes						
DIM	2"	2 1/2"	3"	4"	6"	8"
A	9 5/8	13 1/8	13 1/8	15 1/8	18 7/8	23 5/8
B	10 5/16	10 5/16	10 5/16	10 5/16	10 5/16	11 13/16
C	4 13/16	6 5/8	6 5/8	7 5/8	9 3/8	11 13/16
D	6 1/8	6 5/16	6 5/16	6 7/8	8	9 1/8
E	5 11/6	5 11/16	5 11/16	5 11/16	6 3/8	7 7/8
F	3 5/16	3 13/16	3 7/8	4 5/8	5 1/2	7 1/8
G	8 1/8	10 13/16	10 13/16	11 5/8	13 5/8	17 5/8

Approximate Dimensions. Flanged ANSI Class #150. Please contact factory for grooved model length availability.

Metric Sizes						
DIM	DN50	DN65	DN80	DN100	DN150	DN200
A	244	334	334	384	480	600
B	261	261	261	261	261	300
C	122	167	167	192	240	300
D	155	161	161	175	204	232
E	144	144	144	144	163	200
F	84	95 1/2	100	118	140	180
G	206	275	275	295	345	405

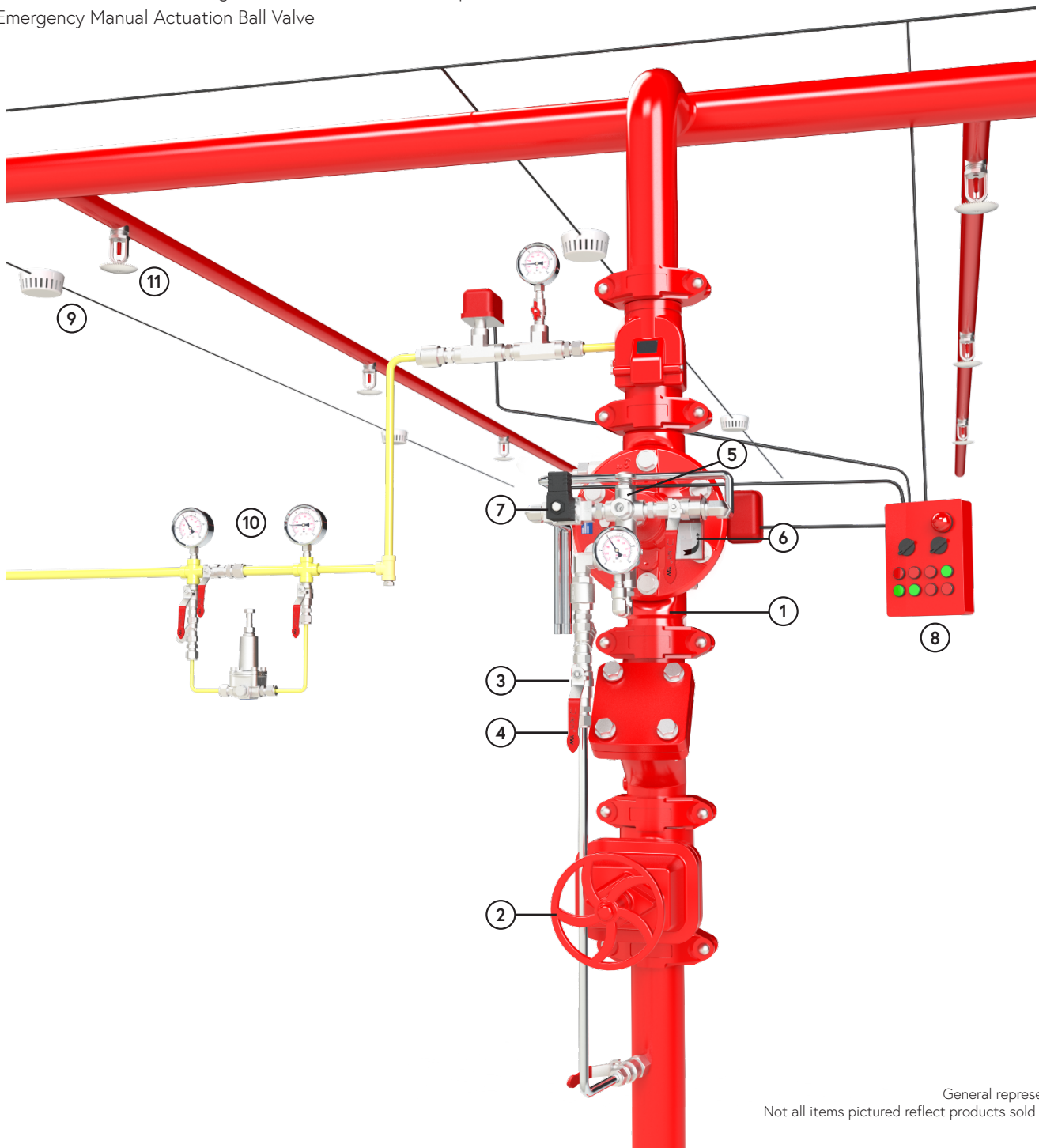
Approximate Dimensions. Flanged ANSI Class #150. Please contact factory for grooved model length availability.



Typical Installation

The typical installation of the OCV 68F DE\EL-MR Pre-Action is as shown:

- | | | | |
|---|---------------------------------------|----|-------------------------------------|
| 1 | 68F DE\EL-MR Pre-Action Valve | 7 | 2/2-Way Solenoid |
| 2 | Isolating Valve | 8 | F&G Panel (Releasing Control Panel) |
| 3 | Y-Type Strainer | 9 | Heat/Smoke/Other Detectors |
| 4 | Priming Line Ball Valve | 10 | PPCS |
| 5 | DMR (Manual Reset Latching Device) | 11 | Closed Sprinklers/Nozzles |
| 6 | Emergency Manual Actuation Ball Valve | | |



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	
FM Approved	2" - 8"
Pressure Rating	
Up to 25 bar \ 375psi	
Minimum system water pressure 1.5 bar \ 22psi	
FM approved working pressures 2" - 8": 25 bar \ 375psi	
End Connections	
Flanged	Sizes: 2" - 8"
	ISO-PN16 & ISO-PN25 ANSI B16.42 & B16.5 Class #150 & #300
Grooved	Sizes: 2" - 8"
	ASME/ANSI AWWA 606
Additional options available upon request	

Body & Cover Material (*Standard)	
Ductile Iron ASTM A536*	Stainless Steel ASTM A351 CF8M
Cast Steel ASTM A216 WCB	Cast Steel ASTM A352 LCB
NAB ASTM B148 gr.C95800	Duplex Stainless Steel
Super Duplex Stainless Steel	Titanium
Trim Material (*Standard)	
Bronze \ Brass*	Nickel Plated Brass
Stainless Steel 316	Super Duplex
MONEL®	Aluminum-Bronze
Tube & Tube Fittings (*Standard)	
Copper \ Bronze \ Brass*	
Stainless Steel 316	Super Duplex
MONEL®	Cu-Ni 90/10
Diaphragm (*Standard)	
NR*	Neoprene
EPDM	NBR
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 pre-action 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 pre-action 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. 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 pre-action valve shall be an OCV 68F DE\EL-MR Pre-Action, FM Approved, as manufactured by OCV, an Aquestia Ltd. brand, Tulsa, OK, USA.