Solenoid Control Valve Series 115

▲Model 115-2 shown

The OCV Series 115 Solenoid Control Valve is designed to provide on/off or open/close control of fluids in response to an electrical signal. The valve consists of the basic OCV model 65 with solenoid-operated pilot. With the appropriate solenoid, the valve may be normally closed (energize to open) or normally open (de-energize to open).

SERIES FEATURES

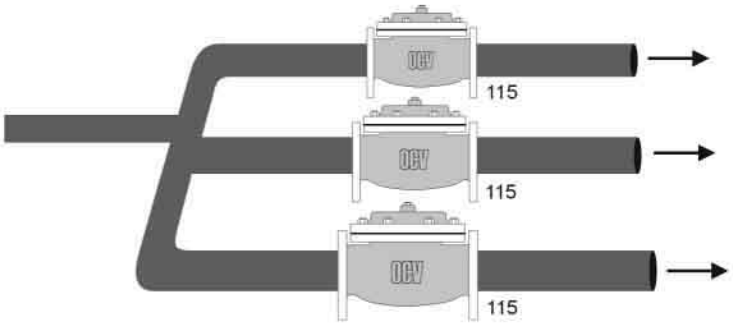
- The 115 Series provides responsive control in answer to such triggering devices as clocks, timers, relays, probes, pressure or temperature sensors.
- Available for AC or DC voltages.
- Wider range of sizes and flow capacity than is available with direct acting solenoid valves.
- Valves can be equipped with Manual Override solenoid operation.
- Solenoid feature can be added to other hydraulic control functions.

VALVE FEATURES

- Operates automatically off line pressure.
- Heavy-duty, nylon-reinforced diaphragm.
- Rectangular-shaped, soft seat seal provides drip-tight Class VI closure.
- Diaphragm assembly guided top and bottom.
- Throttling seat retainer for flow and pressure stability.
- Easily maintained without removal from the line.
- Replaceable seat ring.
- Alignment pins assure proper reassembly after maintenance.
- Valves are factory tested.
- Valves are serial numbered and registered to facilitate replacement parts and factory support.

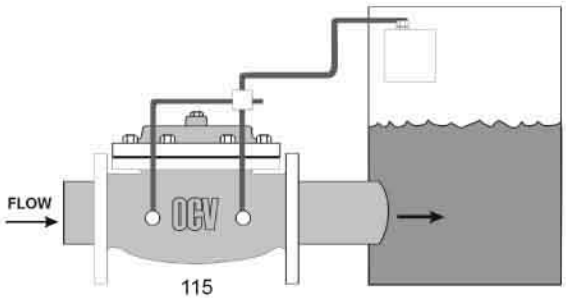
ZONE CONTROL

Used in irrigation and industrial processes, each flow line can be activated independently of the others.



LEVEL CONTROL

Valve, activated by level sensor, fills storage tank.



TOLL FREE 1.888.628.8258 • **phone:** (918)627.1942 • **fax:** (918)622.8916 • 7400 East 42nd Place, Tulsa, OK 74145
email: sales@controlvalves.com • **website:** www.controlvalves.com

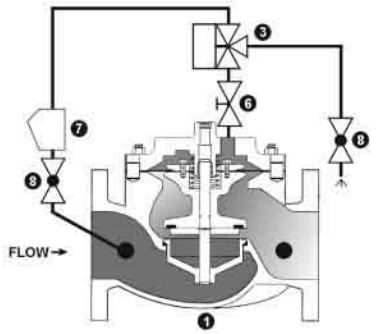
Solenoid Control Valve Series 115

VALVE OPERATION

SOLENOID VALVE TYPES

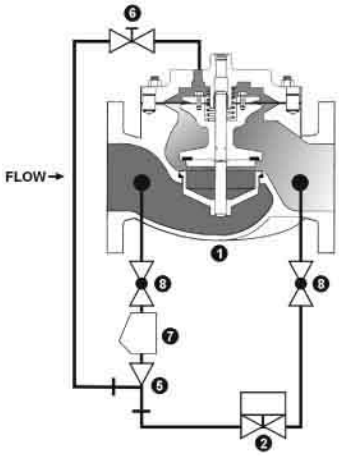
Model 115-1 Three-Way Solenoid

Operated by a 3-way solenoid. The main valve diaphragm chamber may be exhausted to atmosphere, allowing for full open operation at any flow rate. Standard with needle valve opening/closing speed control adjustment. Size ranges 1 ¼" - 4", consult factory on application of larger sizes.



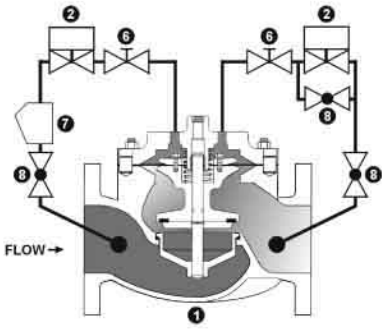
Model 115-2 Two-Way Solenoid

Operated by a 2-way solenoid and ejector. The main valve diaphragm is exhausted to valve outlet port. Valve position is determined by flow rate demand (differential pressure). Standard with needle valve opening/closing speed control adjustment. Size ranges 1 ¼" - 6", consult factory on application of larger sizes.



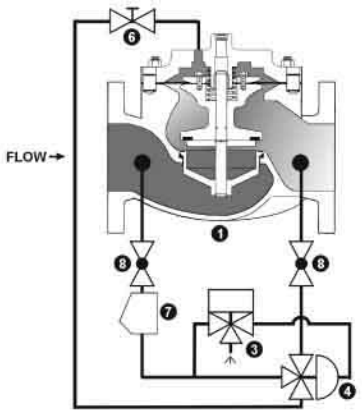
Model 115-3 Positioned Valve

Operated by two 2-way solenoids, the valve maybe positioned from full closed to full open or locked in any intermediate position. Equipped with both opening and closing speed adjustment. The valve can be configured to open, close, or hold position in the event of electrical power failure. The Model 115-3 is the basis for the OCV Series 22 and 88 Electronic Control Valves.



Model 115-4 Three-Way Solenoid With Accelerator

Operated by a 3-way solenoid which operates a large port accelerator pilot, allowing quick response on larger valves. Standard with needle valve opening/closing speed control adjustment. Size ranges 3 - 24".



Components

1. Basic Valve
2. 2-way solenoid
3. 3-way solenoid
4. 3-way auxiliary pilot
5. Ejector
6. Needle valve speed control
7. Y-strainer
8. Isolation ball valve

TOLL FREE 1.888.628.8258 • **phone:** (918)627.1942 • **fax:** (918)622.8916 • 7400 East 42nd Place, Tulsa, Oklahoma 74145
email: sales@controlvalves.com • **website:** www.controlvalves.com

SIZING CONSIDERATIONS

Sizing of Series 115 Valves

Our ValveMaster selection and sizing software covers this in detail; however, if you do not have the software, sizing per the following procedure should result in satisfactory operation.

1. Decide whether a globe or angle valve will best fit your installation. Keep in mind that it is always best to install any control valve "bonnet up," particularly in sizes 8" and larger.

2. Begin with a line-sized valve.

   Calculate the pressure drop from the formula:

$$DP = sg\left(Q/C_v\right)^2$$

where: DP = pressure drop, psi
sg = specific gravity of line fluid (water = 1.0)
Q = rated flow of pump, gpm
Cv = Valve coefficient from the table below.

3. The pressure drop calculated is for a wide-open valve and would be true for an exhaust-to-atmosphere valve (115-1 or 115-4) regardless of flow rate. On the other hand, a valve exhausting to downstream (e.g., 115-2) may not be wide open. Refer to the "wide open at" column of the table. If the flow rate is less than this figure, the pressure drop of the valve can be 2-3 psi higher than the value calculated in Step 2. If the flow rate is higher than the figure given, the valve will be wide open and will have a pressure drop equal to the exhaust-to-atmosphere valve.

4. Check to see that the flow velocity does not exceed 20 ft/sec. If it does, or if the pressure drop is excessive, consider using the next size larger valve.

5. Finally, if an exhaust-to-atmosphere valve is selected, make note of the diaphragm chamber discharge. This quantity of water will be discharged into the atmosphere each time the valve opens or closes. Provision should be made to drain or otherwise dispose of this water.

FLOW CHARACTERISTICS

SIZE	C_v (GLOBE)	C_v (ANGLE)	FLOW @ 20 FT/SEC (GPM)	WIDE OPEN AT: (GPM)	DIAPH. CHAMBER DISCHARGE (GALLONS)
1 ¼	23	30	85	50	0.02
1 ½	27	35	120	50	0.02
2	47	65	210	100	0.05
2 ½	68	87	300	140	0.06
3	120	160	460	220	0.10
4	200	270	800	400	0.2
6	450	550	1800	950	0.6
8	760	1000	3100	1300	1.0
10	1250	1600	4900	2000	2.5
12	1940	2400	7000	2800	4.0
14	2200	--	8450	3300	6.5
16	2850	4000	11,000	4500	9.6
24	6900	--	25,000	9300	28.0

VALVE SELECTION GUIDE

This chart shows only a sample of those most often specified valves. Consult the factory for specific data on the model you selected.

Combination valves can often reduce or eliminate other equipment. Example: If the system requires a reverse flow check function, the check feature can be added as a function of the Solenoid Valve Series 115.

Feature	115-1	115-2	115-26	115-3	115-36	115-4	115-46	Definition
Two-Way Solenoid		X	X					Two-Way solenoid with ejector system
Check Feature			X		X		X	Closes valve on pressure reversal
Three-Way Solenoid	X							Three-Way solenoid operates valve directly
Three-Way Solenoid with Accelerator						X	X	Three-Way solenoid actuates high capacity pilot
Digital Modulation				X	X			Valve positioned via discrete electrical signals to two solenoids

ABOUT YOUR VALVE

OCV Control Valves was founded more than 50 years ago with a vision and commitment to quality and reliability. From modest beginnings, the company has grown to be a global leader just a half century later. In fact, OCV valves can be found in some capacity in nearly every country around the world from fire protection systems in Malaysia to aircraft fueling systems in Africa and from oil refineries in Russia to water supply systems in the USA and Canada. You will also find our valves in irrigation systems in Europe, South America and the Middle East.

The original foundation on which the company was built allows our team of professionals to not only provide the service required to be a worldwide supplier, but more importantly, the opportunity to afford the personal touch necessary to be each of our customers' best partner. Simply stated, we take pride in all that we do.

Committed to the work they do, our employees average over 15 years of service with our company. This wealth of knowledge allows us to provide quality engineering, expert support, exacting control and the know-how to create valves known for their long life.

Being ISO 9001:2000 certified means we are committed to a quality assurance program. Our policy is to supply each customer with consistent quality products and ensure that the process is right every time. Our valves meet and exceed industry standards around the world, including approvals by:

QUALITY SYSTEM REGISTERED TO ISO 9001 · NSF · UL · Factory Mutual System

All valves are not created equal. OCV Control Valves proves that day in and day out.
We stand behind our valves and are ready to serve your needs.

TOLL FREE 1.888.628.8258 • **phone:** (918)627.1942 • **fax:** (918)622.8916 • 7400 East 42nd Place, Tulsa, OK 74145
email: sales@controlvalves.com • **website:** www.controlvalves.com

SPECIFICATIONS

VALVE BODY & BONNET	DUCTILE IRON		CAST STEEL		CAST BRONZE		STAINLESS STEEL	
Material Specifications	ASTM A536 (epoxy coated)		ASTM A216/WCB (epoxy coated)		ASTM B61		ASTM A743/CF8M	
END CONNECTIONS								
Flange Standard (also available in metric)	ANSI B16.42		ANSI B16.5		ANSI B16.24		ANSI B16.5	
Flange Class	150#	300#	150#	300#	150#	300#	150#	300#
Flange Face	Flat	Raised	Raised	Raised	Flat	Flat	Raised	Raised
Maximum Working Pressure	250 psi	640 psi	285 psi	740 psi	225 psi	500 psi	285 psi	740 psi
Screwed Working Pressure: ANSI B1.20.1 (B2.1) 640 psi (Bronze 500 psi)			Grooved End Working Pressure: 300 psi					

INTERNALS				
Stem	STAINLESS STEEL AISI 303		OPTIONAL MONEL	
Spring	STAINLESS STEEL AISI 302			
Spool	DUCTILE IRON ASTM A536 (epoxy coated)		B-61	STN. STL. ASTM A 743/CF8M
Seat Disc Retainer	DUCTILE IRON ASTM A536 (epoxy coated) 4" & SMALLER VALVES - STAINLESS STEEL		B-61	STAINLESS STEEL
Diaphragm Plate	DUCTILE IRON ASTM A536 (epoxy coated)		B-61	STAINLESS STEEL
Seat Ring (Trim)	BRONZE B61 OPTIONAL STAINLESS STEEL ASTM A743/CF8M			STN. STL. ASTM A 743/CF8M
Upper Stem Bushing	STANDARD BRONZE ASTM B438	VALVE W/ STAINLESS STEEL SEAT RING-TEFLON		TEFLON
Lower Stem Bushing	SEAT MATERIAL VALVES W/ STAINLESS STEEL SEAT RING-TEFLON			TEFLON

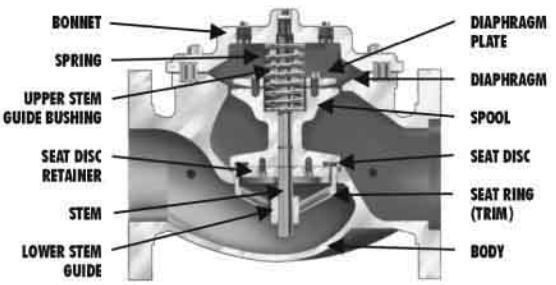
ELASTOMER PARTS (Rubber)			
Diaphragm/Seat Disc/O-Rings	STANDARD - BUNA-N NYLON REINFORCED	OPTIONAL - VITON®	OPTIONAL - EPDM
Operating Temperature	-40°F to 180°F	32°F to 400°F	0°F to 300 F°

COATINGS	
	WIDE RANGE OF COATING PER YOUR FLUID APPLICATION. COATINGS HANDLE MUNICIPAL POTABLE WATER, SEAWATER, PETROLEUM AND REFINED PRODUCTS.

ELECTRICAL SOLENOIDS			
Bodies	STANDARD BRASS	STAINLESS STEEL	(OPTIONAL)
Elastomers	STANDARD - BUNA-N NYLON REINFORCED	OPTIONAL - VITON®	
Enclosures	WATER TIGHT, NEMA 1, 3, 4, & 4X - EXPLOSION PROOF - OPTIONAL (NEMA 7 & 9)		
Power	AC, 60HZ - 24, 120, 240, 480 VOLTS	AC, 50HZ - In 110 VOLT MULTIPLES	DC, 6 12, 24, 240 VOLTS
Operation	ENERGIZE TO OPEN (NORMALLY CLOSED)	DE-ENERGIZE TO OPEN (NORMALLY OPEN)	

CONTROL PILOTS		
Bodies	BRONZE B61	STAINLESS STEEL ASTM A743/CF8M
Internal		AISI 303
CONTROL CIRCUITS		
Tubing		COPPER OR STAINLESS STEEL
Fittings		BRASS OR STAINLESS STEEL

VITON® is a registered trademark of DuPont Dow Elastomers.



SALTWATER SERVICE VALVE MATERIALS

Cast Steel Special Coatings --Ni Aluminum Bronze ASTM B148 --Super Duplex Stainless Steel

Globe Flanged Sizes

1.25"	1.5"	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"*	20"*	24"
32mm	40mm	50mm	65mm	80mm	100mm	150mm	200mm	250mm	300mm	350mm	400mm	450mm*	500mm*	600mm

*CONSULT FACTORY

Angle Flanged Sizes

1.25"	1.5"	2"	2.5"	3"	4"	6"	8"	10"	12"	16"
32mm	40mm	50mm	65mm	80mm	100mm	150mm	200mm	250mm	300mm	400mm

Globe/Angle Screwed Sizes

1.25"	1.5"	2"	2.5"	3"
32mm	40mm	50mm	65mm	80mm

Globe/Angle Grooved Sizes

1.5"	2"	2.5"	3"	4"
32mm	50mm	65mm	80mm	100mm

TOLL FREE 1.888.628.8258 • phone: (918)627.1942 • fax: (918)622.8916 • 7400 East 42nd Place, Tulsa, OK 74145
email: sales@controlvalves.com • website: www.controlvalves.com

DIMENSIONS

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
	SCREWED	8 3/4	9 7/8	10 1/2	13	--	--	--	--	--	--	--	--
A	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
	SCREWED	1 7/16	1 11/16	1 7/8	2 1/4	--	--	--	--	--	--	--	--
B	GROOVED	1*	1 3/16	1 7/16	1 3/4	2 1/4	3 5/16	--	--	--	--	--	--
	150# FLGD	2 5/16-2 1/2	3	3 1/2	3 3/4	4 1/2	5 1/2	6 3/4	8	9 1/2	10 5/8	11 3/4	16
	300# FLGD	2 5/8-3 1/16	3 1/4	3 3/4	4 1/8	5	6 1/4	7 1/2	8 3/4	10 1/4	11 1/2	12 3/4	18
	SCREWED	4 3/8	4 3/4	6	6 1/2	--	--	--	--	--	--	--	--
C	GROOVED	4 3/8*	4 3/4	6	6 1/2	7 5/8	--	--	--	--	--	--	--
ANGLE	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	--
	SCREWED	3 1/8	3 7/8	4	4 1/2	--	--	--	--	--	--	--	--
D	GROOVED	3 1/8*	3 7/8	4	4 1/2	5 5/8	--	--	--	--	--	--	--
ANGLE	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	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
G	ALL	6	6 3/4	7 11/16	8 3/4	11 3/4	14	21	24 1/2	28	31 1/4	34 1/2	52
H	ALL	10	11	11	11	12	13	14	17	18	20	20	28 1/2

*GROOVED END NOT AVAILABLE IN 1 1/4"

METRIC DIMENSIONS - M.M.

DIM	END CONN.	DN32-DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN350	DN400	DN600
	SCREWED	222	251	267	330	--	--	--	--	--	--	--	--
A	GROOVED	222	251	267	330	387	508	--	--	--	--	--	--
	150# FLGD	216	238	267	305	381	451	645	756	864	991	1026	1575
	300# FLGD	222	251	283	324	397	473	670	791	902	1029	1067	1619
	SCREWED	37	43	48	57	--	--	--	--	--	--	--	--
B	GROOVED	25*	30	37	44	57	84	--	--	--	--	--	--
	150# FLGD	59-64	76	89	95	114	140	171	203	241	270	298	406
	300# FLGD	67-78	83	95	105	127	159	191	222	260	292	324	457
	SCREWED	111	121	152	165	--	--	--	--	--	--	--	--
C	GROOVED	111*	121	152	165	194	--	--	--	--	--	--	--
ANGLE	150# FLGD	108	121	152	152	191	254	322	378	432	--	529	--
	300# FLGD	111	127	162	162	198	267	335	395	451	--	549	--
	SCREWED	79	98	102	114	--	--	--	--	--	--	--	--
D	GROOVED	79*	98	102	114	143	--	--	--	--	--	--	--
ANGLE	150# FLGD	76	98	102	102	140	152	203	289	279	--	398	--
	300# FLGD	79	105	111	111	148	165	216	306	298	--	419	--
E	ALL	152	152	178	165	203	254	302	391	432	457	483	686
F	ALL	98	98	98	98	98	98	162	162	162	162	162	203
G	ALL	152	171	195	222	298	356	533	622	711	794	876	1321
H	ALL	254	279	279	279	305	330	356	432	457	508	508	724

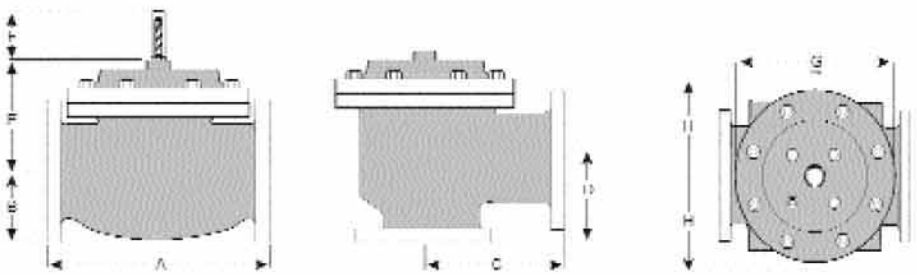
*GROOVED END NOT AVAILABLE IN DN32

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.

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 valve

When Ordering please provide:
Series Number - Valve size - Globe or Angle - Pressure Class - Screwed, Flanged, Grooved - Trim Material - Adjustment Range - Pilot Options - Special needs / or installation requirements.



Represented by:

TOLL FREE 1.888.628.8258 • **phone:** (918)627.1942 • **fax:** (918)622.8916 • 7400 East 42nd Place, Tulsa, Ok 74145
email: sales@controlvalves.com • **website:** www.controlvalves.com