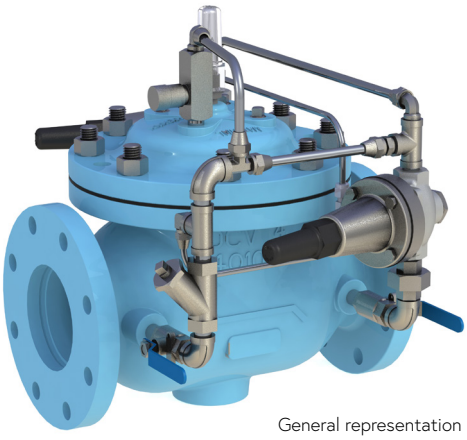
OCV Model 108SA-3

Aquestia
Directing the Flow

Surge Anticipating Valves



General representation

Waterworks

Surge Anticipating Valve

Description

OCV 108SA-3, surge anticipating valve, is installed on a bypass line downstream of the pump check valve(s). It shall function to prevent potentially damaging pressure surges by (a) opening rapidly in the event of a drop in pressure below a predetermined set point and (b) opening rapidly if main line pressure should exceed a predetermined set point. In either event, the valve shall slowly close after pressure has returned to normal.

This valve operates as a pressure relief valve by opening at a pressure above its set point. In addition, it provides extra protection against surges associated with sudden stoppage of the pumps (e.g., power failure) by opening on the resulting low pressure wave, in "anticipation" of the high pressure wave to follow. By being already open when the high pressure wave hits, any potential surge is harmlessly bypassed to atmosphere.

Features & Benefits

- Low pressure opening
- The relief valve limits pressure by relieving excess pressure
- Operates over a wide flow range
- Low and high pressures are adjustable
- Quick opening and adjustable closing speed
- Can be maintained without removal from the line
- Factory tested and can be preset to your requirements

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

Typical Applications

Irrigation Systems

Municipal Distribution Systems

Pump Systems

Power Plants

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Operation

OCV 108SA-3 is equipped with two hydraulic control pilots. A normally open, low pressure pilot opens the valve when system pressure drops to its set point. This setting must be less than static pressure. The valve also opens when the set point of the normally closed, high pressure relief pilot is exceeded. The valve slowly closes (adjustable closing) when system pressure returns to normal (pressure is between the setting of the two pilots).

Components

The OCV 108SA-3 consists of the following components, arranged as shown on the schematic diagram:

1 OCV S65 Basic Control Valve

2 OCV 1330 Pressure Relief Pilot

3 OCV 1340 Pressure Reducing Pilot

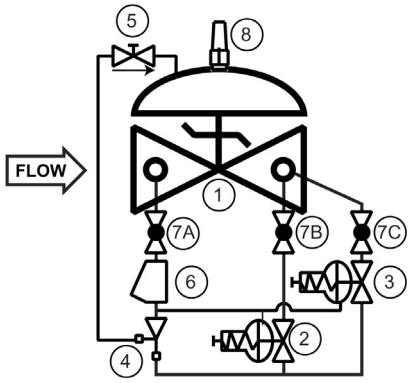
4 OCV 126 Ejector - Fixed orifice pilot system supply restrictor

5 OCV 141-3 Flow Control Valve (Closing Speed Control)

6 OCV 159 Y-Type Strainer - Protects pilot system from dirt/debris

7 OCV 141-4 Isolation Ball Valves

8 OCV 155 Visual Indicator (Optional)



Pressure Table

End Connections	Ductile Iron	Steel/SST	Low-Lead Bronze
Standard (Maximum Working Pressures at 100°F)			
Threaded	640 psi	640 psi	500 psi
Grooved	300 psi	300 psi	300 psi
150# Flanged	250 psi	285 psi	225 psi
300# Flanged	640 psi	740 psi	500 psi

Based on ANSI flange ratings.

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Flow Characteristics

$DP = sg (Q/Cv \text{ or } Kv)^2$ 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
Kv = 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 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.

Typical Materials

Part	Standard Material	Optional
Valve Body/Bonnet	Ductile Iron	Cast Steel, Stainless Steel, Aluminum
Seat Ring	Stainless Steel	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	Stainless Steel
Tubing & Fittings	Stainless Steel	Stainless Steel

*Consult Factory for additional available materials.

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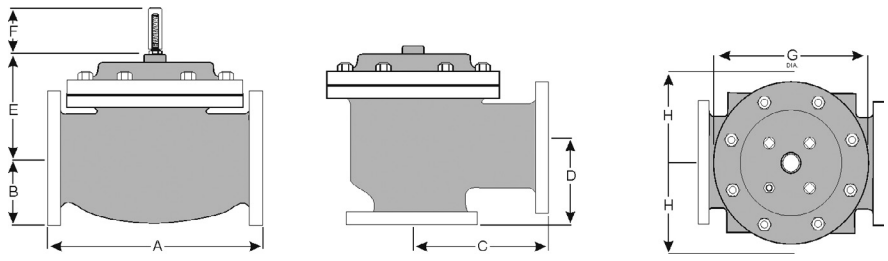
General Arrangement & Dimensions

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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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
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	

Engineering Specifications

The surge anticipating valve shall be a single-seated, line pressure operated, diaphragm actuated, pilot controlled 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 be furnished complete and installed on the main valve. It shall include a closing speed control, Y-Type strainer and isolation ball valves. The surge anticipating valve shall be operationally and hydrostatically tested prior to shipment. The main valve body and bonnet shall be ductile iron per ASTM A536, Grade 65-45-12. All ferrous surfaces shall be coated with with 4 mils of epoxy. The main valve seat ring shall be low-lead bronze. Elastomers (diaphragms, resilient seats and o-rings) shall be EPDM. The control pilots, closing speed control, isolation ball valves, and control line tubing shall be stainless steel. The surge anticipating valve shall be capable of limiting main line pressure to a maximum of <X> psi, based on a main line maximum flow rate of <X> gpm and static pressure of <X> psi, with valve discharge to atmosphere. The surge anticipating valve shall be an OCV 108SA-3, as manufactured by OCV, Tulsa, OK, USA.

Aquestia USA

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