OCV Model 108-2HP

Pressure Reducing & Pressure Relief Valves

Aquestia
Directing the Flow

General representation

Fire Protection

Fire Pump High Pressure Relief Valve

Description

This valve automatically relieves excess fire pump discharge pressure to prevent the pressure from exceeding the rating of the fire system components. It is specifically designed for systems where the relief set point must be higher than the pressures allowed for UL listed/ FM approved valves.

Certification & Compliance

ABS Type Approval

Fire tested to EN ISO 19921

ANSI FCI 70-2 Class VI seat leakage class

Features & Benefits

- Limits maximum pump discharge pressure
- Opens quickly; maintains pressure within close limits
- Adjustable 200psi - 740psi (13.7 bar - 51.0 bar)
- Pilot operated main valve
- Simple field adjustable pressure setting with no special tools or system downtime
- Factory tested & preset to requirements
- Sizes 3" (DN80) - 8" (DN200), globe & angle (108-2HPA) pattern
- ANSI Flanged Class 300# & 300# inlet x 150# outlet
- Wide range of materials available
- Applicable for water & seawater

Typical Applications

Pump & Water Tanks

Fire Suppression Systems

Petrochemical, Oil & Gas Installations

Tunnels

Power Generation, Transformer & Transmission Plants

Onshore/Offshore

Mining

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Operation

The normally closed, spring loaded pilot, sensing pump discharge pressure, opens when pressure exceeds the spring setting, allowing the main valve to open. As the pump pressure increases, the pilot controls the main valve to open further. Pressure is maintained at the controlled set point over a wide range of flows regardless of back pressure in the downstream piping. The valve closes gradually as pressures decrease below the set point. The relief pressure can easily be set and modified by use of the adjustment bolt on the pressure relief pilot's cover.

The OCV 108-2HP consists of the following components, arranged as shown on the schematic diagram:

[1] OCV 65 Basic Control Valve, a hydraulically operated, diaphragm actuated, globe or angle valve (angle pattern shown) which closes with an elastomer-on-metal seal.

[2] OCV 2400 Pressure Relief Pilot, a 2-way, normally closed pilot valve which senses upstream pressure under its diaphragm and balances it against an adjustable spring load. An increase in upstream pressure tends to make the pilot open.

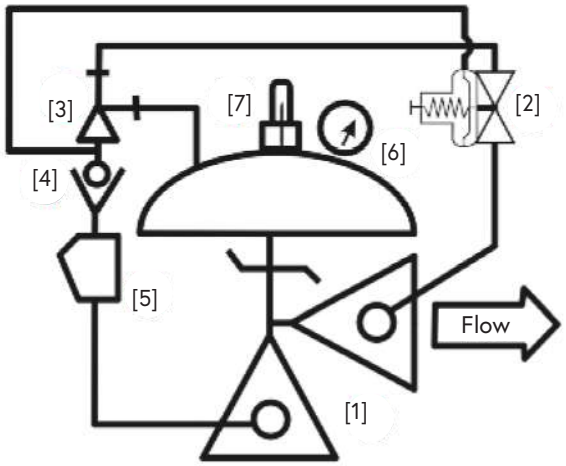
[3] OCV 126 Ejector, a "tee" fitting with a fixed orifice in its inlet port that provides the proper pressure to the diaphragm chamber of the main valve.

[4] OCV 141-1 Check Valve, prevents the valve from opening under a vacuum condition that may be encountered with a vertical turbine pump.

[5] OCV 159 Y-Strainer, protects the pilot system from solid contaminants in the line fluid.

[6] Pressure Gauge (optional)

[7] OCV 155 Visual Indicator (optional), provides indication of the valve's position at a glance.

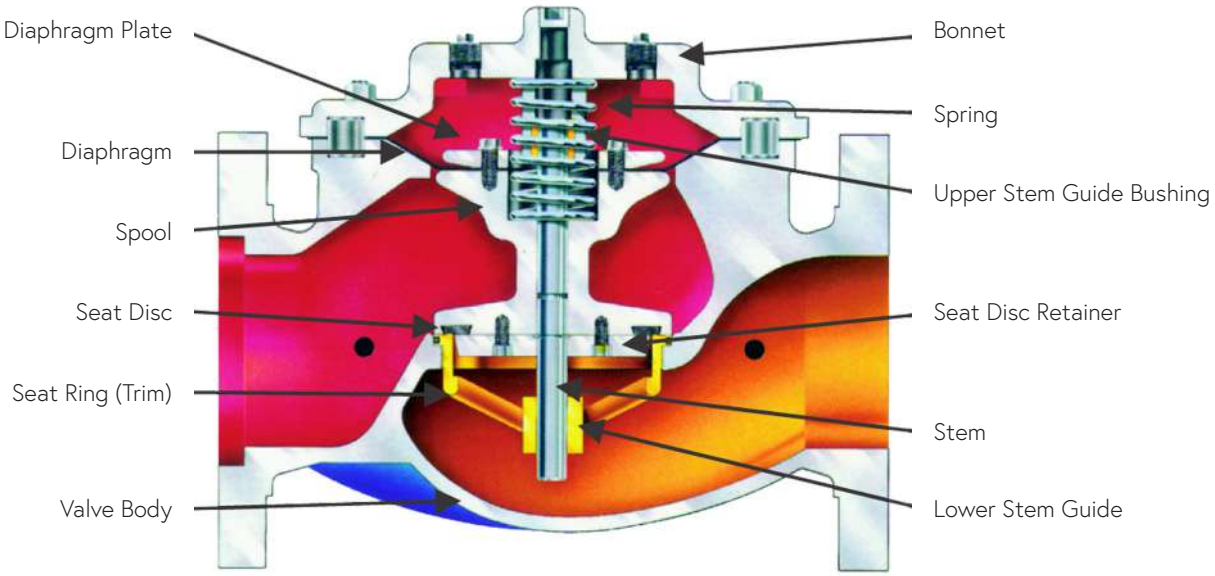


Resetting, maintenance, and periodic testing instructions must be followed as described in detail in the applicable OCV IOM (Installation, Operation & Maintenance) Manual.

Components & Typical Materials

The OCV 108-2HP 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
Seat Ring	Bronze	Stainless Steel, NAB
Stem	Stainless Steel	Monel
Spring	Stainless Steel	Elgiloy / MP35N
Diaphragm	Buna-N	EPDM
Seat Disc	Buna-N	EPDM
Pressure Reducing Pilot	Stainless Steel	--
Tubing / Fittings	Stainless Steel	--



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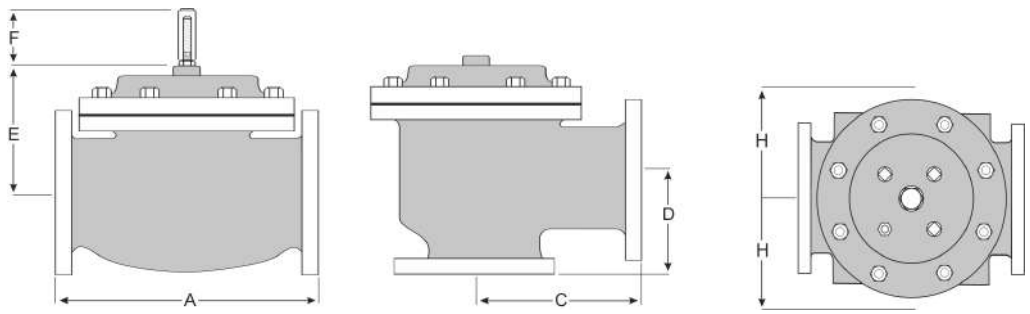
General Arrangement & Dimensions

Standard Sizes					
DIM	End Connections	3"	4"	6"	8"
A	300#	12 3/4	15 5/8	18 5/8	26 3/8
	300# x 150#	12 3/4	15 5/8	18 5/8	26 3/8
C	300#	6 3/8	7 13/16	10 1/2	13 3/16
	300# x 150#	6 3/8	7 13/16	10	12 11/16
D	300#	4 3/8	5 13/16	6 1/2	8 1/2
	300# x 150#	4 3/8	5 13/16	6 1/2	8 1/2
E	All	6 1/2	8	10	11 7/8
F	All	3 7/8	3 7/8	3 7/8	6 3/8
H	All	11	12	13	14

Approximate Dimensions.

Metric Sizes					
DIM	End Connections	DN80	DN100	DN150	DN200
A	300#	324	397	473	670
	300# x 150#	324	397	473	670
C	300#	162	198	267	335
	300# x 150#	162	198	254	322
D	300#	111	148	165	216
	300# x 150#	111	148	165	216
E	All	165	203	254	302
F	All	98	98	98	162
H	All	279	305	330	356

Approximate Dimensions.



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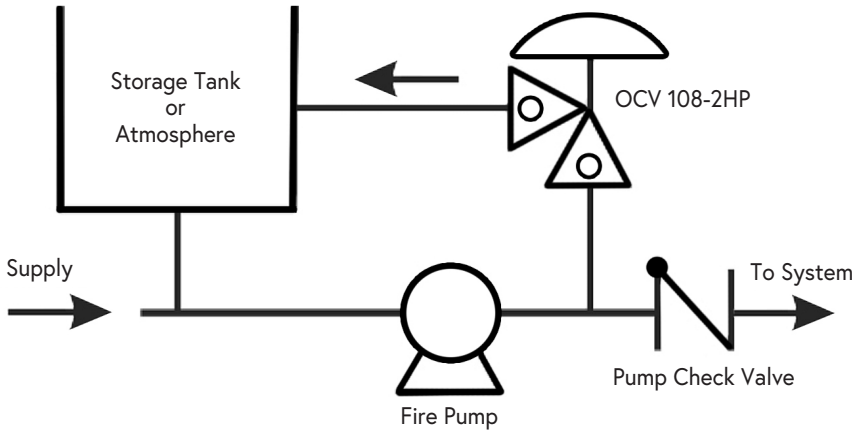
Typical Installation

The typical installation of the OCV 108-2HP is as shown:



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

Flow Characteristics

Fire pump relief valves are sized per the guidelines in NFPA 20, and are based on the rated flow of the pump.

Standard		
Valve Size	Maximum Pump Flow GPM (M^3/HR)	Max. Working Pressure, psi (Bar)
3"	500	Ductile Iron: 640 Steel, Stainless Steel: 740 Bronze: 500
4"	1000	
6"	2500	
8"	5000	

Metric		
Valve Size	Maximum Pump Flow GPM (M^3/HR)	Max. Working Pressure, psi (Bar)
DN80	14	Ductile Iron: 44.1 Steel, Stainless Steel: 51.1 Bronze: 34.4
DN100	227	
DN150	568	
DN200	1136	

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Technical Data

Temperature (Elastomers)	
Buna-N	32°F to 180°F
EPDM	32°F to 230°F
Sizes	
Globe or Angle	3", 4", 6", 8"
Pressure Rating (at 100°F)	
740psi for Class 300#	
740psi for 300# x 150#	
End Connections	
Flanged	ANSI Class 300# & 300# x 150#

Body & Cover Material	
Ductile Iron	Stainless Steel
Cast Steel	NAB
Trim Material	
Brass/Bonze - Copper	Monel
Stainless Steel	
Optional Components	
Pressure Switch	
Visual Indicator	
Limit/Proximity Switch	
Items to Specify	
Pressure Class	
Control trim material other than standard	
Required standards, certifications and approvals	

Engineering Specifications

The fire pump relief valve shall be a single-seated, line pressure operated, diaphragm actuated, pilot-controlled globe or angle valve. The pressure relief 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 valve shall be fully trimmed, hydrostatically and operationally tested at the factory and set to a fixed relief pressure. Change of factory preset pressure setting can always be performed in-line following simple IOM instructions, without special tools or system downtime. 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 EPDM. Control pilot 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 fire pump relief valve shall be an OCV 108-2HP (globe) or 108-2HPA (angle), sized per NFPA 20 and as manufactured by OCV, an Aquestia Ltd. brand, Tulsa, OK, USA.

Aquestia USA

7400 East 42nd Place. Tulsa, Oklahoma 74145. USA | Phone: 1-918-627-1942 | Toll Free: 1-888-OCV-VALV (628-8258) | www.aquestia.com | usa@aquestia.com