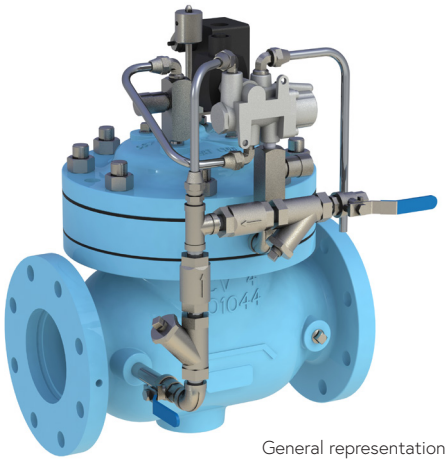
OCV

Model 126

Pump Control Valves

Aquestia
Directing the Flow



General representation

Waterworks

Deep Well Pump Control Valve

Description

OCV 126, a deep well pump control valve, shall function to eliminate the surges from starting and stopping the pump by working in conjunction with the pump check valve. It will also function to eliminate air and debris from the pump column. The valve will be open when the pump is started. It will then close slowly, gradually introducing flow into the line. When the pump is signaled to stop, the pump control valve will slowly open while the pump continues to run. As the valve approaches the full open position, the valve stem will trip a limit switch mounted on the valve. The limit switch will then shut down the pump. Opening and closing speeds are independently adjustable. It is designed to be used on deep well pumps where the pump design permits starting against an open valve.

Features & Benefits

- Eliminates surges associated with starting & stopping the pump
- Eliminates air and debris from the pump column
- Operates in conjunction with pump check valve to smoothly transition flow to and from main line
- Pump starts against an open valve that then gradually closes at a controlled rate
- Valve gradually opens at a controlled rate while pump continues to run
- Pump stops when valve is fully open
- Dual chamber design allows valve to be fully open when pump is off
- Separate adjustable opening and closing speeds
- Can be maintained without removal from the line
- Factory tested

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

Pump Systems

Well Applications

Rural Water Systems

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Operation

The OCV 126 is controlled by an electrical 4-way solenoid which is energized at pump start. This pressurizes the upper diaphragm chamber while simultaneously venting the lower chamber, causing the valve to close at an adjustable, controlled rate, smoothly transitioning flow into the system through the pump check valve. At shut-down, the solenoid is de-energized, pressurizing the lower diaphragm chamber while simultaneously venting the upper chamber, causing the valve to open at an adjustable controlled rate while the pump (held on by the valve limit switch) continues to run. When the valve is fully open, the pump is finally shut off.

Components

The OCV 126 consists of the following components, arranged as shown on the schematic diagram:

1 OCV S66 Basic Control Valve

2 OCV 453 Four-Way Solenoid Pilot

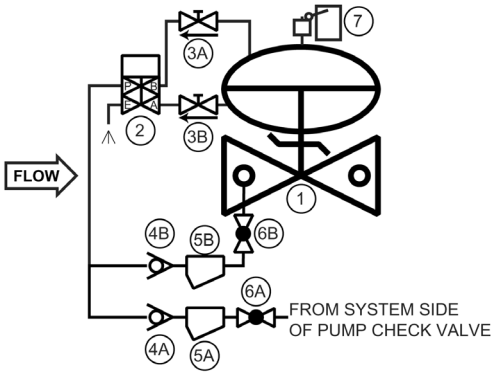
3 OCV 141-3 Flow Control

4 OCV 141-1 Check Valve

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

6 OCV 141-4 Isolation Ball Valves

7 OCV 31 Limit Switch Assembly



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	--
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.

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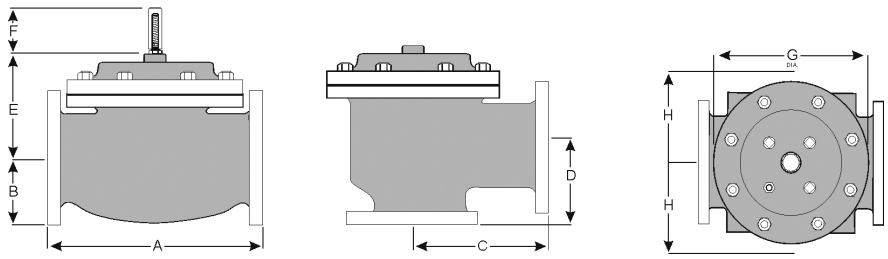
General Arrangement & Dimensions

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	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	247	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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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	Pressure Gauges
Drain Plug	
Items to Specify	
Electrical features other than standard	
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 deep well pump control 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 aresilient, 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 separate opening and closing speed controls, a Y-Type strainer, and isolation ball valves. The deep well pump control 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. Elastomers (diaphragms,resilient seats and o-rings) shall be EPDM. The speed controls, isolation ball valves, control line tubing, and the orifice plate shall be stainless steel. The solenoid coil shall be suitable for operation on 110-120 volts AC, 50-60Hz. The limit switch shall be equipped with SPDT contacts rated at 15 amps at 125-480 VAC. Limit switch and solenoid enclosures shall be weatherproof per NEMA 4. The booster pump control valve shall be an OCV 126, as manufactured by OCV, Tulsa, OK, USA.

Aquestia USA

7400 East 42nd Place. Tulsa, Oklahoma 74145. USA | Phone: 1-918-627-1942 | Toll Free: 1-888-OCV-VALV (628-8258) | www.aquestia.com | usa@aquestia.com