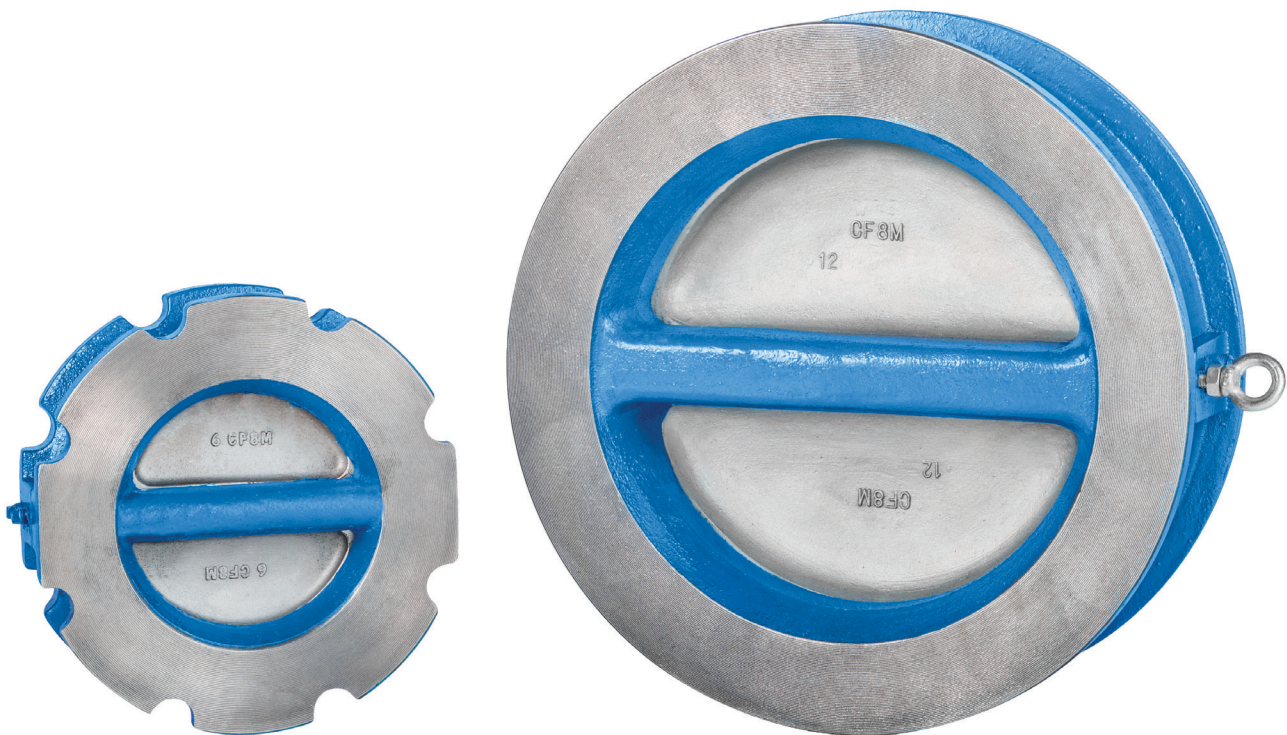


APCO CDD-9000T DOUBLE DOOR CHECK VALVE



Design and Construction

APCO Double Door Check Valves by DeZURIK are designed to automatically prevent back-flow in systems where it is desirable to permit flow in one direction and prevent flow in the opposite direction. Double door check valves are recommended for clean liquids and gasses and have an excellent performance reputation in refineries, petrochemical, gas liquefaction, other process industries and HVAC applications because of their cost-efficient design and non-slam properties.

Double door check valves are spring loaded for fast, non-slam shut-off against the elastomer or metal body seat. When the pump starts and the downstream flow creates the required pressure drop in the forward direction, the double doors

will automatically open. When the pump stops and the flow ceases, the torsion of the spring will automatically close the double doors prior to flow reversal. This creates a positive shut-off against flow reversal and minimizes system surges and water hammer.

APCO CDD Double Door Check Valves are available in sizes 2-36" (50-900mm). Body materials include Ductile Iron, Carbon Steel and 316 Stainless Steel. Wafer body valve sizes 2-6" (50-150mm) are dual rated to ASME B16.5 Class 150/300. Valve sizes 8" (200mm) and larger are rated to ASME Class 150.



Cost Efficient Design

The low weight and short laying length of the CDD Double Door Check Valve saves initial cost, requires less space, and is easier to install when compared to full-body, swing-type check valves. Although this valve is light in weight, it is capable of heavy duty, continuous operation. APCO carbon steel and stainless steel CDD Double Door Check Valves meet ASME B16.10/API 594 face-to-face dimensions and ASME B16.5 Flange Dimensions.

Minimal Head Loss

The contoured body of the CDD Double Door Check Valve provides a short and straight flow path that generates very little turbulence. Additionally, the spring-loaded discs are designed with very low cracking pressure which reduces the amount of energy required to open the valve.

Quick Close to Reduce Water Hammer

Shut-off is achieved via the fully automatic, spring-assisted discs that close near zero flow velocity. The lightweight, split disc design creates a positive shutoff prior to flow reversal and helps minimize valve slam and surge.

Ductile Iron, Carbon Steel or 316 Stainless Steel Construction

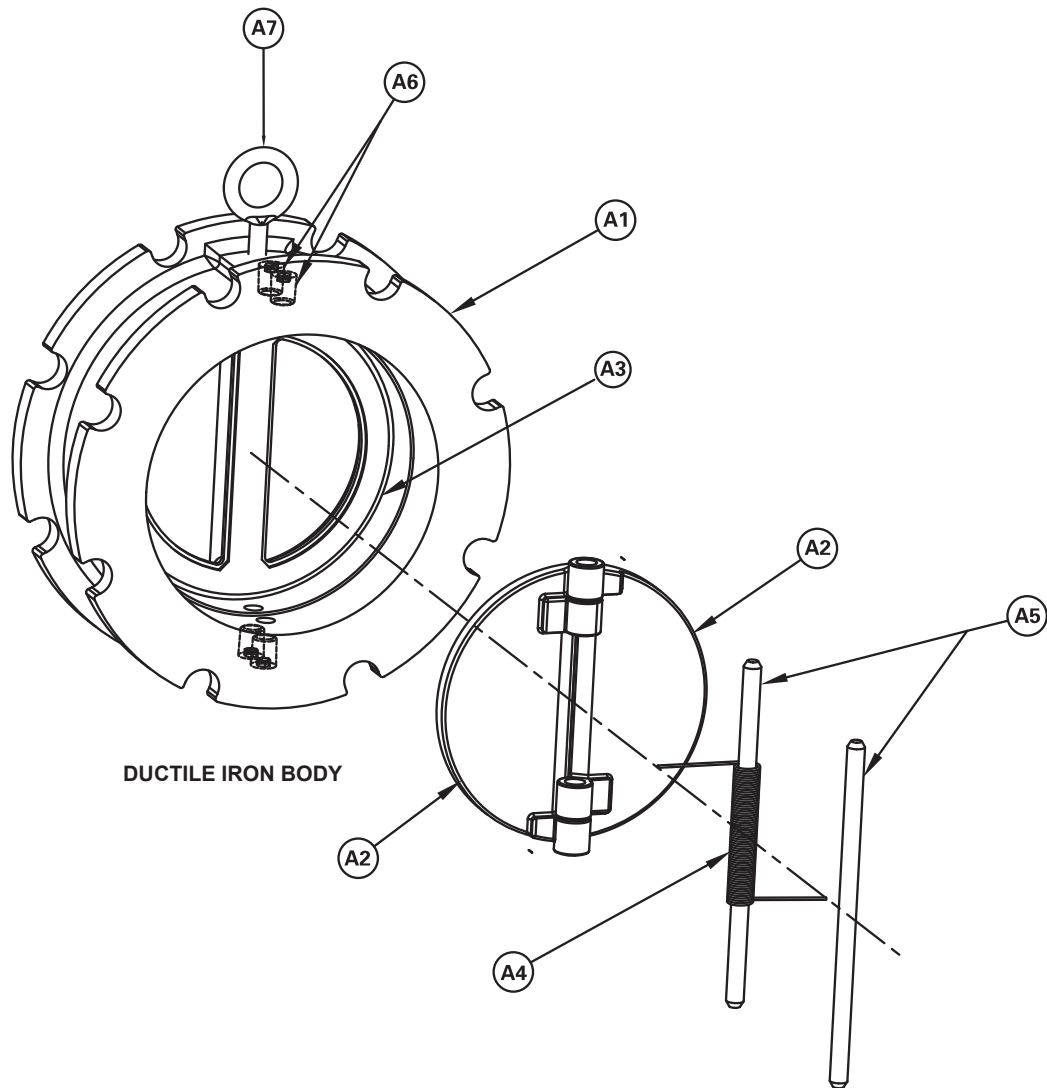
The ductile iron body maintains the anti-corrosive properties of cast iron while achieving yield strength comparable to carbon steel. Ductile iron also offers higher pressure/temperature ratings than cast iron. The CDD Double Door Check Valve is also available in Carbon Steel and Stainless Steel for corrosion resistance or higher pressure services.

Resilient or Metal Seats

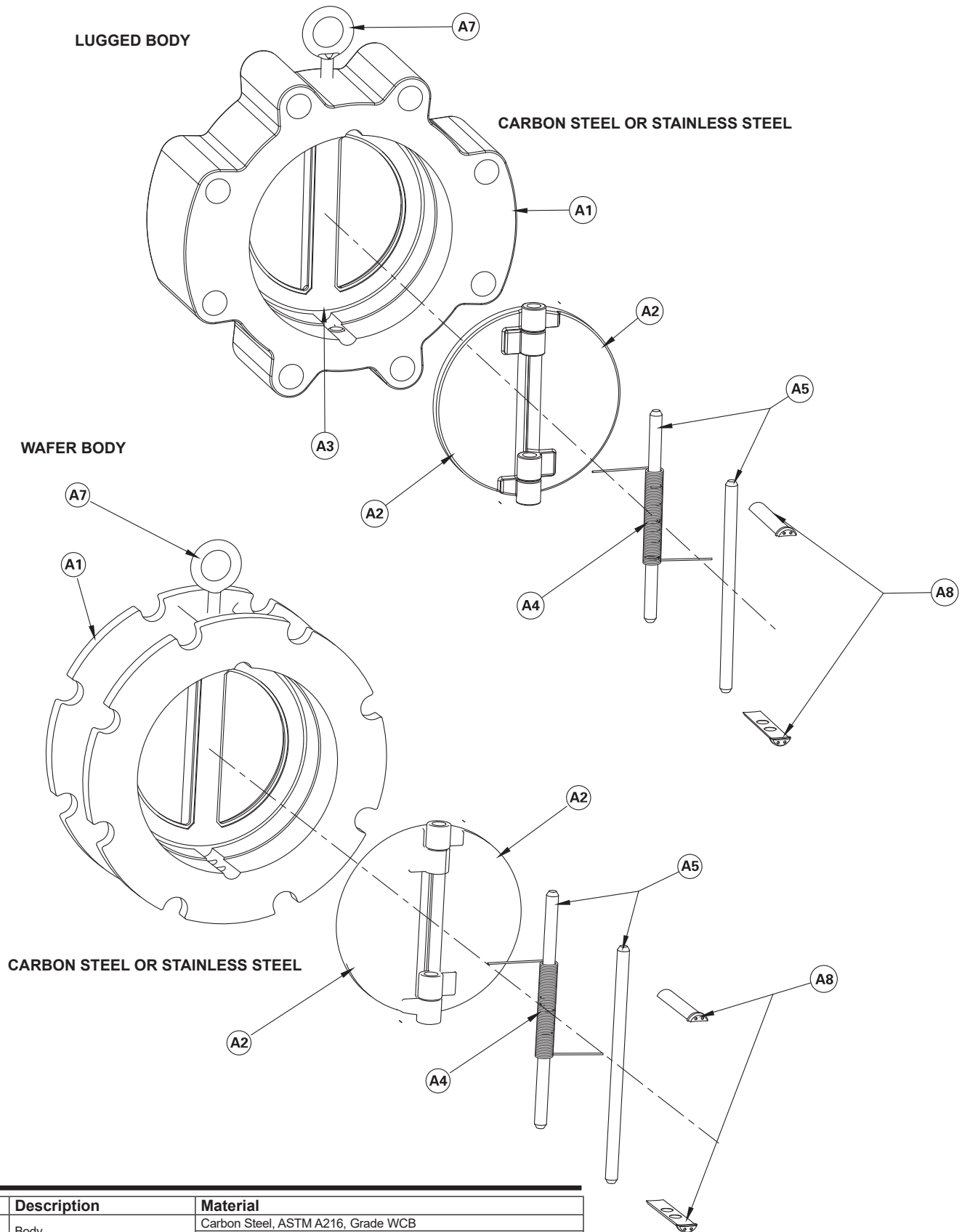
Resilient seats in Terpolymer of Ethylene Propylene & A Diene (EPDM), Acrylonitrile-Butadiene (NBR) or Fluoro Rubber (FKM) ensure a bubble tight seal that meets or exceeds API 598 test requirements. Lapped metal seats meet or exceed API 598 test requirements. Temperature ratings for resilient seat materials are:

- EPDM -20° to 300° F (-28° to 184° C)
- NBR -20° to 250° F (-28° to 121° C)
- FKM -40° to 400° F (-40° to 204° C)

Materials of Construction



Item	Description	Material
A1	Body	Ductile Iron, ASTM A536
A2	Door	Aluminum Bronze, ASTM B148, Alloy 952 316 Stainless Steel, ASTM A351, CF8M
A3	Seat	EPDM - Terpolymer of Ethylene, Propylene and a Diene NBR - Acrylonitrile-Butadiene FKM - Fluoro Rubber
A4	Spring	316 Stainless Steel
A5	Hinge Pin / Stop Pin	316 Stainless Steel
A6	Pin Retainer (NPT Plug)	Carbon Steel
A7	Lifting Eye Bolt (10" & larger)	Carbon Steel



Item	Description	Material
A1	Body	Carbon Steel, ASTM A216, Grade WCB 316 Stainless Steel, ASTM A351, Grade CF8M
A2	Door	316 Stainless Steel, ASTM A351, CF8M
A3	Seat	FKM - Fluoro Rubber NBR - Acrylonitrile-Butadiene Metal - CS Body with CS Seat Material Only & Stainless Steel Overlay
A4	Spring	316 Stainless Steel
A5	Hinge Pin / Stop Pin	316 Stainless Steel
A7	Lifting Eye Bolt (8" & larger)	Carbon Steel
A8	Cap	Carbon Steel, ASTM A105 316 Stainless Steel, ASTM A351, Grade CF8M

Valve Selection

Shutoff Capabilities

Seat-Type	Shutoff
Resilient	Bubble Tight Seal that Meets or Exceeds API 598 Test Requirements
Metal	Meets or exceeds API 598 Test Requirements

Pressure Ratings

Sizes 2-6" (50-150mm) wafer bodies are dual pressure rated for both ASME B16.42/B16.5 Class 150 and 300.

Valve Size	Pressure Rating
2-6" Class 300 Ductile Iron	640 psi (4412 kPa) CWP*
2-36" Class 150 Ductile Iron	250 psi (1723 kPa) CWP*
2-6" Class 300 Carbon Steel	740 psi (5100 kPa) CWP*
2-36" Class 150 Carbon Steel	285 psi (1960 kPa) CWP*
2-6" Class 300 Stainless Steel	720 psi (4965 kPa) CWP*
2-36" Class 150 Stainless Steel	275 psi (1900 kPa) CWP*

* Cold Working Pressure

Temperature Ratings

Seat Material	Temperature Rating
EPDM - Terpolymer of Ethylene, Propylene and a Diene	-20 to 300° F (-28 to 184° C)
NBR - Acrylonitrile-Butadiene	-20 to 250° F (-28 to 121° C)
FKM - Fluoro Rubber	-40 to 400° F (-40 to 204° C)

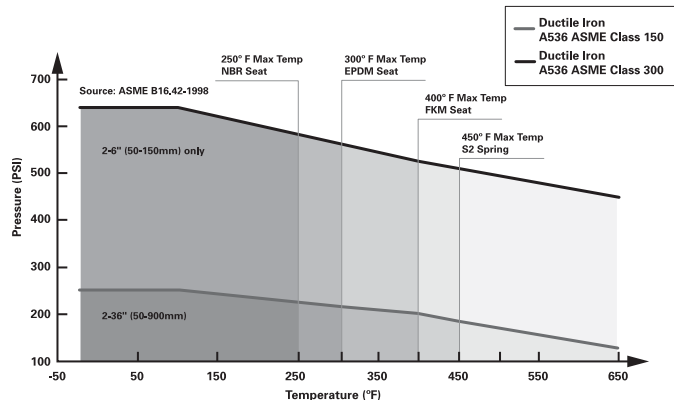
Applicable Standards

APCO (CDD) Double Door Check Valves are designed and/or tested to meet the following standards:	
ASME/API 594	Valve Design Manufacture & Valve Face to Face Dimensions, Carbon Steel or Stainless Steel Only
ASME B16.5	Flange Dimensions & Pressure Ratings
ASME B16.34	Valves - Flanged, Threaded, and Welding End
ASME B16.42	Ductile Iron Pipe Flanges and Flanged Fittings
API 598	Valve Inspection and Pressure Test

Velocity Range

2-36" 50-900mm	Velocity not to exceed 10 ft/sec or go below 5 ft/sec
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Ductile Iron



Flow Parameters

Valve Size	Cv* Kv* 100% Open
2"	62
50mm	54
2.5"	110
65mm	95
3"	175
80mm	151
4"	350
100mm	303
6"	850
150mm	735
8"	1500
200mm	1298
10"	2400
250mm	2076
12"	3700
300mm	3201
14"	5400
350mm	4671
16"	8250
400mm	7136
18"	10400
450mm	8996
20"	14200
500mm	12283
24"	23000
600mm	19895
30"	37000
750mm	32000
36"	55000
900mm	47600

*Cv = Flow in GPM of water at 1 psi pressure drop.

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

Weights

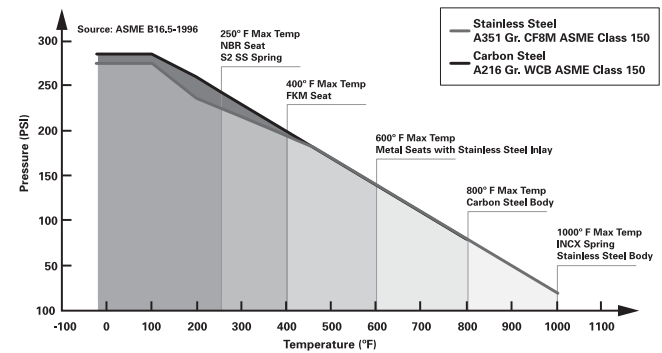
Valve Size	Ductile Iron	Carbon Steel / Stainless Steel (Lugged)
2"	4	8
50mm	2	4
2.5"	5	12
65mm	3	5
3"	7	16
80mm	4	8
4"	14	28
100mm	7	13
6"	27	50
150mm	13	23
8"	43	95
200mm	20	44
10"	70	150
250mm	32	69
12"	108	242
300mm	50	110
14"	175	Contact DeZURIK
350mm	80	
16"	200	
400mm	91	
18"	258	
450mm	118	
20"	345	
500mm	157	
24"	460	
600mm	209	
30"	1000	
750mm	457	
36"	1900	
900mm	865	

Pounds
Kilograms

Pressure - Temperature Ratings

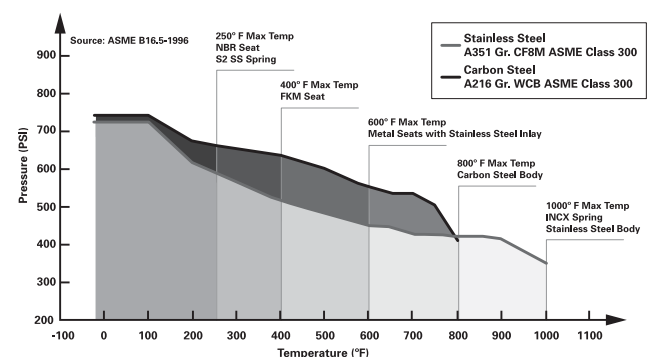
Carbon Steel & Stainless Steel

ASME Class 150, 8" (200mm) and larger wafer bodies, all lugged bodies



Carbon Steel & Stainless Steel

ASME Class 300, 2-6" (50-150mm) wafer bodies



Ordering

To order, simply complete the valve order code from information shown.

Valve Style

Give valve style code as follows:

CDD = Double Door Check Valve

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	

Body Style

Give body style code as follows:

9000T = Double Door Check

End Connection

Give end connection code as follows:

Ductile Iron Body

W1W2 = Wafer ASME 150/300 (2-6" Only)
 W1 = Wafer ASME 150 (8-36" Only)

Carbon Steel and Stainless Steel Bodies

W1W2 = Wafer ASME 150/300 (2-6" Only)
 W1 = Wafer ASME 150
 L1 = Lugged ASME 150

Body Material

Give body material code as follows:

DI = Ductile Iron
 CS = Carbon Steel (S2 Door Material Only)
 S2 = 316 Stainless Steel (S2 Door Material Only)

Door Material

Give door material code as follows:

Ductile Iron Body

ALB = Aluminum Bronze
 S2 = 316 Stainless Steel

Carbon Steel and Stainless Steel Bodies

S2 = 316 Stainless Steel

Seat Material

Give seat material code as follows:

EPDM = Terpolymer of Ethylene, Propylene and a Diene,
 -20° to 300° F (-28° to 184° C)
 NBR = Acrylonitrile-Butadiene
 (Not available with 316 Stainless Steel bodies)
 -20° to 250° F (-28° to 121° C)
 FKM = Fluoro Rubber (S2 door material only)
 -40° to 400° F (-40° to 204° C)
 M = Metal (CS Body with CS Seat Material Only)
 Has a Stainless Steel Overlay

Spring Material

Give spring material code as follows:

Ductile Iron Body

S2 = 316 Stainless Steel

Carbon Steel and Stainless Steel Bodies

INCX = Nickel Chromium Alloy

Hinge & Stop Pin Material

Give hinge & pin stop material code as follows:

S2 = 316 Stainless Steel

Options

Give options code as follows:

---- = Coatings, See Coating Section 100.01-10
 ABS = Air Blower Service, Low Torsion Spring
 Available with FKM Seat Only (Body Style 9000T)
 DTR = DeZURIK Standard Certified Production Hydrostatic Shell &
 Seat Test Report

Ordering Example:

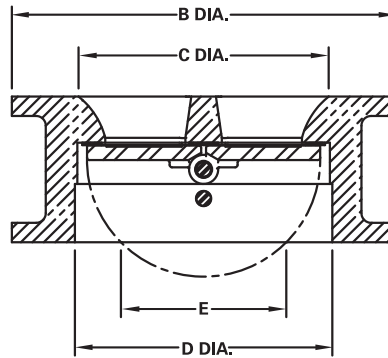
CDD,10,9000T,W1,DI,S2-NBR-S2-S2,DTR*

Dimensions

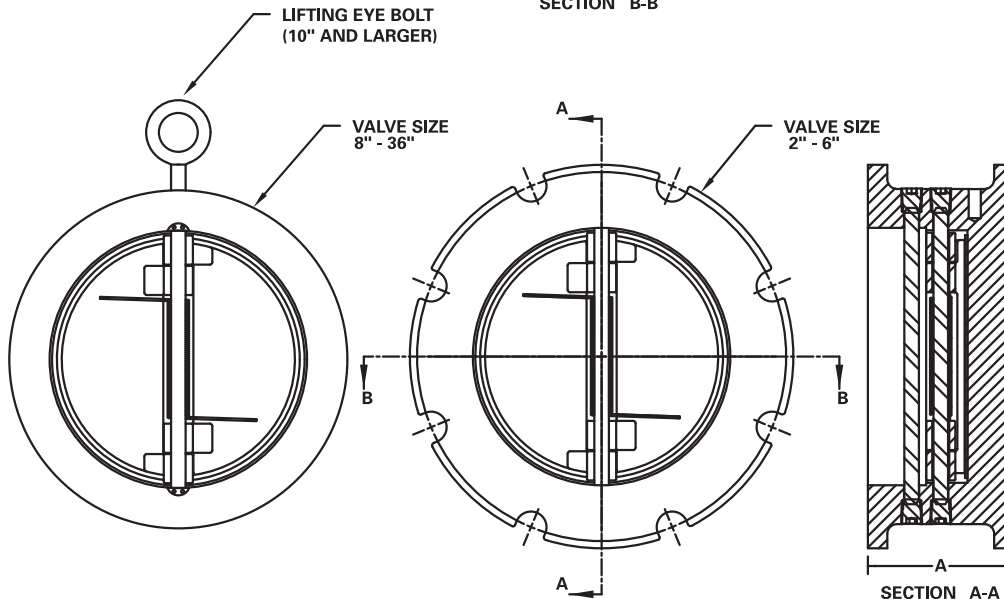
Ductile Iron Body

Valve Size	A	B Diameter	C Diameter	D Diameter	E Diameter
2"	2.12	4.37	2.00	2.62	0.00
50mm	54	111	51	67	0
2.5"	2.12	5.12	2.50	3.12	1.26
65mm	54	130	64	79	32
3"	2.25	5.75	3.00	3.87	2.36
80mm	57	146	76	98	60
4"	2.50	7.12	4.00	4.75	3.43
100mm	64	181	102	121	87
6"	3.00	9.87	6.00	7.00	5.32
150mm	76	251	152	178	135
8"	3.75	11.00	8.00	9.00	7.48
200mm	95	279	203	229	190
10"	4.25	13.37	10.00	11.00	9.45
250mm	108	340	254	279	240
12"	5.62	16.12	12.00	13.25	11.26
300mm	143	409	305	337	286
14"	7.25	17.75	14.00	14.25	11.26
350mm	184	451	356	362	286
16"	7.50	20.25	16.00	16.25	13.70
400mm	191	514	406	413	348
18"	8.00	21.62	18.00	18.12	15.63
450mm	203	549	457	460	397
20"	8.37	23.87	20.00	20.12	17.64
500mm	213	606	508	511	448
24"	8.75	28.25	24.00	24.00	21.97
600mm	222	718	610	610	558
30"	12.00	34.75	30.00	30.75	28.72
750mm	305	883	762	781	730
36"	14.50	41.25	36.00	34.00	25.50
900mm	368	1048	914	865	648

Inch
Millimeter



SECTION B-B



SECTION A-A

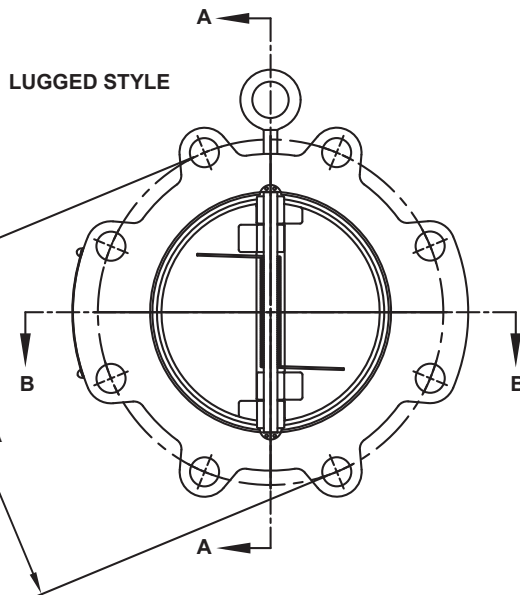
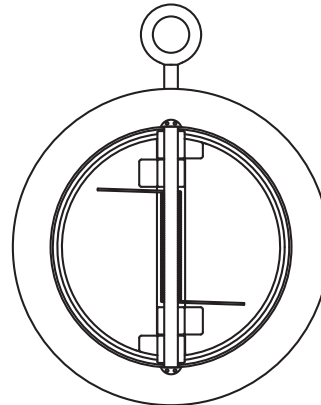
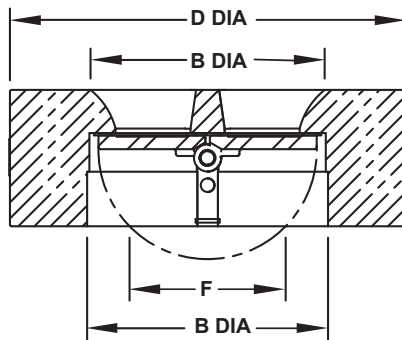
Dimensions

Carbon Steel or Stainless Steel Body

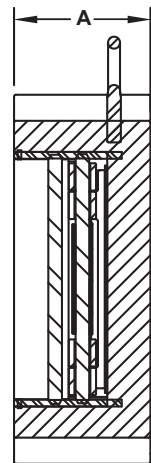
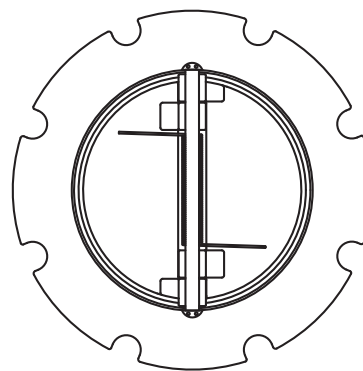
Valve Size	A	B Diameter	C Diameter	D Diameter	E Diameter	F Diameter
2" 50mm	2.38 60	2.00 51	2.16 55	4.33 110	4.75 121	0.75 19
2.5" 65mm	2.62 67	2.50 64	2.67 68	5.04 128	5.50 140	1.69 43
3" 80mm	2.88 73	3.00 76	3.23 82	5.79 147	6.00 152	2.36 60
4" 100mm	2.88 73	4.00 102	4.25 108	7.05 179	7.50 191	3.54 90
6" 150mm	3.87 99	5.98 152	6.38 162	9.81 249	9.50 241	5.31 135
8" 200mm	5.00 127	8.00 203	8.66 220	10.91 277	11.75 298	7.13 181
10" 250mm	5.75 146	10.00 254	10.63 270	13.27 337	14.25 362	8.82 224
12" 300mm	7.12 181	12.00 305	12.60 320	16.02 407	17.00 432	10.47 266
14" 350mm	7.25 184	13.26 337	13.78 350	17.64 448	18.75 476	11.81 300
16" 400mm	7.50 191	15.24 387	15.75 400	20.15 512	21.25 540	14.29 363
18" 450mm	8.00 203	17.24 438	17.24 438	21.54 547	22.75 578	15.87 403
20" 500mm	8.62 219	19.50 495	19.50 495	23.78 604	25.00 635	18.03 458
24" 600mm	8.75 222	23.42 595	23.42 595	28.15 715	29.50 749	22.28 566
30" 750mm	12.00 305	28.94 735	28.94 735	34.75 883	36.00 914	27.09 688
36" 900mm	14.50 368	34.44 875	34.44 875	41.25 1048	42.75 1086	31.69 805

Inch
Millimeter

WAFER STYLE
8" - 36"



WAFER STYLE
2" - 6"



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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