



Model 114-1 ▲

The OCV Model 114-1 is a control valve specifically designed for aircraft refueling service. Known as either a refueling or a hydrant control valve, it is the typical control valve for hydrant refueling systems and is used in conjunction with a hydrant hose truck or refueler. It performs the following functions:

- ▶ Opens and closes via pneumatic deadman control
- ▶ While open, modulates to control downstream pressure at a predetermined set point
- ▶ Closes rapidly to prevent undue pressure buildup due to a rapid reduction in demand

## SERIES FEATURES

- ▶ Pneumatic deadman control
- ▶ Pressure reducing pilot senses valve outlet or pressure compensating venturi
- ▶ High capacity surge control minimizes pressure buildup on reduction of flow
- ▶ Opening speed control
- ▶ Automatically opens for downstream thermal relief or defueling
- ▶ Equipped with visual indicator to monitor valve position
- ▶ Can be maintained without removal from the line
- ▶ Factory tested and can be pre-set to your requirements

## OPERATION

The two-way, normally closed deadman pilot closes the main valve when actuating air pressure is removed. Applying air pressure to the deadman control opens the valve and allows it to come under control of the pressure reducing pilot. The reducing pilot 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 downstream pressure constant. The pilot system is equipped with an opening speed control.

In the event of a sudden decrease in flow, downstream pressure will increase. The normally closed surge control pilot responds to the pressure increase by opening, causing the main valve to move further closed at a much faster rate than would be accomplished through the normal control circuit. As a result, pressure buildup is minimized.

In the event downstream pressure becomes higher than upstream pressure, the valve will automatically open to provide thermal pressure relief or defueling flow.

## COMPONENTS

The Model 114-1 consists of the following components, arranged as shown on the schematic diagram:

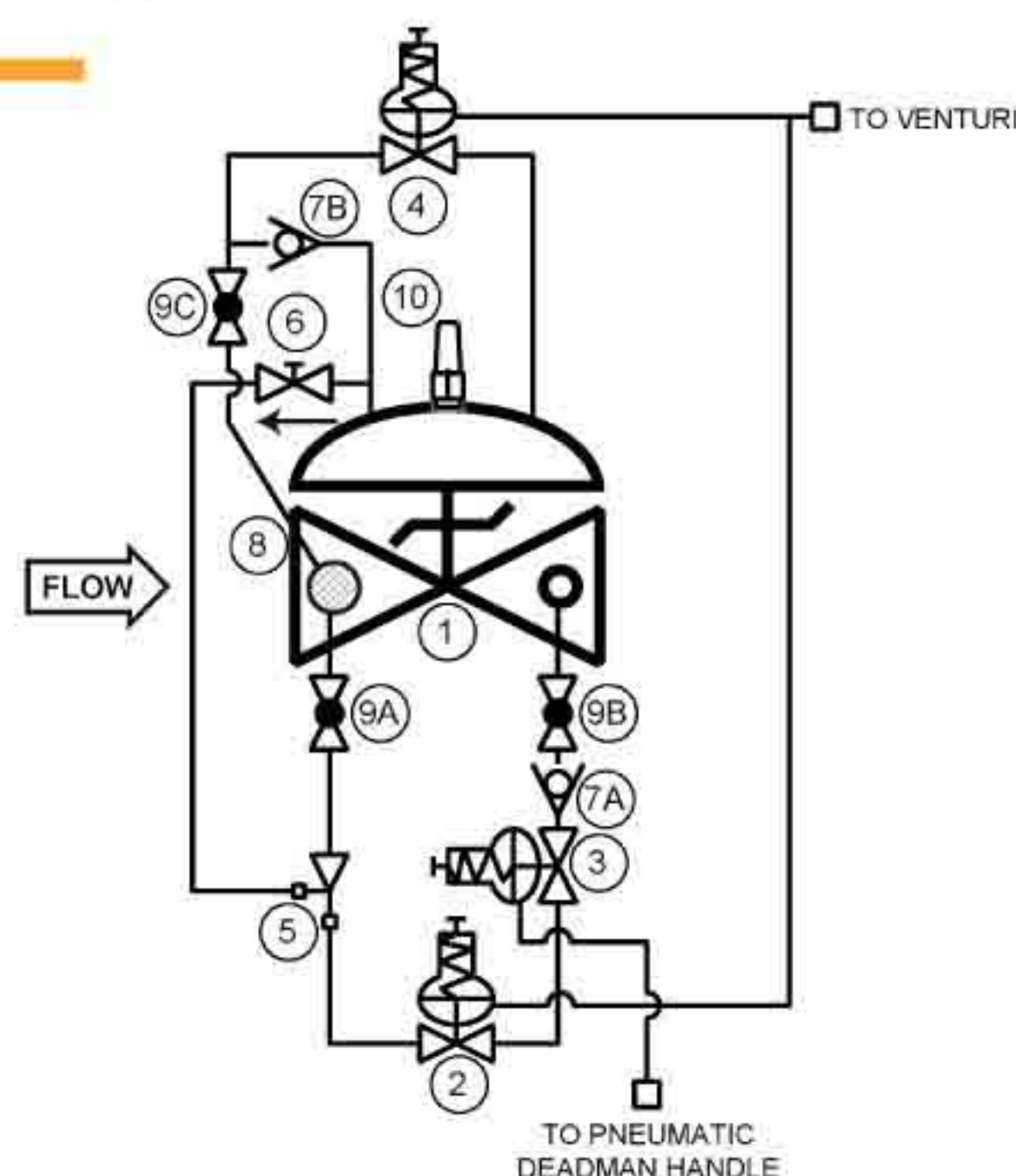
- 1.) Model 65 Basic Valve Assembly
- 2.) Model 1340 Pressure Reducing Pilot
- 3.) Model 1330 Deadman Pilot
- 4.) Model 2470 or 1330 Surge Control Pilot
- 5.) Model 126 Ejector
- 6.) Model 141-3 Flow Control Valve (closing speed control)
- 7.) Model 141-1 Check Valve
- 8.) Model 123 Inline Strainer
- 9.) Model 141-4 Isolation Ball Valve
- 10.) Model 155L Visual Indicator

## SIZING

Maximum velocity should not exceed 20 ft/sec. as shown in chart below. For more definitive sizing information consult factory.

| SIZE           | 1 1/4", 1 1/2" | 2"  | 2 1/2" | 3"  | 4"  | 6"   | 8"   | 10"  | 12"  | 14"  | 16"  | 24"   |
|----------------|----------------|-----|--------|-----|-----|------|------|------|------|------|------|-------|
| MAX. FLOW, GPM | 120            | 200 | 280    | 460 | 800 | 1800 | 3000 | 4200 | 6000 | 7200 | 9600 | 28000 |

## 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 start-up and maintenance.
- ▶ Install a pressure gauge downstream of the valve to enable adjustment to the required pressure setting. This gauge may be installed in the downstream side port of the valve body.
- ▶ Make necessary pressure sensing connections to venturi if used.

## MAX. PRESSURE

| END CONNECTIONS | DUCTILE IRON | STEEL/STN STL | ALUMINUM |
|-----------------|--------------|---------------|----------|
| Threaded        | 640 psi      | 640 psi       | 285 psi  |
| Grooved         | 300 psi      | 300 psi       | 200 psi  |
| 150# Flanged    | 250 psi      | 285 psi       | 285 psi  |
| 300# Flanged    | 640 psi      | 740 psi       | ---      |

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email: sales@controlvalves.com • website: www.controlvalves.com

# Model 114-1 (Fueling Service)



## SIZES

### GLOBE/ANGLE

Screwed Ends: 1 1/4" - 3"

Grooved Ends: 1 1/2" - 4"

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

### SPRING RANGES

(outlet setting and surge control setting)

5-30 psi, 20-80 psi, 65-180 psi, 100-300 psi

### MATERIALS

Consult factory for others.

**Body/Bonnet:** Ductile Iron (epoxy coated),  
Carbon Steel (epoxy coated), Stainless Steel,  
Aluminum

**Seat Ring:** Stainless Steel, Bronze

**Stem:** Stainless Steel, Monel

**Spring:** Stainless Steel

**Diaphragm:** Buna-N, Viton (Nylon reinforced)

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

**Pilot:** Stainless Steel, Bronze

**Other pilot system components:**

Stainless Steel, Bronze/Brass

**Tubing & Fittings:** Stainless Steel, Copper/Brass

## SPECIFICATIONS (Typical Fuel Application)

The refueling control valve shall function to reduce a higher upstream pressure to a constant, lower downstream pressure regardless of fluctuations in supply or demand. The valve shall be equipped with a two-way pneumatic valve that will allow the valve to open when pressurized. The valve shall also be equipped with a high capacity surge control pilot to close the valve quickly in the event of sudden reduction in flow. The valve will also open automatically in the event of pressure reversal.

### DESIGN

The refueling control 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 an opening speed control, an inline strainer, pilot check valves, a valve position indicator and a pneumatic deadman valve. The refueling control 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 CF8M stainless steel. Elastomers (diaphragms, resilient seats and O-rings) shall be Buna-N. The control pilots and deadman control shall be CF8M stainless steel. The opening speed control, check valves, and control line tubing shall be stainless steel.

### OPERATING CONDITIONS

The refueling control valve shall be suitable for reducing inlet pressures of <X to X> psi to a constant outlet pressure of <X> psi at flow rates ranging from <X to X> gpm.

### ACCEPTABLE PRODUCTS

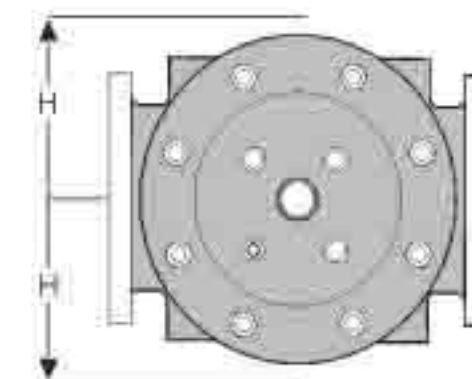
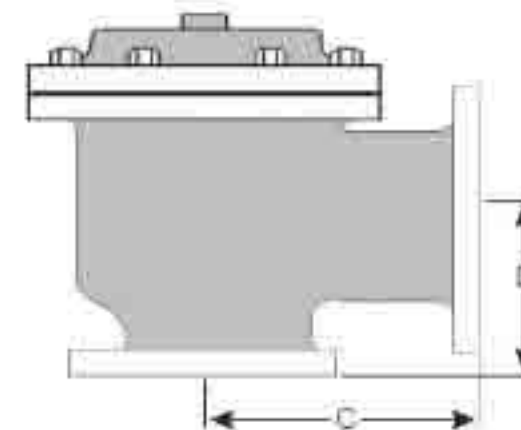
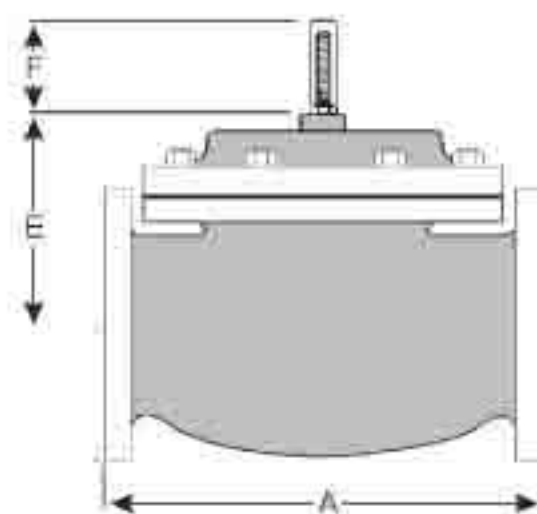
The refueling control valve shall be a <size> Model 114-1, <globe pattern, angle pattern>, with <150# flanged, 300# flanged, threaded, grooved> end connections, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.

### 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     | --      | --     | --       | --      | --     | --     | --       | --     |
|            | 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 |
| C<br>ANGLE | SCREWED   | 4 3/8       | 4 3/4 | 6      | 6 1/2  | --      | --     | --       | --      | --     | --     | --       | --     |
|            | GROOVED   | 4 3/8*      | 4 3/4 | 6      | 6 1/2  | 7 5/8   | --     | --       | --      | --     | --     | --       | --     |
|            | 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   | --     |
| D<br>ANGLE | SCREWED   | 3 1/8       | 3 7/8 | 4      | 4 1/2  | --      | --     | --       | --      | --     | --     | --       | --     |
|            | GROOVED   | 3 1/8*      | 3 7/8 | 4      | 4 1/2  | 5 5/8   | --     | --       | --      | --     | --     | --       | --     |
|            | 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 (OPT)    | 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.



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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 114-1 valve

When ordering please provide:

Fluid to be controlled - Model Number - Size -  
Globe or Angle - End Connection - Body Material -  
Trim Material - Pilot Options - Pressure Setting or  
Spring Range - Special Requirements / Installation  
Requirements

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