

API 6D&API 594 CHECK VALVE

ASME Classes
150-4500
Sizes: 2-24"
(50-+600mm)



Swing Check Valve, BB, CS

www.flourvalve.it



Design

Flour Valve steel check valves are designed and manufactured to provide maximum service life and dependability. All check valves meet the design requirements of the American Petroleum Institute standard, API 600 and API 6D, British Standard BS EN 13709 and generally conform to the American Society of Mechanical Engineers standard ASME B16.34.

Range Of Materials

Standard body/bonnet 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 Flour Valve Cast Steel Valve

Trim changes
End connection modifications
Gasket changes
Outside lever and weight
Slam retarders
Pressure equalising is for ball valves
Outside lever and weight
Customer specified coatings
Weld end bore changes
Oxygen & chlorine cleaning & packaging

Eyebolt

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

End Connections

A choice of flanged, RTJ flanged or butt weld ends for piping flexibility.

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

BB

Bolted bonnet. Welded bonnet and pressure seal bonnets are available for services with frequent cycling or with high pressure/temperature variations.

Body-To-Bonnet Joint

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

Seat Rings

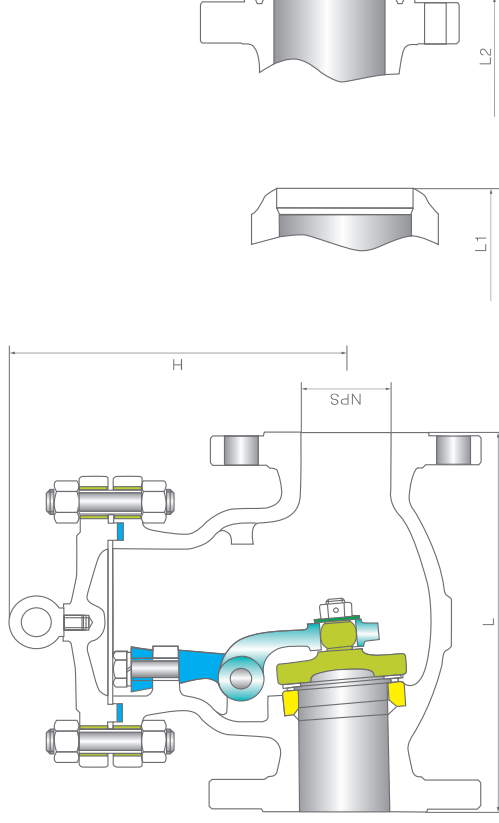
Separate heavy duty, full ported ring for easy maintenance. Screwed or welded connection into body.

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.

150Lb

Cast Steel Check Valve



Applicable Standards:

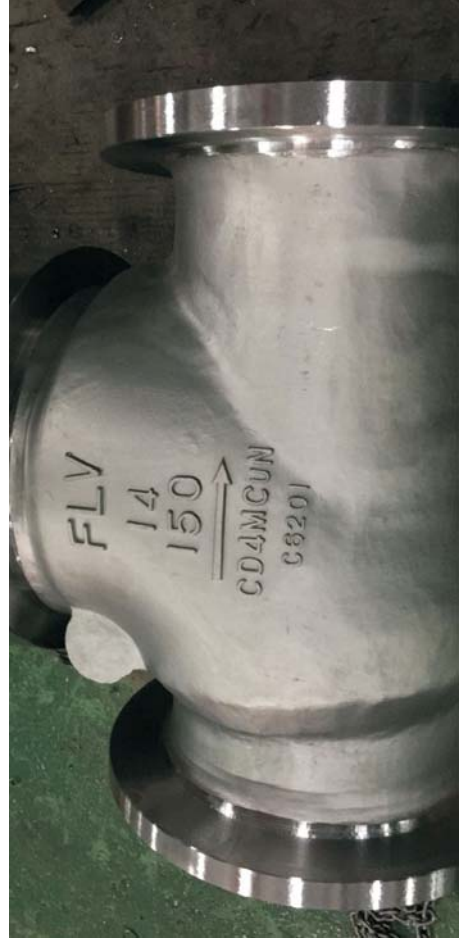
Steel check valves: API 6D; Bs 1868
Steel check valves: ISO 14313
Steel valves: ASME B 16.34
Face to face: ASME B 16.10
End flanges: ASME B16.5
Butt weld ends: ASME B16.25
Inspection and test: API 598/API 6D

Fig. No:

C1F01A C1F05D C1F01B
C1B01A C1B05D C1B01B

Design Description

Bolted bonnet (BB) split body, cap
Swing type, Anti-rotation disc
Renewable seat rings
Internal disc shaft
Horizontal or vertical service
Flanged or butt weld ends



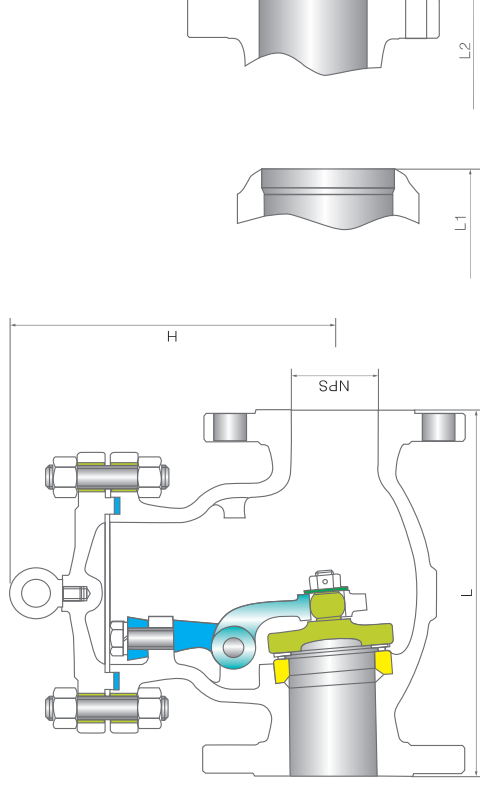
List of Materials

NO	Part name	ASTM Material	
		Carbon steel	1 1/4Cr- 1/2Mo
1	Body	A216-WCB	A217-WC6
2	Bonnet cap	A216-WCB	A217-WC6
3	Disc ¹⁾	A105+CR13	A182-F11+HF
4	Hinge	A216-WCB	A217-WC6
5	Support	A216-WCB	A217-WC6
6	Seat ring	A105+CR13	A182-F11+HF
7	Hinge pin	A276-420	A276-304
8	Disc washer	Carbon steel	A276-304
9	Disc nut	Carbon steel	A194-7
10	Disc nut pin	Carbon steel	A276-420
11	Bonnet gasket	Spiral wound (Graphite+304)	
12	Bonnet stud	A193-B7	A193-B16
13	Bonnet stud nut	A194-2H	A194-7
14	Eyebolt ²⁾	Carbon steel	

Note: 1). Cast steel disc for NPS 4" and above ; 2). NPS 6" & L larger;
3). Disc and seat ring may either be hard faced or supplied with a base material equal to or better than the body/bonnet material, with facing as shown..

Dimensional Data

Size	L1 (RF/BW)		L2 (RTJ)		H		RF/RTJ	BW
	in	mm	in	mm	in	mm		
2	50	8.00	203	216	6.00	152	14	10
2 1/2	65	8.50	216	229	6.50	165	20	12
3	80	9.50	241	254	6.88	175	25	17
4	100	11.50	292	305	8.00	204	40	29
6	150	14.00	356	368	11.50	293	71	57
8	200	19.50	495	20.00	13.88	353	118	96
10	250	24.50	622	25.00	15.38	390	177	143
12	300	27.50	699	28.00	17.00	432	263	227
14	350	31.00	787	31.50	18.75	475	353	295
16	400	34.00	864	34.50	20.62	525	542	468
18	450	38.50	978	39.00	22.88	582	632	562
20	500	38.50	978	39.00	24.62	627	855	755
24	600	51.00	1295	51.50	34.75	883	970	831
26	650	51.00	1295	-	35.88	910	1275	1120
28	700	57.00	1448	-	37.00	940	1600	1420
30	750	60.00	1524	-	38.62	980	1990	1760
36	900	77.00	1956	-	48.00	1220	2760	2230



Applicable Standards

Steel check valves: API 6D
Steel check valves: ISO 14313
Steel valves: ASME B 16.34
Face to face: ASME B 16.10
End flanges: ASME B16.5
Butt weld ends: ASME B16.25
Inspection and test: API 598/API 6D

Fig. No:

C3F01A C3F05D C3F01B
C3B01A C3B05D C3B01B
C3R01A C3R05D C3R01B

Design Description

Boiled bonnet (BB) split body, cap
Swing type, Anti-rotation disc
Renewable seat rings
Non-penetrated disc shaft
Horizontal or vertical service
Flanged or butt weld ends

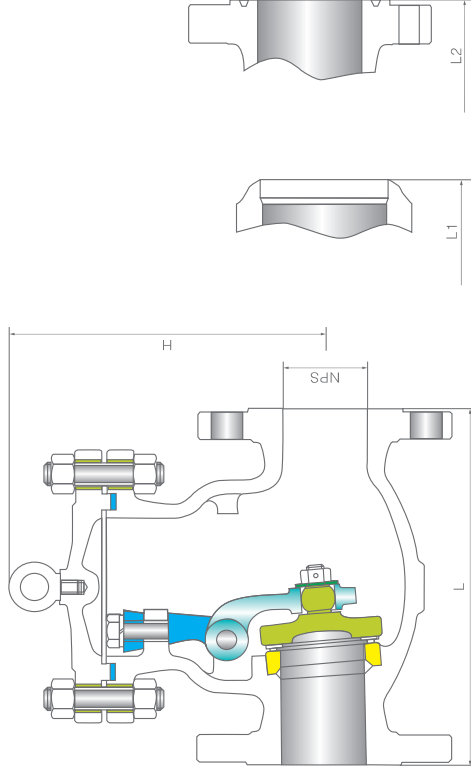
List of Materials

NO	Part name	ASTM Material	
		Carbon steel	1/4Cr-1/2Mo
1	Body	A216-WCB	A217-WC6
2	Bonnet cap	A216-WCB	A217-WC6
3	Disc ³⁾	A105+CR13	A182-F11+HF
4	Hinge	A216-WCB	A217-WC6
5	Support	A216-WCB	A217-WC6
6	Seat ring	A105+CR13	A182-F11+HF
7	Hinge pin	A276-420	A276-304
8	Disc washer	Carbon steel	A276-304
9	Disc nut	Carbon steel	A194-7
10	Disc nut pin	Carbon steel	A276-420
11	Bonnet gasket	Spiral wound (Graphite+304)	
12	Bonnet stud	A193-B7	A193-B16
13	Bonnet stud nut	A194-2H	A194-7
14	Eyebolt ³⁾	Carbon steel	

Note: 1). Cast steel disc for NPS 4" and above ; 2). NPS 6" & Larger;
3). Disc and seat ring may either be hard faced or supplied with a base material equal to or better than the body/bonnet material, with facing as shown..

Dimensional Data

Size	LL (RF/BW)		LZ (RTJ)		H		RF/RTJ	BW
	in	mm	in	mm	in	mm		
2	50	10.50	267	11.12	283	6.00	152	16
2 1/2	65	11.50	292	12.12	308	6.50	165	23
3	80	12.50	318	13.12	333	6.88	175	29
4	100	14.00	356	14.62	371	8.00	204	46
6	150	17.50	445	18.12	460	11.50	292	82
8	200	21.00	533	21.62	549	13.88	353	136
10	250	24.50	622	25.12	638	15.38	390	204
12	300	28.00	711	28.62	727	17.00	432	302
14	350	33.00	838	33.62	854	18.75	475	405
16	400	34.00	864	34.62	879	20.62	525	625
18	450	36.50	978	39.12	994	22.88	582	730
20	500	40.00	1016	10.75	1035	24.62	627	985
24	600	53.00	1346	53.88	1368	34.75	883	1115
26	650	55.00	1346	54.00	1372	35.88	910	1465
28	700	56.00	1490	60.00	1524	37.00	940	1840
30	750	62.75	1594	63.75	1619	38.62	980	2290
36	900	82.00	2083	-	-	48.00	1220	3180



Applicable Standards

Steel check valves: API 6D
Steel check valves: ISO 14313
Steel valves: ASME B 16.34
Face to face: ASME B 16.10
End flanges: ASME B16.5
Butt weld ends: ASME B16.25
Inspection and test: API 598/API 6D

Fig. No:

C6F01A C6F05D C6F01B
C6B01A C6B05D C6B01B
C6R01A C6R05D C6R01B

Design Description

Boiled bonnet (BB) split body, cap
Swing type, Anti-rotation disc
Renewable seat rings
Non-penetrate disc shaft
Horizontal or vertical service
Flanged or butt weld ends

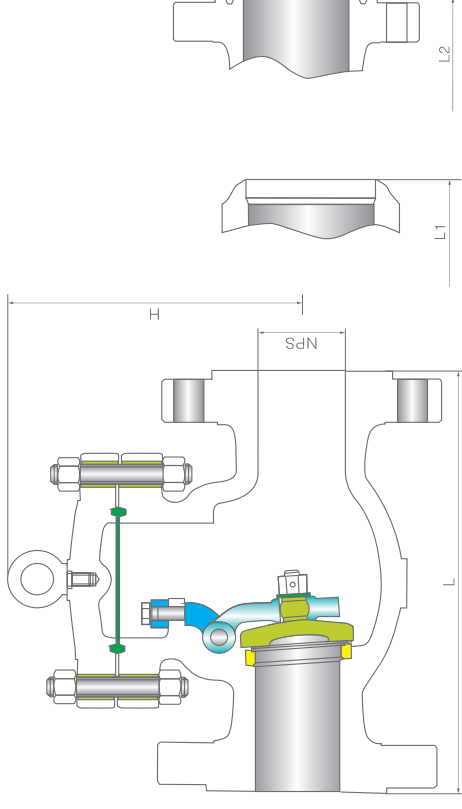
List of Materials

NO	Part name	ASTM Material		Carbon steel
		Carbon steel	1/4Cr-1/2Mo	
1	Body	A216-WCB	A217-WC6	Carbon steel
2	Bonnet cap	A216-WCB	A217-WC6	A352-LCB
3	Disc ¹⁾	A216-WCB+CR13	A217-WC6	A352-LCB
4	Hinge	A216-WCB	A217-WC6+HF	A352-LCB+CR13
5	Support	A216-WCB	A217-WC6	A352-LCB
6	Seat Ring ²⁾	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	Bonnet gasket	Spiral wound (Graphite+304)		
12	Bonnet stud	A193-B7	A193-B16	A320-L7
13	Bonnet stud nut	A194-2H	A194-7	A194-4
14	Eyebolt ³⁾	Carbon steel		

Note: 1), NPS 6" & Larger;
2), Disc and seat ring may either be hard faced or supplied with a base material equal to or better than the body/bonnet material, with facing as shown..

Dimensional Data

Size	D1 (RF/BW)		L2 (RTJ)		H		WT (Kg)			
	in	mm	in	mm	in	mm	RF/RTJ	BW		
2	50	8.00	203	216	8.50	216	6.00	152	14	10
2 1/2	65	8.50	216	229	9.00	229	6.50	165	20	12
3	80	9.50	241	254	10.00	254	6.88	175	25	17
4	100	11.50	292	305	12.00	305	8.00	204	40	29
6	150	14.00	356	368	14.50	368	11.50	293	71	57
8	200	19.50	495	508	20.00	508	13.88	353	118	96
10	250	24.50	622	635	25.00	635	15.38	390	177	143
12	300	27.50	699	711	28.00	711	17.00	432	263	227
14	350	31.00	787	800	31.50	800	18.75	475	353	295
16	400	34.00	864	876	34.50	876	20.62	525	542	468
18	450	38.50	978	991	39.00	991	22.88	582	632	552
20	500	38.50	978	991	39.00	991	24.62	627	865	755
24	600	51.00	1295	1308	51.50	1308	34.75	883	970	831



Applicable Standards

Steel check valves: API 6D
Steel check valves: ISO 14313
Steel valves: ASME B 16.34
Face to face: ASME B 16.10
End flanges: ASME B16.5
Butt weld ends: ASME B16.25
Inspection and test: API 598/API 6D

Fig. No:

C9F01A C9F05D C9F01B
C9B01A C9B05D C9B01B
C9R01A C9R05D C9R01B

Design Description

Bolted bonnet (BB) split body, cap
Swing type, Anti-rotation disc
Renewable seat rings
Non-penetrate disc shaft
Horizontal or vertical service
Flanged or butt weld ends

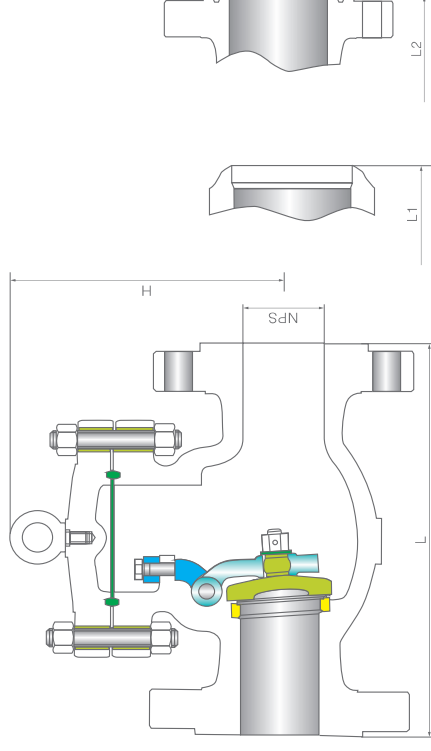
List of Materials

NO	Part name	ASTM Material	
		Carbon steel	1 1/4Cr- 1/2Mo
1	Body	A216-WCB	A217-WC6
2	Bonnet cap	A216-WCB	A217-WC6
3	Disc ¹⁾	A216-WCB-CR13	A217-WC6+HF
4	Hinge	A216-WCB	A217-WC6
5	Support	A216-WCB	A217-WC6
6	Seat Ring ²⁾	A105+HF	A182-F11+HF
7	Hinge pin	A276-420	A276-304
8	Disc washer	Carbon steel	A276-304
9	Disc nut	Carbon steel	A194-7
10	Disc nut pin	Carbon steel	A276-420
11	Bonnet gasket	Steel ring	304SS Ring
12	Bonnet stud	A193-B7	A193-B16
13	Bonnet stud nut	A194-2H	A194-7
14	Eyebolt ³⁾	Carbon steel	Carbon steel

Note: 1) NPS 6" & Larger;
2) Disc and seat ring may either be hard faced or supplied with a base material equal to or better than the body/bonnet material, with facing as shown.

Dimensional Data

Size	D1 (RF/BW)		L2 (RTJ)		H		WT (Kg)
	in	mm	in	mm	in	mm	
2	50	4.50	368	371	14.62	371	37
2 1/2	65	16.50	419	422	16.62	422	54
3	80	15.00	381	384	15.12	384	68
4	100	18.00	457	460	18.12	460	109
6	150	24.00	610	613	24.12	613	185
8	200	29.00	737	740	29.12	740	321
10	250	33.00	838	841	33.12	841	481
12	300	36.00	965	968	38.12	968	711
14	350	40.50	1029	1038	40.88	1038	956
16	400	44.50	1130	1140	44.88	1140	1468
18	450	48.00	1219	1232	48.50	1232	1870
20	500	52.00	1321	1334	52.50	1334	2316
24	600	-	-	-	-	-	-



Applicable Standards

Steel check valves: API 6D
Steel check valves: ISO 14313
Steel valves: ASME B 16.34
Face to face: ASME B 16.10
End flanges: ASME B16.5
Butt weld ends: ASME B16.25
Inspection and test: API 598/API 6D

Fig. No:

C15F01A C15F05D C15F01B
C15B01A C15B05D C15B01B
C15R01A C15R05D C15R01B

Design Description

Bolted bonnet (BB) split body, cap
Swing type, Anti-rotation disc
Renewable seat rings
Non-penetrate disc shaft
Horizontal or vertical service
Flanged or butt weld ends

List of Materials

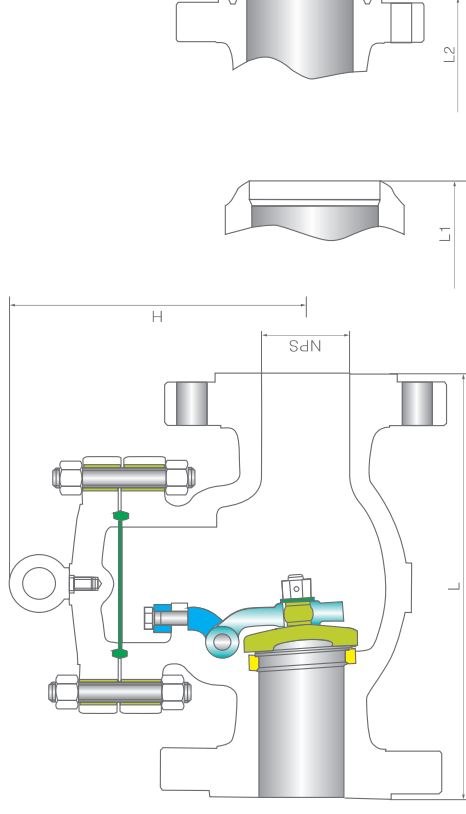
NO	Part name	ASTM Material		Carbon steel
		Carbon steel	1/4Cr-1/2Mo	
1	Body	A216-WCB	A217-WC6	A352-LCB
2	Bonnet cap	A216-WCB	A217-WC6	A352-LCB
3	Disc ³⁾	A216-WCB+CR13	A217-WC6+HF	A352-LCB+CR13
4	Hinge	A216-WCB	A217-WC6	A352-LCB
5	Support	A216-WCB	A217-WC6	A352-LCB
6	Seat Ring ³⁾	A105+HF	A182-F11+HF	A350-LF2+HF
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	Bonnet gasket	Steel ring	304SS Ring	Steel ring
12	Bonnet stud	A193-B7	A193-B16	A320-L7
13	Bonnet stud nut	A194-2H	A194-7	A194-4
14	Eyebolt ³⁾	Carbon steel		

Note: 1). NPS 6" & Larger;

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

Dimensional Data

Size	LL1 (RF/BW)		L2 (RTJ)		H		WT (kg)		
	in	mm	in	mm	in	mm	RF/RTJ	BW	
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



Applicable Standards

Steel check valves: API 6D
 Steel check valves: ISO 14313
 Steel valves: ASME B 16.34
 Face to face: ASME B 16.10
 End flanges: ASME B16.5
 Butt weld ends: ASME B16.25
 Inspection and test: API 598/API 6D

Fig. No:

C25F01A C25F05D C25F01B
 C25B01A C25B05D C25B01B
 C25R01A C25R05D C25R01B

Design Description

Bolted bonnet (BB) split body, cap
 Swing type, Anti-rotation disc
 Renewable seat rings
 Non-penetrate disc shaft
 Horizontal or vertical service
 Flanged or butt weld ends

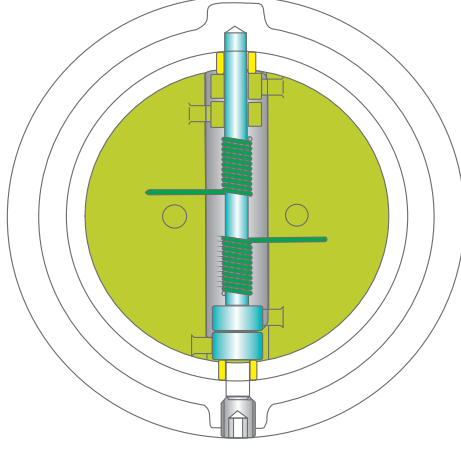
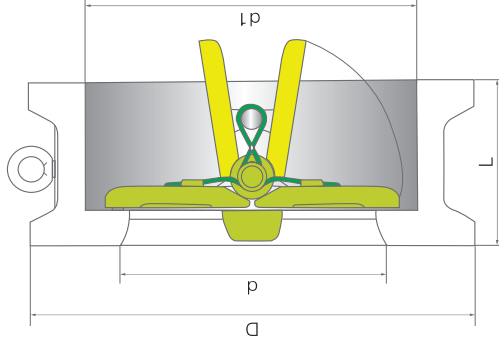
List of Materials

NO	Part name	ASTM Material	
		Carbon steel	1/4Cr-1/2Mo
1	Body	A216-WCB	A217-WC6
2	Bonnet cap	A216-WCB	A217-WC6
3	Disc ¹⁾	A216-WCB+CR13	A217-WC6+HF
4	Hinge	A216-WCB	A217-WC6
5	Support	A216-WCB	A217-WC6
6	Seat Ring ²⁾	A105+HF	A182-F11+HF
7	Hinge pin	A276-420	A276-304
8	Disc washer	Carbon steel	A276-304
9	Disc nut	Carbon steel	A194-7
10	Disc nut pin	Carbon steel	A276-420
11	Bonnet gasket	Steel ring	304SS Ring
12	Bonnet stud	A193-B7	A193-B16
13	Bonnet stud nut	A194-2H	A194-7
14	Eyebolt ³⁾	Carbon steel	Carbon steel

Note: 1). NPS 6" & Larger:
2). Disc and seat ring may either be hard faced or supplied with a base material equal to or better than the body/bonnet material, with facing as shown.

Dimensional Data

Size	LL1 (RF/BW)		L2 (RTJ)		H		WT (kg)		
	in	mm	in	mm	in	mm			
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	-	-	-	-	-	-	-	-



Applicable Standards

Steel check valves: API 594/API 6D
Steel check valves: ISO 14313
Steel valves: ASME B 16.34
Face to face: ASME B 16.10
End flanges: ASME B16.5
Inspection and test: API 598/API 6D

Fig. No:

CD1W01A CD1W05D CD1W01B
CD1F01A CD1F05D CD1F01B
CD3W01A CD3W05D CD3W01B
CD3F01A CD3F05D CD3F01B

Design Description

One piece body
Butterfly swing type
Dual-plate disc, long-pattern
Renewable split disc
Horizontal or vertical service
Wafer ends
Available with flanged ends



List of Materials

NO	Part name	ASTM Material	
		Carbon steel	18Cr-9Ni-2Mo
1	Body	A216-WCB	A351-CF8M
2	Plate	A216-WCB+CR13	A351-CF8M+HF
3	Stop pin	A276-420	A276-304
4	Back spring	A313-304	A313-316
5	Hinge pin	A276-420	A276-304
6	Eyebolt ¹⁾	Carbon steel	Carbon steel

Note: 1), NPS 8" & Larger;

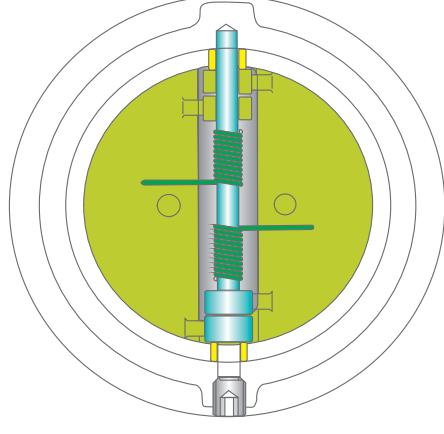
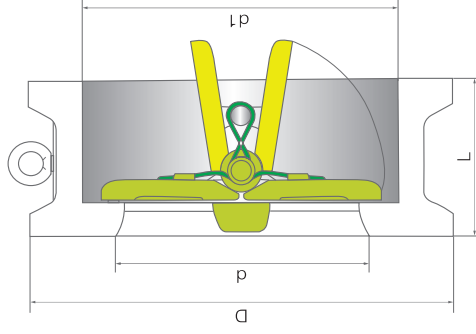
Dimensional Data

Size	L		D		d		d1		WT	
	in	mm	in	mm	in	mm	in	mm	in	Kg
2	50	2.38	60	4.00	103	2.00	51	2.25	56	2
2 1/2	65	2.62	67	4.88	122	2.50	65	2.88	73	3
3	80	2.88	73	5.38	135	3.25	80	3.50	88	4
4	100	2.88	73	6.75	173	4.00	102	4.25	108	6
6	150	3.88	98	8.62	220	6.00	152	6.25	180	13
8	200	5.00	127	10.88	277	8.00	203	8.26	210	25
10	250	5.75	146	13.25	337	10.00	254	10.50	286	39
12	300	7.12	181	16.00	407	12.00	305	12.12	310	54
14	350	7.25	184	19.62	448	13.75	350	14.00	356	80
16	400	7.50	191	20.12	512	15.75	400	16.00	405	117
18	450	8.00	203	21.50	547	17.75	450	18.00	455	138
20	500	8.62	219	23.75	604	19.75	500	19.88	505	163
24	600	8.75	222	28.12	715	23.62	600	23.75	605	331

ANSI Class 150LB

L	D		d		d1		WT	
	in	mm	in	mm	in	mm	in	Kg
2.38	60	4.25	110	2.00	51	2.25	58	3
2.62	67	5.00	128	2.50	65	2.88	73	4
2.88	73	5.75	147	3.00	80	3.50	88	6
2.88	73	7.00	179	4.00	102	4.25	108	8
3.88	98	9.88	249	6.00	152	6.38	180	18
5.00	127	12.00	305	8.00	203	8.25	210	31
5.75	146	14.12	359	10.00	254	10.50	266	51
7.12	181	16.50	420	12.00	305	12.25	310	77
8.75	222	19.00	483	14.00	350	14.00	355	117
9.12	232	21.12	537	16.00	400	16.00	405	190
10.38	264	23.38	594	18.00	450	18.00	455	200
11.50	292	25.62	652	20.00	500	20.00	505	285
12.50	318	30.38	772	24.00	600	24.00	608	410

ANSI Class 300LB



Applicable Standards

Steel check valves: API 594/API 6D
 Steel check valves: ISO 14313
 Steel valves: ASME B 16.34
 Face to face: ASME B 16.10
 End flanges: ASME B16.5
 Inspection and test: API 598/API 6D

Fig. No:

CD6W01A CD6W05D CD6W01B
 CD6F01A CD6F05D CD6F01B
 CD9W05A CD9W05D CD9W05B
 CD9F05A CD9F05D CD9F05B

Design Description

One piece body
 Butterfly swing type
 Dual-plate disc, long-pattern
 Renewable split disc
 Horizontal or vertical service
 Wafer ends
 Available with flanged ends





600/900Lb Cast Steel Ball Valve



List of Materials

NO	Part name	Carbon steel		ASTM Material 18Cr-9Ni-2Mo		Carbon steel	
		in	mm	in	mm		
1	Body	A216-WCB	A216-WCB	A351-CF8M	A351-CF8M	A352-LCB	
2	Plate	A216-WCB+CR13	A216-WCB+CR13	A351-CF8M+HF	A351-CF8M+HF	A352-LCB+CR13	
3	Stop pin	A276-420	A276-420	A276-304	A276-304	A276-420	
4	Back spring	A313-304	A313-304	A313-316	A313-316	A313-304	
5	Hinge pin	A276-420	A276-420	A276-304	A276-304	A276-420	
6	Eyebolt ¹⁾	Carbon steel					

Note: 1), NPS 8" & Larger;

Dimensional Data

Size	L		D		d	d1	WT			
	in	mm	in	mm				in	mm	Kg
2	50	2.38	60	4.38	11	2.00	51	2.25	58	4
2 1/2	65	2.82	67	5.00	128	2.50	65	2.88	73	5
3	80	2.88	73	5.75	147	3.00	80	3.50	88	8
4	100	3.12	79	7.50	191	4.00	102	4.25	108	11
6	150	5.38	137	10.38	264	6.00	152	6.38	162	26
8	200	6.50	165	12.50	318	7.88	200	8.38	212	55
10	250	8.38	213	15.62	398	9.88	250	10.50	266	95
12	300	9.00	229	17.88	455	12.00	305	12.25	312	140
14	350	10.75	273	19.25	490	13.25	337	14.00	355	223
16	400	12.00	305	22.12	562	15.25	387	15.75	400	360

ANSI Class 600LB

ANSI Class 900LB

L	D		d	d1	WT			
	in	mm				in	mm	Kg
2.75	70	5.50	140	2.00	51	2.25	58	8
3.25	83	6.38	162	2.50	65	2.88	73	11
3.25	83	6.50	165	3.00	80	3.50	88	14
4.00	102	8.00	204	4.00	102	4.25	108	20
6.25	159	11.25	286	6.00	152	6.38	162	42
8.12	206	14.00	356	7.88	200	8.38	212	84
9.50	241	17.00	432	9.88	250	10.50	266	145
11.50	292	19.50	495	12.00	305	12.25	312	220
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-



MILANO ITALY