OCV Series 65

Basic Valves

Aquestia
Directing the Flow

General representation

Fire Protection

Series 65 Basic Valve

Description

The OCV Series 65 control valves are automatic, hydraulically actuated, diaphragm operated, rigid seal globe and angle pattern valves. These valves are designed for use in fire protection applications, including deluge, pressure control, water, foam and seawater fire protection systems. The valves consist of three major components: the body, the bonnet and the internal diaphragm assembly.

Certification & Compliance

UL Listed (3"-10" with Buna-N Elastomers) under categories: QXZQ, VLFT & VLMT

ABS Type Approval

Factory Mutual Approved under categories 1361 & 1363

Fire Tested to EN ISO 19921

Consult the UL Listing Guide, or contact Aquestia USA for a complete list of approved applications & valve sizes.

Features & Benefits

- Listed & approved for use in fire protection systems by various global standards
- Quick opening; Non-slam closing operation
- Drip-tight shut off to ANSI FCI 70-2 VI seat leakage class
- Simple & reliable construction
- Easy installation & maintenance
- High-grade construction materials
- Reliable pressure control
- Low pressure losses at high flow rates
- Optional local or remote reset
- Optional electric, pneumatic & electro-pneumatic control trims
- Optional explosion proof solenoids & trim accessories
- Optional seawater & foam concentrate services

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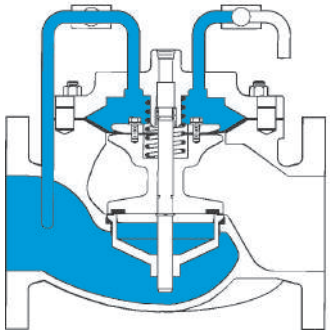
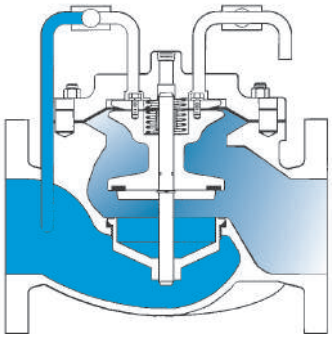
Operation

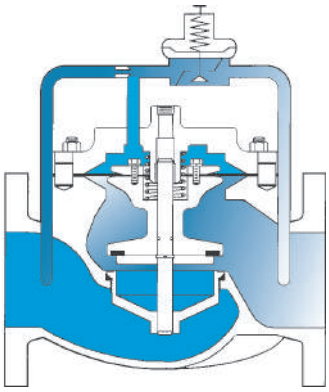
Valve Closed:
When line pressure from the valve inlet is applied to the cover chamber, pressurizing the diaphragm, the valve is closed drip-tight.

Valve Open:
When cover chamber pressure is vented, the valve shifts to the fully open position.

Valve Modulating:
The valve is between fully open and closed positions. The valve's control pilot modulates the pressure in the cover chamber, positioning the valve to control the desired pressure or flow. OCV pilot systems provide accurate control in a wide range of performance requirements.







Flow Characteristics

$DP = sg\,(Q/Cv)^2$ where: Q = Flow Rate in USGPM (Standard) or Q = Flow Rate in cubic meters/sec (Metric)
Cv = Flow Rate in USGPM @ 1 psi pressure drop (Standard) or
Cv = Flow Rate in cubic meters/sec @ 1 bar pressure drop (Metric)
DP = Pressure Drop in psi (Standard) or DP = Pressure Drop in bar (Metric)
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 Cv	Angle Cv
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	--

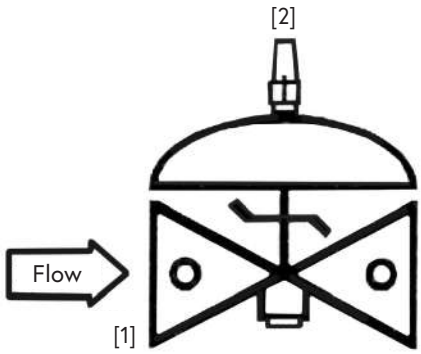
Resetting, maintenance, and periodic testing instructions must be followed as described in detail in the applicable OCV IOM (Installation, Operation & Maintenance) Manual.

Components & Typical Materials

The OCV 65FC consists of the following components, arranged as shown on the schematic diagram.

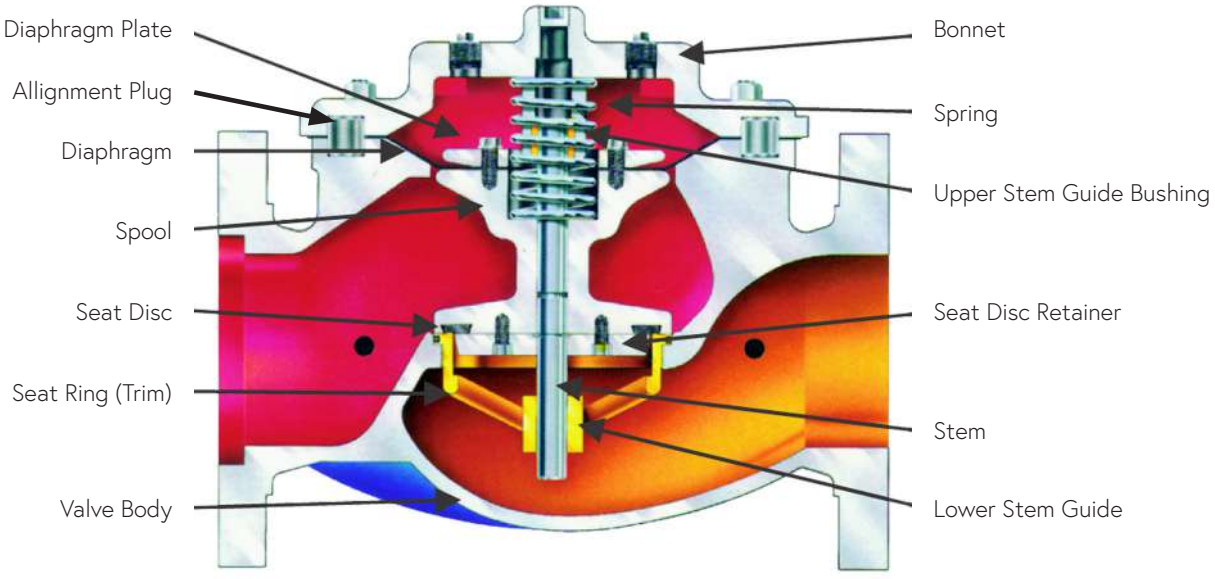
[1] OCV 65FC Basic Control Valve:
a UL Listed, hydraulically operated, diaphragm actuated globe valve which closes with an elastomer-on-metal seal.

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



DRAIN PORT
(Water Supply Drain)
2" NPTF on 4" - 10"
1 1/4" NPTF on 3"

Part	Standard Material	Optional
Valve Body	Ductile Iron	Cast Steel, Stainless Steel, NAB
Seat Ring	Bronze	Stainless Steel, NAB
Stem	Stainless Steel	Monel
Spring	Stainless Steel	Elgiloy/MP35N
Diaphragm	Buna-N	EPDM
Seat Disc	Buna-N	EPDM
Pressure Reducing Pilot	Bronze	Stainless Steel, NAB
Tubing / Fittings	Copper, Bronze/Brass	Stainless Steel



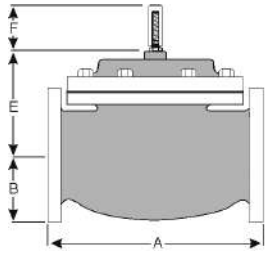
General Arrangement & Dimensions

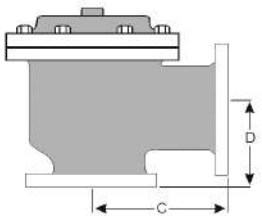
Standard Sizes													
DIM	End Connections	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	24"
A	Threaded	8 3/4	9 7/8	10 1/2	13	--	--	--	---	---	---	---	---
	Grooved	8 3/4	9 7/8	10 1/2	13	15 1/4	20	--	---	---	---	---	---
	150# Flanged	8 1/2	9 3/8	10 1/2	12	15	17 3/4	25 3/8	29 3/4	34	39	40 3/8	62
	300# 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	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

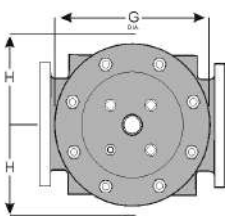
Approximate Dimensions. *Grooved end not available in 1/4"

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	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	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 1/4"







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Basic Valves

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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	Low-Lead Bronze or Stainless Steel				Stainless Steel	
Upper Stem Bushing	Bronze or Teflon®				Teflon®	
Lower Stem Bushing	Not Applicable for Low-Lead Bronze Seat Rings / Teflon® for Stainless Steel Seat Rings					
ELASTOMER PARTS (Rubber)						
Diaphragm/Seat Disc/O-Rings	EPDM, Buna-N					
Operating Temperature*	Buna-N = 32°F to 180°F, EPDM = 32°F to 230°F					
COATINGS	Epoxy Coating					
ELECTRICAL SOLENOIDS						
Body	Brass / Stainless Steel					
Enclosures	Water Tight, NEMA 1, 3, 4, & 4X					
Power	AC, 60HZ - 24, 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, Monel			
Internal	Stainless Steel		Stainless Steel, Monel			
TUBING	Copper		Stainless Steel			
FITTINGS	Low-Lead Bronze		Stainless Steel			

*Consult Factory when temperatures approach low or high temperature allowance

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*

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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	Class 150# & 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 / Viton	
Coating Material	
High Built, Fusion Bonded Epoxy / Seawater Coating (optional)	
Main Valve Trim Material	
Stainless Steel	Bronze

Body & Cover Material	
Ductile Iron ASTM A536	Stainless Steel ASTM CF8M
Cast Steel ASTM A216	NAB ASTM B148 C-958000
Trim Material	
Bronze/Brass	Monel
Brass	Stainless Steel
NAB	
Optional Components	
Pressure Switch	Alarm Test Trim
Pressure Reducing Feature	Position Indicator
Drain Valve	Explosion Proof
Open/Close Speed Control	Block & Bleed Valves for Pressure Sensing Control
PPCS (Pneumatic Pressure Control System for Pneumatically Actuated Models)	
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	