

## 108-2HP

### Fire Pump High Pressure Relief Valve

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



- ANSI FCI 70-2 Class VI seat leakage class
- Fire tested to EN ISO 19921
- ABS type approval



\* General representation of valve

### 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 pattern (108-2HPA)
- ANSI Flanged Class #300 & #300 inlet x #150 outlet
- Wide range of materials available
- Applicable for water & seawater

### TYPICAL APPLICATIONS



Pumps & Water Tanks



Fire Suppression Systems



Petrochemical, Oil & Gas Installations



Tunnels



Power Generation, Transformer & Transmission Plants



Onshore / Offshore



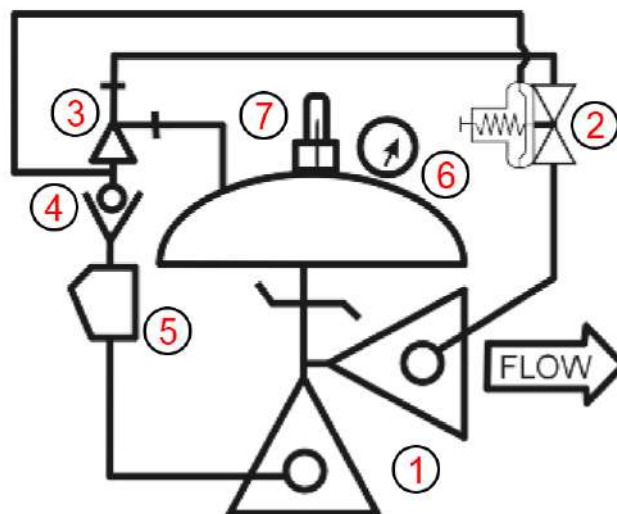
Mining

**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.

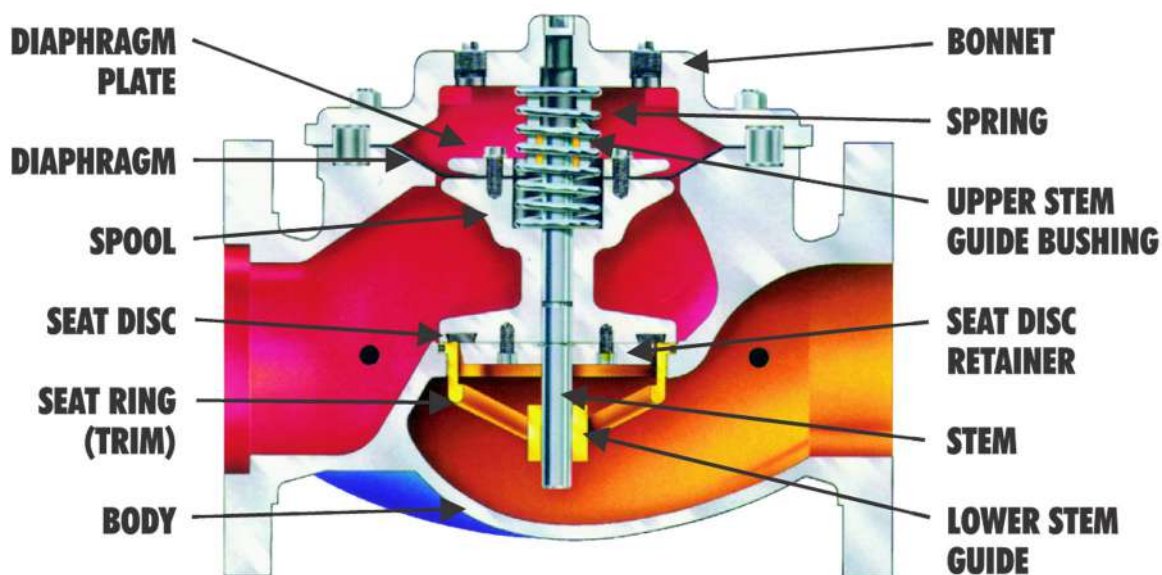
The Model 108-2HP consists of the following components, arranged as shown on the schematic diagram:

- [1] **Model 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] **Model 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] **Model 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] **Model 141-1 Check Valve**, prevents the valve from opening under a vacuum condition that may be encountered with a vertical turbine pump.
- [5] **Model 159 Y-Strainer**, protects the pilot system from solid contaminants in the line fluid.
- [6] **Pressure Gauge**, optional.
- [7] **Model 155 Visual Indicator**, (optional) provides indication of the valve's position at a glance.



## TYPICAL MATERIALS

Description	Standard	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	E.P.D.M.
Seat Disc	Buna-N	E.P.D.M.
Pressure Relief Pilot	Stainless Steel	---
Tubing / Fittings	Stainless Steel	---



\* General representation of valve

## BASIC VALVE DIMENSIONS

### U.S. DIMENSIONS - INCHES

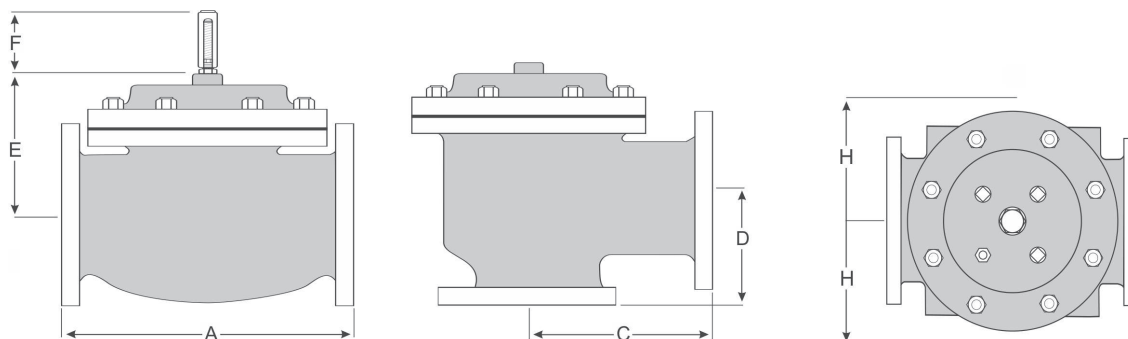
Valve DIM	END CONN.	3"	4"	6"	8"
A	300#	12 <sup>3</sup> / <sub>4</sub>	15 <sup>5</sup> / <sub>8</sub>	18 <sup>5</sup> / <sub>8</sub>	26 <sup>3</sup> / <sub>8</sub>
	300# X 150#	12 <sup>3</sup> / <sub>4</sub>	15 <sup>5</sup> / <sub>8</sub>	18 <sup>5</sup> / <sub>8</sub>	26 <sup>3</sup> / <sub>8</sub>
C	300#	6 <sup>3</sup> / <sub>8</sub>	7 <sup>13</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>16</sub>
	300# X 150#	6 <sup>3</sup> / <sub>8</sub>	7 <sup>13</sup> / <sub>16</sub>	10	12 <sup>11</sup> / <sub>16</sub>
D	300#	4 <sup>3</sup> / <sub>8</sub>	5 <sup>13</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>2</sub>
	300# X 150#	4 <sup>3</sup> / <sub>8</sub>	5 <sup>13</sup> / <sub>16</sub>	6 <sup>1</sup> / <sub>2</sub>	8 <sup>1</sup> / <sub>2</sub>
E	ALL	6 <sup>1</sup> / <sub>2</sub>	8	10	11 <sup>7</sup> / <sub>8</sub>
F	ALL	3 <sup>7</sup> / <sub>8</sub>	3 <sup>7</sup> / <sub>8</sub>	3 <sup>7</sup> / <sub>8</sub>	6 <sup>3</sup> / <sub>8</sub>
H	ALL	11	12	13	14

\* Approximate dimensions

### METRIC DIMENSIONS - M.M.

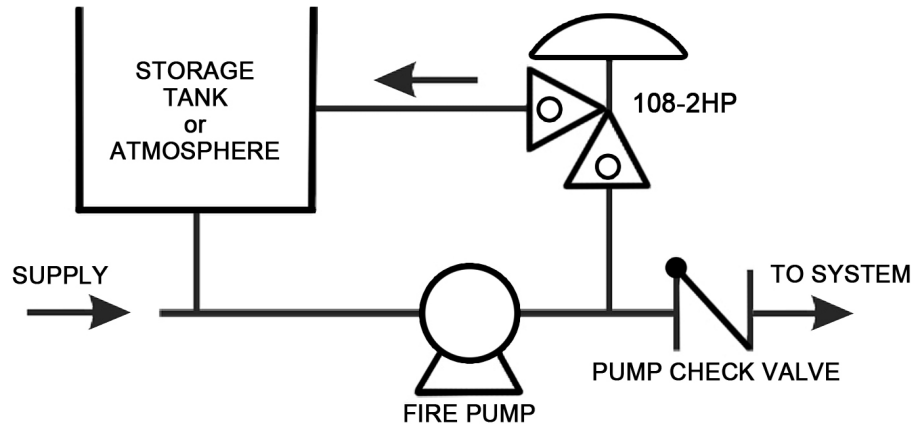
Valve DIM	END CONN.	DN80	DN100	DN150	DN200
A	300#	324	397	473	670
	300# X 150#	324	397	473	670
C	300#	162	198	267	335
	300# X 150#	162	198	254	322
D	300#	111	148	165	216
	300# X 150#	111	148	165	216
E	ALL	165	203	254	302
F	ALL	98	98	98	162
H	ALL	279	305	330	356

\* Approximate dimensions



\* General representation of valve

## TYPICAL INSTALLATION



## FLOW CHARACTERISTICS

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

Valve Size " (MM)	Max. Pump Flow GPM (M <sup>3</sup> /HR)	Max. Working Pressure, psi (Bar)
3" (DN80)	500 (114)	Ductile Iron: 640 (44.1) Steel, Stainless Steel: 740 (51.1) Bronze: 500 (34.4)
4" (DN100)	1000 (227)	
6" (DN150)	2500 (568)	
8" (DN200)	5000 (1136)	

\* Not all items pictured reflect products sold by OCV

## TECHNICAL DATA

**Temperature:**

- Buna-N 32°F to 180°F
- EPDM 32°F to 230°F

**Sizes:**

- Globe or Angle:  
Flanged Ends 3" - 8"

**End Connections:**

- Flanged:  
ANSI Class #300  
ANSI Class #300 x #150

**Pressure Rating (at 100°F):**

- 740psi for Class #300
- 740psi for #300 x #150

**Body and Cover Material:**

- Ductile Iron
- Cast Steel
- Stainless Steel
- NAB

**Trim Material:**

- Bronze/Brass - Copper
- Stainless Steel
- Monel

**Optional Components:**

- Position Indicator
- Pressure Switch
- Limit/Proximity Switch

**Items to Specify:**

- Pressure Class
- Control trim material other than standard
- Required standards, certifications & approvals
- Series Number
- Valve Size
- Globe or Angle
- Adjustment Range
- End Connections
- Special Needs/Installation Requirements
- If explosion proof accessories are required, please define classification

## 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 down time. 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 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 a Model 108-2HP (globe) or 108-2HPA (angle), sized per NFPA 20 and as manufactured by OCV Fluid Solutions, Tulsa, OK, USA.

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