

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

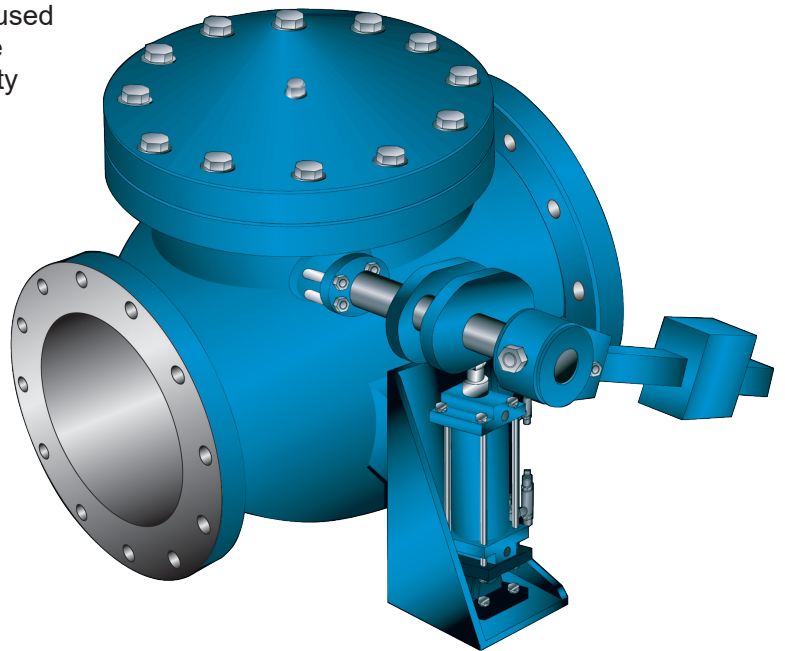
APCO CVS-250/250A Swing Check Valves are available in sizes 2-42" (50-1100mm).

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 (1720 kPa)

All APCO CVS-250/250A Swing Check Valves are rated to 250 psi (1720 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.

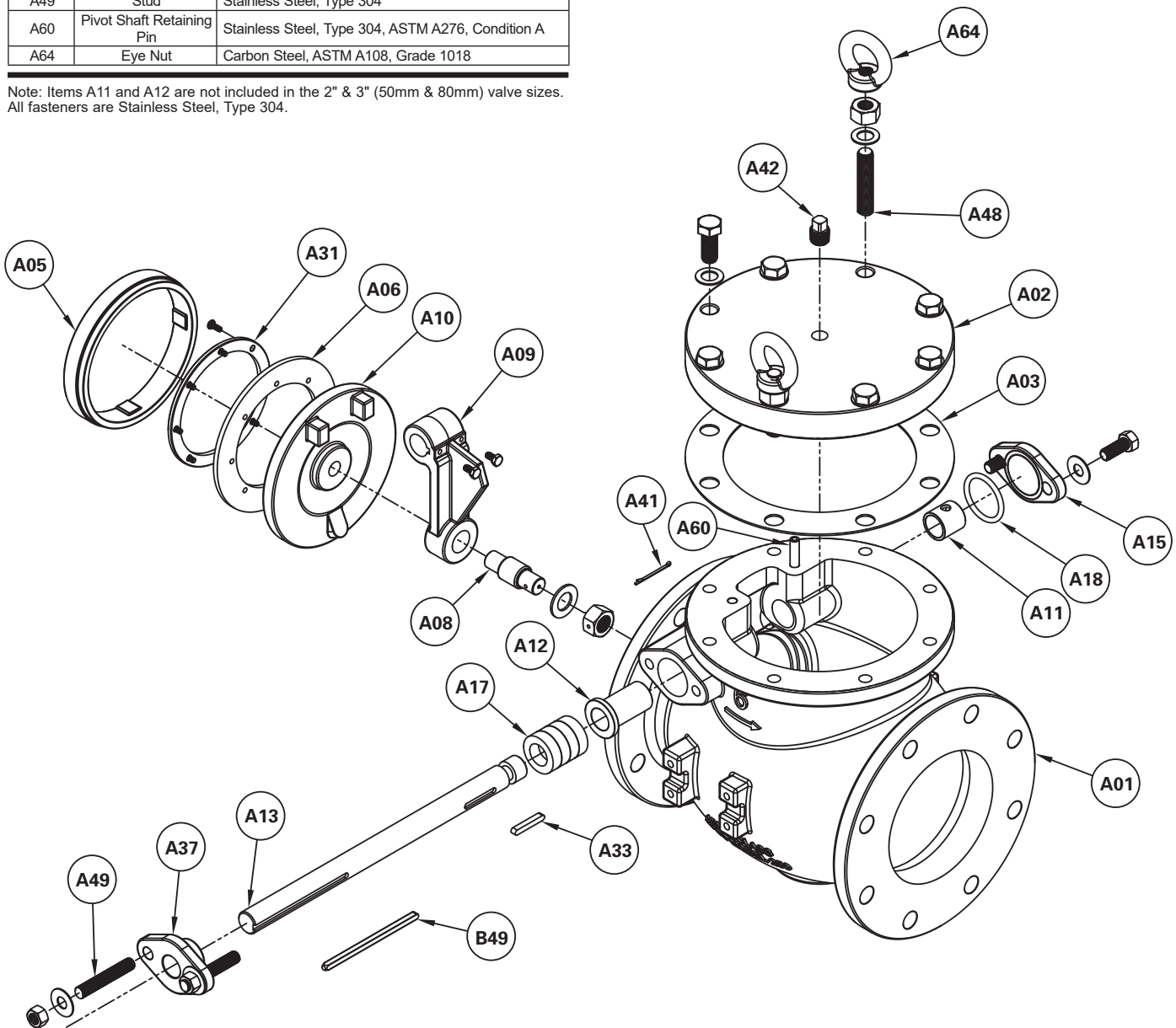
Drip Tight Shut-Off

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 or Steel, ASTM A36 or ASTM A105
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 or Carbon Steel ASTM A514 or A36
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

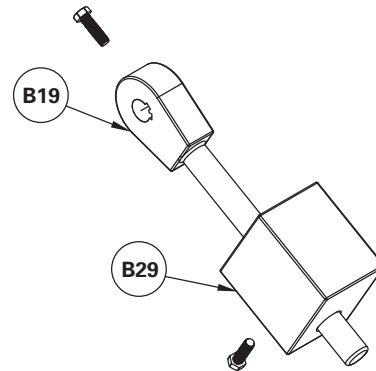
Note: Items A11 and A12 are not included in the 2" & 3" (50mm & 80mm) valve sizes. All fasteners are Stainless Steel, Type 304.



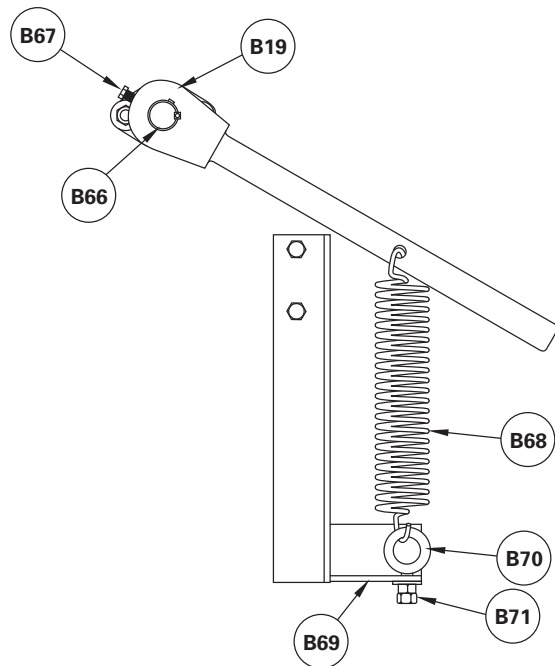
Materials of Construction

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	Sprmg 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

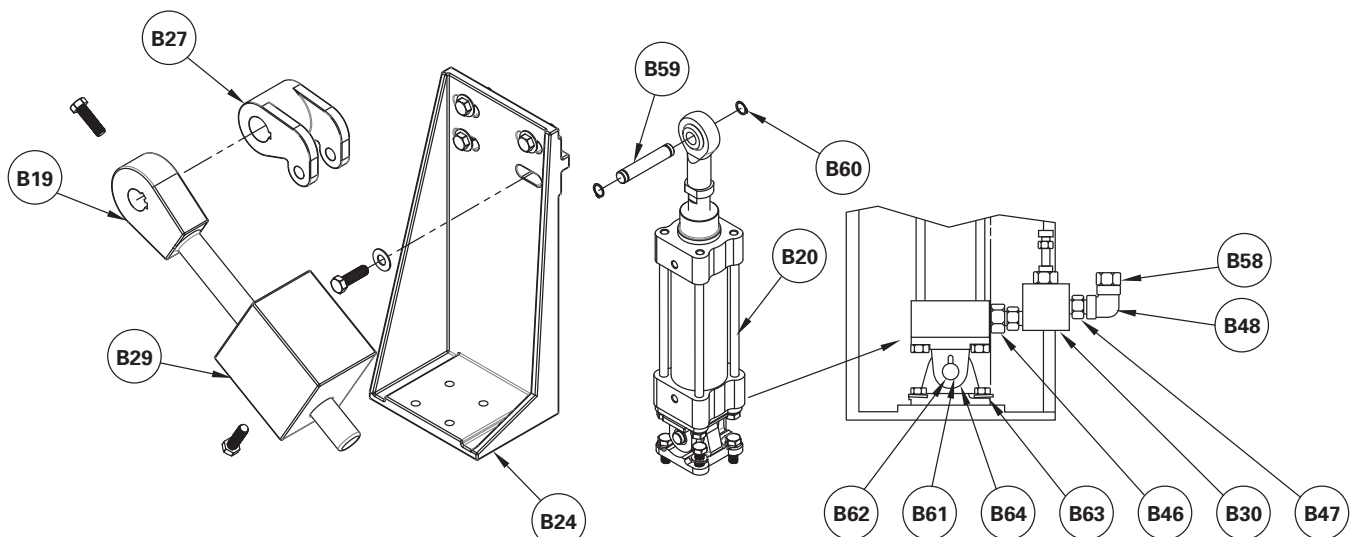
Lever and Weight



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 1720 kPa CWP

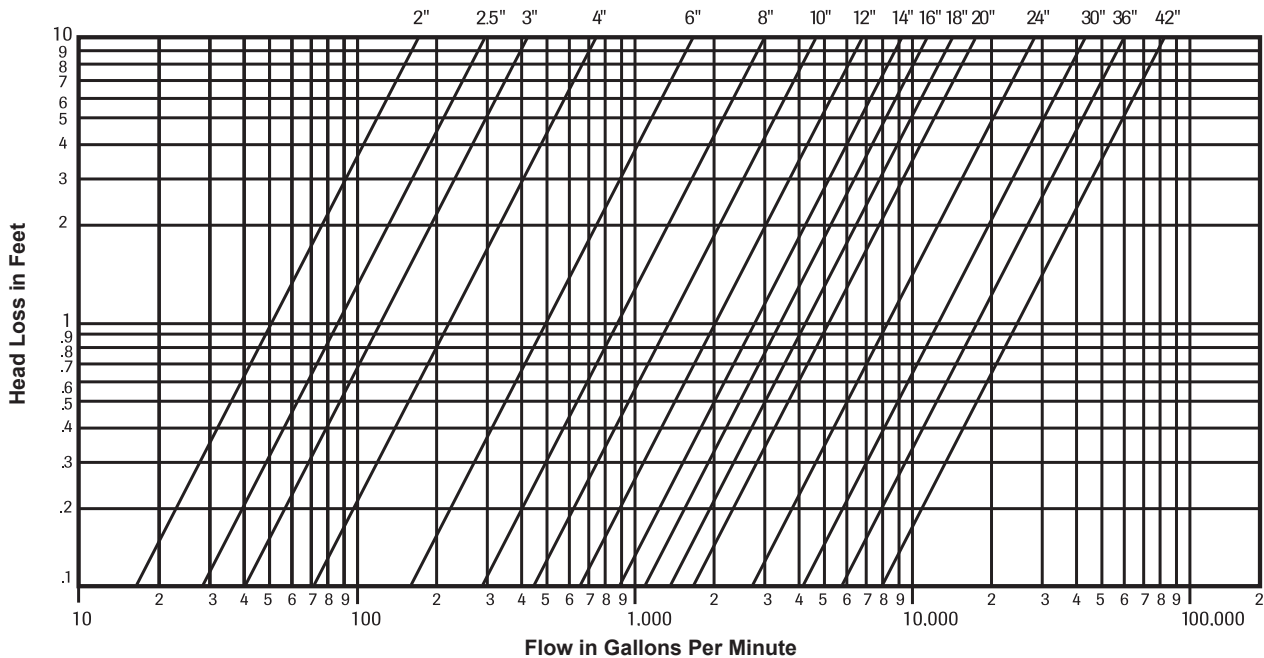
Note: Contact DeZURIK for higher pressures and larger sizes.

Weights

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

Pounds
Kilograms

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 (Body Style 250A and non AIS-250) CS = Carbon Steel (Body Style 250 16-20" AIS only)

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)

Options Give options code as follows: AIS = Valves conform to H.R. 3547 Consolidated Appropriations Act, 2014 Section 436. 2-20" Body Style 250 or 250A with DIF body material only DTR = DeZURIK Standard Certified Production Hydrostatic Shell and Seat Test Report VP = Vertical Flow Up Position Installation. Not required with LS Closure Control Device. LS mounts Vertical or Horizontal with no modifications required.
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Closure Control Devices Give operating device code as follows: AC = Air Cushion Side Mounted Cylinder (Lever & Weight) LS = Lever & Spring LW = Lever & Weight

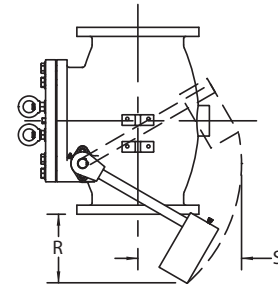
Accessories Give accessory code as follows: 250 or 250A Body Style SEL22 = Limit Switch - DPDT AB H802T-DTP SEL30 = Proximity Switch - SPDT GO 73-13526-B2 VP = Vertical Flow Up Position Installation

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

Dimensions

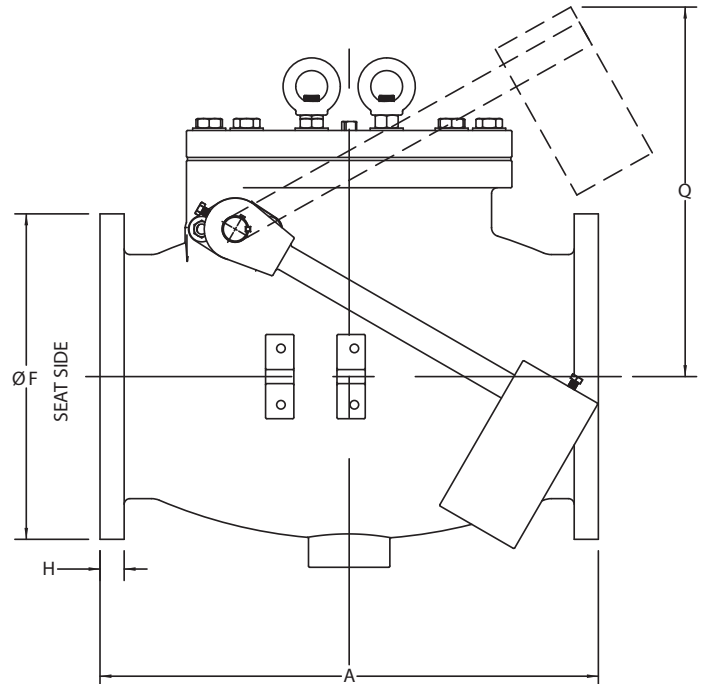
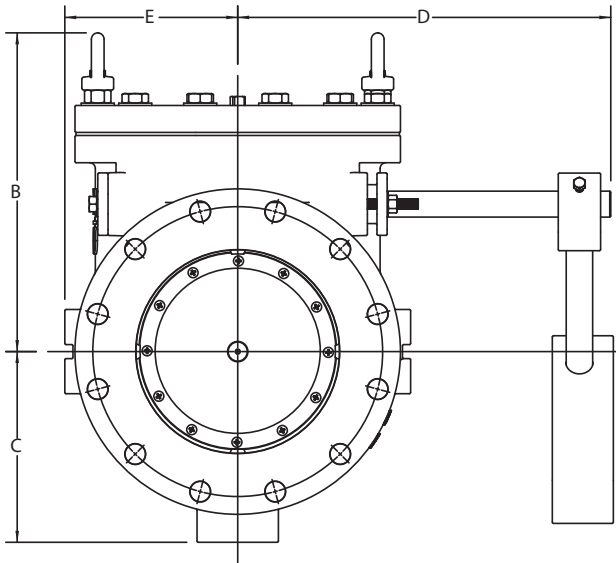
Lever and Weight

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

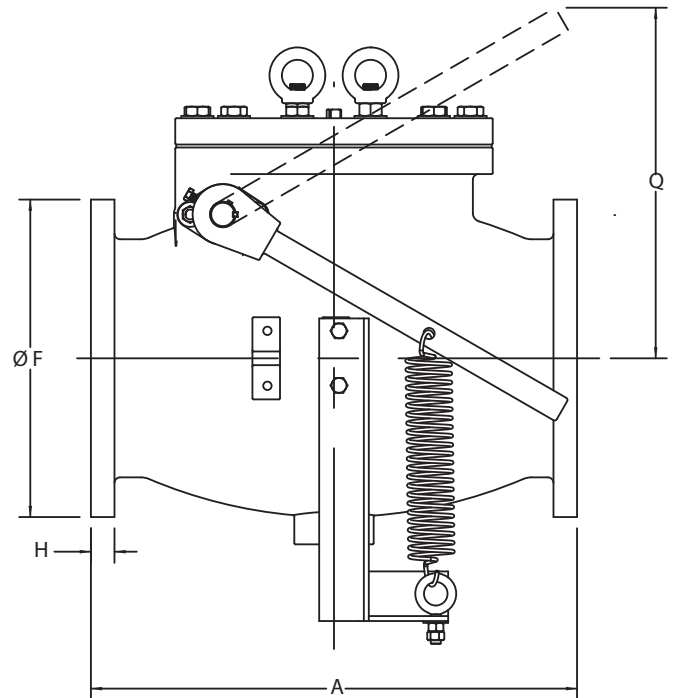
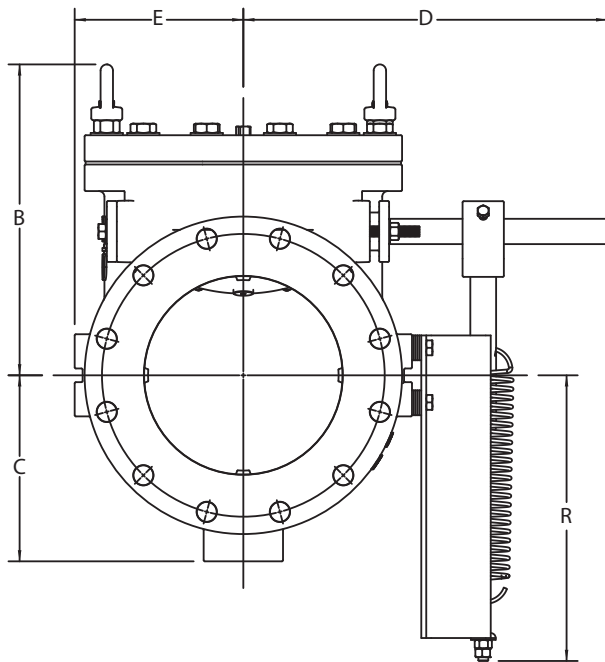


Dimensions

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								

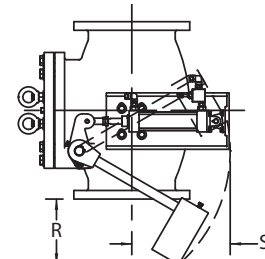
Inches
Millimeters



Dimensions

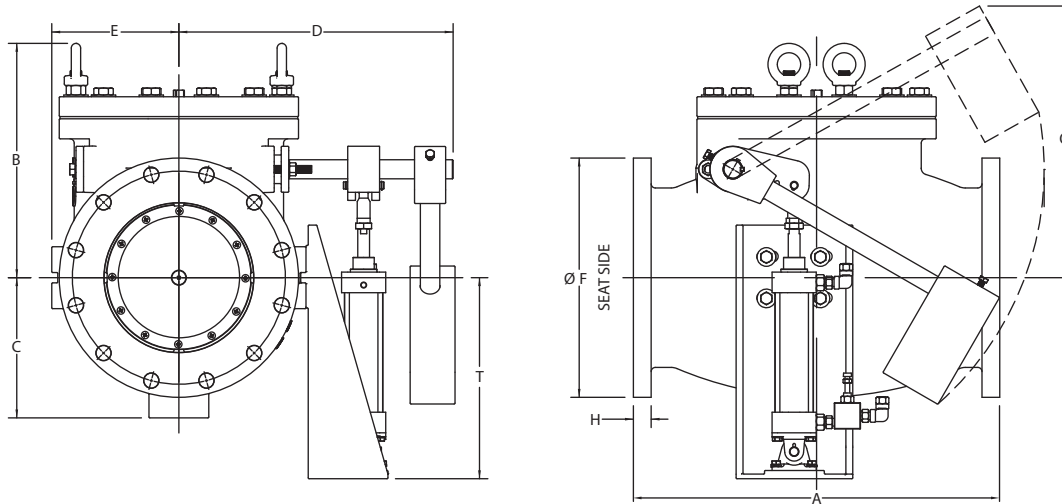
Air Cushion Side Mounted Cylinder (Lever and Weight)

Valve Size	A	B	C	D	E	F	H	Q	R	S	T
2" 50mm	8.00 203	9.25 235	3.50 89	10.92 277	3.83 97	6.00 152	0.63 16	10.00 254	6.00 152	9.38 238	11.25 286
2.5" 65mm	8.50 216	9.72 247	3.50 89	10.92 277	3.83 97	7.00 178	0.88 22	9.88 251	6.13 156	9.38 238	11.13 283
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	12.00 305
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	10.88 276
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	10.88 276
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	13.50 343
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	13.50 343
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	13.50 343
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	13.50 343
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	14.50 368
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	13.00 330
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	8.75 222	19.25 489	11.75 299
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	17.25 438
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	13.00 330
42" 1100mm	Contact DeZURIK										



VP, VERTICAL FLOW UP
POSITION INSTALLATION
LEVER ARM SWING

Inches
Millimeters



Sales and Service

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

Web Site: 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.