

Model 114-3 ▲



The OCV Model 114-3 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 used on pantograph refueling systems. It performs the following functions:

- ▶ Opens and closes via hydraulic 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

- ▶ Hydraulic 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 hydraulic pressure is removed. Applying hydraulic 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 114-3 consists of the following components, arranged as shown on the schematic diagram:

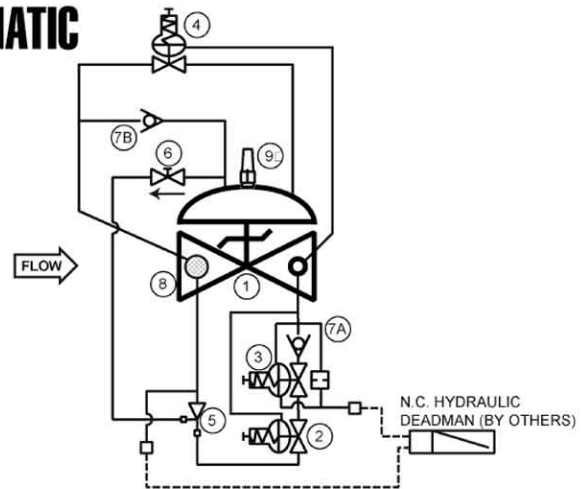
- 1.) Model 65 Basic Valve Assembly
- 2.) Model 1340 Pressure Reducing Pilot
- 3.) Model 2430 Deadman Control Pilot
- 4.) Model 1330 or 2470 Surge Control Pilot
- 5.) Model 126 Ejector
- 6.) Model 141-3 Flow Control Valve (opening speed control)
- 7.) Model 141-1 Check Valve
- 8.) Model 123 Inline Strainer
- 9.) Model 155L Visual Indicator

SIZING

Maximum velocity should not exceed 6 meters/sec as shown in chart below. For more definitive sizing information consult factory.

| | | | | | | | | | | | | |
|-------------------------------|-------|----|----|-----|-----|-----|-----|-----|------|------|------|------|
| SIZE, DN | 32-40 | 50 | 65 | 80 | 100 | 150 | 200 | 250 | 300 | 350 | 400 | 600 |
| MAX. FLOW, M ³ /HR | 27 | 45 | 64 | 105 | 182 | 409 | 681 | 954 | 1363 | 1635 | 2180 | 6359 |

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" (DN200) 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 | 44.1 bar | 44.1 bar | 19.6 bar |
| Grooved | 20.7 bar | 20.7 bar | 13.8 bar |
| 150# Flanged | 17.2 bar | 19.6 bar | 19.6 bar |
| 300# Flanged | 44.1 bar | 51.0 bar | --- |

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SIZES

GLOBE/ANGLE

Screwed Ends: 1 1/4" - 3" (DN32 - DN80)

Grooved Ends: 1 1/2" - 4" (DN40 - DN100)

Flanged Ends:

1 1/4" - 24" (DN32 - DN600) (globe);

1 1/4" - 16" (DN32 - DN400) (angle)

TEMPERATURE RANGE

(Valve Elastomers)

Buna-N -40°C - 82°C, Viton -17°C - 204°C

SPRING RANGES

(outlet setting and surge control setting)

.3 - 2.1 bar, 1.4 - 5.5 bar, 4.5 - 12.4 bar,

6.9 - 20.7 bar

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 hydraulic 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, valve position indicator and a hydraulic 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> bar to a constant outlet pressure of <X> bar at flow rates ranging from <X> m³/hr.

ACCEPTABLE PRODUCTS

The refueling control valve shall be a <size> Model 114-3, <globe pattern, angle pattern>, with <150# flanged, 300# flanged, threaded, grooved> end connections, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.

METRIC CONVERSION - MM

| DIM | END CONN | DN32 - DN40 | DN50 | DN65 | DN80 | DN100 | DN150 | DN200 | DN250 | DN300 | DN350 | DN400 | DN600 |
|------------|-----------|-------------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|
| A | SCREWED | 222 | 251 | 267 | 330 | | | | | | | | |
| | GROOVED | 222 | 251 | 267 | 330 | 387 | 508 | | | | | | |
| | 150# FLGD | 216 | 238 | 267 | 305 | 381 | 451 | 644 | 756 | 863 | 990 | 1025 | 1575 |
| | 300# FLGD | 222 | 251 | 282 | 324 | 397 | 473 | 670 | 790 | 902 | 1029 | 1067 | 1619 |
| C ANGLE | SCREWED | 111 | 121 | 152 | 165 | | | | | | | | |
| | GROOVED | 111 | 121 | 152 | 165 | 194 | | | | | | | |
| | 150# FLGD | 108 | 121 | 152 | 152 | 190 | 254 | 322 | 379 | 432 | | 525 | |
| | 300# FLGD | 111 | 127 | 162 | 162 | 198 | 267 | 335 | 395 | 451 | | 549 | |
| D ANGLE | SCREWED | 79 | 98 | 102 | 114 | | | | | | | | |
| | GROOVED | 79 | 98 | 102 | 114 | 143 | | | | | | | |
| | 150# FLGD | 76 | 98 | 102 | 102 | 140 | 152 | 203 | 289 | 279 | | 398 | |
| | 300# FLGD | 79 | 105 | 111 | 111 | 147 | 165 | 216 | 305 | 298 | | 419 | |
| E | ALL | 152 | 152 | 178 | 165 | 203 | 254 | 302 | 390 | 432 | 457 | 482 | 686 |
| F (OPT) | ALL | 98 | 98 | 98 | 98 | 98 | 98 | 162 | 162 | 162 | 162 | 162 | 203 |
| H | ALL | 254 | 279 | 279 | 279 | 305 | 330 | 355 | 432 | 457 | 508 | 508 | 724 |

*GROOVED END NOT AVAILABLE IN DN32

CE Markings

Applies to fuel valves installed in the European Union in accordance with the Pressure Equipment Directive, 97/23/EC

CE-marked valves are available in LCB steel and CF8M stainless steel only

OCV is registered to the PED through Det Norske Veritas

The following valves will be CE-marked:

- 6" (DN150) and larger valves, 150# and 300# class, liquid fuel only
- 2" (DN50) thru 4" (DN100) valves, 300# class, liquid fuel
- 1 1/4" (DN32) thru 4" (DN100) valves, 300# class, LPG or Butane service
- 4" (DN100) and smaller valves in Class 150# (liquids) are furnished under SEP with no CE-mark

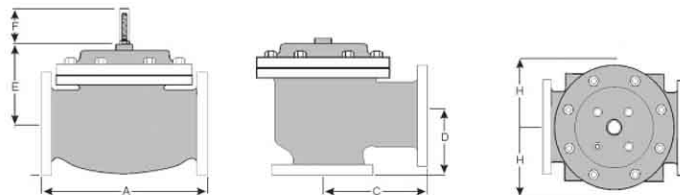
For maximum efficiency, the OCV control valve should be mounted in a piping system so that the valve bonnet (cover) is in the top position. Other positions are acceptable but may not allow the valve to function to its fullest and safest potential. In particular, please consult the factory before installing 8" (DN200) 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 114-3 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



Represented by:



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