

The Model 115-5S is specifically designed for fuel loading systems and performs the following functions:

- ▶ Electrical opening - full flow delivery
- ▶ Two-stage shutdown

SERIES FEATURES

- ▶ Opens on signal from preset register
- ▶ Can be controlled by mechanical or electronic presets
- ▶ Adjustable flow setting for 2nd stage dwell
- ▶ Factory tested
- ▶ Junction box options are available, with Explosion Proof ratings
- ▶ Two-stage electronic opening options are available
- ▶ Standard Class 1 Div 1 (Optional Class I Div 2, ATEX, IECEx)

OPERATION

The model 115-5S control valve opens to quickly fill the system a large amount and rapidly closes down in 2 stages to top off the reservoir:

Opening & Full Flow: The Main valve opens fully.
 • Both HI and LO outputs apply power and open the N.C. solenoid.

1st Stage Shutdown: Main valve to begin closing a predetermined number of gallons before the end of the load.

- HI output removes power and closes the N.C. solenoid. HI output remains off through load.
- LO output sends power to the limit switch. The N.O. solenoid remains open (deenergized) because limit switch contact is open.

Low (dwell) Flow: Main valve closes far enough to trip the limit switch contact and holds this position for low flow filling.

- LO output sends power through limit switch contact and closes the N.O. solenoid. This hydraulically locks the 115-5S into a low flow mode.

Final Closure: Main valve will close fully when the load is complete.

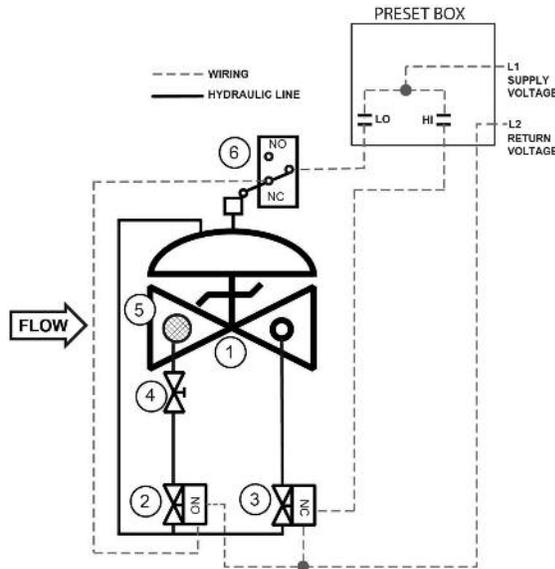
- LO output removes power from limit switch and N.O. solenoid. The N.O. solenoid opens and allows the main valve to close fully.

COMPONENTS

The Model 115-5S consists of the following components, arranged as shown on the schematic diagram:

- 1.) Model 65 Basic Control Valve (fail closed)
- 2.) Two-Way Solenoid Pilot, (N.O.)
- 3.) Two-Way Solenoid Pilot, (N.C.)
- 4.) Needle Valve
- 5.) Inline Strainer
- 6.) Limit Switch, (Low Flow setting)

SCHEMATIC



RECOMMENDED INSTALLATION

- ▶ Install the valve at the appropriate location, typically downstream of the preset meter.
- ▶ 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.
- ▶ 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.
- ▶ Following main valve installation, the solenoids and limit switch must be wired into the preset register, as shown in the wiring diagram.

MAX. PRESSURE

(Based on ANSI flange ratings.)
 (The pressures listed here are maximum working pressures at 37.78°C.)

END CONNECTIONS	DUCTILE IRON	STEEL WCB	STEEL LCB	Strn. Stl. CF8M	ALUMINUM
Threaded	44.1 bar	44.1 bar	44.1 bar	44.1 bar	19.7 bar
Grooved	20.7 bar	20.7 bar	20.7 bar	20.7 bar	13.8 bar
150# Flanged	17.2 bar	19.7 bar	18.4 bar	19.0 bar	19.7 bar

Note: Working pressures of solenoids vary greatly, consult factory on application of the OCV Model 115-5 valves.

SIZING

The 115-5S valve is normally sized to match the meter size; however, in no case should the maximum velocity exceed 20 ft/sec, as shown.

MAXIMUM FLUID FLOW

SIZE (MM)		DN32	DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	DN600
2.29 M/SEC (MILITARY)	MAX	240	300	480	720	1080	1800	4080	7200	11100	15900	19200	24900	31500	39300	56400
4.57 M/SEC (MAX RECOMMENDED)	FLOW	420	600	960	1380	2100	3600	8100	14100	22200	31500	38100	49800	63000	78600	112800
6.10 M/SEC (MAX CONTINUOUS)	(M3/HR)	600	780	1260	1800	2820	4800	10800	18900	29700	42000	50700	66600	84000	104400	150600

U.S. Military valves cannot exceed a max velocity of 2.29 m/sec. Max recommended fluid flow for petroleum fluids is 4.57 m/sec. Max continuous flow for all fluids is 6.10 m/sec.

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

Model 115-5S (Terminal Services) METRIC



SIZES Globe or Angle

- Screwed Ends
- 1 1/4"-3" (DN32-DN80)
- Grooved Ends
- 1 1/2"-6" (globe) (DN40-DN150)
- 1 1/2"-6" (angle) (DN40-DN150)
- Flanged Ends
- 1 1/4"-10" (globe) (DN32-DN250)
- 1 1/4"-6" (angle) (DN32-DN150)

FLUID OPERATING TEMPERATURE RANGE

- 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

SOLENOID VALVE VOLTAGE

- Enclosure: Explosion Proof NEMA 4, 4X, 6P, 7, 9
- Class I, Div I (standard)
- Class I, Div 2-ATEX, IECEx (opt)
- Body: Brass, Stainless Steel
- Voltages: 24, 120, 240, 480 VAC; 12, 24 VDC

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

OPTIONAL FEATURES

- Two Stage Opening
- Pre-wired junction box

For other sizes, please contact factory.

SPECIFICATIONS (Typical Terminal Services Application)

The two-stage preset valve shall open in one stage and close in two stages based on signals from the preset register.

DESIGN

The two-stage preset 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 orifice plate shall be integrally-installed in the valve inlet flange. The pilot system shall be furnished complete, installed on the main valve and include two solenoid pilots, a needle valve and an inline strainer. The two-stage preset 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. Solenoid pilots shall be Stainless Steel, as shall the needle valve and control line tubing. The solenoid and limit switch enclosures shall be explosion-proof and suitable for operation on <voltage>.

OPERATING CONDITIONS

The two-stage preset valve shall be suitable for operation at <X> bar at flow rates up to <X> m³/hr.

ACCEPTABLE PRODUCTS

The two-stage preset valve shall be a <size> Model 115-5S, <globe pattern, angle pattern>, with <threaded, grooved, 150# flanged, 300# flanged> end connections, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.

METRIC DIMENSIONS - M.M.

DIM	END CONN.	DN32-DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250
A	SCREWED	222	251	267	330	--	--	--	--
	GROOVED	222	251	267	330	387	508	--	--
	150# FLGD	216	238	267	305	381	451	645	756
	300# FLGD	222	251	283	324	397	473	670	791
C ANGLE	SCREWED	111	121	152	165	--	--	--	--
	GROOVED	111*	121	152	165	194	--	--	--
	150# FLGD	108	121	152	152	191	254	322	378
	300# FLGD	111	127	162	162	198	267	335	395
D ANGLE	SCREWED	79	98	102	114	--	--	--	--
	GROOVED	79*	98	102	114	143	--	--	--
	150# FLGD	76	98	102	102	140	152	203	289
	300# FLGD	79	105	111	111	148	165	216	306
E	ALL	152	152	178	165	203	254	302	391
F	ALL	98	98	98	98	98	98	162	162
H	ALL	254	279	279	279	305	330	356	432

*GROOVED END NOT AVAILABLE IN DN32

CE Markings

Applies to fuel valves installed in the European Union in accordance with the Pressure Equipment Directive, 2014/68/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

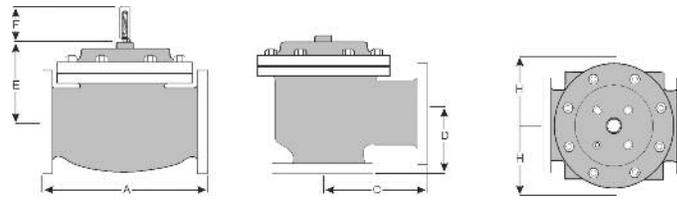
For maximum efficiency, the OCV control valve should be mounted in a piping system so that the valve bonnet (cover) is in the top position. Other positions are acceptable but may not allow the valve to function to its fullest and safest potential. In particular, please consult the factory before installing 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 @ 1-918-627-1942 for parts and service.

When ordering your 115-5S valve,

please provide:

Fluid to be controlled - Model Number - Size - Globe or Angle End Connection - Body Material Trim Material - Solenoid Voltage Special Requirements / Installation Requirements



QUALITY SYSTEM REGISTERED TO ISO 9001

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