DeZURIK

BULLETIN 6000
MARCH 2026

APCO CVS-6000 SWING CHECK VALVES

Design and Construction

APCO CVS-6000 Swing Check Valves are engineered for dependable performance in both clean and dirty services, including water, sewage and a wide range of industrial applications. With a premium, heavy-duty construction and full waterway flow area, APCO CVS-6000 valves deliver maximum efficiency, exceptional durability, and reliable operation under elevated flow rates, high pressures, and demanding conditions.

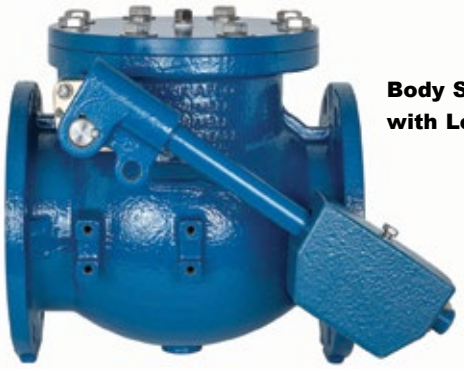
To meet comprehensive system requirements, the CVS design is offered in two body styles:

- **6000D** - Ideal for most applications, the 6000D meets AWWA C508-25 and accommodates multiple closure control options, including Lever & Weight, Lever & Spring, Air Cushioned Cylinder & Oil Cushion.
- **6000A/6000** - This body style incorporates Oil Control closure options with either a Side Mounted Cylinder or a Bottom Buffer with adjustable closing time (within system limits) that is specifically designed to gradually decelerate the reverse flow after pump shutdown.

Available in sizes 2-66" (50-1700mm), the CVS-6000 Swing Check Valves are available with Acrylonitrile-Butadiene (NBR) or Terpolymer of Ethylene, Propylene and A Diene (EPDM) resilient disc seat and the body seat is long- wearing centrifugally cast 316 stainless steel for durability. Additional resilient disc seat and body seat materials are available on body style 6000A/6000.

High Strength Shaft

The one-piece shaft is constructed from 316 stainless steel, delivering exceptional strength and corrosion resistance. The pivot shaft with key and bearing effectively eliminates axial movement and enhances overall stability and reliability. Additional shaft materials are available on body style 6000A/6000.



Body Style 6000D with Lever & Weight

Body Style 6000 with Oil Control Bottom Mounted Buffer

Full Waterway Flow Area

The valves feature a full waterway flow-through area for low head loss and inherent slam minimization.

Internals Removable Without Removing Valve from the Line

Top entry design allows all internal parts, including the body seat, to be easily replaced in the field by removing the cover without removing the valve body from the pipeline. The seat ring is field replaceable without the use of special tools.

Body Style 6000D

Single-Piece Disc and Disc Arm - Enhance Strength and Reliability

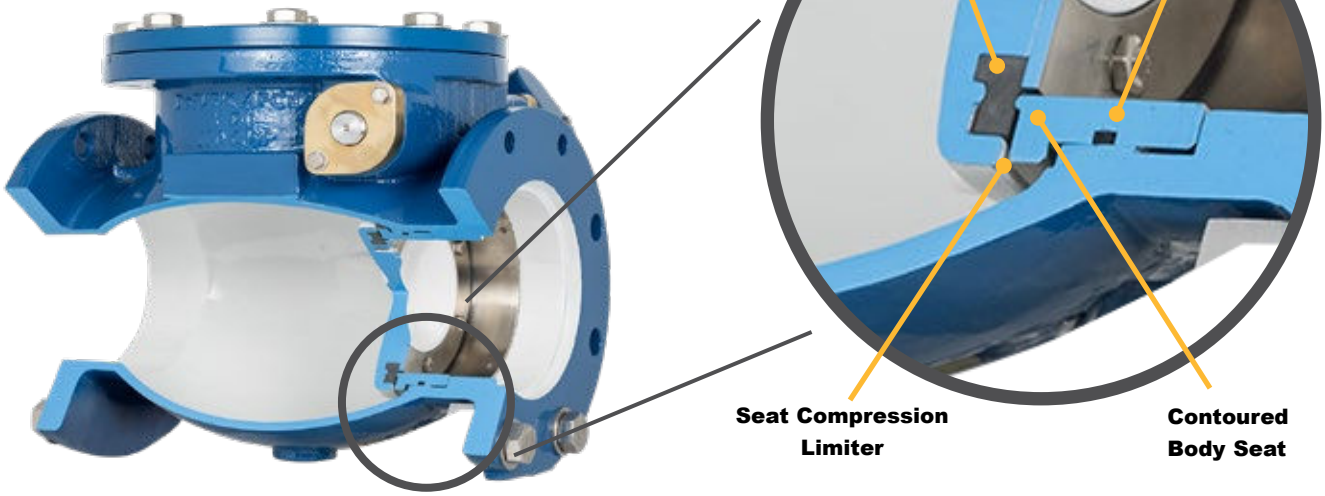
The single-piece disc and disc arm design provides a stronger, more reliable connection than assemblies that use an articulated single pin connection to attach the disc to the disc arm. By eliminating pins and joints, it removes common failure points that can loosen, wear, or misalign. This results in improved sealing integrity, extended service life, and reduced maintenance, delivering greater reliability and lower total cost of ownership.

Advanced Seat Sealing Technology

The valve's seat design (patent pending) combines a precision machined contoured metallic body seat with a self-aligning molded elastomeric disc seat. The contoured body seat enhances low-pressure sealing while the self-aligning seat allows the elastomer to flex and adapt under variable load conditions. Together, these features provide superior sealing performance, reduce the risk of leakage, extend service life, and minimize maintenance requirements. This advanced seating technology eliminates the need for an articulated disc to disc arm joint.

Built-In Seat Compression Limiter

A built in seat compression limiter prevents the disc from over-compressing the rubber seat beyond its elastic limit. This anti-compression patent pending feature safeguards the seating surfaces by maximizing seat life, ensuring reliable shutoff, protecting critical components, and extending service life.



Closure Control Devices

Body Style 6000D

Lever & Weight (LW)

For systems with gradual flow reversals, a lever and weight configuration is a commonly used economical solution. In this setup, the weighted lever arm applies additional force to assist in closing the valve disc to minimize slam. This force can be fine-tuned by adjusting the position of the weight, offering precise control over the valve's closing speed to match specific system dynamics.

Lever & Spring (LS)

In contrast, applications that have sudden flow reversal may benefit from a lever and spring mechanism. The spring delivers a faster closure than a lever and weight design further reducing the risk of slamming. Like the weighted configuration, the spring tension is adjustable, allowing operators to tailor the valve's closing characteristics for optimal performance and system protection. Lever and spring valves may sacrifice head loss to prevent slam as the pump must overcome the additional closing force of the spring.

Closure Control Devices

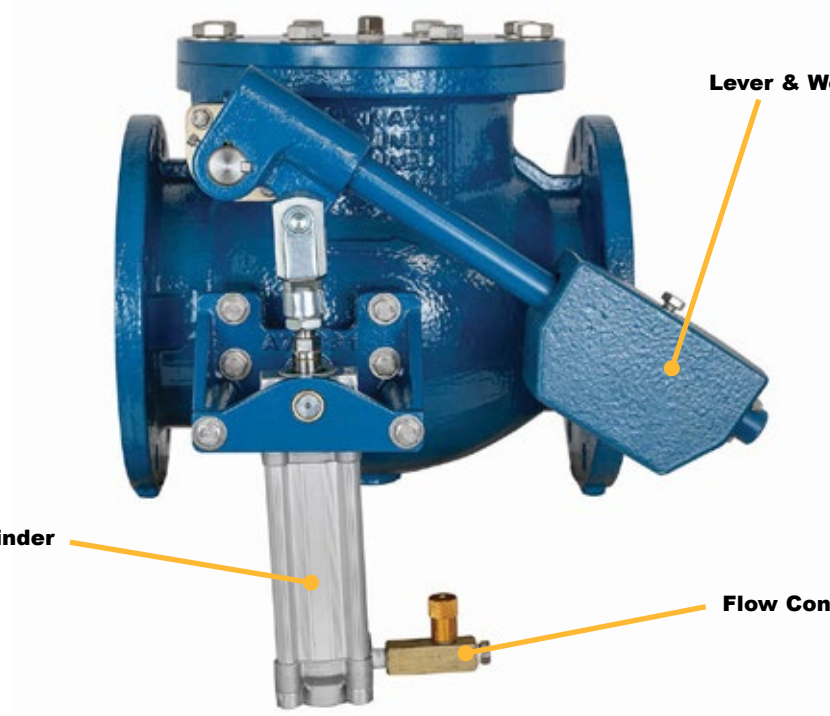
Body Style 6000D

Lever & Weight with Air Cushion Cylinder (AC)

For Free Open, Fast Close applications, the air cushioned check valve utilizes a totally enclosed cushion cylinder externally mounted to the side of the main valve body. A heavy outside lever, positively clamped to a pivot shaft, forces the disc to close quickly and quietly upon pump shut down and before reverse flow takes place in most applications. The weighted lever drives the piston into the cushion chamber, compressing the trapped air and creating a cushion during valve closure.

Principle of Operation

1. Discharge velocity head from the pump against the disc opens the disc and raises the weighted lever outside of the valve upward. At the same time, the piston inside the cushion cylinder is pulled upward, drawing free air into the cushion cylinder through the one-way control check valve.
2. When the pump is shut down and the flow decelerates, the lever and weight forces the valve disc toward the closed position as the piston is simultaneously forced downward in the cushion cylinder. Moving downward, the piston compresses the air in the cushion cylinder because the air cannot readily escape through the one-way control check valve. By restricting the air escape through the adjustable control check air cushioned closing is accomplished.
3. Air cushioning is field adjustable by adjusting the flow control valve for increased or decreased cushioning, and/or moving the weights on the pivot shaft for more or less rapid disc closure.



Closure Control Devices

Body Style 6000D

Lever & Weight with Oil Cushion (OB)

The oil cushion is a precision-engineered shock absorber, securely mounted to a dedicated bracket on the valve's side. Designed to work in conjunction with the lever and weight assembly, it plays a critical role in absorbing impact forces generated during valve closure. While it does not regulate the speed of closure, the oil cushion effectively eliminates shaft rebound and vibration, ensuring smooth, stable valve operation and enhancing overall system reliability. This component is essential for protecting mechanical integrity and extending the service life of the valve under dynamic load conditions.

Principle of Operation

1. The discharge velocity head generated by the pump acts against the valve disc, initiating disc opening and simultaneously lifting the external weighted lever upward. As the counterweight rises, the oil cushion system extends accordingly, preparing to absorb impact forces upon valve closure. This coordinated motion ensures responsive valve operation while preserving mechanical stability through controlled energy absorption.

2. When the pump is shut down and the flow decelerates, the lever and weight forces the valve disc toward the closed position. During reverse flow conditions, pressure on the backside of the disc may also drive the disc rapidly to the closed position. As the valve nears full closure, the counterweight engages with the integrated shock absorber. This precision designed component absorbs the kinetic energy of the counterweight, effectively preventing rebound or "bounce" of the lever arm. By minimizing impact and vibration, the shock absorber reduces mechanical fatigue and wear on critical components such as the pivot shaft and bushings, enhances valve longevity and ensures reliable, low maintenance operation under dynamic flow conditions.

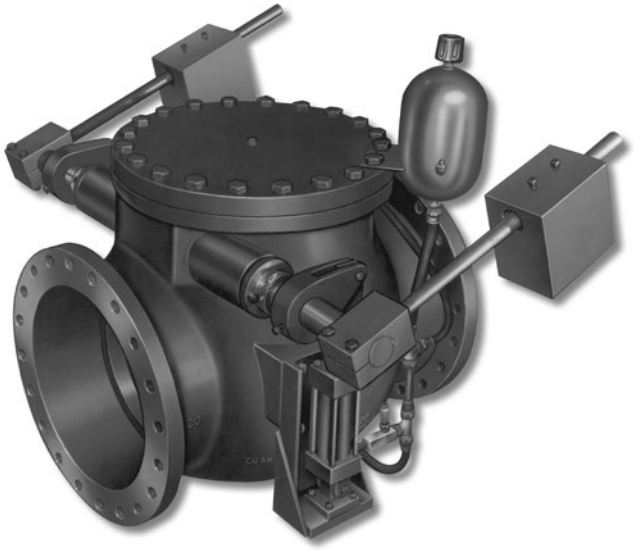
3. The oil cushion is fully adjustable, allowing precise control of engagement by setting its height via locknuts. This adjustment enables optimization of how much of the shock absorber's stroke is utilized by the counterweight during operation. To ensure optimal performance and protection, the oil cushion should be precisely adjusted to maintain continuous contact with the counterweight in the closed position. If the position is modified, such as being moved closer to the pivot shaft, the oil cushion must be repositioned accordingly, using the appropriate mounting hole to maintain correct alignment and functional engagement. This control range ensures consistent impact absorption and long-term mechanical reliability.

Closure Control Devices

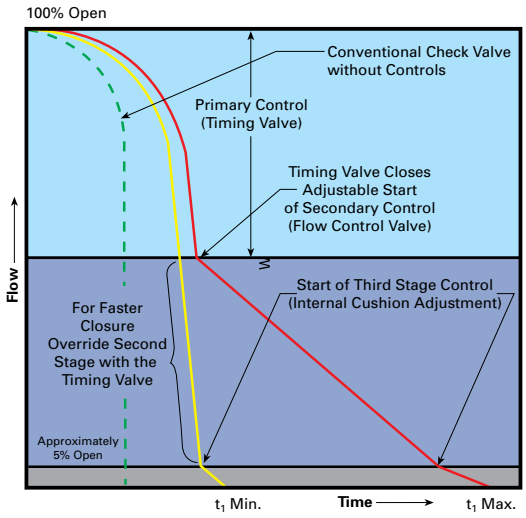
Body Style 6000A/6000

Oil Controlled, Side Mounted Cylinder (OC)

For Free Open, Slow Close applications, CVS-6000A/ 6000 Swing Check Valves are available with an Oil Controlled, Side Mounted Cylinder closure control device on valves 2-20" (50-500mm). The totally enclosed oil cylinder is protected from the elements. Three stage closure provides characterizable, adjustable closing time (within system limits) and is specifically designed to gradually decelerate the reverse flow after pump shutdown.



Three Stage Closing Characteristics



The graph shows flow rate as a function of closing time and illustrates the superiority of the APCO three stage Oil Controlled Side Mounted Cylinder over two stage closure devices.

Principle of Operation

1. Discharge velocity head from the pump causes the disc (10) to open and raises the outside weighted lever (29). Except for frictional resistance, the disc is free opening.

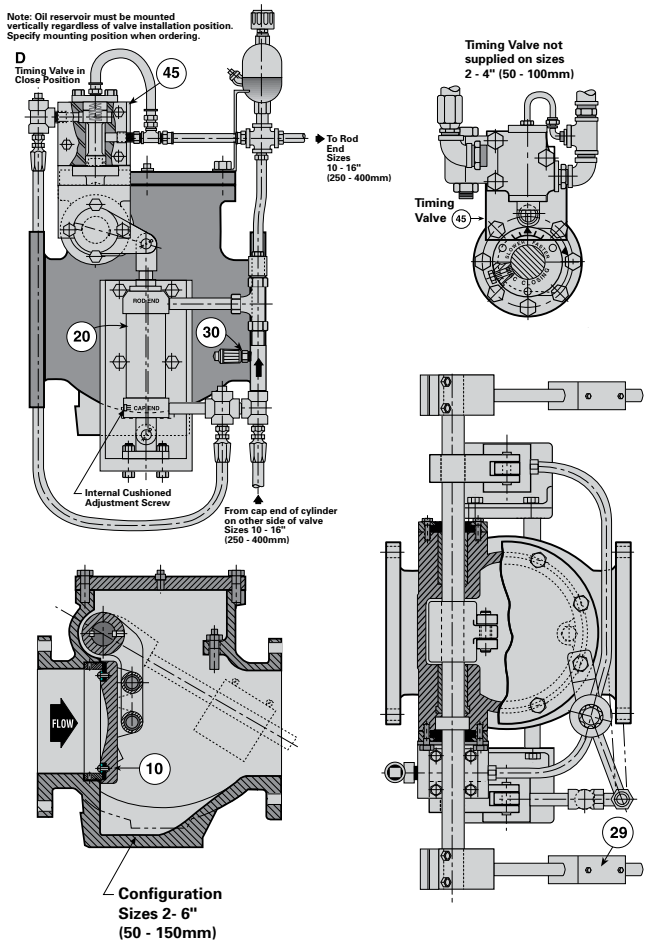
2. Three-stage closing is achieved by the oil dashpot/ timing valve system which minimizes damaging water hammer. Each stage is independently adjustable.

   a. The initial stage of closure is provided by the timing valve (45). The timing valve allows very fast closure of the disc from full open to any degree of closure. This feature greatly reduces the volume of backflow and flow reversal that occurs on valves with only two stages of closure.

   b. The second stage of closure is provided by the Flow Control Valve (30) that varies speed toward final closure.

   c. The final stage of closure is provided by internal adjustment of the cylinder (20) that controls variable speed closure to shut-off.

   d. Additional disc closing adjustments can be made by moving the weight on the pivot shaft.



Closure Control Devices

Body Style 6000A/6000

Oil Controlled, Bottom Mounted Buffer (BMB)

Bottom Mounted Buffers have been used successfully for decades to provide adjustable closing time (within system limits) and is specifically designed to gradually decelerate the reverse flow after pump shutdown on tough applications that would slam or damage other check valve designs. For Free Open, Controlled Close applications, CVS-6000 Swing Check Valves sizes 6-66" (150-1700mm) are available with an Oil Controlled, Bottom Mounted Buffer closure control device.

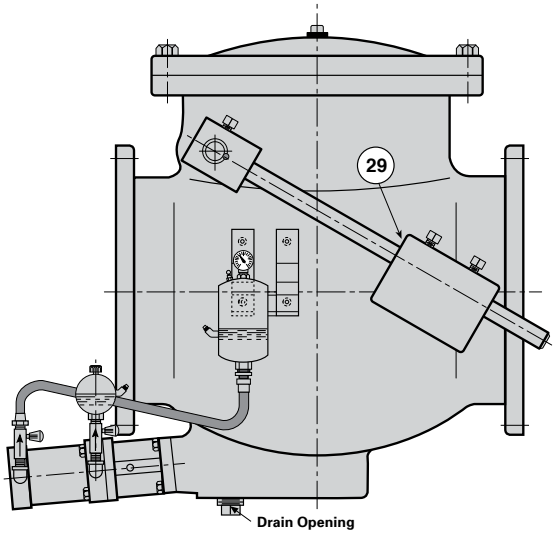
Bottom Mounted Buffers are recommended for larger sized valves and for vertical upward flow installations. They are also recommended where instantaneous flow reversal caused by a hydro pneumatic surge tank or open line discharge is so fast that other check valves may not perform well.

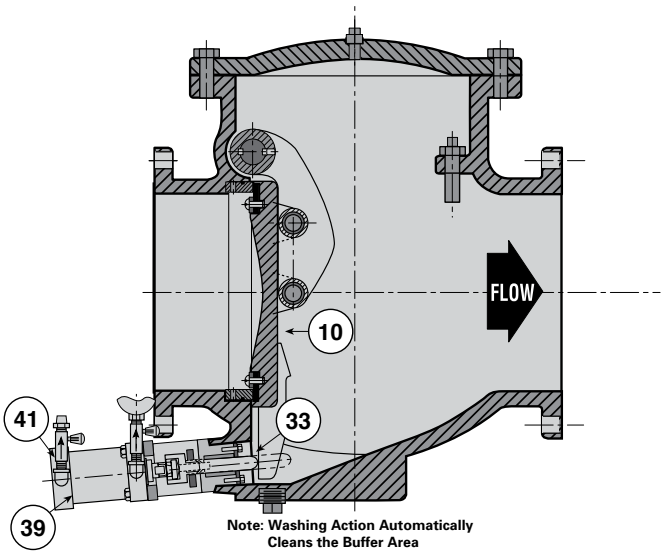
Principle of Operation

1. The unique buffer arrangement allows the valve disc (10) to open fully without interference and to close freely for approximately 90% of its stroke.

2. After the disc is 90% closed, the disc comes in contact with the buffer rod (33). The oil hydraulic buffer makes contact with the disc and controls closure during the final 10% of the stroke.

3. The flow control valve (41) on the cylinder (39) easily adjusts closing time (within system limits) to suit flow conditions. The color-coded micrometer type control valve adjusts the final closure and has a locking set screw that is used to secure the final setting.

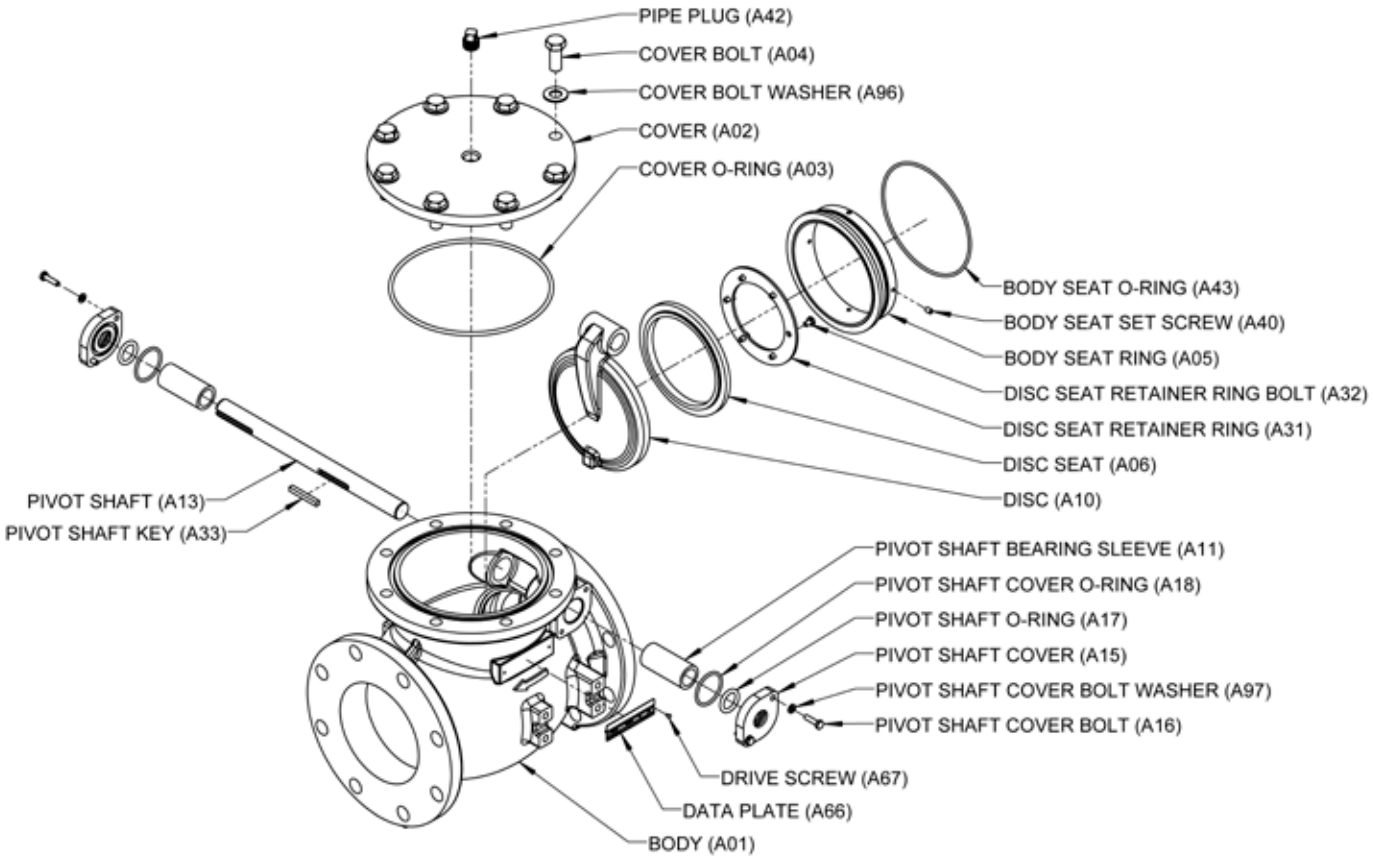




Materials of Construction

Body Style 6000D

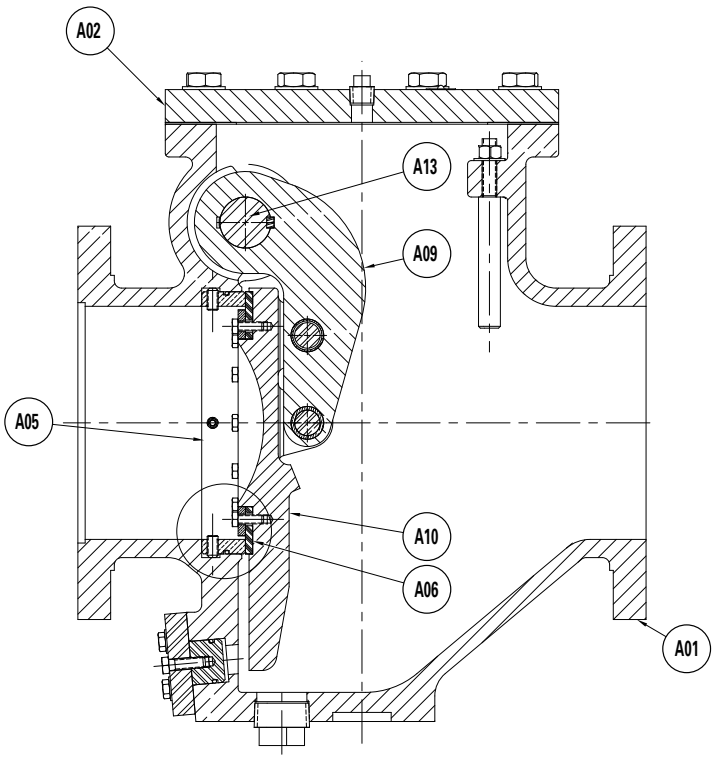
Item	Description	Material
A01	Body	Ductile Iron, ASTM A536
A02	Cover	Steel, ASTM A36
A03	Cover O-Ring	Acrylonitrile - Butadiene (NBR)
		Terpolymer of Ethylene, Propylene and A Diene (EPDM)
A04	Cover Bolt	316 Stainless Steel, ASTM F593G/H
A05	Body Seat Ring	316 Stainless Steel, ASTM A351
A06	Disc Seat	Acrylonitrile - Butadiene (NBR)
		Terpolymer of Ethylene, Propylene and A Diene (EPDM)
A10	Disc	Ductile Iron, ASTM A536
A11	Pivot Shaft Bearing Sleeve	Bronze
A13	Pivot Shaft	304 Stainless Steel, ASTM A276
		316 Stainless Steel, ASTM A276
A15	Pivot Shaft Cover	Aluminum Bronze, ASTM B150
A16	Pivot Shaft Cover Bolt	316 Stainless Steel, ASTM F593G/H
A17	Pivot Shaft O-Ring	Acrylonitrile - Butadiene (NBR)
		Terpolymer of Ethylene, Propylene and A Diene (EPDM)
A18	Pivot Shaft Cover O-Ring	Acrylonitrile - Butadiene (NBR)
		Terpolymer of Ethylene, Propylene and A Diene (EPDM)
A31	Disc Seat Retainer Ring	316 Stainless Steel, ASTM A276
A32	Disc Seat Retainer Ring Bolt	316 Stainless Steel, ASTM F593G/H
A33	Pivot Shaft Key	316 Stainless Steel, ASTM A276
A40	Body Seat Set Screw	316 Stainless Steel, ASTM F593G/H
A42	Pipe Plug	316 Stainless Steel, ASTM F593G/H
A43	Body Seat O-Ring	Acrylonitrile - Butadiene (NBR)
		Terpolymer of Ethylene, Propylene and A Diene (EPDM)
A66	Data Plate	316 Stainless Steel
A67	Drive Screw	18-8 Stainless Steel
A96	Cover Bolt Washer	316 Stainless Steel, ASTM F593G/H
A97	Pivot Shaft Cover Bolt Washer	316 Stainless Steel, ASTM F593G/H



Materials of Construction

Body Style 6000A/6000

Item	Description	Material
A01	Body	Ductile Iron, ASTM A536
A02	Cover	Ductile Iron, ASTM A536 or Steel, ASTM A36 or ASTM A105
A05	Body Seat Ring	Aluminum Bronze, ASTM B148 with Acrylonitrile - Butadiene (NBR)
		316 Stainless Steel, ASTM A276 with Acrylonitrile - Butadiene (NBR)
		Aluminum Bronze, ASTM B148
		316 Stainless Steel, ASTM A276
A06	Disc Seat	Acrylonitrile-Butadiene (NBR)
		Terpolymer of Ethylene, Propylene and A Diene (EPDM)
		Fluoro Rubber (FKM)
		Ultra-High Molecular Weight Polyethylene (UHMW)
		Aluminum Bronze, ASTM B148
		316 Stainless Steel, ASTM A276
A09	Disc Arm	Ductile Iron, ASTM A536
A10	Disc	Ductile Iron, ASTM A536
A13	Pivot Shaft	Stainless Steel, Type 303, ASTM A582
		17-4 PH Stainless Steel, ASTM 564 Type 630



Valve Selection

Body Style 6000D

Shut-Off Capabilities

Seat Type	Shut-Off
Acrylonitrile-Butadiene (NBR)	Drip-Tight
Terpolymer of Ethylene, Propylene and A Diene (EPDM)	

Pressure Ratings

End Connection	Valve Size	
	2-12" (50-300mm)	14-66" (350-1700mm)
F1	200 psi (1379 kPa)	150 psi (1034 kPa)

Temperature Ratings

NBR Disc Seat Material	180°F (83°C)
EPDM Disc Seat Material	250°F (121°C)

Contact application engineering if the valve is required to operate above this temperature.

Applicable Standards

DeZURIK CVS-6000D Swing Check Valves are designed and/or tested to meet the following standards:	
AWWA C508	AWWA C508-25 Swing Check Valves for Waterworks Service 2-In Through 48-In (50-mm Through 1200-mm) NPS
ASME B16.42	Conforms to Bolt Pattern and Drilling

Body Style 6000A/6000

Shut-Off Capabilities

Seat Type	Shut-Off
Acrylonitrile-Butadiene (NBR)	Drip-Tight
Terpolymer of Ethylene, Propylene and A Diene (EPDM)	
Fluoro Rubber (FKM)	
Ultra-High Molecular Weight Polyethylene (UHMW)	

Pressure Ratings

End Connection	Valve Size	
	2-16" (51-406mm)	18-66" (450-1700mm)
F1	250 psi (1724 kPa)	150 psi (1034 kPa)

Temperature Ratings

UHMW Disc Seat Material	175°F (80°C)
Other Disc Seat Materials	250°F (121°C)

Contact application engineering if the valve is required to operate above this temperature.

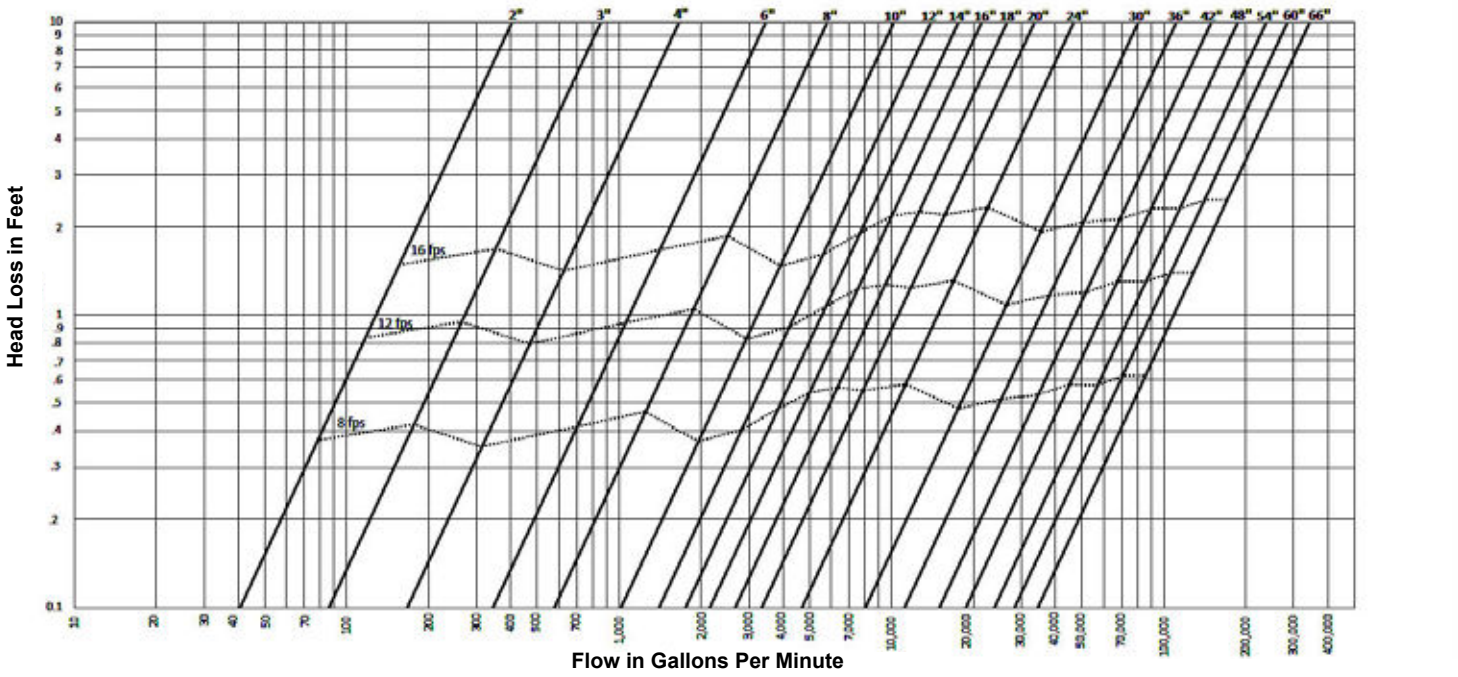
Applicable Standards

DeZURIK CVS-6000/6000A Swing Check Valves are designed and/or tested to meet the following standards:	
AWWA C508	Testing AWWA C508-25 Swing Check Valves for Waterworks Service 2-In Through 48-In (50-mm Through 1200-mm) NPS
ASME B16.42	Conforms to Bolt Pattern and Drilling

Valve Selection

Body Style 6000D

Head Loss Characteristics for Swing Check Valves



Flow Parameters

Valve Size	Cv* / Kv* 100% Open
2" / 50mm	195 / 168
3" / 80mm	412 / 356
4" / 100mm	799 / 690
6" / 150mm	1658 / 1433
8" / 200mm	2788 / 2409
10" / 250mm	4895 / 4229
12" / 300mm	6729 / 5814
14" / 350mm	8435 / 7288
16" / 400mm	10324 / 8920
18" / 450mm	12823 / 11079
20" / 500mm	16037 / 13856
24" / 600mm	22458 / 19404
30" / 750mm	38657 / 33400
36" / 900mm	53573 / 46287
42" / 1100mm	71944 / 62160
48" / 1200mm	89960 / 77725
54" / 1350mm	114274 / 98733
60" / 1500mm	136076 / 117570
66" / 1650mm	164831 / 142414

*Cv = Flow in GPM of water at 1 psi pressure drop.
*Kv = Flow in m^3/hr. of water at 100 kPa pressure drop.

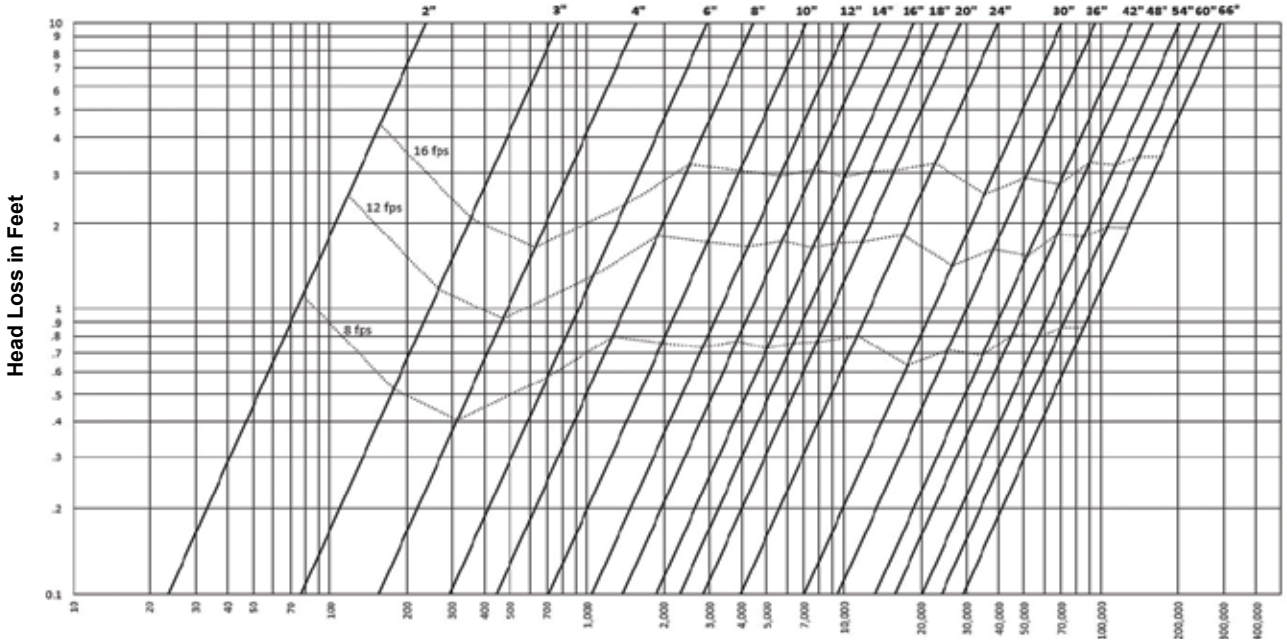
Weights

Valve Size	Closure Control			
	Lever & Weight	Lever & Spring	Air Cushion	Oil Cushion
2" / 50mm	53 / 24	50 / 23	59 / 27	57 / 26
3" / 80mm	64 / 29	62 / 28	71 / 32	68 / 31
4" / 100mm	97 / 44	87 / 39	108 / 49	101 / 46
6" / 150mm	131 / 59	121 / 55	142 / 64	135 / 62
8" / 200mm	227 / 103	217 / 98	238 / 108	231 / 105
10" / 250mm	430 / 195	411 / 186	454 / 206	446 / 202
12" / 300mm	615 / 279	596 / 270	641 / 291	633 / 287
14" / 350mm	760 / 345	730 / 331	803 / 364	790 / 358
16" / 400mm	950 / 431	918 / 416	991 / 450	979 / 444
18" / 450mm	1196 / 543	1156 / 524	1235 / 560	1226 / 556
20" / 500mm	1416 / 642	1376 / 624	1456 / 660	1446 / 656
24" / 600mm	2288 / 1038	2266 / 1028	2368 / 1074	2364 / 1072
30" / 750mm	4125 / 1871	4050 / 1837	4205 / 1907	4226 / 1917
36" / 900mm	6109 / 2771	6025 / 2733	6270 / 2844	6311 / 2863
42" / 1100mm	8395 / 3808	8245 / 3740	8555 / 3880	8596 / 3899
48" / 1200mm	12290 / 5575	12170 / 5520	12500 / 5670	12530 / 5684
54" / 1350mm	17300 / 7847	17120 / 7765	17515 / 7945	17690 / 8024
60" / 1500mm	24810 / 11254	24530 / 11127	25170 / 11417	25280 / 11467
66" / 1650mm	31110 / 14111	30830 / 13984	31470 / 14275	31580 / 14324

Pounds
Kilograms

Note: Weights are approximate and do not include crating.

Valve Selection
Body Style 6000A/6000
Head Loss Characteristics for Swing Check Valves



Flow Parameters

Valve Size	Cv* Kv* 100% Open
2" 50mm	113 98
3" 80mm	371 321
4" 100mm	744 643
6" 150mm	1409 1217
8" 200mm	2129 1839
10" 250mm	3410 2946
12" 300mm	5008 4327
14" 350mm	6649 5745
16" 400mm	8933 7718
18" 450mm	11076 9570
20" 500mm	13631 11777
24" 600mm	19078 16483
30" 750mm	33640 29065
36" 900mm	45537 39344
42" 1100mm	63406 54783
48" 1200mm	76111 65760
54" 1350mm	97133 83923
60" 1500mm	115665 99935
66" 1650mm	140106 121052

*Cv = Flow in GPM of water at 1 psi pressure drop.
*Kv = Flow in m³/hr. of water at 100 kPa pressure drop.

Weights

Valve Size	Oil Controlled
2" 50mm	130 59
3" 80mm	200 91
4" 100mm	280 127
6" 150mm	460 209
8" 200mm	560 254
10" 250mm	1090 494
12" 300mm	1580 717
14" 350mm	2470 1120
16" 400mm	3420 1551
18" 450mm	4140 1878
20" 500mm	4930 2236

Pounds
Kilograms

Valve Size	Bottom Mounted Buffer
6" 159mm	425 193
8" 200mm	539 245
10" 250mm	795 361
12" 300mm	1150 522
14" 350mm	1803 819
16" 400mm	2500 1135
18" 450mm	3022 1372
20" 500mm	3600 1634
24" 600mm	5320 2414
30" 750mm	9000 4084
36" 900mm	11340 5146
42" 1100mm	17265 7834
48" 1200mm	25000 11344
54" 1400mm	34649 15721
60" 1500mm	44300 20100

Ordering

To order, simply complete the valve order code from information shown. An ordering example is shown for your reference.

Valve Style
Give valve style code as follows:

CVS = Swing Check Valves

Valve Size
Give valve size code as follows:

2	=	2"	(50mm)	20	=	20"	(500mm)
3	=	3"	(80mm)	24	=	24"	(600mm)
4	=	4"	(100mm)	30	=	30"	(750mm)
6	=	6"	(150mm)	36	=	36"	(900mm)
8	=	8"	(200mm)	42	=	42"	(1100mm)
10	=	10"	(250mm)	48	=	48"	(1200mm)
12	=	12"	(300mm)	54	=	54"	(1400mm)
14	=	14"	(350mm)	60	=	60"	(1500mm)
16	=	16"	(400mm)	66	=	66"	(1700mm)
18	=	18"	(450mm)				

Body Style
Give body style code as follows:

6000A = Series 6000A (2-14")
6000D = Series 6000D (2-66")
6000 = Series 60000 (16-66")

End Connection
Give end connection code as follows:

F1 = Flanged ASME 125/150

Body Material
Give body material code as follows:

DI = Ductile Iron

Trim Combination

Disc Material
Give disc material code as follows:

DI = Ductile Iron

Shaft Material
Give shaft material code as follows:

Body Style 6000D

S2 = 316 Stainless Steel

Body Style 6000A/6000

S11 = 303 Stainless Steel (6-48" BMB)
S5 = 17-4PH Stainless Steel (2-20" OC, 54-66" BMB)

Body Seat Material
Give seat material code as follows:

Body Style 6000D

S2 = 316 Stainless Steel

Body Style 6000A/6000

For NBR, EPDM, FKM, or UHMW Disc Seat

ALB = Aluminum Bronze
S2 = 316 Stainless Steel

For ALB or S2 Disc Seat

ALBNB = Aluminum Bronze with NBR Seal
S2NB = 316 Stainless Steel with NBR Seal

Disc Seat Material
Give disc material code as follows:

NBR = Acrylonitrile-Butadiene
EPDM = Terpolymer of Ethylene Propylene & A Diene

Body Style 6000A/6000

FKM = Fluoro Rubber
UHMW = Ultra-High Molecular Weight Polyethylene (2-36")
ALB = Aluminum Bronze
S2 = 316 Stainless Steel

Options
Give options code as follows:

AIS = American Iron and Steel. Valves conform to Consolidated Appropriations Act, 2014 section 436 (EPA, Clean Water and Drinking Water State Revolving Funds) and Consolidated Appropriations Act, 2017 section 746 (USDA RUS Water & Environmental Programs (WEP)).
BABA = Build America, Buy America (LW, LS,AC closure control devices only)
NSF = NSF approved (Certification for Body Style 6000A/6000 is limited to S2 body seat with NBR disc seat, sizes 2-48" only)
DTR = DeZURIK Standard Certified Production Hydrostatic Shell & Seat Test Report
VP = Vertical Flow Up Position Installation (Not required with LS Closure Control Device)

Body Style 6000A/6000

SB16 = 316 Stainless Steel Bolting

Closure Control Devices
Give closure control device code as follows:

Body Style 6000D

LW = Lever & Weight
LS = Lever & Spring
AC = Lever & Weight Air Cushion Cylinder
OB = Lever & Weight with Oil Cushion

Body Style 6000A/6000

BMB = Oil Controlled Bottom Mounted Buffer (Series 6000B, 6-66")
OC = Oil Controlled Side Mounted Cylinder (Series 6100, 2-20")

Note: Series 6000B=Body Styles 6000 BMB, Series 6100=Body Styles 6000 OC

Accessories
Give accessory code as follows:

SEL22 = (1) Limit Switch - DPDT AB H802T-DTP
SEL30 = (1) Proximity Switch - SPDT GO 73-13526-B2
SEL32 = (1) Proximity Switch - DPDT GO 7G-23523-B2, Only Body Style 6000A/6000

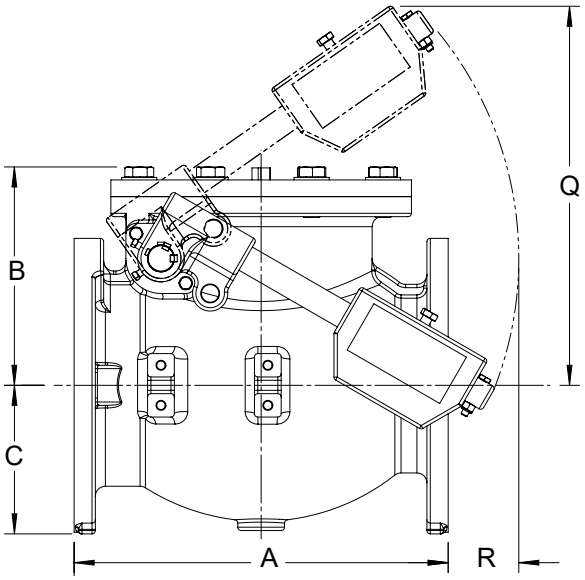
Ordering Example:

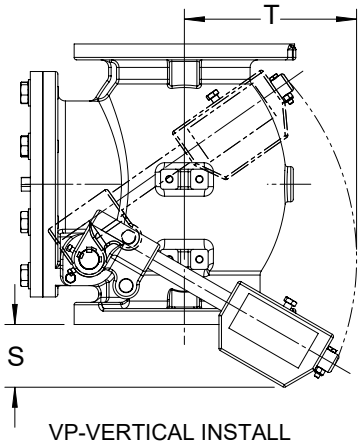
CVS,16,6000D,F1,DI,DI-S2-S2-NBR*OB,SEL22

Dimensions
Body Style 6000D
2-30" (50-750mm) Lever and Weight (LW)

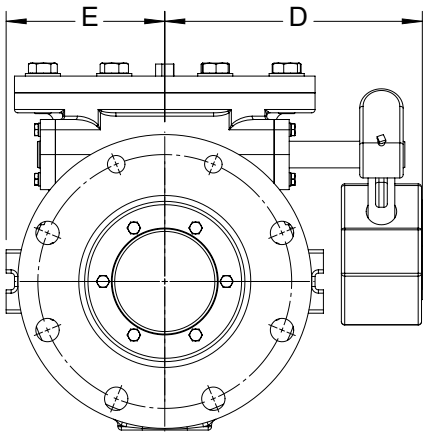
Valve Size	A	B	C	D	E	R	S	T	Q
2 50	8.00 203	5.88 149	3.06 78	7.00 178	3.88 99	5.75 146	3.50 89	8.50 216	11.00 279
3 80	9.50 241	6.25 159	3.82 97	7.00 178	5.13 130	5.00 127	2.62 67	8.75 222	11.25 286
4 100	11.50 292	7.25 184	4.56 116	9.61 244	5.06 129	4.63 117.6	3.50 89	9.50 241	13.06 332
6 150	14.00 356	8.17 208	5.56 141	9.64 245	5.94 151	2.64 67.1	3.12 79	8.59 218	14.19 360
8 200	19.50 495	10.42 265	6.81 173	11.35 288	7.69 195	-2.00 -51	2.00 51	7.50 191	15.06 383
10 250	24.50 622	14.18 360	9.07 230	14.18 360	9.50 241	1.00 25	5.36 136	12.25 311	22.02 560
12 300	27.50 699	15.32 389	10.46 266	15.65 398	11.00 279	-1.50 -38	5.00 127	12.25 311	23.00 584
14 350	31.00 787	16.82 427	11.92 303	18.17 462	12.25 311	3.00 76	7.47 190	14.48 368	29.86 758
16 400	36.00 914	18.00 457	13.42 340	19.67 500	13.75 349	.28 7.1	5.72 145	16.35 415	31.00 787
18 450	40.00 1016	20.06 510	15.00 381	22.00 559	15.50 394	-2.90 -74	5.28 134	16.00 406	32.47 825
20 500	40.00 1016	21.12 536	16.49 419	23.36 593	16.88 429	-3.90 -99	6.28 160	14.85 377	33.50 851
24 600	48.00 1219	24.71 628	19.33 491	27.61 701	20.50 521	-4.70 -119	7.73 196	18.25 464	39.50 1003
30 750	56.00 1422	30.38 772	23.15 588	31.78 807	24.38 619	1.38 35	11.45 291	25.25 641	51.34 1304

Inches
Millimeters





VP-VERTICAL INSTALL

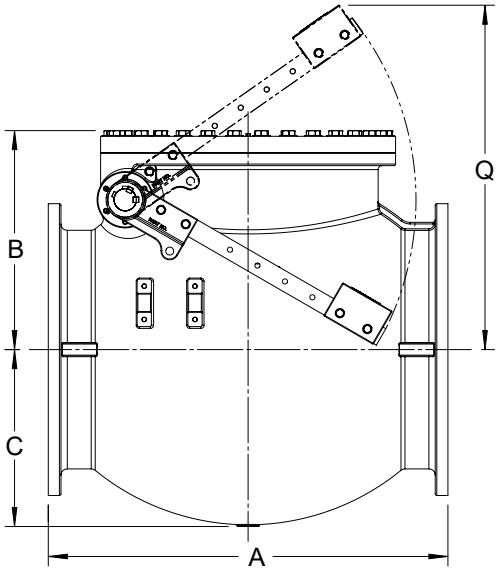


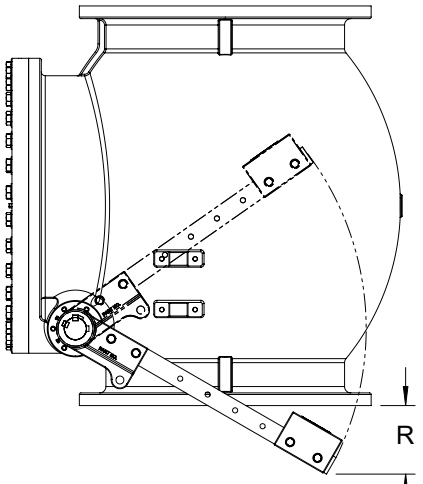
Dimensions
Body Style 6000D
36-66" (900-1700mm) Lever and Weight (LW)

Valve Size	A	B	C	E	R	Q
36 900	63.00 1600	34.52 878	27.89 708	71.46 1815	10.80 274	54.29 1379
42 1100	70.00 1778	38.58 978	35.52 826	80.94 2056	11.10 282	58.79 1493
48 1200	76.00 1930	42.95 1091	37.18 944	91.70 2329	14.30 363	66.27 1683
54 1400	87.00 2210	48.32 1227	41.77 1061	101.38 2575	16.18 411	76.50 1943
60 1500	97.00 2464	54.78 139	47.00 1194	104.75 2661	14.66 372	82.00 2083
66 1700	108.00 2743	59.03 1499	51.65 1312	124.38 3159	12.16 309	85.15 2163

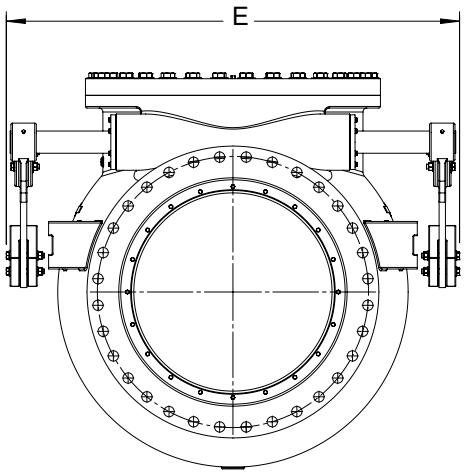
Inches
Millimeters

Note: 36" (900mm) & larger have two lever arms, one on each side.





VP-VERTICAL INSTALL



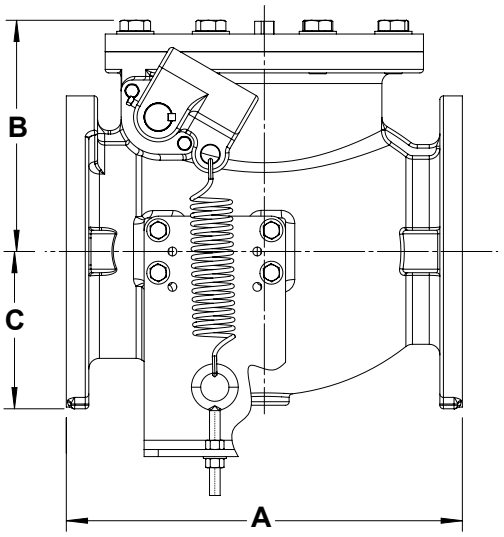
Dimensions

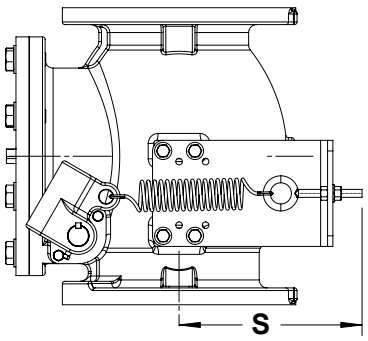
Body Style 6000D

2-30" (50-750mm) Lever and Spring (LS)

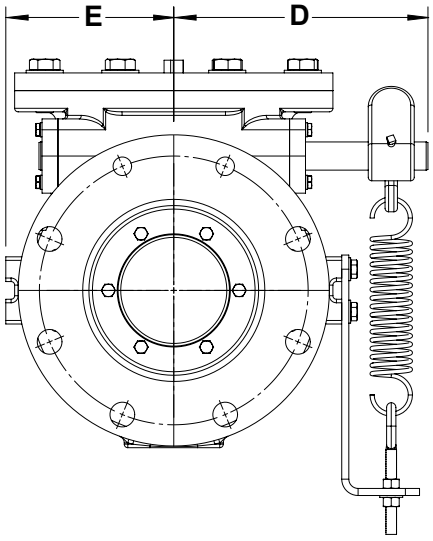
Valve Size	A	B	C	D	E	S
2 50	8.00 203	5.88 149	3.06 78	6.86 174	3.88 99	10.25 260
3 80	9.50 241	6.25 159	3.82 97	6.94 176	5.13 130	10.00 254
4 100	11.50 292	7.25 184	4.56 116	9.00 229	5.06 129	10.75 273
6 150	14.00 356	8.17 208	5.56 141	9.00 229	5.94 151	9.75 248
8 200	19.50 495	10.42 265	6.81 173	10.74 273	7.69 195	8.75 222
10 250	24.50 622	14.18 360	9.07 230	13.52 343	9.50 241	12.56 319
12 300	27.50 699	15.32 389	10.46 266	15.06 383	11.00 279	11.56 294
14 350	31.00 787	16.82 427	11.92 303	17.56 446	12.25 311	12.56 319
16 400	36.00 914	18.00 457	13.40 340	19.06 484	13.75 349	11.44 291
18 450	40.00 1016	20.06 510	15.00 381	20.81 529	15.50 394	16.31 414
20 500	40.00 1016	21.12 536	16.49 419	22.18 563	16.88 429	13.31 338
24 600	48.00 1219	24.71 628	19.33 491	26.56 675	20.50 521	24.56 624
30 750	56.00 1422	30.38 772	23.15 588	30.50 775	24.38 619	19.82 503

Inches
Millimeters





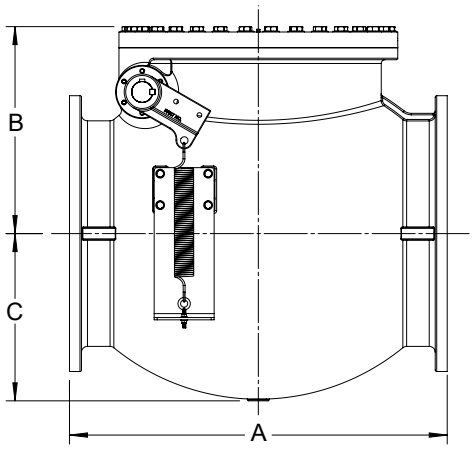
VP-VERTICAL INSTALL

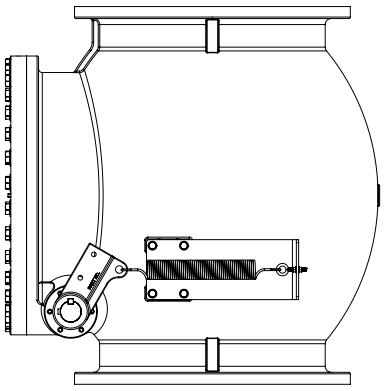


Dimensions
Body Style 6000D
36-66" (900-1700mm) Lever and Spring (LS)

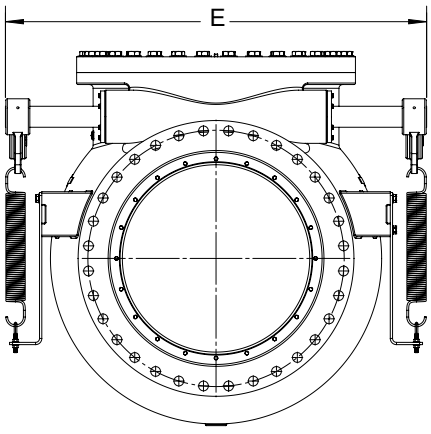
Valve Size	A	B	C	E
36 900	63.00 1600	34.52 877	27.89 708	70.25 1784
42 1100	70.00 1778	38.58 980	32.52 826	78.25 1988
48 1200	76.00 1930	42.95 1091	37.18 944	90.30 2296
54 1400	87.00 2210	48.32 1227	41.77 1061	101.00 2565
60 1500	97.00 2464	54.78 1391	47.00 1194	114.13 2899
66 1700	108.00 2743	59.03 1499	51.65 1312	123.75 3143

Inches
Millimeters





VP-VERTICAL INSTALL



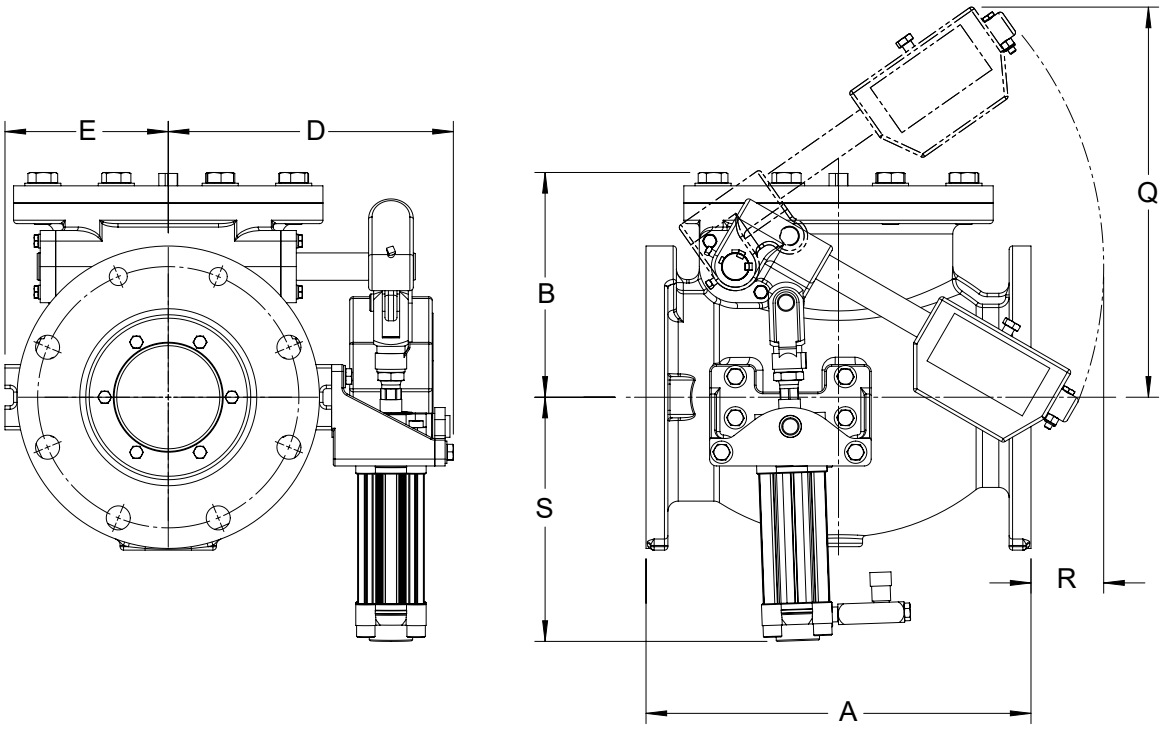
Dimensions

Body Style 6000D

2-30" (50-750mm) Lever & Weight with Air Cushion Cylinder (AC)

Valve Size	A	B	D	E	Q	R	S
2 50	8.00 203	5.88 149	7.53 191	3.88 99	11.00 279	5.75 146	9.96 253
3 80	9.50 241	6.25 159	7.84 199	5.13 130	11.25 286	5.00 127	9.71 247
4 100	11.50 292	7.25 184	9.48 241	5.06 129	13.06 332	4.63 117.6	9.88 251
6 150	14.00 356	8.17 208	10.37 263	5.94 151	14.19 360	2.64 67.1	8.88 226
8 200	19.50 495	10.42 265	12.11 308	7.69 195	15.06 383	-2.00 -51	7.88 200
10 250	24.50 622	14.18 360	15.59 396	9.50 241	22.02 560	1.00 25	11.71 297
12 300	27.50 699	15.32 389	17.09 434	11.00 279	23.00 584	-1.50 -38	10.71 272
14 350	31.00 787	16.82 427	19.35 492	12.25 311	29.86 758	3.00 76	13.34 339
16 400	36.00 914	18.00 457	20.85 530	13.75 349	31.00 787	.28 7.1	12.25 311
18 450	40.00 1016	20.06 510	22.60 574	15.50 394	32.47 825	-2.90 -74	15.12 384
20 500	40.00 1016	21.12 536	23.97 609	16.88 429	33.50 851	-3.90 -99	14.25 362
24 600	48.00 1219	24.71 628	29.00 737	20.50 521	39.50 1003	-4.70 -119	22.00 559
30 750	56.00 1422	30.38 772	32.85 834	24.38 619	51.34 1304	1.38 35	17.20 437

Inches
Millimeters



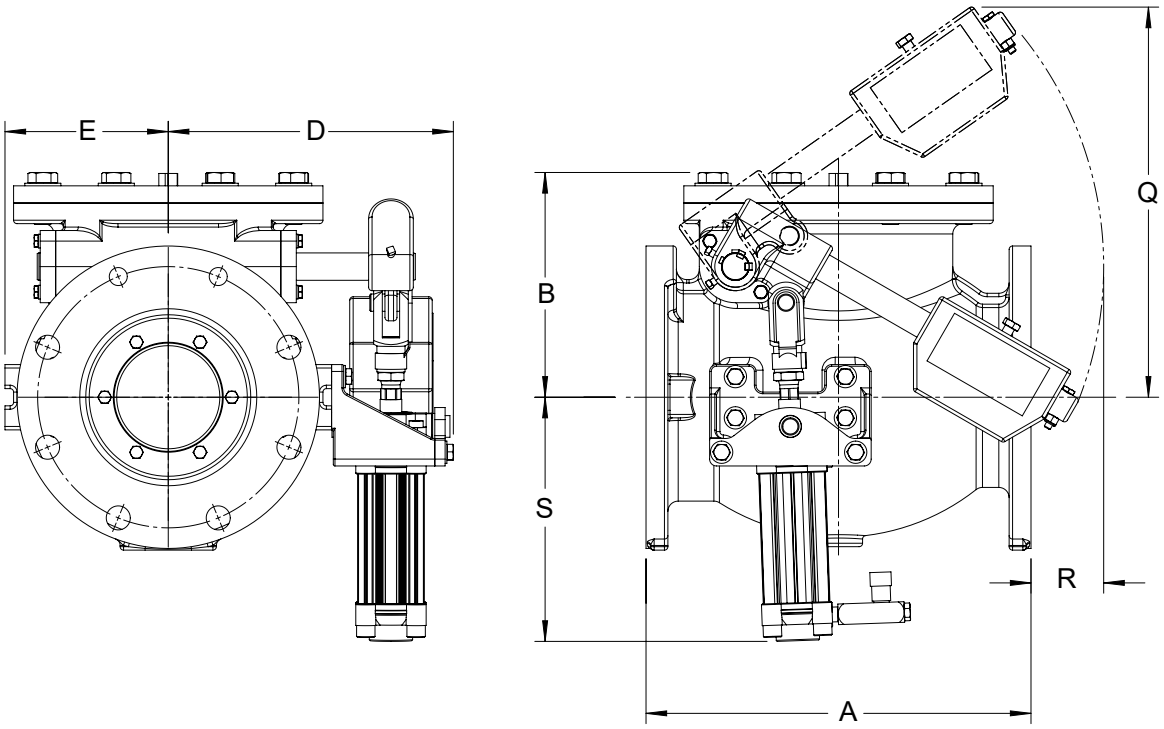
Dimensions

Body Style 6000D

36-66" (900-1700mm) Lever & Weight with Air Cushion Cylinder (AC)

Valve Size	A	B	C	E	Q
36 900	63.00 1600	34.52 877	27.89 708	71.46 1815	54.29 1379
42 1100	70.00 1778	38.58 980	32.52 826	80.94 2056	58.79 1493
48 1200	76.00 1930	42.95 1091	37.18 944	91.70 2329	66.27 1683
54 1400	87.00 2210	48.32 1227	41.77 1061	101.38 2575	76.50 1943
60 1500	97.00 2464	54.78 1391	47.00 1194	104.12 2661	82.00 2083
66 1700	108.00 2743	59.03 1499	51.65 1312	124.38 3159	85.15 2163

Inches
Millimeters



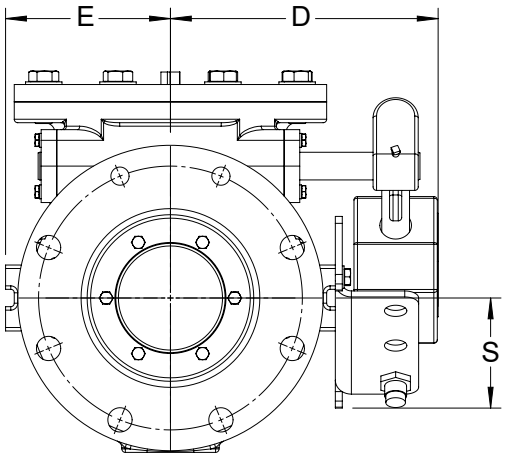
Dimensions

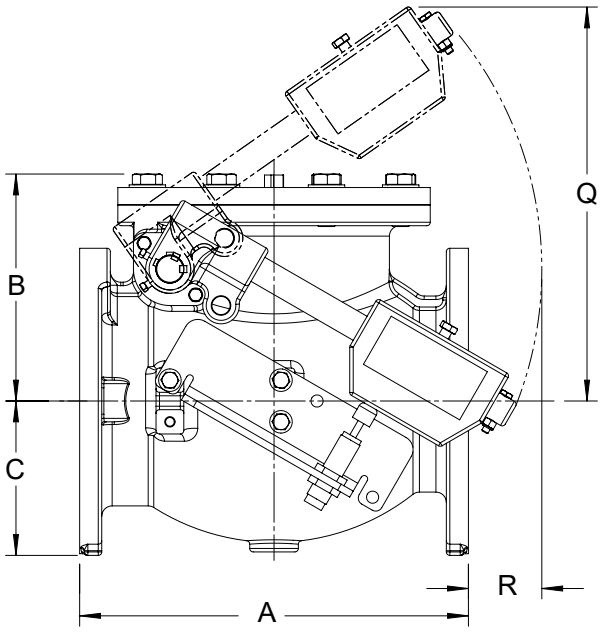
Body Style 6000D

2-30" (50-750mm) Lever & Weight with Oil Cushion (OB)

Valve Size	A	B	C	D	E	Q	R	S
2 50	8.00 203	5.88 149	3.06 78	7.00 178	3.88 99	11.00 279	5.75 146	5.09 129
3 80	9.50 241	6.25 159	3.82 97	7.00 178	5.13 130	11.25 286	5.00 127	4.85 123
4 100	11.50 292	7.25 184	4.56 116	9.61 244	5.06 129	13.06 332	4.63 117.6	5.00 127
6 150	14.00 356	8.17 208	5.56 141	9.64 245	5.94 151	14.19 360	2.64 67.1	4.00 102
8 200	19.50 495	10.42 265	6.81 173	11.35 288	7.69 195	15.06 383	-2.00 -51	3.00 76
10 250	24.50 622	14.18 360	9.07 230	14.18 360	9.50 241	22.02 560	1.00 25	8.64 219
12 300	27.50 699	15.32 389	10.46 266	15.65 398	11.00 279	23.00 584	-1.50 -38	7.64 194
14 350	31.00 787	16.82 427	11.92 303	18.17 462	12.25 311	29.86 758	3.00 76	12.27 312
16 400	36.00 914	18.00 457	13.40 340	19.67 500	13.75 349	31.00 787	.28 7.1	11.15 283
18 450	40.00 1016	20.06 510	15.00 381	22.00 559	15.50 394	32.47 825	-2.90 -74	11.05 281
20 500	40.00 1016	21.12 536	16.49 419	23.36 593	16.88 429	33.50 851	-3.90 -99	10.05 255
24 600	48.00 1219	24.71 628	19.33 491	27.61 701	20.50 521	39.50 1003	-4.70 -119	14.13 359
30 750	56.00 1422	30.38 772	23.15 588	31.78 807	24.38 619	51.34 1304	1.38 35	14.13 359

Inches
Millimeters





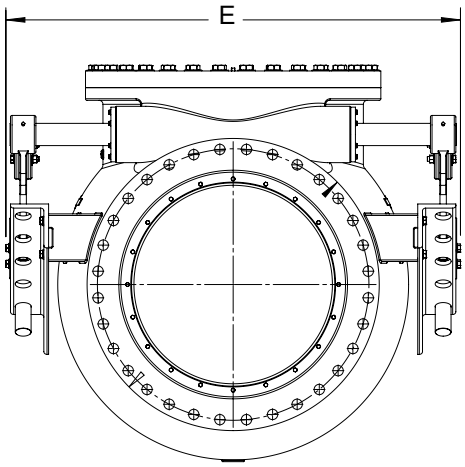
Dimensions

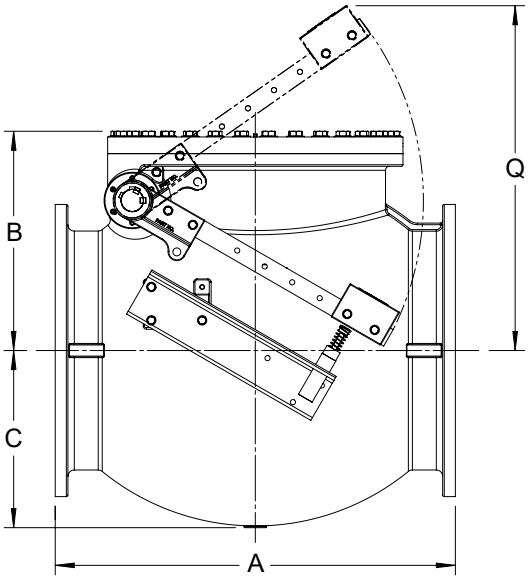
Body Style 6000D

36-66" (900-1700mm) Lever & Weight with Oil Cushion (OB)

Valve Size	A	B	C	E	Q
36 900	63.00 1600	34.52 877	27.89 708	71.46 1815	54.29 1379
42 1100	70.00 1778	38.58 980	32.52 826	80.82 2053	58.79 1493
48 1200	76.00 1930	42.95 1091	37.18 944	91.70 2329	66.27 1683
54 1400	87.00 2210	48.32 1227	41.77 1061	101.00 2565	76.50 1943
60 1500	97.00 2464	54.78 1391	47.00 1194	104.12 2645	82.00 2083
66 1700	108.00 2743	59.03 1499	51.65 1312	123.75 3143	85.15 2163

Inches
Millimeters





Dimensions

Body Style 6000A/6000

Oil Controlled Side Mounted Cylinder (OC)

Valve Size	F1											
	A	B	C	D	E	F	G	H	K	W	X	Y
2 50	8.00 203	5.88 149	3.50 89	13.25 337	10.75 273	5.00 127	6.00 152	0.63 16	7.50 191	9.00 229	9.50 241	6.25 159
3 80	9.50 241	7.00 178	4.13 105	12.75 324	10.13 257	5.50 140	7.50 191	0.75 19	7.63 194	9.50 241	7.63 194	4.88 124
4 100	11.50 292	7.63 194	5.00 127	14.00 356	10.38 264	6.00 152	9.00 229	0.94 24	8.94 227	10.75 273	8.00 203	5.00 127
6 150	14.00 356	10.13 257	6.50 165	17.00 432	14.00 356	8.38 213	11.00 279	1.00 25	22.50 572	16.50 419	14.25 362	11.63 295
8 200	19.50 495	12.00 305	10.25 260	16.75 425	12.50 318	8.50 216	13.50 343	1.13 29	24.00 610	18.00 457	13.00 330	9.25 235
10 250	24.50 622	14.50 368	12.63 321	21.00 533	8.63 219	10.00 254	16.00 406	1.19 30	28.00 711	20.50 521	13.50 343	8.50 216
12 300	27.50 699	16.00 406	14.00 356	22.00 559	8.88 226	11.50 292	19.00 483	1.25 32	29.50 749	25.00 635	18.00 457	11.25 286
14 350	31.00 787	19.88 505	15.75 400	26.00 660	11.00 279	13.75 349	21.00 533	1.38 35	33.00 838	29.00 737	20.00 508	14.50 368
16 400	36.00 914	22.38 569	19.75 502	27.50 699	9.75 248	14.50 368	23.50 597	1.44 37	35.50 902	30.75 781	20.00 508	14.00 356
18 450	40.00 1016	24.12 613	20.25 514	29.00 737	8.25 210	16.00 406	25.00 635	1.56 40	37.50 953	35.00 889	24.50 622	15.00 381
20 500	40.00 1016	25.00 635	21.50 546	32.00 813	8.88 226	17.50 445	27.50 699	1.69 43	39.00 991	36.00 914	23.50 597	15.00 381

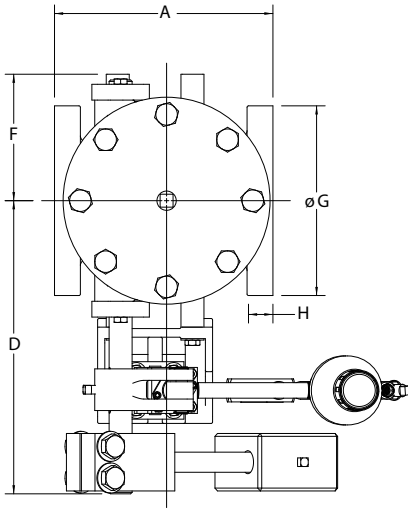
Inches
Millimeters

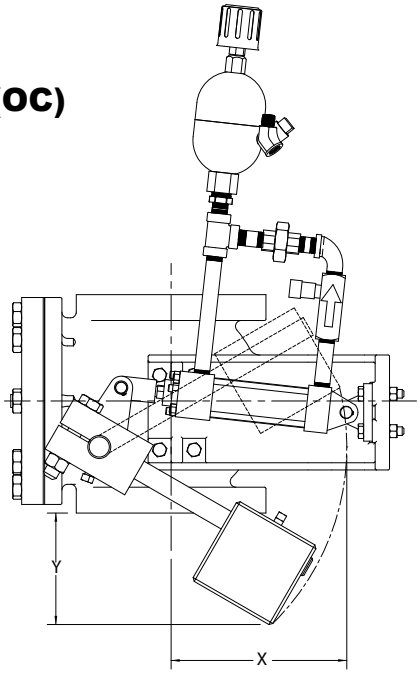
Dimensions

Body Style 6000A/6000

Oil Controlled Side Mounted Cylinder (OC)

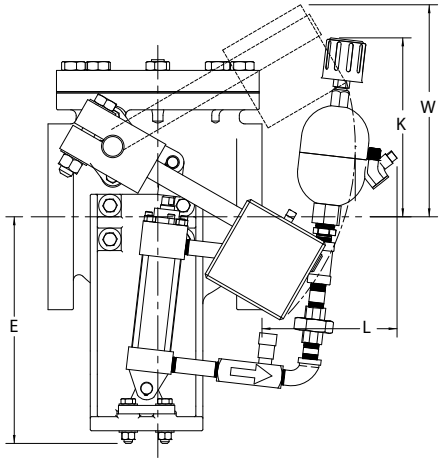
All Sizes

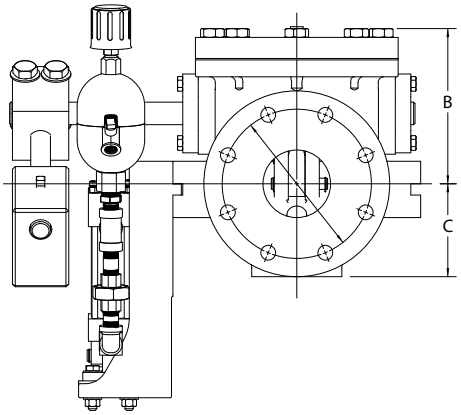




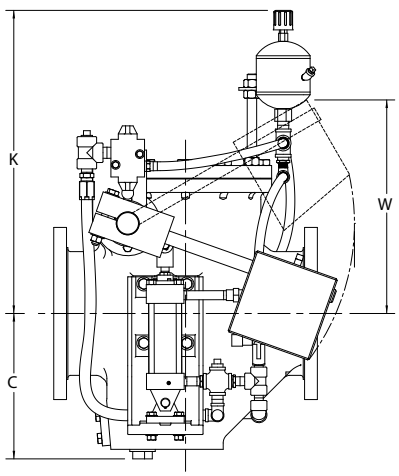
VP - VERTICAL FLOW UP
LEVER ARM SWING

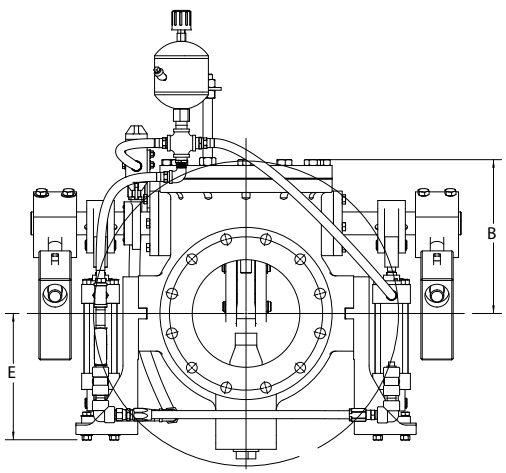
Size 2-8" (50-200mm)





Size 10-20" (250-500mm)





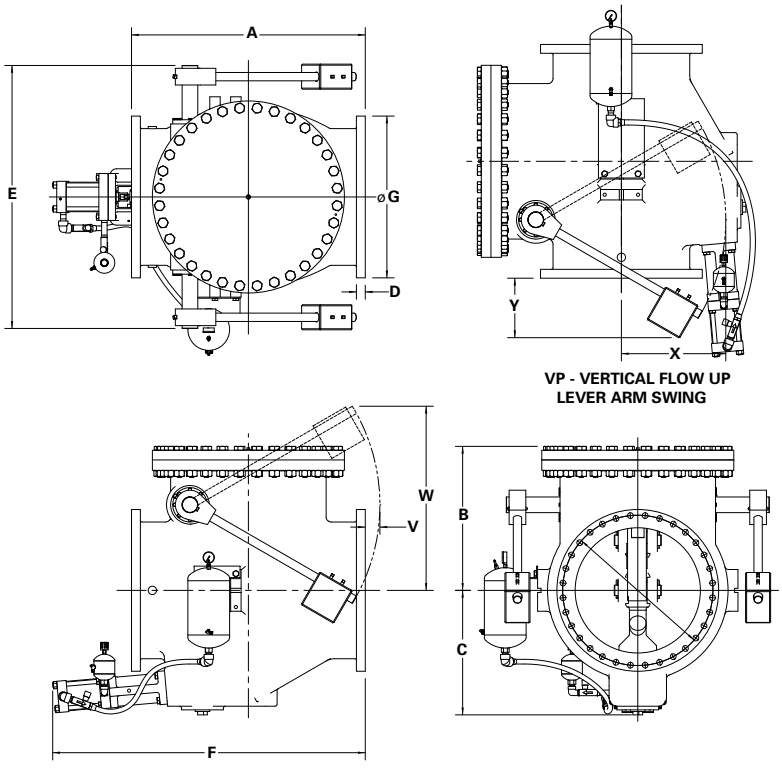
Dimensions

Body Style 6000A/6000

Valve & Oil Controlled Bottom Mounted Buffer (BMB)

Valve Size	F1										
	A	B	C	D	E	F	G	V	W	X	Y
6 150	14.00 356	10.13 257	9.13 232	1.00 25	25.00 635	25.63 651	11.00 279	9.38 238	16.50 419	14.25 362	11.63 295
8 200	19.50 495	12.00 305	11.75 298	1.13 29	25.00 635	28.00 711	13.50 343	6.25 159	18.00 457	13.00 330	9.25 235
10 250	24.50 622	14.50 368	14.13 359	1.19 30	30.00 762	33.50 851	16.00 406	7.00 178	20.50 521	13.50 343	8.50 216
12 300	27.50 699	16.00 406	15.50 394	1.25 32	31.50 800	42.00 1067	19.00 483	8.00 203	25.00 635	18.00 457	11.25 286
14 350	31.00 787	19.88 505	17.25 438	1.38 35	46.00 1168	48.00 1219	21.00 533	8.25 210	29.00 737	20.00 508	14.50 368
16 400	36.00 914	22.38 569	21.25 540	1.44 37	46.00 1168	50.00 1270	23.50 597	7.00 178	30.75 781	20.00 508	14.00 356
18 450	40.00 1016	24.12 613	21.75 552	1.56 40	58.00 1473	56.00 1422	25.00 635	8.25 210	35.00 889	24.50 622	15.00 381
20 500	40.00 1016	25.00 635	23.00 584	1.69 43	64.00 1626	60.00 1524	27.50 699	8.25 210	36.00 914	23.50 597	15.00 381
24 600	48.00 1219	28.25 718	26.00 660	1.88 48	67.00 1702	65.00 1651	32.00 813	10.00 254	43.75 1111	28.00 711	18.00 457
30 750	56.00 1422	34.75 883	29.25 743	2.13 54	77.00 1956	76.00 1930	38.75 984	5.00 127	48.00 1219	24.00 610	15.50 394
36 900	63.00 1600	40.38 1026	33.79 858	2.38 60	83.00 2108	86.00 2184	46.00 1168	2.00 51	51.00 1295	21.00 533	15.00 381
42 1100	70.00 1778	50.63 1286	37.91 963	2.63 67	98.00 2489	95.00 2413	53.00 1346	15.00 381	65.00 1651	41.00 1041	26.00 660
48 1200	78.00 1981	50.63 1286	42.16 1071	2.75 70	115.00 2921	108.00 2743	59.50 1511	17.50 445	75.00 1905	47.50 1207	29.25 743
54 1400	87.00 2210	62.13 1578	53.16 1350	3.00 76	130.00 3302	120.00 3048	66.25 1683	18.00 457	84.00 2134	50.50 1283	39.50 1003
60 1500	97.00 2464	72.00 1829	59.25 1505	3.13 80	140.00 3556	130.00 3302	73.00 1854	10.50 267	88.50 2248	45.50 1156	35.50 902
66 1700	108.00 2743	66.63 1692	65.16 1655	3.44 87	152.00 3861	140.00 3556	80.00 2032	3.50 89	91.00 2311	43.00 1092	33.50 851

Inches
Millimeters



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