# **CV** Model 8101



Fuel Storage Valves



#### High Level Shut-Off Valve

### Description

The high level shut-off valve shall be installed on the inlet line to the tank and shall close when the high level is reached. The high level shut-off valve shall include a simple, two-way, non-adjustable float pilot to be installed in the tank at the desired tank level and be connected to the main valve by two, customer-installed sense lines. The OCV 8101 is applicable anywhere it is necessary to automatically control the high level in storage tanks where the float pilot can be mounted inside the tank.



### Features & Benefits

- Allows tank filling and shuts off on high level
- Remote-mounted float pilot (inside tank)
- Two field-installed lines between valve and float pilot
- Manual tester available on float pilot
- Can be maintained without removal from the line
- Adjustable response speed
- Factory tested and can be pre-set to your requirements



Metering Systems

Loading Terminals

Storage Tanks

Truck/Rail Car Loading & Unloading Systems



# **COCV** Model 8101 Fuel Storage Valves



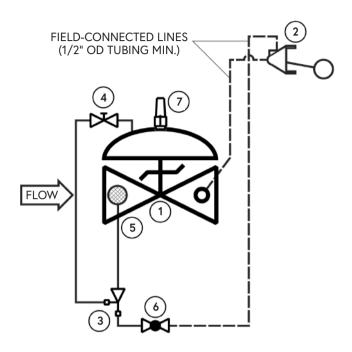
## > Operation

The OCV 8101 is designed for tank fill only. A rotary, float-activated pilot controls the position of the main valve. With the float in the full down position, the pilot is wide open, along with the main valve. As the float begins to rise, the pilot begins to restrict flow, causing the main valve to throttle further closed. When fluid level raises the float to the full up position, flow is blocked and the main valve is closed.



The OCV 8101 consists of the following components, arranged as shown on the schematic diagram:

- 1 Model 65 Basic Valve (fail closed)
- 2 Two-Way Float Pilot
- 3 Ejector
- 4 Needle Valve
- 5 Inline Strainer
- 6 Isolation Ball Valve
- 7 Visual Indicator



### Pressure Table

End Connections	Ductile Iron	STEEL/SST	STEEL LCB	STEEL WCB	Aluminum		
Standard (Maximum Working Pressures at 100°F)							
Screwed	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					
Metric (Maximum Working Pressures at 37.78°C)							
Screwed	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	19.0 bar	18.4 bar	19.7 bar	19.7 bar		
300# Flanged	44.1 bar	49.6 bar	48.0 bar	51.0 bar			

Based on ANSI flange ratings.

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Fuel Storage Valves

## Flow Chart

Standard Size Max. Flow (GPM)	1 1⁄4"	1 1⁄2"	2"	2 1⁄2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
7.5 FT/SEC (Military)	40	50	80	120	180	300	680	1200	1850	2650	3200	4150	5250	6550	9400
15 FT/SEC (Max. Recommended)	70	100	160	230	350	600	1350	2350	3700	5250	6350	8300	10500	13100	18800
20 FT/SEC (Max. Continuous)	100	130	210	300	470	800	1800	3150	4950	7000	8450	11100	14000	17400	25100
Metric Size Max. Flow (m³/hr)	DN32	DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	DN600
2.29 M/SEC (Military)	9	11	18	27	41	68	154	272	420	602	726	942	1192	1487	2134
4.57 M/SEC (Max. Recommended)	16	23	36	52	79	136	306	533	840	1192	1441	1884	2384	2974	4268
6.10 M/SEC (Max. Continuous)	23	30	48	68	107	182	409	715	1124	1589	1918	2520	3178	3950	5698

The OCV 8101 is normally sized to match the meter size; however, in no case should the maximum velocity exceed 20 ft/sec (metric: 6.10 meters/sec).

Resetting, maintenance and periodic testing instructions must be followed as described in detail in the applicable OCV IOM (Installation, Operation & Maintenance) Manual.

### Typical Materials

Part	Standard Material
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

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Fuel Storage Valves

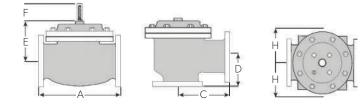
#### General Arrangement & Dimensions

Standar	d Sizes												
DIM	END CONN.	1 <sup>1</sup> / <sub>4</sub> - 1 <sup>1</sup> / <sub>2</sub> "	2"	2 <sup>1</sup> / <sub>2</sub> "	3"	4"	6"	8"	10"	12"	14"	16"	24"
A	SCREWED	8 <sup>3</sup> / <sub>4</sub>	9 <sup>7</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>2</sub>	13								
	GROOVED	8 <sup>3</sup> / <sub>4</sub>	9 <sup>7</sup> / <sub>8</sub>	10 <sup>1</sup> / <sub>2</sub>	13	15 <sup>1</sup> / <sub>4</sub>	20						
	150# FLGD	8 <sup>1</sup> / <sub>2</sub>	9 <sup>3</sup> /8	10 <sup>1</sup> / <sub>2</sub>	12	15	17 <sup>3</sup> /4	25 <sup>3</sup> /8	29 <sup>3</sup> / <sub>4</sub>	34	39	40 <sup>3</sup> /8	62
	300# FLGD	8 <sup>3</sup> / <sub>4</sub>	9 <sup>7</sup> / <sub>8</sub>	11 <sup>1</sup> / <sub>8</sub>	12 <sup>3</sup> / <sub>4</sub>	15 5/8	18 5/8	26 <sup>3</sup> /8	31 <sup>1</sup> / <sub>8</sub>	35 <sup>1</sup> / <sub>2</sub>	40 <sup>1</sup> / <sub>2</sub>	42	63 <sup>3</sup> /4
С	SCREWED	4 <sup>3</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>4</sub>	6	6 <sup>1</sup> / <sub>2</sub>								
	GROOVED	4 <sup>3</sup> / <sub>8</sub> *	4 <sup>3</sup> / <sub>4</sub>	6	6 <sup>1</sup> / <sub>2</sub>	7 5/8							
ANGLE	150# FLGD	4 <sup>1</sup> / <sub>4</sub>	4 <sup>3</sup> / <sub>4</sub>	6	6	7 1/2	10	12 11/16	14 <sup>7</sup> / <sub>8</sub>	17		20 13/16	
	300# FLGD	4 <sup>3</sup> / <sub>8</sub>	5	6 <sup>3</sup> /8	6 <sup>3</sup> /8	7 <sup>13</sup> / <sub>16</sub>	10 <sup>1</sup> / <sub>2</sub>	13 <sup>3</sup> / <sub>16</sub>	15 <sup>9</sup> / <sub>16</sub>	17 <sup>3</sup> /4		21 5/8	
	SCREWED	3 <sup>1</sup> / <sub>8</sub>	3 7/8	4	4 <sup>1</sup> / <sub>2</sub>								
D	GROOVED	3 1/8 *	3 7/8	4	4 <sup>1</sup> / <sub>2</sub>	5 <sup>5</sup> /8							
ANGLE	150# FLGD	3	3 7/8	4	4	5 <sup>1</sup> / <sub>2</sub>	6	8	11 <sup>3</sup> /8	11		15 11/16	
	300# FLGD	3 <sup>1</sup> / <sub>8</sub>	4 <sup>1</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>8</sub>	4 <sup>3</sup> / <sub>8</sub>	5 <sup>13</sup> / <sub>16</sub>	61/2	8 <sup>1</sup> / <sub>2</sub>	12 <sup>1</sup> / <sub>16</sub>	11 <sup>3</sup> / <sub>4</sub>		16 <sup>1</sup> / <sub>2</sub>	
E	ALL	6	6	7	6 <sup>1</sup> / <sub>2</sub>	8	10	11 <sup>7</sup> /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 <sup>3</sup> /8	6 <sup>3</sup> /8	6 <sup>3</sup> /8	6 <sup>3</sup> /8	6 <sup>3</sup> /8	8
Н	ALL	10	11	11	11	12	13	14	17	18	20	20	28 <sup>1</sup> / <sub>2</sub>
Metric S	END CONN.	DN32-40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN350	DN400	DN60
	SCREWED	222	251	267	330								DINOU
	GROOVED	222	251	267	330	387	508						
А	150# FLGD	216	238	267	305								
	300# FLGD	210	200			381	451	645	756	863			
	00000 1200	222	251	283		381 397	451 473	645 670	756 791	863 902	991	1026	 1575 1619
	SCREWED	222	251 121	283 152	324	381 397 	451 473	645 670	756 791	863 902	991 1029		 1575 1619
C	SCREWED GROOVED	222 111 111*	121	283 152 152	324 165	397	473	670	791	902	991 1029 	1026 1067	
C ANGLE	SCREWED GROOVED 150# FLGD	111		152	324	397	473	670	791	902	991 1029	1026 1067	1619
	GROOVED	111	121 121	152 152	324 165 165	397  194	473  	670 	791 	902  	991 1029 	1026 1067 	1619 
	GROOVED 150# FLGD	111 111* 108	121 121 121	152 152 152	324 165 165 152	397  194 191	473  254	670  322	791  378	902  432	991 1029  	1026 1067  529	1619 
	GROOVED 150# FLGD 300# FLGD	111 111* 108 111	121 121 121 127	152 152 152 162	324 165 165 152 162	397  194 191 198	473  254 267	670  322 335	791  378 395	902  432 451	991 1029   	1026 1067  529 549	1619  
ANGLE	GROOVED 150# FLGD 300# FLGD SCREWED	111 111* 108 111 79	121 121 121 127 98	152 152 152 162 102	324 165 165 152 162 114	397  194 191 198 	473  254 267 	670  322 335 	791  378 395 	902  432 451 	991 1029    	1026 1067  529 549 	1619   
ANGLE	GROOVED 150# FLGD 300# FLGD SCREWED GROOVED	111 111* 108 111 79 79*	121 121 121 127 98 98 98	152 152 152 162 102 102	324 165 165 152 162 114 114	397  194 191 198  143	473  254 267 	670  322 335  	791  378 395 	902  432 451 	991 1029    	1026 1067  529 549  	1619   
ANGLE	GROOVED 150# FLGD 300# FLGD SCREWED GROOVED 150# FLGD	111 111* 108 111 79 79* 76	121 121 121 127 98 98 98 98	152 152 152 162 102 102 102	324 165 165 152 162 114 114 102	397  194 191 198  143 140	473  254 267  152	670  322 335  203	791  378 395  289	902  432 451  279	991 1029    	1026 1067  529 549  398	1619   
ANGLE D ANGLE	GROOVED 150# FLGD 300# FLGD SCREWED GROOVED 150# FLGD 300# FLGD	111   111*   108   111   79   79*   76   79	121 121 121 127 98 98 98 98 105	152 152 152 162 102 102 102 102 111	324 165 165 152 162 114 114 102 111	397  194 191 198  143 140 148	473  254 267  152 165	670  322 335  203 216	791  378 395  289 306	902  432 451  279 298	991 1029    	1026 1067  529 549  398 419	1619    

\*Grooved End not available in 11/4" (DN32).

ALL

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1-1/2" - 6" (globe & angle)

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Fuel Storage Valves

Technical Data

Temperature (Elastomers)

Buna-N

Fluorosilicone

Screwed Ends Grooved Ends

Viton

EPDM

Sizes

Flanged Ends	1-1/4" - 24" (globe); 1-1/4" - 16" (angle)							
Pressure Rating (ANSI at 100°F)								
250psi for Class 150# ANSI Flanged Ductile Iron								
285psi for Steel/Stainless Steel & Aluminum								
300# ANSI Flanges are available								
Solenoid Voltage								
Enclosure	Explosion Proof NEMA 4X, 6P, 7, 9							
Body	Brass, Stainless Steel							
Voltages	24, 120, 240, 480 VAC; 12, 24 VDC							

-40°F to 180°F

20°F to 230°F

-40°F to 150°F

0°F to 230°F

1-1/4" - 3"

Body & Cover Material
Ductile Iron
Carbon Steel
Stainless Steel
Aluminum
Trim Material
Bronze/Brass
Stainless Steel
Copper
Optional Components
Two-Stage Opening
Visual Indicator
Pre-Wired Junction Box
Items to Specify
Fluid Type
Model Number
Size
Body & Trim Material
Solenoid Voltage
Globe or Angle
Special Installation Requirements

### Engineering Specifications

The high level shut-off 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 include a speed control, an inline strainer, and an isloation ball valve. The float pilot shall be firnished separately for remote mounting in the tank. The high level shut-off valve shall be operationally and hydrostatically tested prior to shipment. 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 float pilot shall be stainless steel, as shall the 5" spherical float, pilot system accessories, and control line tubing. The high level shut-off valve shall be suitable on <voltage> (see Technical Data section). The high level shut-off valve shall be suitable for pressures of <X to X> psi (see Pressure Table) at flow rates up to <X> gpm (see Flow Chart). The high level shut-off valve shall be an OCV 8101, as manufactured by OCV, Tulsa, OK, USA.

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