

**Design**

GMK 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.

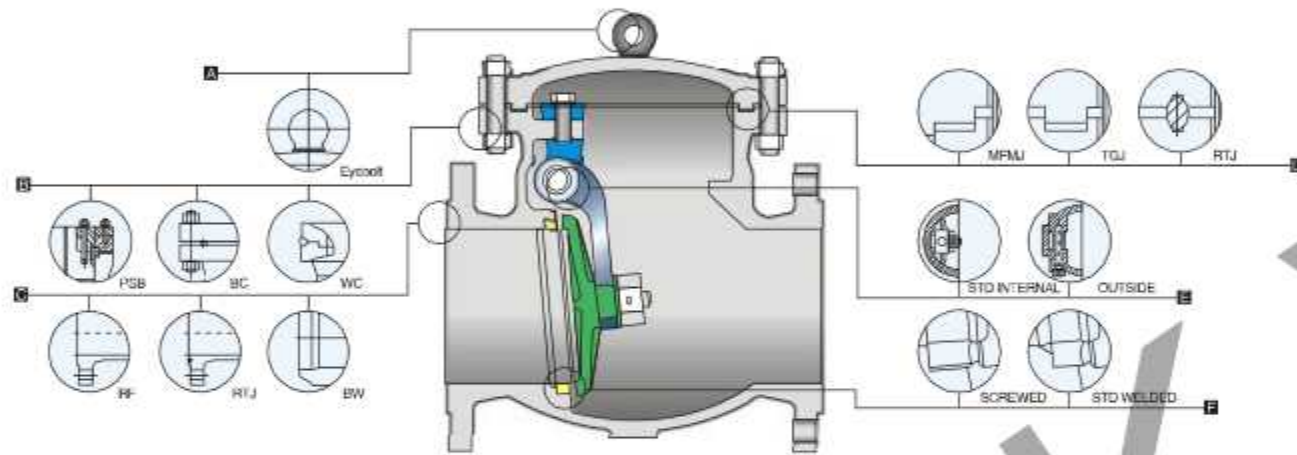
**Ranges of Materials**

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 GMK Cast Steel Valve**

- 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.

**B BC**

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

**C End Connections**

A choice of flanged, RTJ flanged or buttwelding 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**

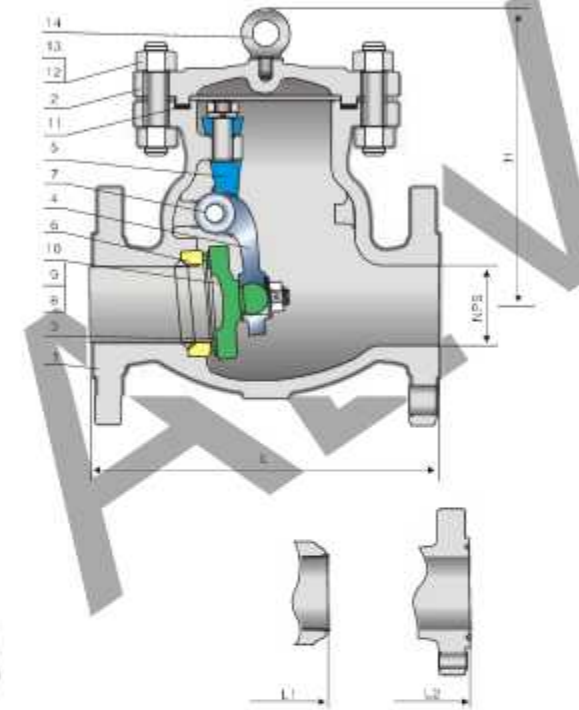
This design can be used to either dampen or assist closing of the check valve disc depending on orientation, by using the hydraulic control unit to buffer action the disc, the valve opens at lower flow rates.

**Applicable Standards:**

- STEEL CHECK VALVES, API 6D
- STEEL CHECK VALVES, 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	Carbon Steel	ASTM Materials 1 1/4Cr- 1/2Mo	Low Temperature Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Cover	A216-WCB	A217-WC6	A352-LCB
3	Disc <sup>1)</sup>	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 <sup>2)</sup>	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	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	36	in
	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	900	mm
L/L1 (RF/BW)	8.00	8.50	9.50	11.50	14.00	19.50	24.50	27.50	31.00	34.00	38.50	38.50	51.00	51.00	57.00	60.00	77.00	in
	203	216	241	292	356	495	622	699	787	864	978	978	1295	1295	1448	1524	1956	mm
L2 (RTJ)	8.50	9.00	10.00	12.00	14.50	20.00	25.00	28.00	31.50	34.50	39.00	39.00	51.50	-	-	-	-	in
	216	229	254	305	368	508	635	711	800	876	991	991	1308	-	-	-	-	mm
H	6.00	6.50	6.88	8.00	11.50	13.88	15.38	17.00	18.75	20.62	22.88	24.62	34.75	37.00	37.00	38.62	48.00	in
	152	165	175	204	293	353	390	432	475	525	582	627	883	940	940	980	1220	mm
wt(kg)	14	20	25	40	71	118	177	263	353	542	632	855	970	1600	1600	1990	2760	RF/RTJ
	10	12	17	29	57	96	143	227	295	468	552	755	831	1420	1420	1760	2230	BW

**Dimensional datas of ANSI Class 300Lb**

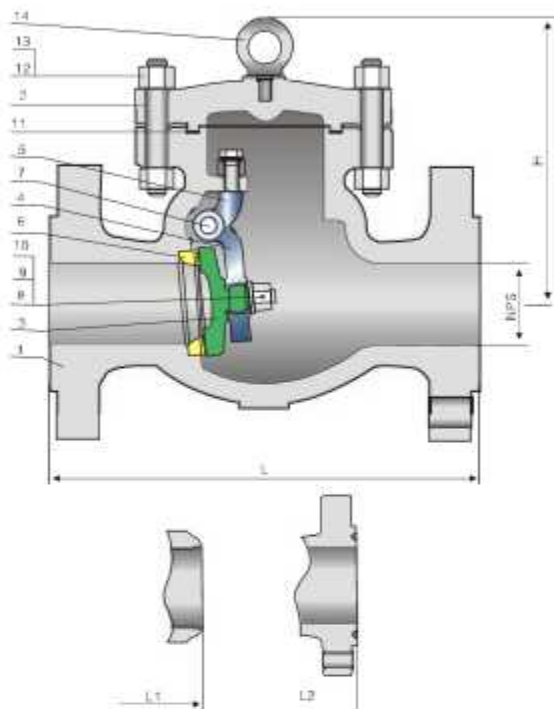
NPS DN	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	26	28	30	36	in
	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	900	mm
L/L1 (RF/BW)	10.50	11.50	12.50	14.00	17.50	21.00	24.50	28.00	33.00	34.00	38.50	40.00	53.00	53.00	59.00	62.75	82.00	in
	267	292	318	356	445	533	622	711	838	864	978	1016	1346	1346	1499	1594	2083	mm
L2 (RTJ)	11.12	12.12	13.12	14.62	18.12	21.62	25.12	28.62	33.62	34.62	39.12	40.75	53.88	54.00	60.00	63.75	-	in
	283	308	333	371	460	549	638	727	854	879	994	1035	1368	1372	1524	1619	-	mm
H	6.00	6.50	6.88	8.00	11.50	13.88	15.38	17.00	18.75	20.62	22.88	24.62	34.75	35.88	37.00	38.62	48.00	in
	152	165	175	204	292	353	390	432	475	525	582	627	883	910	940	980	1220	mm
wt(kg)	16	23	29	46	82	136	204	302	405	625	730	985	1115	1465	1840	2290	3180	RF/RTJ
	11	13	18	31	61	103	155	245	315	503	593	812	895	1205	1525	1895	2395	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	Carbon Steel	ASTM Materials 1 1/2Cr-1/2Mo	Low Temperature Carbon Steel
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Cover	A216-WCB	A217-WC6	A352-LCB
3	Disc <sup>1)</sup>	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 <sup>2)</sup>	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	2 1/2	3	4	6	8	10	12	14	16	18	20	24	in
	50	65	80	100	150	200	250	300	350	400	450	500	600	mm
L/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**

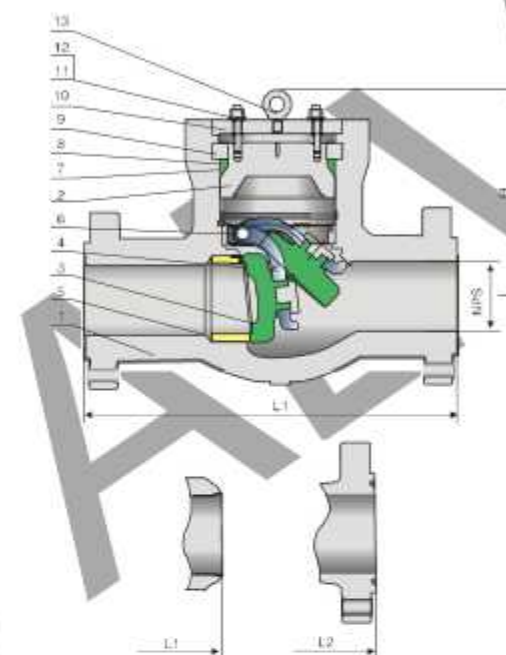
NPS DN	2	2 1/2	3	4	6	8	10	12	14	16	18	20	24	in
	50	65	80	100	150	200	250	300	350	400	450	500	600	mm
L/L1 (RF/BW)	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	-	in
	368	419	381	457	610	737	838	965	1029	1130	1219	1321	-	mm
L2 (RTJ)	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	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, BS EN 13709/API 600
- 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

**Design descriptions:**

- PSB, PRESSURE SEAL BONNET
- FLEXIBLE DISC, FULLY GUIDED
- RENEWABLE SEAT RINGS
- FLANGED OR BUTTWELDING ENDS



**Materials of parts**

No	Part Name	Carbon Steel	ASTM Materials 1 1/2Cr-1/2Mo	18Cr-9Ni-2Mo
1	Body	A216-WCB	A217-WC6	A351-CF8M
2	Pres. Seal Bonnet	A216-WCB	A217-WC6	A351-CF8M
3	Disc	A105+HF	A182-F11+HF	A351-CF8M+HF
4	Hinge	A216-WCB	A217-WC6	A351-CF8M
5	Seat Ring	A105+HF	A182-F11+HF	A240-316+HF
6	Hinge Pin	A276-420	A276-304	A276-316
7	Bonnet Gasket <sup>1)</sup>	Steel Ring	304SS Ring	316SS RING
8	Adapter Ring	Carbon Steel	A276-420	A276-316
9	Retainer	Carbon Steel	A276-420	A276-316
10	Cover	Carbon Steel	Alloy Steel	Stainless Steel
11	Bonnet Stud	A193-B7	A193-B7	A193-B8M
12	Bonnet Stud Nut	A194-2H	A194-2H	A194-8M
13	Eyebolt	Carbon Steel		

Note 1) graphite optional.  
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 1500Lb**

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 Class 2500Lb**

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	RF/RTJ BW

**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

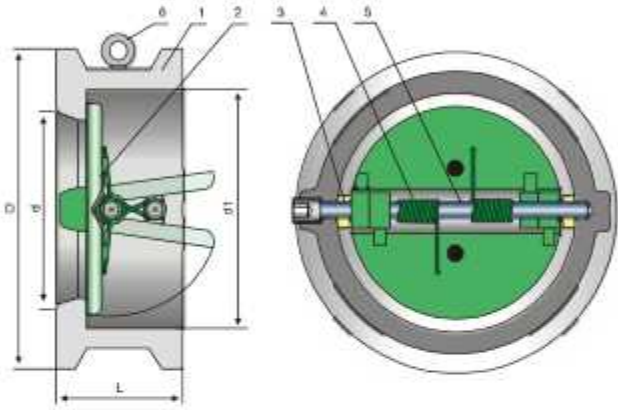
**Design descriptions:**

- 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	Carbon Steel	ASTM Materials 18Cr-9NiMo	Low Temperature 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 <sup>2)</sup>	Carbon Steel		

Note: 1) NPS 8" & larger.



**Dimensional datas of ANSI Class 150Lb**

NPS DN	2	2½	3	4	6	8	10	12	14	16	18	20	24	in
	50	65	80	100	150	200	250	300	350	400	450	500	600	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	2½	3	4	6	8	10	12	14	16	18	20	24	in
	50	65	80	100	150	200	250	300	350	400	450	500	600	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:**

- 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

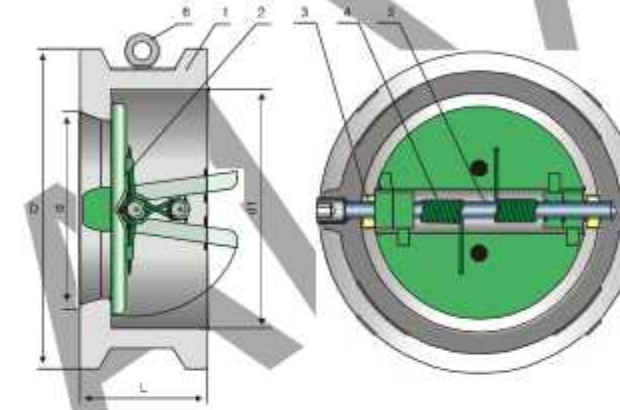
**Design descriptions:**

- ONE PIECE BODY
- BUTTERFLY SWING TYPE
- DUAL-PLATE DISC, LONG-PATTERN
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- WAFER ENDS
- AVAILABLE WITH FLANGED ENDS

**Materials of parts**

No	Part Name	Carbon Steel	ASTM Materials 18Cr-9NiMo	Low Temperature 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 <sup>2)</sup>	Carbon Steel		

Note: 1) NPS 8" & larger.



**Dimensional datas of ANSI Class 600Lb**

NPS DN	2	2½	3	4	6	8	10	12	14	16	in
	50	65	80	100	150	200	250	300	350	400	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	2½	3	4	6	8	10	12	14	16	in
	50	65	80	100	150	200	250	300	350	400	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