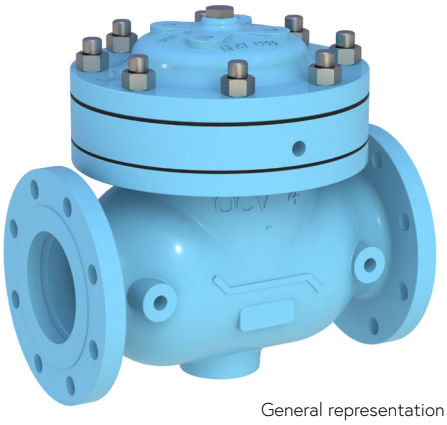
OCV

Series 66

Basic Valves

Aquestia
Directing the Flow



General representation

Waterworks

Series 66 Basic Valve

Description

OCV Series 66 control valves are automatic, hydraulically-actuated, double-chambered, diaphragm-operated, rigid seal globe and angle pattern, full port engineered valves. The valves are dependable and hard working; with a simplicity of design that ensures minimal part wear for exceptional performance and longevity. The valve is equipped with two diaphragm chambers, seated from each other by the diaphragm, and isolated from the valve's main flow passage by an intermediate plate. By pressurizing one control chamber while simultaneously venting the other, the valve is positively powered to both open and close. Applicable conditions: when adequate differential to properly actuate the valve does not exist; when handling extremely dirty or otherwise unsuitable liquid; when the system design requires/prefers the use of an outside power source.

Certification & Compliance

UL Water Quality / NSF 61-G & 372

NSF-ISO Quality System (9001)

American-Made: American Recovery & Reinvestment

Factory Mutual Approved

ABS Type Approval

CE (Conformité Européenne) Compliance

Features & Benefits

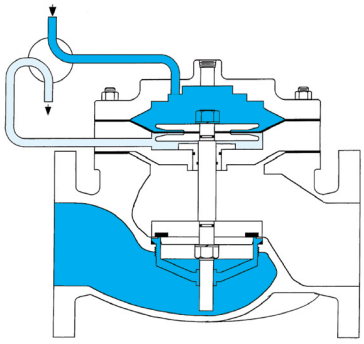
- Operates automatically off line pressure or independent pressure source
- Heavy-duty, nylon-reinforced diaphragm isolates top chamber operating pressure from bottom chamber line pressure
- Rectangular-shaped, soft seat seal provides drip-tight Class VI closure
- Diaphragm assembly guided center and bottom
- Throttling seat retainer for flow and pressure stability
- Easily maintained without removal from the line
- Diaphragm replaced without removing internal stem assembly
- Replaceable seat ring
- Alignment pins assure proper reassembly after maintenance
- Center-tapped bonnet facilitates installation of position indicator or valve-actuated switches
- Ductile iron and steel valves are epoxy coated inside and out, for maximum corrosion protection
- Factory tested & certified

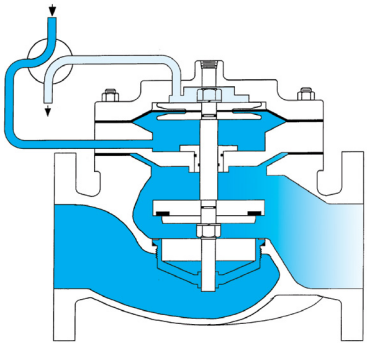
Operation

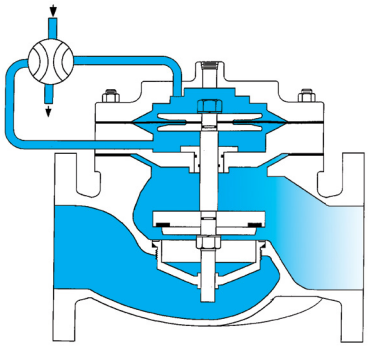
Valve Closed:
Applying pressure to the upper diaphragm chamber and simultaneously venting the lower chamber (typically to drain) causes the valve to go fully closed.

Valve Open:
Applying pressure to the lower diaphragm chamber and simultaneously venting the upper chamber (typically to drain) causes the valve to go fully open.

Valve Modulating:
Locking pressures in both the upper and lower diaphragm chamber simultaneously allows for holding the valve in a position other than full open or closed.







Flow Characteristics

$DP = sg\,(Q/Cv)^2$ where: Q = Flow Rate in USGPM (US)
Cv = Flow Rate in USGPM @ 1 psi pressure drop (US)
DP = Pressure drop in psi (US)
sg = Specific gravity of line fluid

Standard		
Valve Size	Globe Cv	Angle Cv
1 1/4"	23	30
1 1/2"	27	35
2"	47	65
2 1/2"	68	87
3"	120	160
4"	200	270
6"	450	550
8"	760	1000
10"	1250	1600
12"	1940	2400
14"	2200	--
16"	2850	4000
24"	6900	--

Metric		
Valve Size	Globe Kv	Angle Kv
DN35	20	26
DN40	23	30
DN50	40 1/2	56
DN65	59	75
DN80	104	138 1/2
DN100	173	233 1/2
DN150	389	476
DN200	657 1/2	865
DN250	299	1384
DN300	1081	2076
DN350	1903	--
DN400	2465	3460
DN600	5968 1/2	--

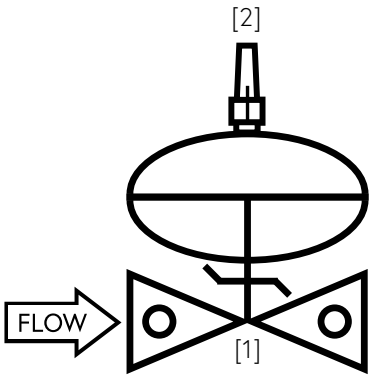
Resetting, maintenance and periodic testing instructions must be followed as described in detail in the applicable OCV IOM (Installation, Operation & Maintenance) Manual.

Components & Typical Materials

The OCV S66 consists of the following components, arranged as shown on the schematic diagram.

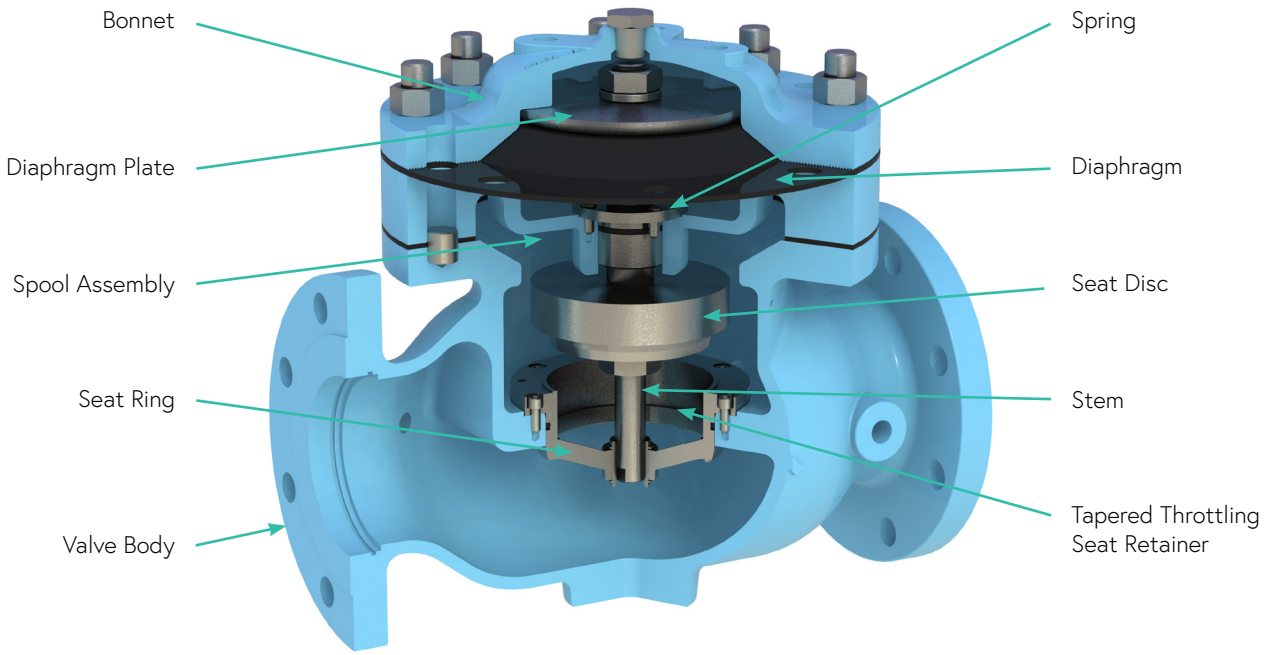
[1] OCV S66 Basic Control Valve:
Automatic, hydraulically-actuated, double-chambered, diaphragm-operated, rigid sealing globe and angle pattern valve.

[2] OCV 155 Visual Indicator Assembly (optional):
Provides indication of valve position at a glance.



Part	Standard Material	Optional
Valve Body/Bonnet	Ductile Iron	Cast Steel, Stainless Steel, Aluminum
Seat Ring	Stainless Steel	
Seat Retainer/Diaphragm Plate	Stainless Steel (up to 8"); Ductile Iron (10" & up)	--
Stem	Stainless Steel	Monel
Spring	Stainless Steel	--
Diaphragm	EPDM	Buna-N
Seat Disc	EPDM	Buna-N
Pilot	Stainless Steel	
Tubing & Fittings	Stainless Steel	

*Consult Factory for additional available materials.



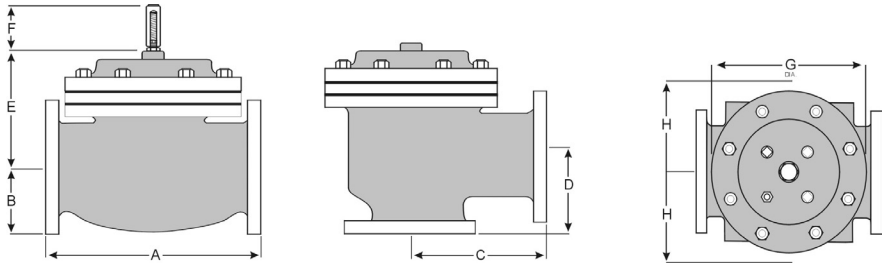
General Arrangement & Dimensions

Standard Sizes													
DIM	End Connections	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	24"
A	Threaded	8 3/4	9 7/8	10 1/2	13	--	--	--	---	---	---	---	---
	Grooved	8 3/4	9 7/8	10 1/2	13	15 1/4	20	--	---	---	---	---	---
	150# Flanged	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# Flanged	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	62 3/4
B	Threaded	1 7/16	1 11/16	1 7/8	2 1/4	--	--	--	---	---	---	---	---
	Grooved	1*	1 3/16	1 7/16	1 3/4	2 1/4	--	--	---	---	---	---	---
	150# Flanged	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# Flanged	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
C	Threaded	4 3/8	4 3/4	6	6 1/2	--	--	--	---	---	---	---	---
	Grooved	4 3/8*	4 3/4	6	6 1/2	7 5/8	--	--	---	---	---	---	---
	150# Flanged	4 1/4	4 3/4	6	6	7 1/2	10	12 11/16	14 7/8	17	---	20 13/16	---
	300# Flanged	4 3/8	5	6 3/8	6 3/8	7 3/16	10 1/2	13 3/16	15 9/16	17 3/4	---	21 5/8	---
D	Threaded	3 1/8	3 7/8	4	4 1/2	--	--	--	---	---	---	---	---
	Grooved	3 1/8*	3 7/8	4	4 1/2	5 5/8	--	--	---	---	---	---	---
	150# Flanged	3	3 7/8	4	4	5 1/2	6	8	11 3/8	11	---	15 11/16	---
	300# Flanged	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	7	7	8 1/2	7 3/4	9 3/4	11 3/4	14 5/8	19 1/8	20 3/4	22 1/4	24 1/4	33
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

Approximate Dimensions. *Grooved end not available in 1 1/4"

Metric Sizes													
DIM	End Connections	DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN350	DN400	DN600
A	Threaded	222	251	267	330	--	--	--	---	---	---	---	---
	Grooved	222	251	267	330	387	508	--	---	---	---	---	---
	150# Flanged	216	238	267	305	381	451	645	756	864	991	1026	1575
	300# Flanged	222	251	283	324	397	437	670	791	902	1029	1067	1619
B	Threaded	37	43	48	57	--	--	--	---	---	---	---	---
	Grooved	25*	30	37	44	57	--	--	---	---	---	---	---
	150# Flanged	59-64	76	89	95	114	140	171	203	241	270	298	406
	300# Flanged	67-78	83	95	105	127	159	191	222	260	292	324	457
C	Threaded	111	121	152	165	--	--	--	---	---	---	---	---
	Grooved	111*	121	152	165	194	--	--	---	---	---	---	---
	150# Flanged	108	121	152	152	191	254	322	378	432	---	529	---
	300# Flanged	111	127	162	162	198	267	335	395	451	---	549	---
D	Threaded	79	98	114	114	--	--	--	---	---	---	---	---
	Grooved	79*	98	114	114	143	--	--	---	---	---	---	---
	150# Flanged	76	98	102	102	140	152	203	289	279	---	398	---
	300# Flanged	79	105	111	111	148	165	216	306	298	---	419	---
E	All	177	177	215	196	203	298	356	482	527	565	615	838
F	All	98	98	98	98	98	98	162	162	162	162	162	203
G	All	152	171	222	222	298	356	533	711	794	794	876	1321
H	All	254	279	279	279	305	330	356	457	508	508	508	724

Approximate Dimensions. *Grooved end not available in DN32



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Basic Valves

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Directing the Flow

Specifications

VALVE BODY & BONNET	Ductile Iron		Cast Steel		Stainless Steel	
Material Specification	ASTM A536/65-45-12		ASTM A216/WCB		ALL GRADES	
END CONNECTIONS						
Flange Standard (also available in metric)	ANSI B16.42		ANSI B16.5		ANSI B16.5	
Flange Class	150#	300#	150#	300#	150#	300#
Flange Face	Flat	Raised	Raised	Raised	Raised	Raised
Maximum Working Pressure	250psi	640psi	285psi	740psi	285psi	740psi
Threaded Working Pressure: ANSI B1.20.1 640psi			Grooved End Working Pressure: 300psi			
INTERNALS						
Stem	Stainless Steel					
Spring	Stainless Steel					
Spool	Ductile Iron (epoxy coated) / Optional - Stainless Steel				Stainless Steel	
Seat Disc Retainer	Ductile Iron (epoxy coated) (10" & Larger)				Stainless Steel	
	Stainless Steel (8" & Smaller / Optional - All Sizes)					
Diaphragm Plate	Ductile Iron (epoxy coated) / Optional - Stainless Steel				Stainless Steel	
Seat Ring Trim	Stainless Steel / Optional - Low-Lead Bronze				Stainless Steel	
Upper Stem Bushing	Bronze or PTFE				PTFE	
Lower Stem Bushing	Not applicable for Low-Lead Bronze Seat Rings / PTFE for Stainless Steel Seat Rings					
ELASTOMER PARTS (Rubber)						
Diaphragm/Seat Disc/O-Rings	EPDM / Optional Buna-N					
Operating Temperature*	32°F to 230°F Max					
COATINGS	NSF-61 Epoxy Coating					
ELECTRICAL SOLENOIDS						
Body	Brass / Stainless Steel					
Enclosures	Water Tight, NEMA 1, 3 , 4, 4X					
Power	AC, 60HZ - 120, 240, 480 Volts	AC, 50HZ - In 110 Volt Multiples	DC, 6, 12, 24, 240 Volts			
Operation	Energize to Open	De-Energize to Open				
CONTROL PILOTS						
Body	Low-Lead Bronze / Stainless Steel					
Internal	Stainless Steel					
TUBING	Stainless Steel / Copper					
FITTINGS	Low-Lead Brass / Stainless Steel					

*Consult Factory when temperatures approach low or high temperature allowance. Consult Factory for additional available materials.

Globe Flanged Sizes

1 1/4"	1 1/2"	2"	2 1/2"	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 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	16"
32mm	40mm	50mm	65mm	80mm	100mm	150mm	200mm	250mm	300mm	400mm

Globe/Angle Threaded Sizes

1 1/4"	1 1/2"	2"	2 1/2"	3"
32mm	40mm	50mm	65mm	80mm

Globe/Angle Grooved Sizes

1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"*
32mm	40mm	50mm	65mm	80mm	100mm	150mm*

Technical Data

Temperature (Elastomers)	
Water	up to 110°C / 230°F max
Sizes	
Globe	1 1/4" - 24" / 32-600mm
Angle	1 1/4" - 16" / 32-400mm
Pressure Rating (Ductile Iron at 100°F/37.8°C)	
250 psi for ASME Class 150# & 640 psi for Class 300#	
End Connections	
Flanged	ISO-PN16 & ISO-PN25
	ASME/ANSI B16.42 & B16.5 Class 150# & 300#
	Additional options available upon request
Threaded	BSP/NPT
Grooved	ASME/ANSI AWWA 606
Elastomers	
EPDM	Buna-N
Coating Material	
NSF 61 Epoxy Coating	High Built, Fusion Bonded Apoxy
Main Valve Trim Material	
Stainless Steel	

Body & Cover Material	
Ductile Iron ASTM A536	Stainless Steel ASTM CF8M
Cast Steel ASTM A216	Aluminum
Trim Material	
Stainless Steel	
Optional Components	
Pressure Switch	Open/Close Speed Control
Limit Switch	Pressure Gauges
Drain Plug	Visual Position Indicator
Isolation Ball Valves	
Items to Specify	
Electrical features other than standard (24VDC, IP65/NEMA4)	
If explosion proof accessories are required such as solenoids, pressure switches, etc., please define classification	
Control trim material other than standard	
Required standards, certifications and approvals	