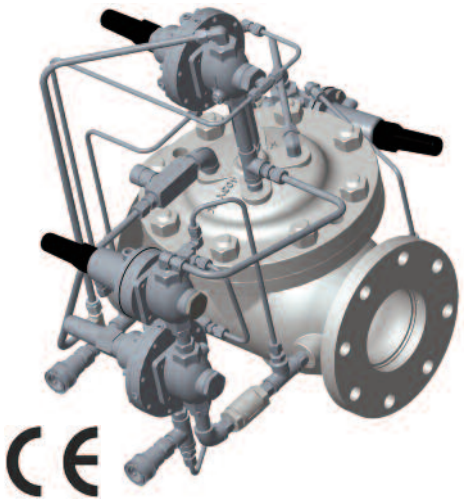
Model 114-2 (Aviation Fueling) METRIC



The OCV Model 114-2 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.
- Limits flow rate to a predetermined maximum
- 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
- Rate of flow pilot limits maximum 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.

Sensing the differential across the integral orifice plate, the rate of flow pilot will automatically throttle the valve to prevent the flow rate from exceeding a predetermined maximum.

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

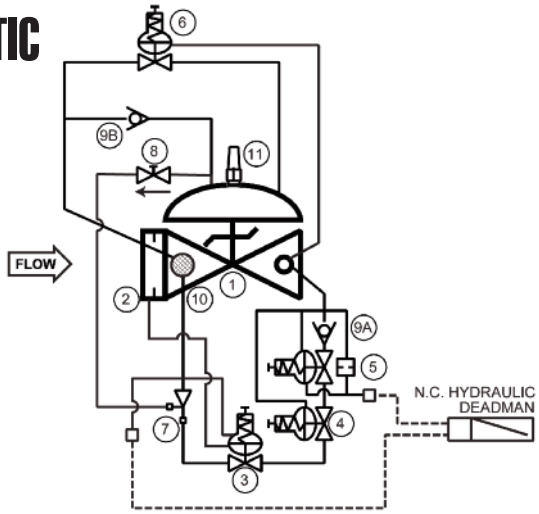
COMPONENTS

The Model 114-2 consists of the following components, arranged as shown on the schematic diagram:

1.) **Model 65 Basic Valve Assembly** (fail closed)
2.) **Model Orifice Plate**
3.) **Model 2450 Rate of Flow Control Pilot**
4.) **Model 1340 Pressure Reducing Pilot**
5.) **Model 2430 Deadman Control Pilot**
6.) **Surge Control Pilot****
7.) **Model 126 Ejector**
8.) **Model 141-3 Flow Control Valve** (opening speed control)
9.) **Model 141-1 Check valve** (thermal relief)
10.) **Model 123 Inline Strainer**
11.) **Model 155L Visual indicator**

** Use Model 1330 on 3" and smaller valves and on 4" valves used for truck loading. Use Model 2470 on 4" valves used for aircraft refueling and for all 6" and larger valves.

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.
- For best functioning of the flow limiting feature, there should be a minimum of five diameters of straight pipe upstream of the valve.
- 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.
- To accurately set the rate of flow pilot, some means of measuring flow should be installed in series with the valve.
- Make necessary pressure sensing connections to venture if used.

MAX. PRESSURE

(The pressures listed here are maximum working pressures at 37.78°C)

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	---

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

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Model 114-2 Hydrant Control Valve METRIC

Model 114-2 (Aviation Fueling) METRIC

SIZES GLOBE/ANGLE
Screwed Ends - 1 1/4" - 3" (DN 32 - DN80)
Grooved Ends - 1 1/2" - 4" (globe) (DN40 - DN100)
1-1/2"- 4" (angle) (DN40 - DN100)
Flanged Ends - 1 1/4" - 24" (globe) (DN32 - DN600)
1 1/4" - 16" (angle) (DN32 -DN400)

FLUID OPERATING TEMPERATURE RANGE
(Valve Elastomers)
Buna-N -40°C to 82.22°C
Viton -6.67°C to 110°C
Fluorosilicone -40°C to 65.56°C
EPDM -17.78°C to 110°C

SPRING RANGES
(outlet setting and surge control setting)
.3-2.1 bar, 1.4-5.5 bar, 1.38-13.79 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 Aviation Fueling 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 shall also be equipped with a rate of flow control pilot that will automatically limit the maximum flow rate. Sensing of the pilot shall be by means of a calibrated orifice plate integrally installed in the upstream valve flange. 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. All ferrous surfaces shall be coated with 4 mils of epoxy. The main valve seat ring shall be stainless steel. Elastomers (diaphragms, resilient seats and O-rings) shall be Buna-N. The control pilots and deadman control shall be 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> bar to a constant outlet pressure of <X> bar at flow rates ranging from <X to X> m^3/hr.

ACCEPTABLE PRODUCTS
The refueling control valve shall be a <size> Model 114-2, <globe pattern, angle pattern>, with <150# flanged, 300# flanged> 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	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	150# FLGD	108	121	152	152	190	254	322	379	432		525	
ANGLE	300# FLGD	111	127	162	162	198	267	335	395	451		549	
D	150# FLGD	76	98	102	102	140	152	203	289	279		398	
ANGLE	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

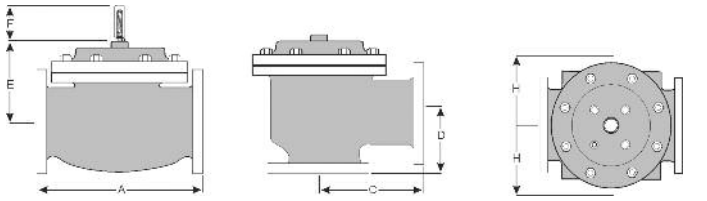
**Note: for military fueling valves, 6" (DN150) 150# flanges have 20" (20 mm) face to face dimensions and 6" (DN150) 300# flanges have 20-7/8" (208 mm) face to face dimensions.

CE Markings
Applies to fuel valves installed in the European Union in accordance with the Pressure Equipment Directive, 2014/86/EU
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 114-2 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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QUALITY SYSTEM REGISTERED TO ISO 9001

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