

▲ Model 108-2HP

The Model 108-2HP has a wide range of applications: anywhere a system must be protected from pressures that are too high (relief) or too low (sustaining). Typical examples include:

- Pump systems
- Municipal distribution systems
- Irrigation systems

## SERIES FEATURES

- ▶ Relief Valve: Limits inlet pressure by relieving excess pressure
- ▶ Pressure Sustaining: Prevents inlet pressure from dropping below a predetermined minimum
- ▶ Special pilot for set points of 200-740 psi
- ▶ Pilot is stainless steel
- ▶ Operates over a wide flow range
- ▶ Inlet pressure is adjustable with single screw
- ▶ Quick opening and adjustable closing speed
- ▶ Available with optional anti-cavitation orifice plate
- ▶ Can be maintained without removal from the line
- ▶ Factory tested and can be pre-set to your requirements

## OPERATION

The normally closed, spring-loaded pilot, sensing upstream pressure, responds to changes in pressure and causes the main valve to do the same. The net result is a constant modulating action of the pilot and main valve to hold the upstream pressure constant. The pilot system is equipped with a closing speed control that fine tunes the valve's response to the system variables.

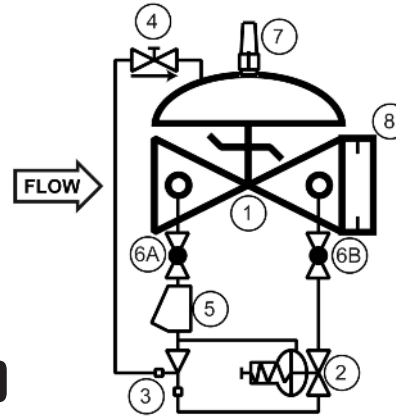
## COMPONENTS

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

- 1.) Model 65 Basic Control Valve
- 2.) Model 2400 Pressure Relief/Back Pressure Pilot
- 3.) Model 126 Ejector  
Fixed orifice pilot system supply restrictor
- 4.) Model 141-3 Flow Control Valve  
Adjustable closing speed control
- 5.) Model 159 Y-strainer  
Protects pilot system from dirt/debris
- 6.) Model 141-4 Isolation Ball Valves (optional)
- 7.) Model 155 Visual Indicator (optional)
- 8.) Anti-Cavitation Orifice Plate (optional\*)

\*108-2HP valves in pressure relief service will likely cavitate. To protect against damaging effects of this phenomenon, OCV offers an anti-cavitation orifice plate, integrally installed in the valve's downstream flange. Please consult factory with pressure and flow conditions so that OCV can properly evaluate and size the orifice.

## SCHEMATIC



## RECOMMENDED INSTALLATION

- Install the valve with adequate space above and around the valve to facilitate servicing. Refer to the Dimension table.
- Valve should be installed with the bonnet (cover) at the top, particularly 8" and larger valves, and any valve with a limit switch.
- Shut-off valves should be installed upstream and downstream of the control valve. These are used to isolate the valve during startup and maintenance.
- Install a pressure gauge upstream of the valve to enable adjustment to the required pressure setting. This gauge may be installed in the upstream side port of the valve body.

## SIZING GUIDELINES

Pressure sustaining valves and pressure relief valves that operate frequently should be limited to a maximum velocity of 25ft/sec.

Pressure relief valves that operate intermittently may be extended to 45 ft/sec.

Definitive sizing information can be found in the OCV Catalog, Series 108 section and Engineering section Performance Charts. Consult the factory for assistance and a copy of the OCV ValveMaster Sizing program.

## MAX. PRESSURE

END CONNECTIONS	DUCTILE IRON	STEEL/STN STL	BRONZE
Threaded	640 psi	640 psi	500 psi
300# Flanged	640 psi	740 psi	500 psi

SIZE	1 1/4"-1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	24"
FLOW @ 25FT/SEC GPM	115-160	260	375	575	1000	2250	3900	6125	8750	10600	13750	31250
FLOW @ 45FT/SEC GPM	210-280	460	650	1000	1800	4000	7000	11000	16000	19000	25000	56000

See reverse.

**TOLL FREE 1.888.628.8258** ● phone: (918)627.1942 ● fax: (918)622.8916 ● 7400 East 42nd Place, Tulsa, Ok 74145  
email: sales@controlvalves.com ● website: www.controlvalves.com

## SIZES

GLOBE/ANGLE

Screwed Ends: 1 1/4" - 3"

Flanged Ends: 1 1/4" - 24" (globe);  
1 1/4" - 16" (angle)

## TEMPERATURE RANGE

(Valve Elastomers)

Buna-N -40° F - 180°F

Viton 0° F - 400°F

EPDM 0° F - 300°F

**SPRING RANGES** (inlet setting)

200-740 psi

## MATERIALS

Consult factory for others.

**Body/Bonnet:** Ductile Iron (epoxy coated), Carbon Steel (epoxy coated), Stainless Steel, B61 Bronze, Others available (consult factory)

**Seat Ring:** Bronze B61, Stainless Steel

**Stem:** Stainless Steel, Monel

**Spring:** Stainless Steel

**Diaphragm:** Nylon Reinforced, Buna-N, Viton, EPDM

**Seat Disc:** Buna-N, Viton, EPDM

**Pilot:** Stainless Steel

*Other pilot system components:*

Bronze/Brass, All Stainless Steel

**Tubing & Fittings:** Stainless Steel

# SPECIFICATIONS (Typical Water Application)

The <pressure relief> <pressure/sustaining> valve shall function to <prevent main line pressure from exceeding a predetermined maximum> <prevent the upstream pressure from falling below a predetermined minimum.>

## DESIGN

The valve shall be a single-seated, line pressure operated, diaphragm actuated, pilot controlled globe valve. The valve shall seal by means of a corrosion-resistant seat and a resilient, rectangular seat disc. These, and other parts, shall be replaceable without removing 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 the pistons be used as an operating means. The pilot system shall be furnished complete and installed on the main valve. It shall include a closing speed control, Y-strainer and isolation ball valves. The <pressure relief> <pressure/sustaining> valve shall be operationally and hydrostatically tested prior to shipment.

## MATERIALS OF CONSTRUCTION

The main valve body and bonnet shall be ductile iron per ASTM A536, Grade 65-45-12. All ferrous surfaces shall be coated with 4 mils of epoxy. The main valve seat ring shall be bronze per ASTM B61. Elastomers (diaphragms, resilient seats and O-rings) shall be Buna-N. Control pilots shall be CF8M stainless steel. The closing speed control and isolation ball valves shall be brass, and control line tubing shall be copper.

## OPERATING CONDITIONS

The <pressure relief> <pressure/sustaining> valve shall be suitable for controlling the inlet pressure to a <maximum> <minimum> of <X> psi at flow rates ranging from <X> to <X> gpm.

## ACCEPTABLE PRODUCTS

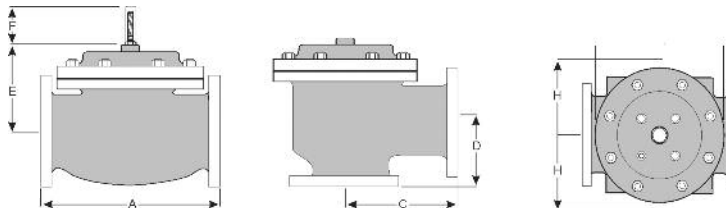
The <pressure relief> <pressure/sustaining> valve shall be a <size> Model 108-2HP, <globe pattern, angle pattern>, with <300# flanged, threaded> end connections, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.

U.S. DIMENSIONS - INCHES

DIM	END CONN.	1 1/4-1 1/2	2	2 1/2	3	4	6	8	10	12	14	16	24
A	SCREWED	8 3/4	9 7/8	10 1/2	13	--	--	--	--	--	--	--	--
	300# FLGD	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	40 1/2	42	63 3/4
C	SCREWED	4 3/8	4 3/4	6	6 1/2	--	--	--	--	--	--	--	--
ANGLE	300# FLGD	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	SCREWED	3 1/8	3 7/8	4	4 1/2	--	--	--	--	--	--	--	--
ANGLE	300# FLGD	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	18	19	27
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	6 3/8	8
H	ALL	10	11	11	11	12	13	14	17	18	20	20	28 1/2

\*GROOVED END NOT AVAILABLE IN 1 1/4"

For maximum efficiency, the OCV control valve should be mounted in a piping system so that the valve bonnet (cover) is in the top position. Other positions are acceptable but may not allow the valve to function to its fullest and safest potential. In particular, please consult the factory before installing 8" and larger valves, or any valves with a limit switch, in positions other than described. Space should be taken into consideration when mounting valves and their pilot systems.



A routine inspection & maintenance program should be established yearly by a qualified technician. Consult our factory @ 1-888-628-8258 for parts and service.

Represented by:

QUALITY SYSTEM  
REGISTERED TO  
ISO 9001:2000

## How to order your Model 108-2HP valve

When Ordering please provide:

Fluid to be controlled - Model Number - Size

Globe or Angle - End Connection - Body Material Trim

Material - Pressure Setting - Special Requirements /

Installation Requirements

## Data required for orifice plate sizing:

Relief Setting - Pump Flow at Relief Setting -

Downstream Pressure (if applicable)

TOLL FREE 1.888.628.8258 • phone: (918)627.1942 • fax: (918)622.8916 • 7400 East 42nd Place, Tulsa, Oklahoma 74145  
email: sales@controlvalves.com • website: www.controlvalves.com