

APCO CVS-250/250A SWING CHECK VALVES

Design and Construction

APCO CVS-250/250A Swing Check Valves are used to prevent the backflow of fluid by closing before flow reversal. They are installed in clean and dirty applications including sewage treatment, water treatment, water distribution, industrial water and wastewater services.

The APCO Swing Check Valves CVS-250/250A are constructed with a heavy ductile iron body, a stainless steel body seat ring, and a single continuous stainless steel shaft for the attachment of the outside closure control devices. Closure devices include air cushion side mounted cylinder with lever and weight, lever and weight, or a lever and spring.

Wide Size Range

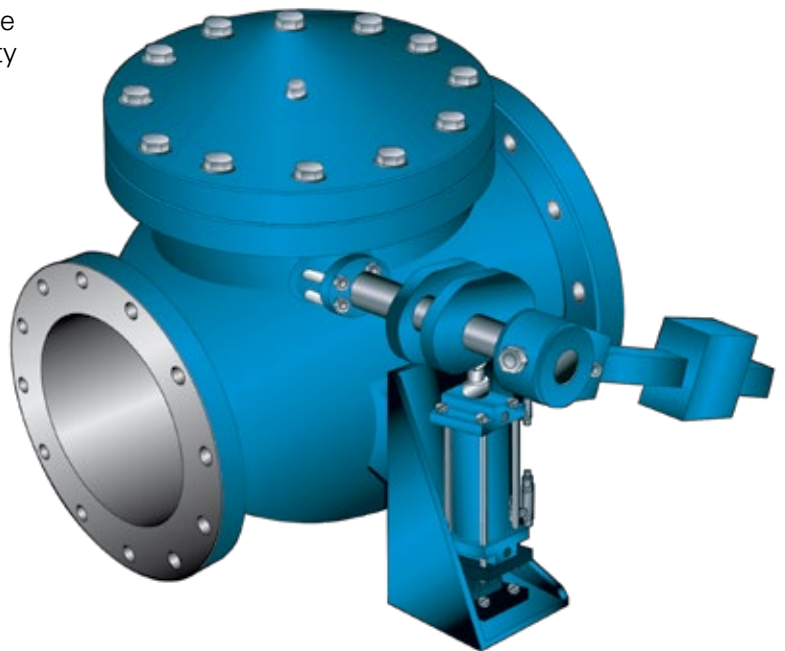
APCO CVS-250/250A Swing Check Valves are available in sizes 2-42" (50-1100mm).

AWWA C508 Compliant

APCO CVS-250/250A Swing Check Valves are manufactured and tested per the requirements of AWWA standard C508-09 *Swing Check Valves for Waterworks Service 2" through 24" (50mm through 600mm)*.

Rated to 250 psi (1724 kPa)

All APCO CVS-250/250A Swing Check Valves are rated to 250 psi (1724 kPa) CWP.



Efficient Full Waterway Flow

The valve provides an efficient flow path with an area equal to or greater than the area of the nominal valve size. As a result, the APCO CVS-250/250A Swing Check Valves have lower head loss than other check valves.

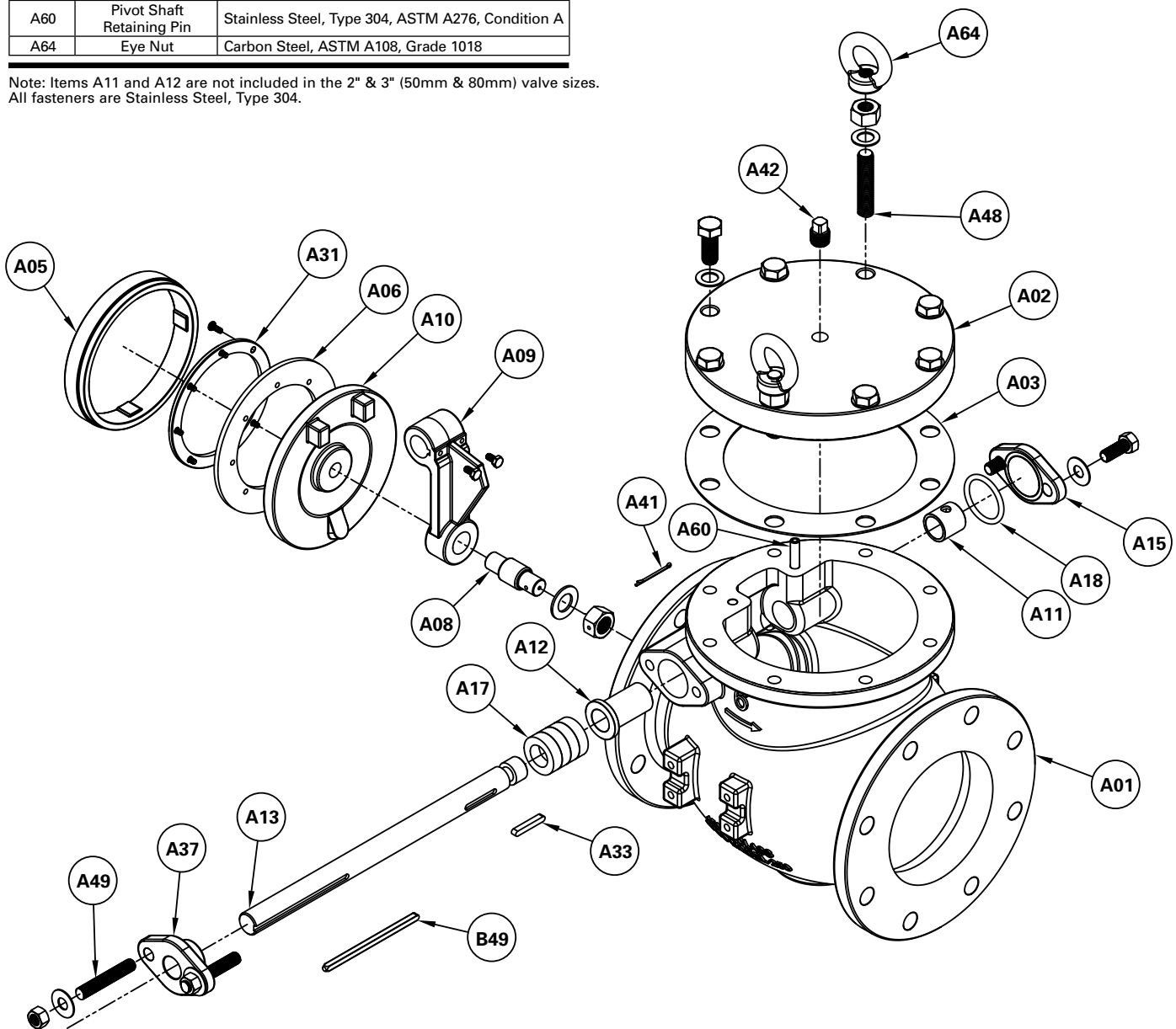
Drip Tight Shut-Off

The APCO CVS-250/250A resilient seat provides drip tight shut-off up to the full rating of the valve.

Materials of Construction

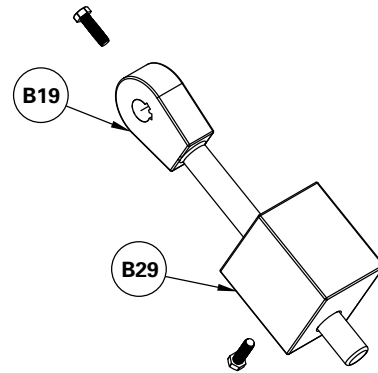
Item	Description	Material
A01	Body	Ductile Iron, ASTM A536, Grade 65-45-12
A02	Cover	Ductile Iron, ASTM A536, Grade 65-45-12
A03	Cover Gasket	Acrylonitrile-Butadiene (NBR)
A05	Body Seat Ring	Stainless Steel, Type CF-8M, ASTM A743
A06	Disc Seat	Acrylonitrile-Butadiene (NBR)
A08	Disc Stem	Stainless Steel, Type 303, ASTM A582, Condition A
A09	Disc Arm	Ductile Iron, ASTM 536, Grade 65-45-12
A10	Disc	Ductile Iron, ASTM 536, Grade 65-45-12
A11	Straight Bushing	Stainless Steel, Type 304
A12	Flanged Bushing	Stainless Steel, Type 304
A13	Pivot Shaft	Stainless Steel, Type 303, ASTM A582, Condition A
A15	Pivot Shaft Cover	Ductile Iron, ASTM A536, Grade 65-45-12
A17	Packing	Virgin PTFE
A18	Shaft Cover Seal	Acrylonitrile-Butadiene (NBR)
A31	Seat Retaining Ring	Stainless Steel, Type 304, ASTM A276, Condition A
A33	Pivot Shaft Disc Key	Stainless Steel, Type 304, ASTM A276, Condition A
A37	Packing Gland	Ductile Iron, ASTM A536, Grade 65-45-12
A41	Cotter Pin	Stainless Steel
A42	Pipe Plug	Stainless Steel, Type 304
A48	Stud	Stainless Steel, Type 304
A49	Stud	Stainless Steel, Type 304
A60	Pivot Shaft Retaining Pin	Stainless Steel, Type 304, ASTM A276, Condition A
A64	Eye Nut	Carbon Steel, ASTM A108, Grade 1018

Note: Items A11 and A12 are not included in the 2" & 3" (50mm & 80mm) valve sizes.
All fasteners are Stainless Steel, Type 304.

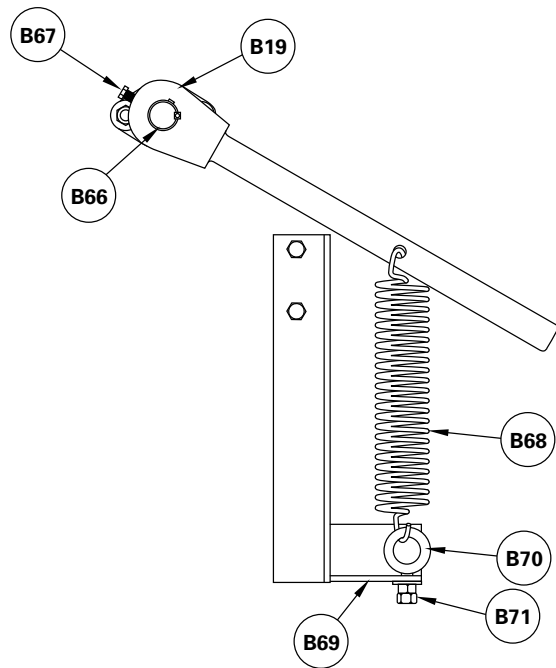


Item	Description	Material
B19	Counter Weight Arm Assembly	Ductile Iron, ASTM A536, Grade 65-45-12
B20	Cylinder Assembly	Aluminum Alloy
B24	Cylinder Bracket	Ductile Iron, ASTM A536, Grade 65-45-12
B27	Cushion Lever	Ductile Iron, ASTM A536, Grade 65-45-12
B29	Counter Weight	Ductile Iron, ASTM A536, Grade 65-45-12
B30	Flow Control Valve	Aluminum Alloy
B34	Pivot Shaft Key	Stainless Steel, Type 304
B46	Reducer Bushing 8-42" (200-1100mm)	Stainless Steel, Type 304
B47	Pipe Nipple	Stainless Steel, Type 304
B48	Pipe Elbow	Stainless Steel, Type 304
B58	Air Breather	Bronze
B59	Cushion Lever Clevis Pin	Stainless Steel, Type 304
B60	Retaining Ring	Stainless Steel, Type 304
B61	Clevis Pin	Steel, Zinc Plated
B62	Retaining Ring	Stainless Steel, Type 304
B63	Male Clevis Bracket	Aluminum Alloy
B64	Female Clevis Bracket	Aluminum Alloy
B65	Yoke	Steel, Black Powder Coated
B66	Spring Lever Arm Key	Stainless Steel, Type 304
B67	Spring Lever Arm Retaining Screw	Stainless Steel, Type 304
B68	Spring	Steel
B69	Spring Bracket	Steel, ASTM A36
B70	Eye Screw	Alloy Steel, Heat Treated
B71	Eye Screw Retaining Nut	Steel, ASTM A563, Grade A

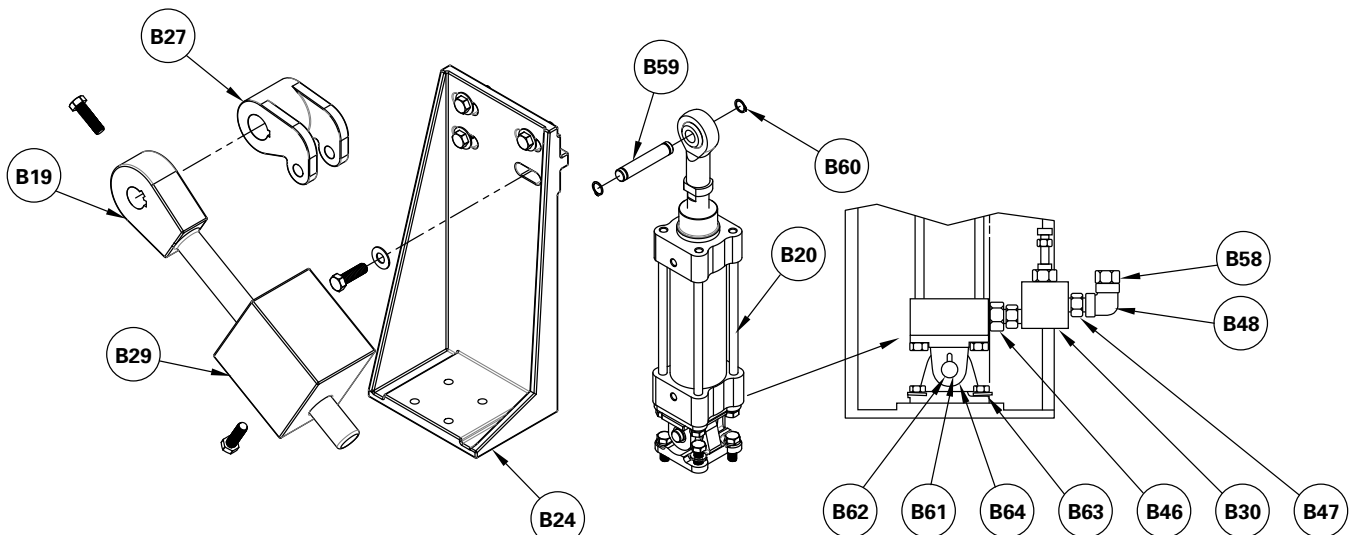
Lever and Weight



Lever and Spring



Air Cushion Cylinder with Speed Control Assembly



Valve Selection

Applicable Standards

APCO CVS-250/250A Swing Check Valves are designed and/or tested to meet the following standards:	
AWWA C508-09	Conforms to <i>Swing Check Valves for Waterworks Service, 2-24"</i>
ANSI B16.1	Cast Iron Pipe Flanges and Flanged Fittings, 125 lbs. (60 kg) Conforms to related flange drilling dimensions.
ANSI B16.5	Carbon Steel Flanges and Flanged Fittings, 150 lbs. (70 kg) Conforms to related flange drilling dimensions.

Shut-Off Capabilities

Resilient Seat	Drip tight shut-off
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Pressure Ratings (Ambient Temperature)

Valve Size	Direct Pressure
2-42" 50-1100mm	250 psi CWP 1724 kPa CWP

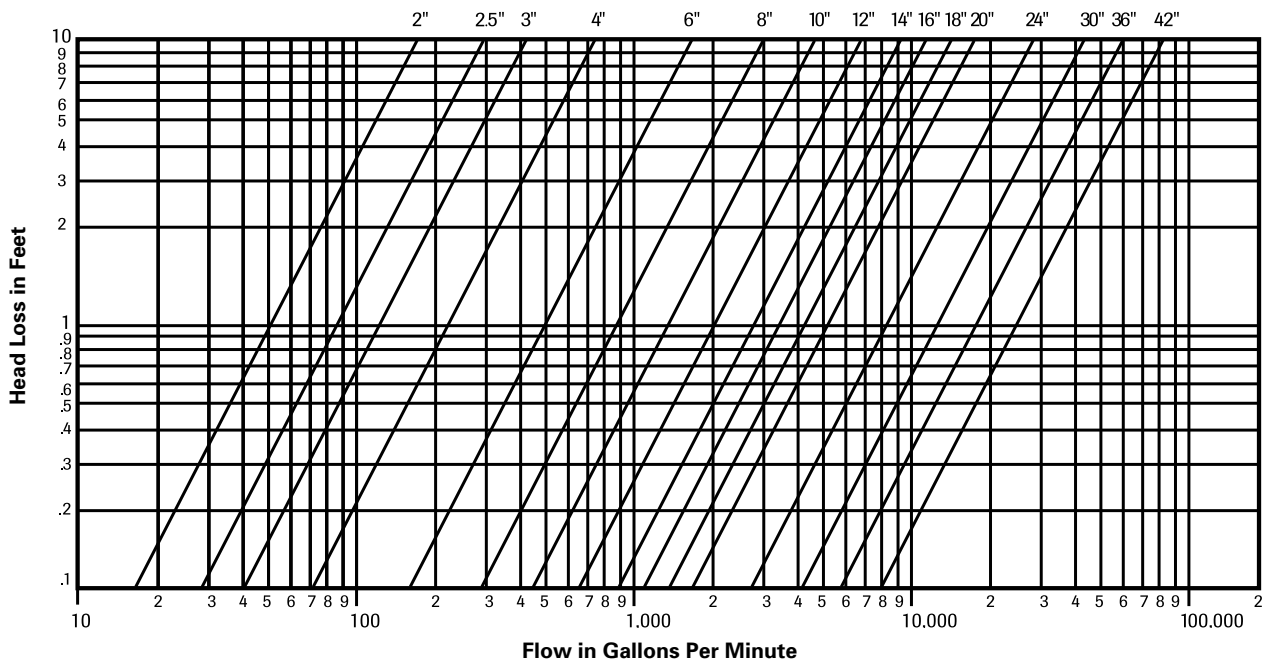
Note: Contact DeZURIK for higher pressures and larger sizes.

Valve and Air Cushioned Cylinder Weights

Valve Size	Weight
3"	110
80mm	50
4"	145
100mm	66
6"	205
150mm	93
8"	330
200mm	150
10"	500
250mm	227
12"	800
300mm	363
14"	1260
350mm	672
16"	1600
400mm	726
18"	2100
450mm	963
20"	2500
500mm	1134
24"	3700
600mm	1678
30"	6000
750mm	2722
36"	9100
900mm	4128
42"	Contact DeZURIK
1100mm	Contact DeZURIK

Lbs
Kgs

Head Loss Characteristics for Swing Check Valves



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) 14 = 14" (350mm)
2.5 = 2.5" (65mm) 16 = 16" (400mm)
3 = 3" (80mm) 18 = 18" (450mm)
4 = 4" (100mm) 20 = 20" (500mm)
6 = 6" (150mm) 24 = 24" (600mm)
8 = 8" (200mm) 30 = 30" (750mm)
10 = 10" (250mm) 36 = 36" (900mm)
12 = 12" (300mm) 42 = 42" (1100mm)

Body Style Give body style code as follows: 250A = Series 250A 2-14" (50-350mm) 250 = Series 250 16-42" (400-1100mm)
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End Connection Give end connection code as follows: F1 = Flanged, ANSI 125/150

Body Material Give body material code as follows: DIF = Ductile Iron, 12 mils Fusion Bonded Blue Epoxy Lined & 8 mils coated, Body Style 250 or 250A

Trim Combination Disc Material Give disc material code as follows: DI = Ductile Iron

Shaft Material Give shaft material code as follows: S1 = 304 Stainless Steel, Body Style 250 or 250A

Body Seat Material Give body seat material code as follows: S2 = 316 Stainless Steel, Body Style 250 or 250A

Disc Seat Material Give disc seat material code as follows: NBR = Acrylonitrile-Butadiene -70 to 250° F (-57 to 121° C)

Closure Control Devices Give operating device code as follows: AC = Air Cushion Side Mounted Cylinder (Lever & Weight) LS = Lever & Spring LW = Lever & Weight

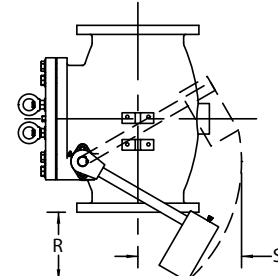
Accessories Give accessory code as follows: 250 or 250A Body Style SEL22 = Limit Switch - DPDT AB H802T-DTP SEL30 = Proximity Switch - SPDT GO 73-13526-B2 VP = Vertical Flow Up Position Installation

Ordering Example:
CVS,8,250A,F1,DIF,DI-S1-S2-NBR*AC,SEL22

Dimensions

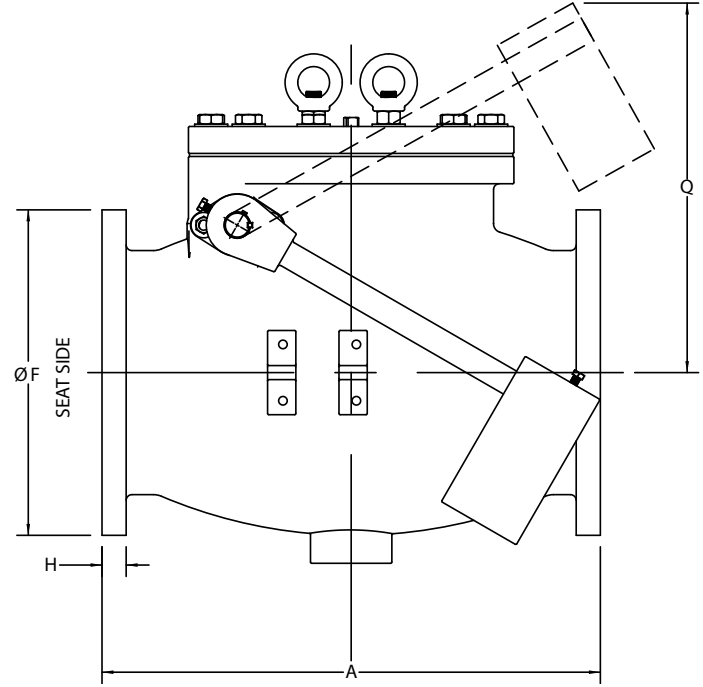
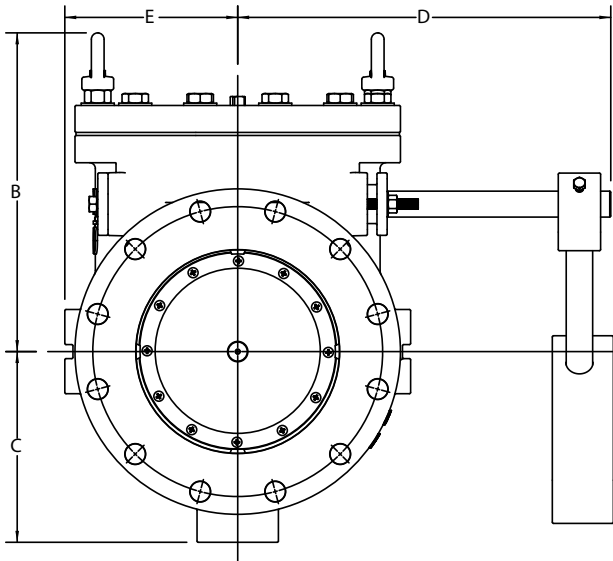
Lever and Weight

Valve Size	A	B	C	D	E	F	H	Q	R	S
2" 50mm	8.00 203	9.25 235	3.50 89	10.92 277	4.12 105	6.00 152	0.63 16	10.00 254	6.00 152	9.38 238
2.5" 65mm	8.50 216	9.72 247	3.50 89	10.92 277	4.12 105	7.00 178	0.88 22	9.88 251	6.13 156	9.38 238
3" 80mm	9.50 241	10.00 254	4.50 114	11.00 279	4.00 102	7.50 191	0.75 19	10.13 257	5.50 140	9.25 235
4" 100mm	11.50 292	10.75 273	5.00 127	11.75 299	5.00 127	9.00 229	0.94 24	10.75 273	4.88 124	8.75 222
6" 150mm	14.00 356	11.75 299	5.75 146	13.50 343	6.50 165	11.00 279	1.00 25	11.63 295	4.63 118	7.88 200
8" 200mm	19.50 495	13.75 349	7.25 184	17.00 432	7.50 191	13.50 343	1.13 29	15.50 394	5.88 149	10.38 264
10" 250mm	24.50 622	15.00 381	9.38 238	16.25 413	9.00 229	16.00 406	1.19 30	18.38 467	9.00 229	13.63 346
12" 300mm	27.50 699	19.00 483	11.00 279	18.25 464	11.00 279	19.00 483	1.25 32	21.13 537	9.00 229	14.25 362
14" 350mm	31.00 787	22.50 572	13.50 343	26.00 660	14.00 356	21.00 533	1.38 35	25.88 657	11.75 299	18.75 476
16" 400mm	36.00 914	24.50 622	14.25 362	29.50 749	15.00 381	23.50 597	1.44 37	32.00 813	7.25 184	15.88 403
18" 450mm	40.00 1016	26.50 673	17.38 441	31.00 787	18.63 473	25.00 635	1.56 40	36.00 914	9.25 235	21.25 540
20" 500mm	40.00 1016	28.75 730	17.63 448	32.38 822	18.63 473	27.50 699	1.69 43	41.00 1041	—	—
24" 600mm	48.00 1219	32.50 826	20.13 511	34.00 864	21.00 533	32.00 813	1.88 48	38.00 965	8.75 222	19.25 489
30" 750mm	56.00 1422	44.13 1121	29.75 756	39.00 991	24.00 610	38.75 984	2.13 54	53.13 1349	15.50 394	24.00 610
36" 900mm	63.00 1600	50.50 1283	33.50 851	42.00 1067	27.00 686	46.00 1168	2.38 60	57.50 1461	15.00 381	21.00 533
42" 1100mm	Contact DeZURIK									



VP, VERTICAL FLOW UP
POSITION INSTALLATION
LEVER ARM SWING

Inches
Millimeters

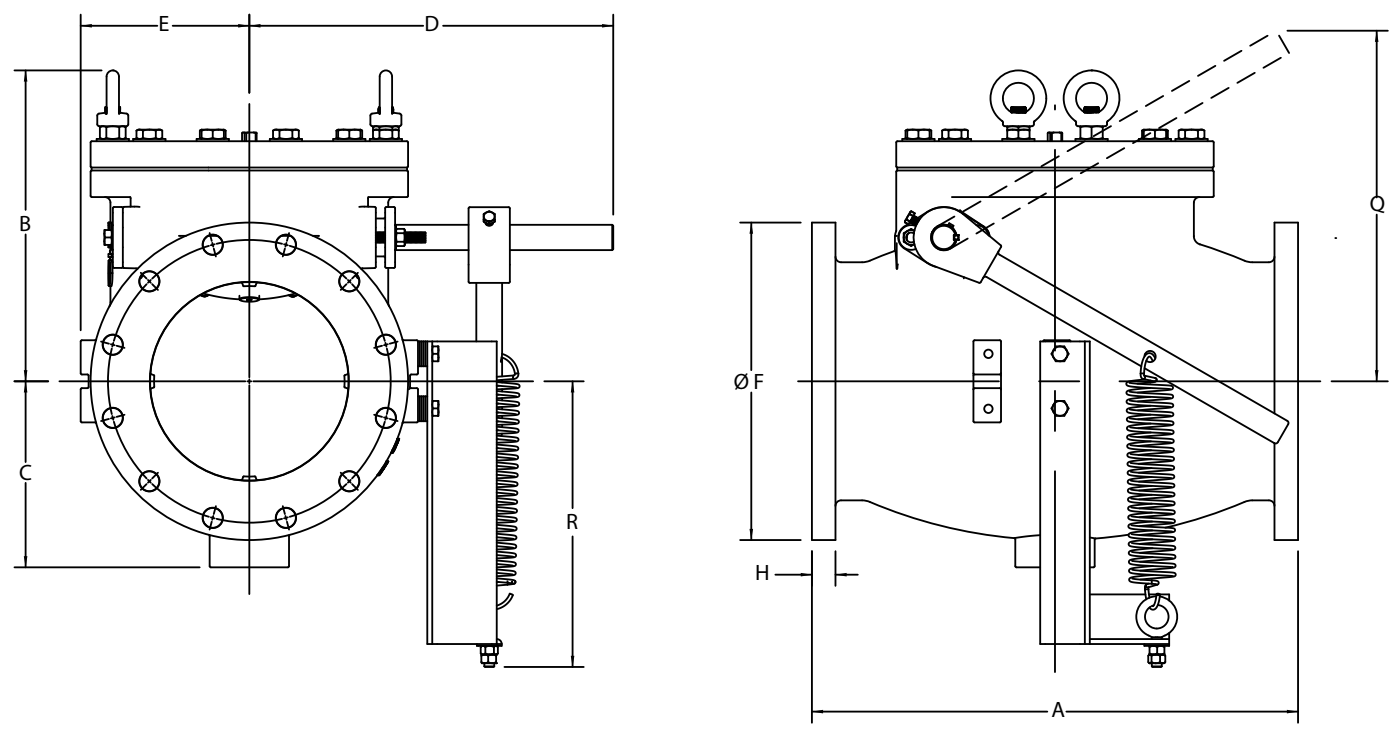


Dimensions

Lever and Spring

Valve Size	A	B	C	D	E	F	H	Q	R
2" 50mm	8.00 203	9.25 235	3.50 89	10.92 277	3.83 97	6.00 152	0.63 16	9.25 235	9.83 250
2.5" 65mm	8.50 216	9.72 247	3.50 89	10.92 277	3.83 97	7.00 178	0.88 22	9.25 235	9.83 250
3" 80mm	9.50 241	10.00 254	4.50 114	11.00 279	4.00 102	7.00 178	0.75 19	9.39 239	10.64 270
4" 100mm	11.50 292	10.75 273	5.00 127	11.75 299	5.00 127	9.00 229	0.94 24	10.00 254	9.50 241
6" 150mm	14.00 356	11.75 299	5.75 146	13.50 343	6.50 165	11.00 279	1.00 25	10.90 277	9.50 241
8" 200mm	19.50 495	13.75 349	7.25 184	17.00 432	7.50 191	13.50 343	1.13 29	14.84 377	6.50 165
10" 250mm	24.50 622	15.00 381	9.38 238	16.25 413	9.00 229	16.00 406	1.19 30	17.63 448	13.24 336
12" 300mm	27.50 699	19.00 483	11.00 279	18.25 464	11.00 279	19.00 483	1.25 32	20.40 518	13.25 336
14" 350mm	31.00 787	22.50 572	13.50 343	26.00 660	14.00 356	21.00 533	1.38 35	25.22 641	18.75 476
16" 400mm	36.00 914	24.50 622	14.25 362	29.50 749	15.00 381	23.50 597	1.44 37	32.00 813	15.50 394
18" 450mm	40.00 1016	26.50 673	17.38 441	31.00 787	18.63 473	25.00 635	1.56 40	36.00 914	19.45 494
20" 500mm	40.00 1016	28.75 730	17.63 448	32.38 822	18.63 473	27.50 699	1.69 43	41.00 1041	14.50 368
24" 600mm	48.00 1219	32.50 826	20.13 511	34.00 864	21.00 533	32.00 813	1.88 48	38.00 965	20.83 529
30" 750mm	56.00 1422	44.13 1121	29.75 756	39.00 991	24.00 610	38.75 984	2.13 54	53.13 1349	17.71 450
36" 900mm	63.00 1600	50.50 1283	33.50 851	42.00 1067	27.00 686	46.00 1168	2.38 60	57.50 1461	13.45 342
42" 1100mm	Contact DeZURIK								

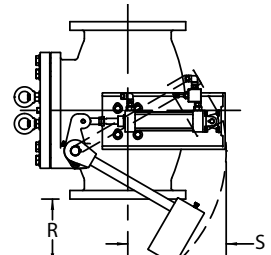
Inches
Millimeters



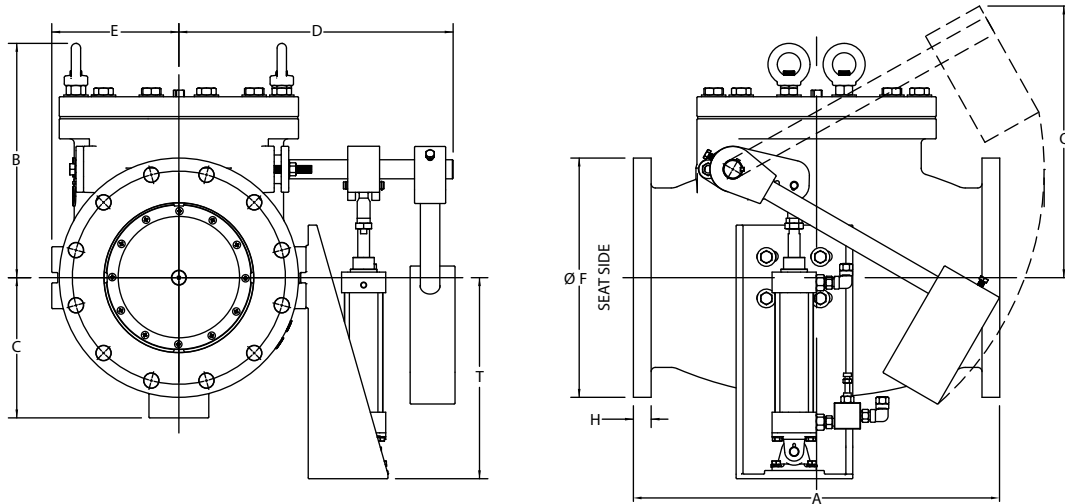
Dimensions

Air Cushion Side Mounted Cylinder (Lever and Weight)

Valve Size	A	B	C	D	E	F	H	Q	R	S	T
2"	8.00	9.25	3.50	10.92	3.83	6.00	0.63	10.00	6.00	9.38	11.25
50mm	203	235	89	277	97	152	16	254	152	238	286
2.5"	8.50	9.72	3.50	10.92	3.83	7.00	0.88	9.88	6.13	9.38	11.13
65mm	216	247	89	277	97	178	22	251	156	238	283
3"	9.50	10.00	4.50	11.00	4.00	7.50	0.75	10.13	5.50	9.25	12.00
80mm	241	254	114	279	102	191	19	257	140	235	305
4"	11.50	10.75	5.00	11.75	5.00	9.00	0.94	10.75	4.88	8.75	10.88
100mm	292	273	127	299	127	229	24	273	124	222	276
6"	14.00	11.75	5.75	13.50	6.50	11.00	1.00	11.63	4.63	7.88	10.88
150mm	356	299	146	343	165	279	25	295	118	200	276
8"	19.50	13.75	7.25	17.00	7.50	13.50	1.13	15.50	5.88	10.38	13.50
200mm	495	349	184	432	191	343	29	394	149	264	343
10"	24.50	15.00	9.38	16.25	9.00	16.00	1.19	18.38	9.00	13.63	13.50
250mm	622	381	238	413	229	406	30	467	229	346	343
12"	27.50	19.00	11.00	18.25	11.00	19.00	1.25	21.13	9.00	14.25	13.50
300mm	699	483	279	464	279	483	32	537	229	362	343
14"	31.00	22.50	13.50	26.00	14.00	21.00	1.38	25.88	11.75	18.75	13.50
350mm	787	572	343	660	356	533	35	657	299	476	343
16"	36.00	24.50	14.25	29.50	15.00	23.50	1.44	32.00	7.25	15.88	14.50
400mm	914	622	362	749	381	597	37	813	184	403	368
18"	40.00	26.50	17.38	31.00	18.63	25.00	1.56	36.00	9.25	21.25	13.00
450mm	1016	673	441	787	473	635	40	914	235	540	330
20"	40.00	28.75	17.63	32.38	18.63	27.50	1.69	41.00	—	—	14.50
500mm	1016	730	448	822	473	699	43	1041	—	—	368
24"	48.00	32.50	20.13	34.00	21.00	32.00	1.88	38.00	8.75	19.25	11.75
600mm	1219	826	511	864	533	813	48	965	222	489	299
30"	56.00	44.13	29.75	39.00	24.00	38.75	2.13	53.13	15.50	24.00	17.25
750mm	1422	1121	756	991	610	984	54	1349	394	610	438
36"	63.00	50.50	33.50	42.00	27.00	46.00	2.38	57.50	15.00	21.00	13.00
900mm	1600	1283	851	1067	686	1168	60	1461	381	533	330
42"	Contact DeZURIK										
1100mm	Contact DeZURIK										



Inches
Millimeters



Sales and Service

For information about our worldwide locations, approvals, certifications and local representative:

Web Site: www.dezurik.com E-Mail: info@dezurik.com



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DeZURIK, Inc. reserves the right to incorporate our latest design and material changes without notice or obligation. Design features, materials of construction and dimensional data, as described in this bulletin, are provided for your information only and should not be relied upon unless confirmed in writing by DeZURIK, Inc. Certified drawings are available upon request.