

OCV Model 108-3

Pressure Relief/Back Pressure Control Valves

Aquestia
Directing the Flow



General representation



Fueling



Terminal
Services

Back Pressure/Check Valve

Description

The back pressure control valve shall function to prevent the upstream pressure from falling below a predetermined minimum while closing to prevent reverse flow. The OCV 108-3 has a wide range of applications - anywhere a system must be protected by pressures that are too high (relief) or too low (sustaining), and reverse flow must be prevented. Typical examples include:

- Pump systems
- Fuel distribution systems

Certification & Compliance

NSF-ISO Quality System (9001)



ABS Type Approval



Technical Standards & Safety Authority



American-Made: American Recovery & Reinvestment



Pressure Equipment Directive Certified 2014/68/EU



CE (Conformité Européenne) Compliance



Features & Benefits

- Prevents inlet pressure from dropping below a predetermined minimum
- Automatic closure on pressure reversal
- Operates over a wide flow range
- Set pressure is adjustable with single screw
- Can be maintained without removal from the line
- Quick opening & adjustable closing speed
- Factory tested and can be pre-set to your requirements

Typical Applications

Metering Systems



Loading Terminals



Storage Tanks



Truck/Rail Car Loading & Unloading Systems



Operation

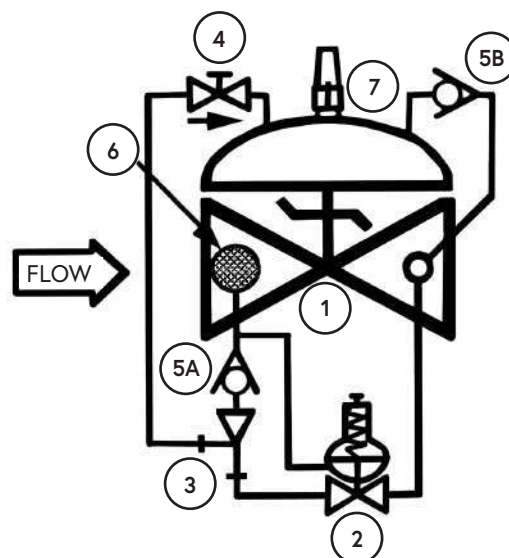
The normally closed, spring-loaded pilot, sensing upstream pressure, responds to changes in pressure and causes the main valve to do the same. The net result is a constant modulating action of the pilot and main valve to hold the upstream pressure constant. The pilot system is equipped with a closing speed control that fines tunes the valve response to the system variables.

If downstream pressure becomes greater than upstream pressure, the valve will close to prevent reverse flow.

Components

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

- 1 Model 65 Basic Valve (fail closed)
- 2 Model 1330 Pressure Relief Pilot
- 3 Model 126 Ejector
- 4 Model 141-3 Flow Control Valve (closing speed control)
- 5 Model 141-1 Check Valve
- 6 Model 123 Inline Strainer
- 7 Model 155L Visual Indicator (optional)



Pressure Table

End Connections	Ductile Iron	STEEL/SST	STEEL LCB	STEEL WCB	Aluminum
Standard (Maximum Working Pressures at 100°F)					
Screwed	640 psi	640 psi	--	--	285 psi
Grooved	300 psi	300 psi	--	--	200 psi
150# Flanged	250 psi	285 psi	--	--	285 psi
300# Flanged	640 psi	740 psi	--	--	--
Metric (Maximum Working Pressures at 37.78°C)					
Screwed	44.1 bar	44.1 bar	44.1 bar	44.1 bar	19.7 bar
Grooved	20.7 bar	20.7 bar	20.7 bar	20.7 bar	13.8 bar
150# Flanged	17.2 bar	19.0 bar	18.4 bar	19.7 bar	19.7 bar
300# Flanged	44.1 bar	49.6 bar	48.0 bar	51.0 bar	--

Based on ANSI flange ratings.

Flow Chart

Standard Size Max. Flow (GPM)	1 1/4"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
7.5 FT/SEC (Military)	40	50	80	120	180	300	680	1200	1850	2650	3200	4150	5250	6550	9400
15 FT/SEC (Max. Recommended)	70	100	160	230	350	600	1350	2350	3700	5250	6350	8300	10500	13100	18800
20 FT/SEC (Max. Continuous)	100	130	210	300	470	800	1800	3150	4950	7000	8450	11100	14000	17400	25100
Metric Size Max. Flow (m ³ /hr)	DN32	DN40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	DN600
2.29 M/SEC (Military)	9	11	18	27	41	68	154	272	420	602	726	942	1192	1487	2134
4.57 M/SEC (Max. Recommended)	16	23	36	52	79	136	306	533	840	1192	1441	1884	2384	2974	4268
6.10 M/SEC (Max. Continuous)	23	30	48	68	107	182	409	715	1124	1589	1918	2520	3178	3950	5698

The OCV 108-3 is normally sized to match the meter size; however, in no case should the maximum velocity exceed 20 ft/sec (metric: 6.10 meters/sec).

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

Typical Materials

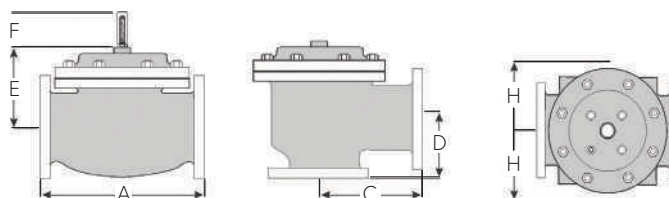
Part	Standard Material
Body/Bonnet	Ductile Iron (epoxy coated), Carbon Steel (epoxy coated), Stainless Steel, Aluminum
Seat Ring	Stainless Steel, Bronze
Stem	Stainless Steel, Monel
Spring	Stainless Steel
Diaphragm	Buna-N, Viton (Nylon reinforced)
Seat Disc	Buna-N, Viton
Pilot	Stainless Steel, Bronze
Other Pilot System Components	Stainless Steel, Bronze/Brass
Tubing & Fittings	Stainless Steel, Copper/Brass

General Arrangement & Dimensions

Standard Sizes													
DIM	END CONN.	1 1/4" - 1 1/2"	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	24"
A	SCREWED	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# 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
C ANGLE	SCREWED	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# 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	---
D ANGLE	SCREWED	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# 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 (OPT)	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
H	ALL	10	11	11	11	12	13	14	17	18	20	20	28 1/2

Metric Sizes													
DIM	END CONN.	DN32-40	DN50	DN65	DN80	DN100	DN150	DN200	DN250	DN300	DN350	DN400	DN600
A	SCREWED	222	251	267	330	---	---	---	---	---	---	---	---
	GROOVED	222	251	267	330	387	508	---	---	---	---	---	---
	150# FLGD	216	238	267	305	381	451	645	756	863	991	1026	1575
	300# FLGD	222	251	283	324	397	473	670	791	902	1029	1067	1619
C ANGLE	SCREWED	111	121	152	165	---	---	---	---	---	---	---	---
	GROOVED	111*	121	152	165	194	---	---	---	---	---	---	---
	150# FLGD	108	121	152	152	191	254	322	378	432	---	529	---
	300# FLGD	111	127	162	162	198	267	335	395	451	---	549	---
D ANGLE	SCREWED	79	98	102	114	---	---	---	---	---	---	---	---
	GROOVED	79*	98	102	114	143	---	---	---	---	---	---	---
	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 (OPT)	ALL	98	98	98	98	98	98	162	162	162	162	162	203
H	ALL	254	279	279	279	305	330	356	432	457	508	508	724

*Grooved End not available in 1 1/4" (DN32).



Technical Data

Temperature (Elastomers)	
Buna-N	-40°F to 180°F
Viton	20°F to 230°F
Fluorosilicone	-40°F to 150°F
EPDM	0°F to 230°F
Sizes	
Screwed Ends	1-1/4" - 3"
Grooved Ends	1-1/2" - 6" (globe & angle)
Flanged Ends	1-1/4" - 24" (globe); 1-1/4" - 16" (angle)
Pressure Rating (ANSI at 100°F)	
250psi for Class 150# ANSI Flanged Ductile Iron	
285psi for Steel/Stainless Steel & Aluminum	
300# ANSI Flanges are available	
Solenoid Voltage	
Enclosure	Explosion Proof NEMA 4X, 6P, 7, 9
Body	Brass, Stainless Steel
Voltages	24, 120, 240, 480 VAC; 12, 24 VDC

Body & Cover Material
Ductile Iron
Carbon Steel
Stainless Steel
Aluminum
Trim Material
Bronze/Brass
Stainless Steel
Copper
Optional Components
Two-Stage Opening
Visual Indicator
Pre-Wired Junction Box
Items to Specify
Fluid Type
Model Number
Size
Body & Trim Material
Solenoid Voltage
Globe or Angle
Special Installation Requirements

Engineering Specifications

The back pressure control valve shall be a single-seated, line pressure operated, diaphragm actuated, pilot controlled globe 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, installed on the main valve, and include a needle valve, inline strainer, and solenoid valve. The back pressure control valve shall be operationally and hydrostatically

tested prior to shipment. The main valve body and bonnet shall be ductile iron. All ferrous surfaces shall be coated with 4 mils of epoxy. The main valve seat ring shall be stainless steel. Elastomers (diaphragms, resilient seats and o-rings) shall be Buna-N. The control pilot, needle valve, and control line tubing shall be stainless steel. The back pressure control valve shall be suitable for operation on <voltage> (see Technical Data section). The back pressure control valve shall be suitable for pressures of <X to X> psi (see Pressure Table) at flow rates up to <X> gpm (see Flow Chart). The back pressure control valve shall be an OCV 108-3, as manufactured by OCV, Tulsa, OK, USA.