



Check Valve

Design

KOSEN cast steel check valves are designed and manufactured to provide maximum service life and dependability. All check valves meet the design requirements of American Petroleum Institute standard API600 & 6D, BS EN 13709 and generally conform to American Society of Mechanical Engineers standard ASME B16.34. Valves are available in a complete range of body/cover materials and trims.

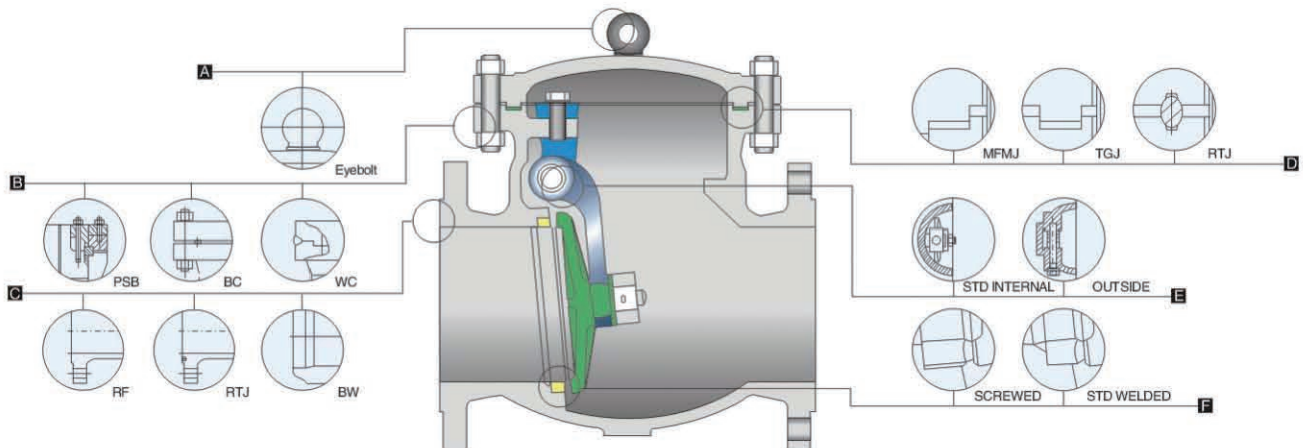
Ranges of Materials

Standard body/cover materials include nine grades of carbon, low alloy and stainless steels, for special applications they can be supplied in other grades of alloy and stainless steel, there's a full range of trim materials to match any service optional packing and gasket materials are available for a full range of service conditions.

Available Modifications For KOSEN Cast Steel Valves

Trim changes
End connection modifications
Packing and gasket changes
Operator mounting
Handwheel extensions

Pressure equalizing
Customer specified coatings
Weld end bore changes
Oxygen & chlorine cleaning & packaging



A Eyebolt

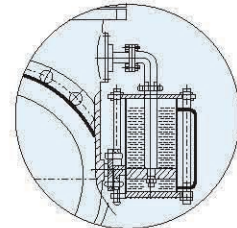
For 150Lb-8", 300Lb-8", 600Lb-6", 900Lb/1500Lb/2500Lb-4" & over.

BC

Bolted cover, welded cover and pressure seal bonnet in services requiring frequent cycling or with high pressure/temperature variations.

E End Connections

A choice of flanged, RTJ flanged or butt welding end for piping flexibility.



D Body-to-Cover Joint

A male and female joint or tongue and groove joint is used 150Lb to 600Lb valves. Ring joint is used in the body to cover connection in 900Lb & higher rated valves.

E Outside Lever And Weight

All external hinge pin swing check valves 12" and smaller are available with an optional outside lever and weight, internal hinge available with all swing check valves.

F Seat Rings

Separate heavy duty, full ported rings for easy maintenance. Screwed or welded connection into body.

HCU weighted mechanical accumulator

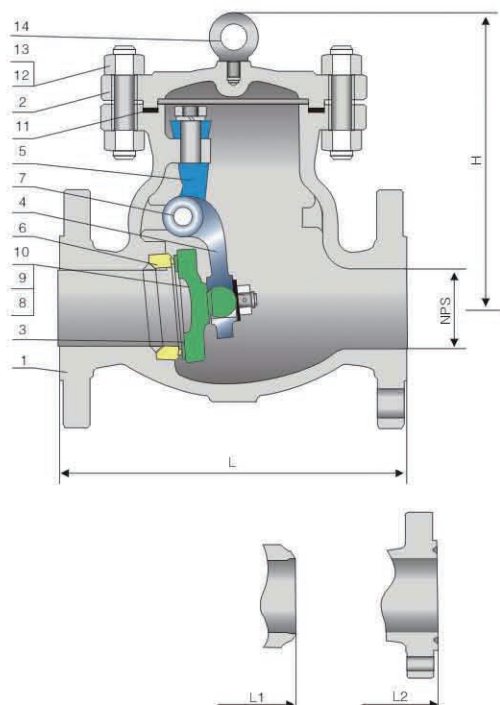
This design can be used to either dampen or assist closing of the check valve disc depending on orientation. by using the hydraulic control unit to buffer action the disc, the valve opens at lower flow rates.

Applicable Standards:

- STEEL CHECK VALVES, API 6D
- STEEL CHECK VALVES, ISO14313
- STEEL VALVES, ASME B16.34
- FACE TO FACE, ASME B16.10
- END FLANGES, ASME B16.5
- BUTTWELDING ENDS, ASME B16.25
- INSPECTION AND TEST, API 598/API 6D

Design descriptions:

- BC, BOLTED COVER
- SWING TYPE, ANTI-ROTATION DISC
- RENEWABLE SEAT RINGS
- NON-PENETRATE DISC SHAFT
- HORIZONTAL OR VERTICAL SERVICE
- FLANGED OR BUTTWELDING ENDS



Materials of parts

No	Part Name	Carbon Steel	ASTM Materials 1 1/4Cr-1/2Mo	Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Cover	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A105-CR13	A182-F11+HF	A350-LF2+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Fork Part	A216-WCB	A217-WC6	A352-LCB
6	Seat Ring	A105+CR13	A182-F11+HF	A350-LF2+CR13
7	Hinge Pin	A276-420	A276-304	A276-420
8	Disc Washer	Carbon Steel	A276-304	Carbon Steel
9	Disc Nut	Carbon Steel	A194-7	Carbon Steel
10	Disc Nut Pin	Carbon Steel	A276-420	Carbon Steel
11	Gasket	Spiral Wound(Graphite+304)		
12	Stud	A193-B7	A193-B16	A320-L7
13	Stud Nut	A194-2H	A194-7	A194-4
14	Eyebolt ²⁾	Carbon Steel		

Note:1)Cast steel disc for NPS 4" and above.

2)NPS 6" & larger.

3)Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensional datas of ANSI Class 150Lb

NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	26 650	28 700	30 750	36 900	in mm
L1 (RF/BW)	8.00 203	8.50 216	9.50 241	11.50 292	14.00 356	19.50 495	24.50 622	27.50 699	31.00 787	34.00 864	38.50 978	38.50 978	51.00 1295	51.00 1295	57.00 1448	60.00 1524	77.00 1956	in mm
L2 (RTJ)	8.50 216	9.00 229	10.00 254	12.00 305	14.50 368	20.00 508	25.00 635	28.00 711	31.50 800	34.50 876	39.00 991	39.00 991	51.50 1308	- -	- -	- -	- -	in mm
H	6.00 152	6.50 165	6.88 175	8.00 204	11.50 293	13.88 353	15.38 390	17.00 432	18.75 475	20.62 525	22.88 582	24.62 627	34.75 883	37.00 940	37.00 940	38.62 980	48.00 1220	in mm
wt(kg)	14 10	20 12	25 17	40 29	71 57	118 96	177 143	263 227	353 295	542 468	632 552	855 755	970 831	1600 1420	1600 1420	1990 1760	2760 2230	RF/RTJ BW

Dimensional datas of ANSI Class 300Lb

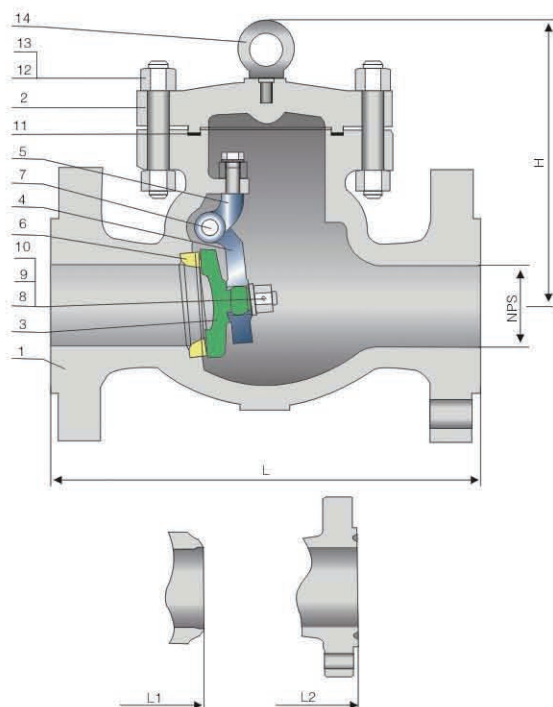
NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	26 650	28 700	30 750	36 900	in mm
L1 (RF/BW)	10.50 267	11.50 292	12.50 318	14.00 356	17.50 445	21.00 533	24.50 622	28.00 711	33.00 838	34.00 864	38.50 978	40.00 1016	53.00 1346	53.00 1346	59.00 1499	62.75 1594	82.00 2083	in mm
L2 (RTJ)	11.12 283	12.12 308	13.12 333	14.62 371	18.12 460	21.62 549	25.12 638	28.62 727	33.62 854	34.62 879	39.12 994	40.75 1035	53.88 1368	54.00 1372	60.00 1524	63.75 1619	- -	in mm
H	6.00 152	6.50 165	6.88 175	8.00 204	11.50 292	13.88 353	15.38 390	17.00 432	18.75 475	20.62 525	22.88 582	24.62 627	34.75 883	35.88 910	37.00 940	38.62 980	48.00 1220	in mm
wt(kg)	16 11	23 13	29 18	46 31	82 61	136 103	204 155	302 245	405 315	625 503	730 593	985 812	1115 895	1465 1205	1840 1525	2290 1895	3180 2395	RF/RTJ BW

Applicable Standards:

- STEEL CHECK VALVES, API 6D
- STEEL CHECK VALVES, ISO14313
- STEEL VALVES, ASME B16.34
- FACE TO FACE, ASME B16.10
- END FLANGES, ASME B16.5
- BUTTWELDING ENDS, ASME B16.25
- INSPECTION AND TEST, API 598/API 6D

Design descriptions:

- BC, BOLTED COVER
- SWING TYPE, ANTI-ROTATION DISC
- RENEWABLE SEAT RINGS
- NON-PENETRATE DISC SHAFT
- HORIZONTAL OR VERTICAL SERVICE
- FLANGED OR BUTTWELDING ENDS



Materials of parts

No	Part Name	ASTM Materials		
		Carbon Steel	1 1/4Cr-1/2Mo	Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Cover	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A216-WCB+CR13	A182-F11+HF	A350-LCB+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Fork Part	A216-WCB	A217-WC6	A352-LCB
6	Seat Ring	A105+CR13	A182-F11+HF	A350-LF2+CR13
7	Hinge Pin	A276-420	A276-304	A276-420
8	Disc Washer	Carbon Steel	A276-304	Carbon Steel
9	Disc Nut	Carbon Steel	A194-7	Carbon Steel
10	Disc Nut Pin	Carbon Steel	A276-420	Carbon Steel
11	Gasket	Spiral Wound(Graphite+304)		
12	Stud	A193-B7	A193-B16	A320-L7
13	Stud Nut	A194-2H	A194-7	A194-4
14	Eyebolt ²⁾	Carbon Steel		

Note: 1) NPS 6" & larger.

2) Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensional datas of ANSI Class 600Lb

NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	in mm
L1 (RF/BW)	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	in
	292	330	356	432	559	660	787	838	889	991	1092	1194	1397	mm
L2 (RTJ)	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	in
	295	333	359	435	562	664	791	841	892	994	1095	1200	1407	mm
H	7.50	8.00	8.75	10.00	14.50	17.50	19.25	21.38	23.38	25.75	28.75	31.00	43.50	in
	190	205	222	255	368	445	490	540	595	655	730	785	1105	mm
wt(kg)	24	35	44	70	125	207	310	460	615	945	1105	1495	1695	RF/RTJ
	16	19	26	44	87	147	220	350	452	720	845	1160	1280	BW

Dimensional datas of ANSI Class 900Lb

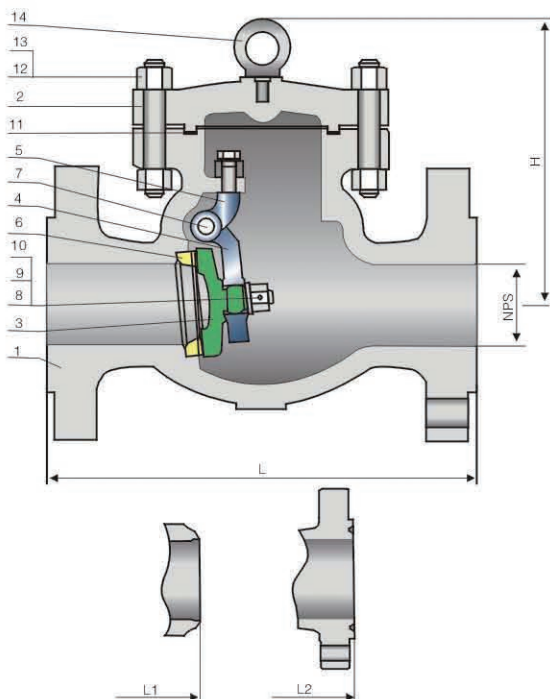
NPS DN	2 50	2 1/2 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	in mm
L1 (RF/BW)	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	—	in
	368	419	381	457	610	737	838	965	1029	1130	1219	1321	—	mm
L2 (RTJ)	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	40.88	44.88	48.50	52.50	—	in
	371	422	384	460	613	740	841	968	1038	1140	1232	1334	—	mm
H	9.50	10.00	11.00	12.50	18.12	22.00	24.00	26.50	29.38	32.00	33.50	38.75	—	in
	240	256	278	320	460	560	610	675	745	815	850	985	—	mm
wt(kg)	37	54	68	109	195	321	481	711	956	1468	1870	2316	—	RF/RTJ
	21	25	34	58	115	194	290	461	597	950	1210	1533	—	BW

Applicable Standards:

- STEEL CHECK VALVES, API 6D
- STEEL CHECK VALVES, ISO 14313
- STEEL VALVES, ASME B16.34
- FACE TO FACE, ASME B16.10
- END FLANGES, ASME B16.5
- BUTTWELDING ENDS, ASME B16.25
- INSPECTION AND TEST, API 598/API 6D

Design descriptions:

- BC, BOLTED COVER
- SWING TYPE, ANTI-ROTATION DISC
- RENEWABLE SEAT RINGS
- NON-PENETRATE DISC SHAFT
- HORIZONTAL OR VERTICAL SERVICE
- FLANGED OR BUTTWELDING ENDS



Materials of parts

No	Part Name	ASTM Materials		
		Carbon Steel	1 1/4Cr-1/2Mo	Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Cover	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A216-WCB+CR13	A182-F11+HF	A350-LCB+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Fork Part	A216-WCB	A217-WC6	A352-LCB
6	Seat Ring	A105+CR13	A182-F11+HF	A350-LF2+CR13
7	Hinge Pin	A276-420	A276-304	A276-420
8	Disc Washer	Carbon Steel	A276-304	Carbon Steel
9	Disc Nut	Carbon Steel	A194-7	Carbon Steel
10	Disc Nut Pin	Carbon Steel	A276-420	Carbon Steel
11	Gasket	Spiral Wound(Graphite+304)		
12	Stud	A193-B7	A193-B16	A320-L7
13	Stud Nut	A194-2H	A194-7	A194-4
14	Eyebolt ²⁾	Carbon Steel		

Note: 1) NPS 6" & larger.

2) Disc and seat ring may either be solid facing material or a base material equal to or better than the body/bonnet material with facing as shown.

Dimensional datas of ANSI Class1500Lb

NPS	DN	L/L1 (RF/BW)		L2 (RTJ)		H		WT(kg)	
2	50	14.50	368	14.62	371	9.50	240	40	29
2 1/2	65	16.50	419	16.62	422	10.00	256	63	47
3	80	18.50	470	18.62	473	13.00	330	70	49
4	100	21.50	546	21.62	549	14.75	375	115	84
6	150	27.75	705	28.00	711	18.88	480	250	152
8	200	32.75	832	33.12	841	23.50	595	470	310
10	250	39.00	991	39.38	1000	26.00	660	740	470
12	300	44.50	1130	45.12	1146	29.12	740	1100	710
14	350	49.50	1257	50.25	1276	30.88	785	1410	910
16	400	54.50	1384	55.38	1407	32.88	835	1600	1100
in	mm	in	mm	in	mm	in	mm	RF/RTJ	BW

Dimensional datas of ANSI Class2500Lb

NPS	DN	L/L1 (RF/BW)		L2 (RTJ)		H		WT(kg)	
2	50	17.75	451	17.88	454	10.75	275	50	35
2 1/2	65	20.00	508	20.25	514	13.25	335	76	55
3	80	22.75	578	23.00	584	13.75	350	85	68
4	100	26.50	673	26.88	683	15.12	385	165	115
6	150	36.00	914	36.50	927	19.50	495	460	225
8	200	40.25	1022	40.88	1038	24.62	625	900	580
10	250	50.00	1270	50.88	1292	28.00	712	1300	860
12	300	56.00	1422	56.88	1445	35.62	905	1800	1150
14	350	—	—	—	—	—	—	—	—
16	400	—	—	—	—	—	—	—	—
in	mm	in	mm	in	mm	in	mm	mm	mm

Applicable Standards:

- STEEL CHECK VALVES, API 594/API 6D
- STEEL CHECK VALVES, ISO 14313
- STEEL VALVES, ASME B16.34
- FACE TO FACE, ASME B16.10
- END FLANGES, ASME B16.5
- INSPECTION AND TEST, API 598/API 6D

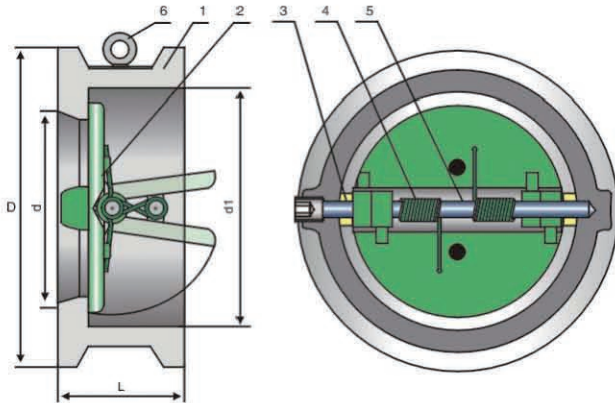
Design descriptions:

- ONE PIECE BODY
- BUTTERFLY SWING TYPE
- DUAL-PLATE DISC, LONG-PATTERN
- RENEWABLE SPLIT DISC
- HORIZONTAL OR VERTICAL SERVICE
- WAFER ENDS
- AVAILABLE WITH FLANGED ENDS

Materials of parts

No	Part Name	ASTM Materials		
		Carbon Steel	18Cr-9NiMo	Carbon Steel
1	Body	A216-WCB	A351-CF8M	A352-LCB
2	Plate	A216-WCB+CR13	A351-CF8M+HF	A350-LCB+CR13
3	Stop Pin	A276-420	A276-304	A276-420
4	Back Spring	A313-304	A313-316	A313-304
5	Hinge Pin	A276-420	A276-304	A276-420
6	Eyebolt ²⁾	Carbon Steel		

Note: 1) NPS 8" & larger.



Dimensional datas of ANSI Class 150Lb

NPS DN	2 50	2½ 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	in mm
L	2.38	2.62	2.88	2.88	3.88	5.00	5.75	7.12	7.25	7.50	8.00	8.62	8.75	in
	60	67	73	73	98	127	146	181	184	191	203	219	222	mm
D	4.00	4.88	5.38	6.75	8.62	10.88	13.25	16.00	17.62	20.12	21.50	23.75	28.12	in
	103	122	135	173	220	277	337	407	448	512	547	604	715	mm
d	2.00	2.50	3.25	4.00	6.00	8.00	10.00	12.00	13.75	15.75	17.75	19.75	23.62	in
	51	65	80	102	152	203	254	305	350	400	450	500	600	mm
D1	2.25	2.88	3.50	4.25	6.25	8.25	10.50	12.12	14.00	16.00	18.00	19.88	23.75	in
	56	73	88	108	160	210	266	310	355	405	455	505	605	mm
WT	2	3	4	6	13	25	39	54	80	117	138	163	331	kg

Dimensional datas of ANSI Class 300Lb

NPS DN	2 50	2½ 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	18 450	20 500	24 600	in mm
L	2.38	2.62	2.88	2.88	3.88	5.00	5.75	7.12	8.75	9.12	10.38	11.50	12.50	in
	60	67	73	73	98	127	146	181	222	232	264	292	318	mm
D	4.25	5.00	5.75	7.00	9.88	12.00	14.12	16.50	19.00	21.12	23.38	25.62	30.38	in
	110	128	147	179	249	305	359	420	483	537	594	652	772	mm
d	2.00	2.50	3.00	4.00	6.00	8.00	10.00	12.00	14.00	16.00	18.00	20.00	24.00	in
	51	65	80	102	152	8.25	254	305	350	400	450	500	600	mm
D1	2.25	2.88	3.50	4.25	6.38	203	10.50	12.25	14.00	16.00	18.00	20.00	24.00	in
	58	73	88	108	160	210	266	310	355	405	455	505	608	mm
WT	3	4	6	8	18	31	51	77	117	190	200	265	410	kg

Applicable Standards:

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- STEEL CHECK VALVES, ISO 14313
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- END FLANGES, ASME B16.5
- INSPECTION AND TEST, API 598/API 6D

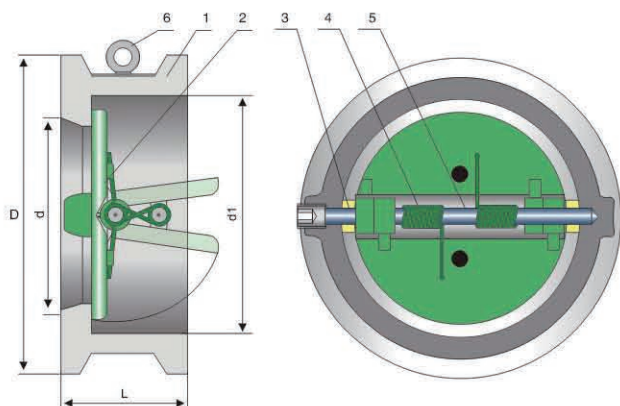
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2	Plate	A216-WCB+CR13	A351-CF8M+HF	A350-LCB+CR13
3	Stop Pin	A276-420	A276-304	A276-420
4	Back Spring	A313-304	A313-316	A313-304
5	Hinge Pin	A276-420	A276-304	A276-420
6	Eyebolt ²⁾	Carbon Steel		

Note: 1) NPS 8" & larger.



Dimensional datas of ANSI Class 600Lb

NPS DN	2 50	2½ 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	in mm
L	2.38	2.62	2.88	3.12	5.38	6.50	8.38	9.00	10.75	12.00	in
	60	67	73	79	137	165	213	229	273	305	mm
D	4.38	5.00	5.75	7.50	10.38	12.50	15.62	17.88	19.25	22.12	in
	110	128	147	191	264	318	398	455	490	562	mm
d	2.00	2.50	3.00	4.00	6.00	7.88	9.88	12.00	13.25	15.25	in
	51	65	80	102	152	200	250	305	337	387	mm
D1	2.25	2.88	3.50	4.25	6.38	8.38	10.50	12.25	14.00	15.75	in
	58	73	88	108	162	212	266	312	355	400	mm
WT	4	5	8	11	26	55	95	140	223	360	kg

Dimensional datas of ANSI Class 900Lb

NPS DN	2 50	2½ 65	3 80	4 100	6 150	8 200	10 250	12 300	14 350	16 400	in mm
L	2.75	3.25	3.25	4.00	6.25	8.12	9.50	11.50	—	—	in
	70	83	83	102	159	206	241	292	—	—	mm
D	5.50	6.38	6.50	8.00	11.25	14.00	17.00	19.50	—	—	in
	140	162	165	204	286	356	432	495	—	—	mm
d	2.00	2.50	3.00	4.00	6.00	7.88	9.88	12.00	—	—	in
	51	62	80	102	152	200	250	305	—	—	mm
D1	2.25	2.88	3.50	4.25	6.38	8.38	10.50	12.25	—	—	in
	58	73	88	108	162	212	266	312	—	—	mm
WT	8	11	14	20	42	84	145	220	—	—	kg