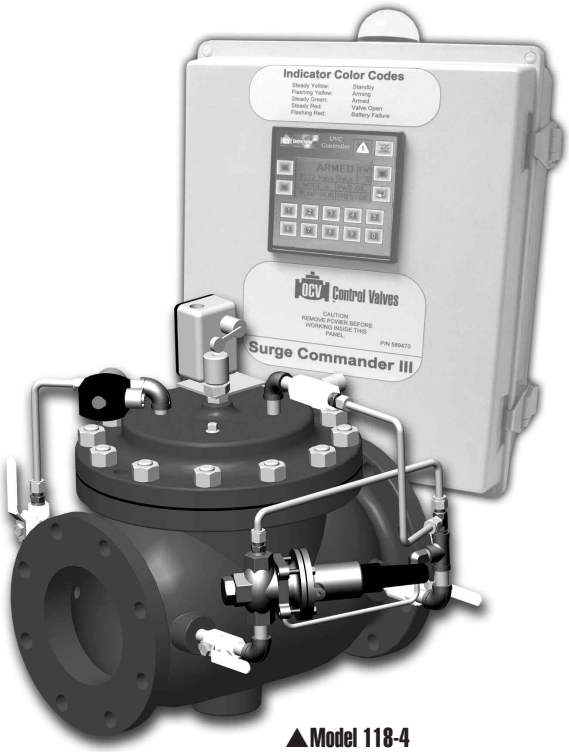


▲Model 118-4

The Model 118-4 operates as a pressure relief valve by opening at a pressure above its set point. In addition, it provides extra protection against surges associated with power failure or other pump failure by opening in "anticipation" of the high pressure wave to follow. By being already open when the high pressure wave hits, any potential surge is harmlessly bypassed to atmosphere. Typical examples include: •Pump systems •Municipal distribution systems •Irrigation systems

SERIES FEATURES

- ▶Surge Commander III control panel provides valve control interface
  - •12 VDC continuously charged battery backup
  - •Multiple control features
    - Start up time delay - keeps valve closed during pump start to allow for pump check valves to open fully
    - Shutdown time delay - takes valve off line after pump shutdown
    - Surge time delay - determines how long valve stays open during down surge and/or power failure
- ▶Two selectable operating modes
  - •Mode A: Opens on power failure accompanied by a low pressure
  - •Mode B: Opens on either power failure or low pressure
- ▶Mode A or B: Valve remains open an adjustable preset time then slowly closes
- ▶Opens on high pressure - Closes slowly when pressure returns to normal
- ▶Operates over a wide flow range
- ▶Quick opening and adjustable closing speed
- ▶Can be maintained without removal from the line
- ▶Factory tested and can be pre-set to your requirements
- ▶Low and high pressures are adjustable
- ▶Remote monitoring by SCADA (RS232, RS485)
- ▶Remote monitoring of dome light (optional)
- ▶Easy setup by front panel display and key pad
- ▶Setup password protection
- ▶Front panel status indicators

OPERATION

The control of the Model 118-4 is via a two-way solenoid as controlled by the Surge Commander III control panel electronics and a pressure switch. In either of the modes listed in the Model 118-4 features, energizing the normally closed, 12 VDC solenoid controls the valve to open. The valve remains open until the surge timer expires, at which time the solenoid is de-energized and the valve closes.

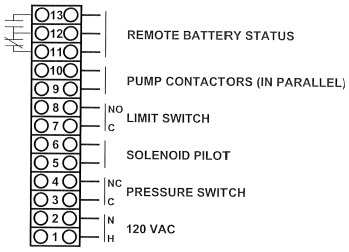
The valve also opens when the set point of the normally closed, high pressure relief pilot is exceeded. The valve slowly closes (adjustable closing) when system pressure returns to normal. This is a hydraulic control circuit that operates independent of the electronic Surge Commander.

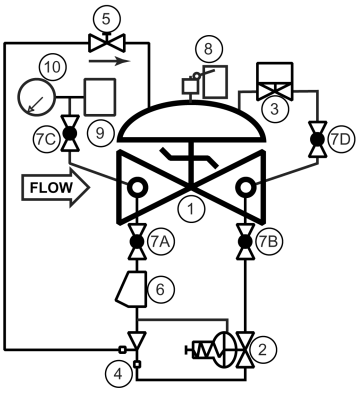
COMPONENTS

The Model 118-4 consists of the following components, arranged as shown on the schematic diagram:

1.) **Model 65 Basic Control Valve**
2.) **Model 1330 Pressure Relief Pilot**
3.) **Model 451 Two-way Solenoid Pilot**
4.) **Model 126 Ejector**
5.) **Model 141-3 Flow Control Valve** (Closing Speed Control)
6.) **Model 159 Y-Strainer**
7.) **Model 141-4 Isolation Ball Valves**
8.) **Model 31 Limit Switch Assembly**
9.) **Pressure Switch**
10.) **Pressure Gauge**

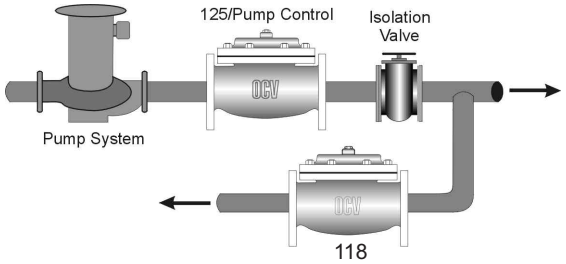
SCHEMATIC





RECOMMENDED INSTALLATION

Installed in the bypass line the valve discharges to atmosphere. Valve opens on power failure, low pressure signal or as a high pressure relief valve.



SIZING

Definitive sizing information can be found in the OCV Catalog, Series 118 section and Engineering section Performance Charts. Consult the factory for assistance and a copy of the OCV ValveMaster Sizing program.

MAX. PRESSURE

The pressures listed below are maximum pressures at 100°F.

END CONNECTIONS	DUCTILE IRON	STEEL/STN STL	LOW-LEAD BRONZE
Threaded	640 psi	640 psi	500 psi
Grooved	300 psi	300 psi	300 psi
150# Flanged	250 psi	285 psi	225 psi
300# Flanged	640 psi	740 psi	500 psi

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SIZES GLOBE/ANGLE
Screwed Ends - 1 1/4" - 3"
Grooved Ends - 1 1/2" – 6" (globe);
1-1/2"-4" (angle)
Flanged Ends - 1 1/4" - 24" (globe);
1 1/4" - 16" (angle)

SPRING RANGES
(Apply to high pressure pilots only)
5-30 psi, 20-80 psi, 20-200 psi,
100-300 psi, 200-750 psi

FLUID OPERATING TEMPERATURE RANGE
(Valve Elastomers)
EPDM 32° F - 230°F*

MATERIALS - Consult factory for others.
Body/Bonnet: Ductile Iron (epoxy coated), Carbon Steel (epoxy coated), Stainless Steel, low-lead Bronze, Others available (consult factory)
Seat Ring: low-lead Bronze, Stainless Steel
Stem: Stainless Steel, Monel
Spring: Stainless Steel
Diaphragm: EPDM*
Seat Disc: EPDM*
Pilot: low-lead Bronze, Stainless Steel
Other pilot system components: low-lead Bronze/Brass, All Stainless Steel
Tubing & Fittings: Copper/Brass, Stainless Steel

Solenoid:
Enclosure: Weatherproof NEMA 4X / Explosion Proof NEMA 4X, 6P, 7, 9
Body: Brass, Stainless Steel
Voltages: 12 VDC
Note: Working pressures of solenoids vary greatly, consult factory on application of OCV Model 118-4 valves.
**Others available upon request.*
***Valves 1-1/4" through 24" are certified to NSF/ANSI 372. Valves 4" through 24" are also certified to NSF/ANSI 61-G.*

SPECIFICATIONS

The surge anticipation valve shall be installed on a bypass line downstream of the pump check valve(s). It shall function to prevent potentially damaging pressure surges by reacting as described if the flowing occurs while a pump is running: In Mode A, the valve shall open immediately in the event of an electrical power failure that is accompanied by a down surge in pressure remaining open for a predetermined period of time, then slowly closing whether or not power is restored, In Mode B, the valve shall open immediately on a power failure or a down surge in pressure. In either mode, the valve shall remain open for a predetermined period of time, then slowly close whether or not power has been restored. The valve shall also open if main line pressure should exceed a predetermined set point, then slowly close after pressure has returned to normal. The power failure opening cycle shall be controlled by a two-way solenoid pilot and a closing speed control, directed by the signals from the electronic surge control panel. The low pressure opening cycle shall be controlled by a pressure switch which will activate the control circuit in the surge panel similar to a power failure. The high pressure opening cycle shall be controlled by an adjustable, normally closed pressure relief pilot that opens when the sensed pressure exceeds the spring setting. The valve shall be equipped with a stem-actuated limit switch which shall be wired into the surge control panel.

DESIGN
The surge anticipation valve shall be a single seated, diaphragm actuated, pilot controlled globe valve. The valve shall seal by means of a corrosion-resistant seat, and resilient, rectangular seat disc. These and other parts shall be replaceable in the field 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 main valve and its control system shall contain no packing glands or stuffing boxes. The diaphragm shall not be used as a seating surface, nor shall pistons be used as an operating means. The pilot system shall be complete and installed on the main valve, and shall include a closing speed control, a Y-strainer, and ball valves for isolating the pilot system from the main valve. The surge anticipation valve shall be operationally and hydrostatically tested prior to shipment. The surge control panel shall be furnished by the valve manufacturer for remote mounting. It shall include, but is not limited to a 12 volt, 8 amp-hour battery, a 1.0 amp charger unit, timers for setting the pump start interval, pump shutdown interval, and duration of valve opening, a system test switch, indicator lights for system status, battery condition, and valve position, and terminals for field wiring of 120 VAC power, solenoid pilot, pressure switch, limit switch and auxiliary pump starter contacts. The panel enclosure shall measure no more than 14 in. high x 10.5 in. wide x 7.5 in. deep and shall be rated NEMA 4X.

MATERIALS OF CONSTRUCTION
The main valve body and bonnet shall be ductile iron per ASTM A536, Grade 65-45-12. End connections shall be Class 150 flanges per ANSI B16.42, suitable for a maximum working pressure of 250 psi. All internal ferrous surfaces shall be coated with 4 mils of epoxy. External surfaces shall be coated with 4 mils of epoxy followed by a coat of enamel paint. The main valve seat ring shall be low-lead bronze. Elastomers (diaphragms, resilient seats and O-rings) shall be EPDM. Control pilots shall be low-lead bronze with stainless steel internals. The solenoid pilot, closing speed control, and isolation ball valves shall be brass and control line tubing shall be copper. The solenoid coil shall be suitable for operation on 12 VDC, and shall be weatherproof per NEMA 4. The limit switch shall have SPDT contacts rated at 15 amps at 125-480 VAC and shall have a weatherproof enclosure per NEMA 4.

OPERATING CONDITIONS
The surge anticipation valve shall be capable of limiting main line pressure to a maximum of <X> psi, based on a main line maximum flow rate of <X> gpm and a static pressure of <X> psi, with valve discharge to atmosphere.

ACCEPTABLE PRODUCTS
The surge relief valve shall be a <size> Model 118-4, globe pattern with Surge Commander electronic control panel, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.

U.S. DIMENSIONS - INCHES

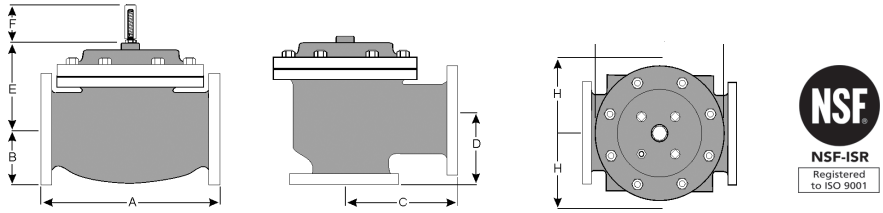
DIM	END CONN.	1 1/4-1 1/2	2	2 1/2	3	4	6	8	10	12	14	16	24
	SCREWED	8 3/4	9 7/8	10 1/2	13	--	--	--	--	--	--	--	--
A	GROOVED	8 3/4	9 7/8	10 1/2	13	15 1/4	20	--	--	--	--	--	--
	150# FLGD	8 1/2	9 3/8	10 1/2	12	15	17 3/4	25 3/8	29 3/4	34	39	40 3/8	62
	300# FLGD	8 3/4	9 7/8	11 1/8	12 3/4	15 5/8	18 5/8	26 3/8	31 1/8	35 1/2	40 1/2	42	63 3/4
	SCREWED	4 3/8	4 3/4	6	6 1/2	--	--	--	--	--	--	--	--
C	GROOVED	4 3/8*	4 3/4	6	6 1/2	7 5/8	--	--	--	--	--	--	--
ANGLE	150# FLGD	4 1/4	4 3/4	6	6	7 1/2	10	12 11/16	14 7/8	17	--	20 13/16	--
	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	--
	SCREWED	3 1/8	3 7/8	4	4 1/2	--	--	--	--	--	--	--	--
D	GROOVED	3 1/8*	3 7/8	4	4 1/2	5 5/8	--	--	--	--	--	--	--
ANGLE	150# FLGD	3	3 7/8	4	4	5 1/2	6	8	11 3/8	11	--	15 11/16	--
	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 and conducted yearly by a qualified technician. Consult our factory @ **1-888-628-8258** for parts and service.

How to order your Model 118-4 valve
When Ordering please provide:
Fluid to be controlled -Model Number -Size Globe or Angle -End Connection -Body Material Trim Material -Pilot Options -High Pressure Setting or Spring Range -Static Pressure
-Special Requirements / Installation Requirements



Represented by:

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