

# CHECK VALVE

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## ABOUT US

FBV Inc. is an ISO 9001 certified company specializing in manufacturing industrial valves including ball valves, gate valves, globe valves, check valves, plug valves and butterfly valves in carbon steel, stainless steel, duplex stainless and alloy materials. Our products conform to the latest industry standards in accordance to ANSI, ASME and API.

FBV today has over 600,000 square feet of manufacturing facilities. Through its conviction to provide only the finest quality products and services to match the need of our customers, FBV has now established itself as a serious player in the valve business.

FBV INC has sold worldwide in North America, Europe, South America, South Asia, Africa and the Middle East. We consider product quality and customer satisfaction as our highest priority. We look forward to new customer relationships by providing value, quality, customer service, honesty, integrity and the commitment to maintain product consistency with each and every order.

## MISSION STATEMENT

We at FBV, Inc. commit to taking ACTION:

- Adopt the latest technology to take the product quality to the next level;
- Consistently provide on-time services to our customers;
- Train and develop talented people with strong work ethics to deliver effective performance;
- Improve and enhance engineering designs to ensure product performance;
- Optimize management systems and increase productivity;
- Never forget our customers and employee needs.



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INTRODUCTION

Check valve is installed on the pipeline to prevent the media reverse flow and ensure one-way flow of media channels only.



Swing Check Valve

Swing check valve is provided with single disc. With the force of medium, the disc will automatically open or close around the fixed pin shaft. When the media stops the flow, the disc will be closed under its own force; No manual intervention is involved in the whole process.

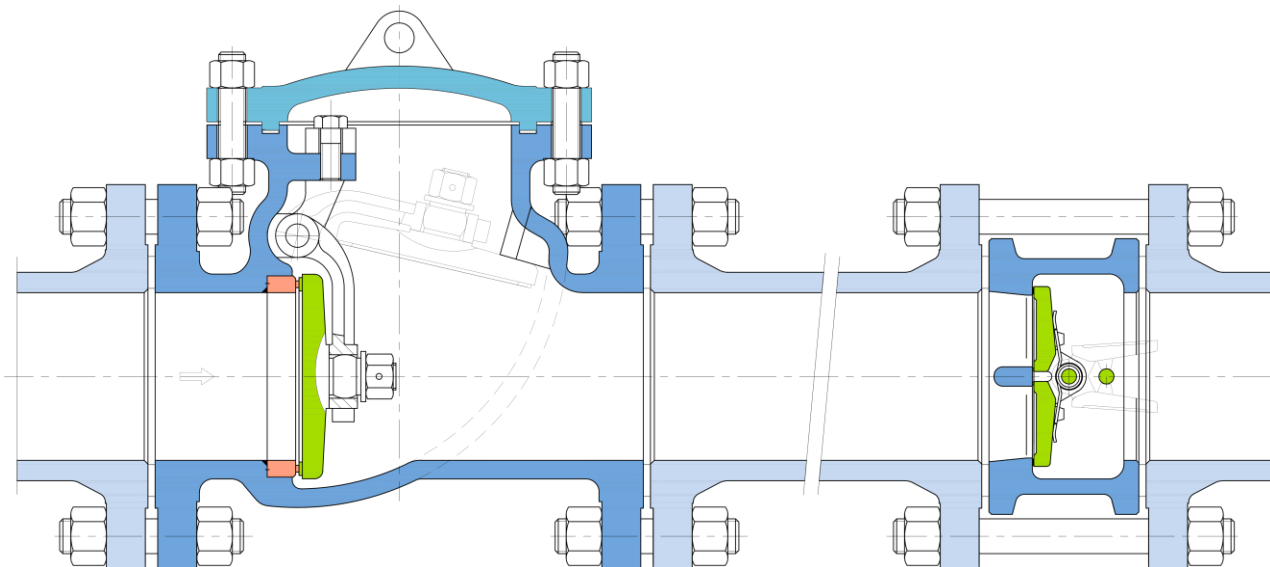
FBV swing check valve offers simple structure, less parts, convenient maintenance and repair and low failure rate. The full open disc design is applied to provide a larger opening flow area after disc opening, small fluid resistance and large valve flow coefficient.

Counter weight or damp structure can be applied to reduce the impact of water hammer while disc opening.

Dual Wafer Check Valve

Dual wafer check valve has dual disc. Under the force of medium, the disc is rotated around the same shaft pin, and it closes automatically with the force of spring while the medium stops flow.

FBV dual wafer check valve offers easy assembly and maintenance as well as quick open and close. Single disc wafer, dual wafer, axial flow, quick opening and slow closing action with damping check are available based on different request of service.



# CHECK VALVE

## SCOPE OF PRODUCTS

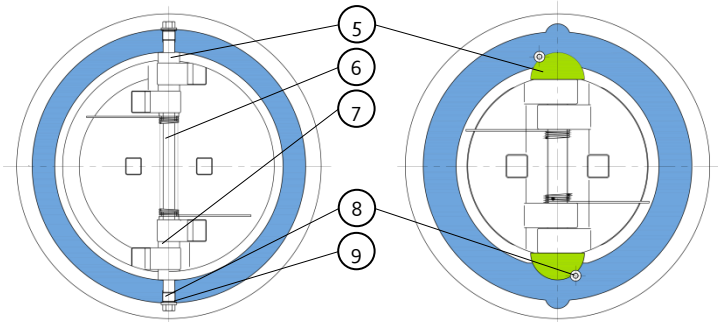
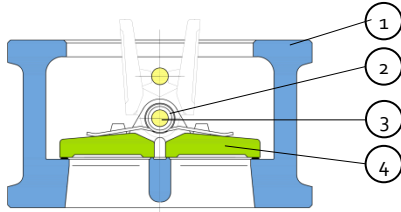
**Legends:** A – Swing Type  
 B – Dual Plate Type  
 C – Lift Type  
 D – Not Usually Required

Size in/mm	Class 150 PN 20	Class 300 PN 50	Class 600 PN 100	Class 900 PN 150	Class 1500 PN 250	Class 2500 PN 420
2 50	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C
2 1/2 65	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C
3 80	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C
4 100	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D	A,B,C,D
6 150	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C
8 200	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C
10 250	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C
12 300	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C	A,B,C
14 350	A,B,C	A,B,C	A,B,C	A,B,C		
16 400	A,B,C	A,B,C	A,B,C	A,B,C		
18 450	A,B,C	A,B,C	A,B,C	A,B		
20 500	A,B,C	A,B,C	A,B,C	A,B		
22 550	A,B,C,D	A,B,C,D	A,B,C,D	A,B,D		
24 600	A,B,C	A,B,C	A,B,C	A,B		
26 650	A,B,D	A,B,D	A,B,D	A,B,D		
28 700	A,B,D	A,B,D	A,B,D	A,B,D		
30 750	A,B,D	A,B,D	A,B,D			
32 800	A,B,D	A,B,D	A,B,D			
34 850	A,B,D	A,B,D	A,B,D			
36 900	A,B,D	A,B,D	A,B,D			
38 950	B,D	B,D	B,D			
40 1000	B,D	B,D	B,D			
42 1050	B,D	B,D	B,D			
48 1200	B,D	B,D	B,D			
56 1400	B,D	B,D	B,D			
60 1500	B,D	B,D	B,D			

1. The sizes listed above are normal diameters. Contact our sales representative if any other dimensions are requested.

# CHECK VALVE

## OVERVIEW (Wafer Type)



External Pin Structure

Internal Pin Structure

### Part List

- |                |                   |
|----------------|-------------------|
| 1 Body         | 6 Pin             |
| 2 Spring Seat  | 7 Middle Retainer |
| 3 Spring       | 8 Screw           |
| 4 Disc         | 9 Washer          |
| 5 End Retainer |                   |

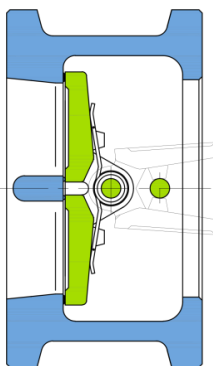
### STANDARDS

Design & Manufacture	API 594, ASME B16.34 API 6D
Face-to-face	API 594, ASME B16.10
End Dimension	ASME B16.5 (RF) ASME B16.47 (RF) MSS SP-44 (NPS 22 Only)
Test & inspection	API 598, API 6D, ISO 5208

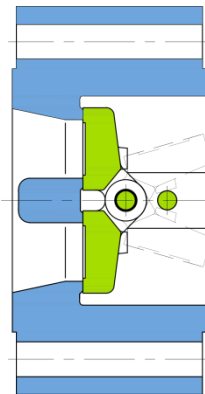
### TYPICAL MATERIALS

Body, Disc	A216 WCB, WCC, A217 WC6, WC9 A351 CF3, CF8, CF3M, CF8M, A995 4A, 5A, Monel, Inconel, Hastelloy
Seat	FKM, HNBR, EPDM,
Pin	A276 410, 304, 316,
Spring	Inconel x750

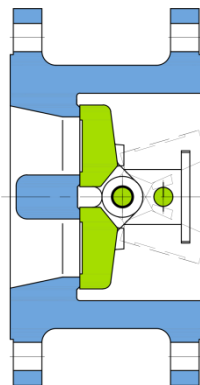
## Typical Wafer Check Valve



Wafer Type,  
Dual Plate



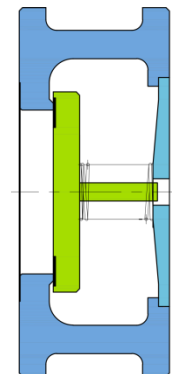
Lug Type,  
Dual Plate



Flanged Type,  
Dual Plate



Wafer Type,  
Single Plate

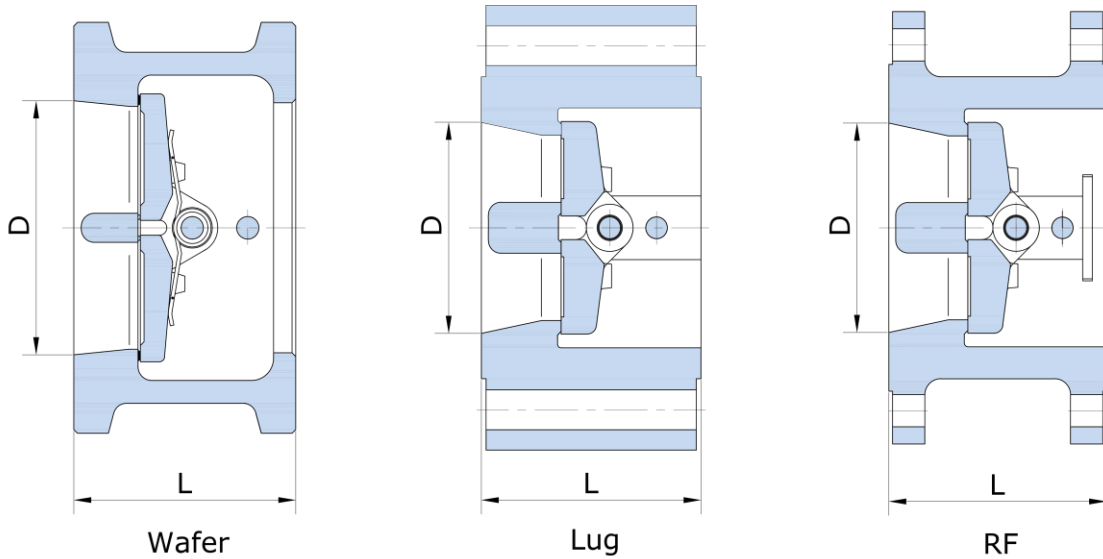


Wafer Type,  
Lift Type

# CHECK VALVE

## DIMENSIONS AND WEIGHTS (Wafer Type)

ASME CLASS 150 /300(PN 20/50)



### ASME CLASS 150 (PN 20)

Size in/mm	D	L		Weight (lb/kg)
		WAFER / LUG	WAFER	
2	2	2.36	4	
50	50	60	2	
2 1/2	2 1/2	2.64	7	
65	65	67	3	
3	3	2.87	9	
80	80	73	4	
4	4	2.87	11	
100	100	73	5	
6	6	3.86	29	
150	150	98	13	
8	8	5	55	
200	200	127	25	
10	10	5.75	86	
250	250	146	39	
12	12	7.13	119	
300	300	181	54	
14	14	7.24	176	
350	350	184	80	
16	16	7.52	258	
400	400	191	117	
18	18	8	359	
450	450	203	163	
20	20	8.62	729	
500	500	219	331	
24	24	8.74	837	
600	600	222	380	
28	28	12	969	
700	700	305	440	
30	30	12	1189	
750	750	305	540	
36	36	14.5	1872	
900	900	368	850	
40	40	17	2533	
1000	1000	432	1150	
48	48	20.63	3524	
1200	1200	524	1600	

### ASME CLASS 300 (PN 50)

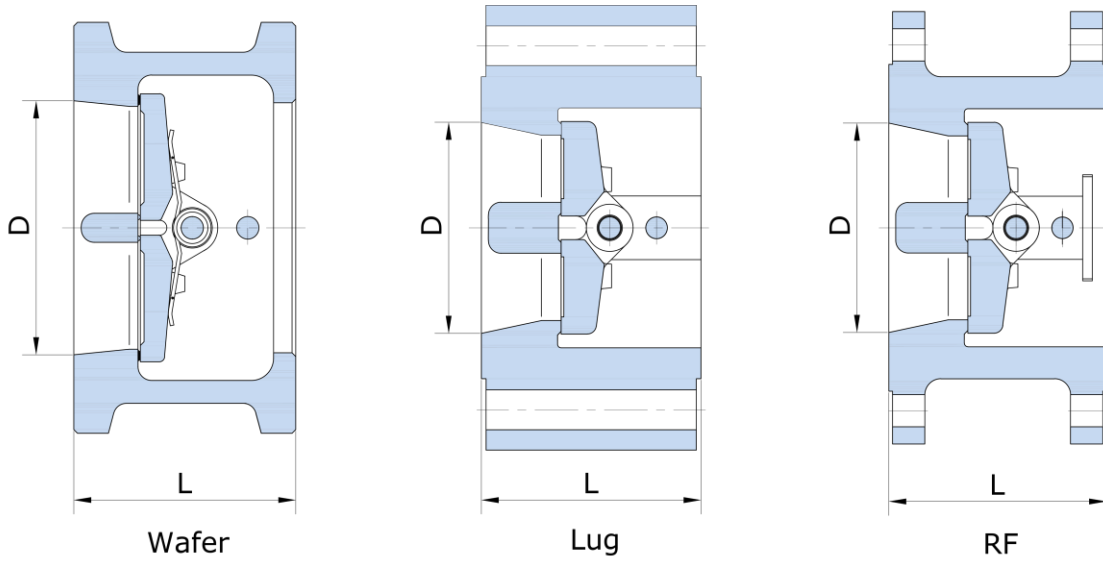
Size in/mm	D	L		Weight (lb/kg)
		WAFER / LUG	WAFER	
2	2	2.36	7	
50	50	60	3	
2 1/2	2 1/2	2.64	9	
65	65	67	4	
3	3	2.87	13	
80	80	73	6	
4	4	2.87	18	
100	100	73	8	
6	6	3.86	40	
150	150	98	18	
8	8	5	84	
200	200	127	38	
10	10	5.75	112	
250	250	146	51	
12	12	7.13	170	
300	300	181	77	
14	14	8.74	258	
350	350	222	117	
16	16	9.13	419	
400	400	232	190	
18	18	10.39	441	
450	450	264	200	
20	20	11.5	584	
500	500	292	265	
24	24	12.5	903	
600	600	318	410	
28	28	12	1145	
700	700	305	520	
30	30	14.5	1278	
750	750	368	580	
36	36	19	1960	
900	900	483	890	
40	40	22.36	2621	
1000	1000	568	1190	
48	48	24.76	3744	
1200	1200	629	1700	

- (1) The dimension and weights are for reference only and subject to change without notice.  
 (2) For more dimensional information, please contact our sales representative.

# CHECK VALVE

## DIMENSIONS AND WEIGHTS (Wafer Type)

ASME CLASS 600 /900 (PN 100/150)



### ASME CLASS 600 (PN 100)

Size in/mm	D	L	Weight (lb/kg)
		WAFER / LUG	WAFER
2	2	2.36	9
50	50	60	4
2 1/2	2 1/2	2.64	11
65	65	67	5
3	3	2.87	18
80	80	73	8
4	4	3.11	24
100	100	79	11
6	6	5.35	57
150	150	136	26
8	8	6.5	121
200	200	165	55
10	10	8.39	209
250	250	213	95
12	12	9	308
300	300	229	140
14	14	10.75	491
350	350	273	223
16	16	12	793
400	400	305	360
18	18	14.25	870
450	450	362	395
20	20	14.5	1141
500	500	368	518
24	24	17.24	1841
600	600	438	836
30	30	19.88	2423
750	750	505	1100
36	36	27.6	3524
900	900	701	1600

### ASME CLASS 900 (PN 150)

Size in/mm	D	L	Weight (lb/kg)
		WAFER / LUG	WAFER
2	2	2.76	18
50	50	70	8
2 1/2	2 1/2	3.27	24
65	65	83	11
3	3	3.27	31
80	80	83	14
4	4	4	44
100	100	102	20
6	6	6.26	93
150	150	159	42
8	8	8.11	185
200	200	206	84
10	10	9.5	319
250	250	241	145
12	12	11.5	485
300	300	292	220
14	14	14	770
350	350	356	350
16	16	15.12	1035
400	400	384	470
18	18	17.76	1333
450	450	451	605
20	20	17.76	1806
500	500	451	820
24	24	19.5	2313
600	600	495	1050

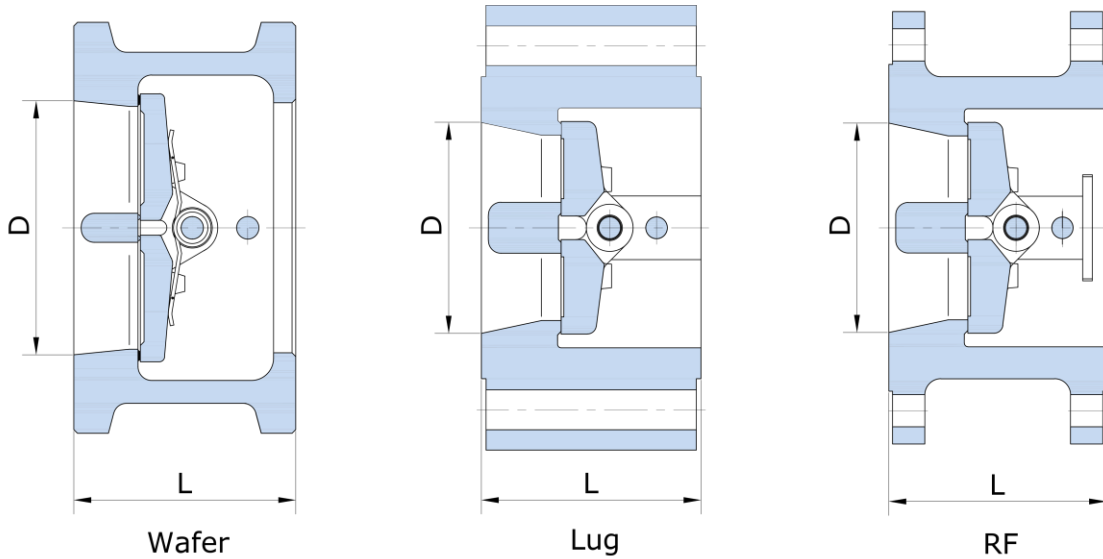
- (1) The dimension and weights are for reference only and subject to change without notice.  
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# CHECK VALVE

## DIMENSIONS AND WEIGHTS (Wafer Type)

ASME CLASS 1500 /2500 (PN 250/420)



### ASME CLASS 1500 (PN 250)

Size in/mm	D	L		Weight (lb/kg)
		WAFER / LUG	WAFER	
2	1.89	2.76	18	
50	48	70	8	
2 ½	2.24	3.27	24	
65	57	83	11	
3	2.76	3.27	42	
80	70	83	19	
4	3.58	4	57	
100	91	102	26	
6	5.35	6.26	150	
150	136	159	68	
8	7	8.11	286	
200	178	206	130	
10	8.74	9.76	463	
250	222	248	210	
12	10.35	11.5	837	
300	263	305	380	
14	11.38	14	1211	
350	289	356	550	
16	13	15.12	1388	
400	330	384	630	
18	14.6	18.43	1652	
450	371	468	750	
20	16.38	21	1652	
500	416	533	970	
24	19.6	22	2599	
600	498	559	1180	

### ASME CLASS 2500 (PN 420)

Size in/mm	D	L		Weight (lb/kg)
		WAFER / LUG	WAFER	
2	1.5	2.76	20	
50	38	70	9	
2 ½	1.89	3.27	26	
65	48	83	12	
3	2.24	3.39	46	
80	57	86	21	
4	2.87	4.13	62	
100	73	105	28	
6	4.37	6.26	154	
150	111	159	70	
8	5.75	8.11	308	
200	146	206	140	
10	7.24	10	474	
250	184	254	215	
12	8.62	12	881	
300	219	305	400	

(1) The dimension and weights are for reference only and subject to change without notice.

(2) For more dimensional information, please contact our sales representative.

# CHECK VALVE

## VALVE FIGURE NUMBER

## HOW TO ORDER

Nominal Size	Valve Type	Pressure Rating	End Conn.	Construction	Body Material	Trim Material	Seat	O-ring	Operation Mode
A	B	C	D	E	F	G	H	I	J
e.g. 1 6	C H	3	W	1	C 4	0 1	N	0	X

is a NPS 16 Class 300, Check Valve, Wafer Type, A216 WCB body, 13Cr Trim, Nonrenewable Seat, No O-ring, No Operation.

### A Nominal Size

00 Special	02 2 (DN 50)	07 8 RB	19 20 RB	31 32 RB
F1 3/8 (DN 10)	R2 2 RB	08 8 (DN 200)	20 20 (DN 500)	32 32 (DN 800)
F2 1/2 (DN 15)	F6 2 1/2 (DN 65)	09 10 RB	21 22 RB	33 34 RB
0R 1/2 RB	3R 2 1/2 RB	10 10 (DN 250)	22 22 (DN 550)	34 34 (DN 850)
F3 3/4 (DN 20)	03 3 (DN 80)	11 12 RB	23 24 RB	35 36 RB
R0 3/4 RB	R3 3 RB	12 12 (DN 300)	24 24 (DN 600)	36 36 (DN 900)
01 1 (DN 25)	04 4 (DN 100)	13 14 RB	25 26 RB	37 38 RB
R1 1 RB	R4 4 RB	14 14 (DN 350)	26 26 (DN 650)	38 38 (DN 950)
F4 1 1/4 (DN 32)	05 5 (DN 125)	15 16 RB	27 28 RB	39 40 RB
1R 1 1/4 RB	R5 5 RB	16 16 (DN 400)	28 28 (DN 700)	40 40 (DN 1000)
F5 1 1/2 (DN 40)	06 6 (DN 150)	17 18 RB	29 30 RB	41 42 RB
2R 1 1/2 RB	R6 6 RB	18 18 (DN 450)	30 30 (DN 750)	... More as such

### B Valve Type

CH Check Valve

### C Pressure Rating

0 Special	7 Class 2500
1 Class 150	9 Class 900
3 Class 300	8 Class 800
5 Class 1500	2 Class 125(PN16)
6 Class 600	4 Class 400(PN64)

### D End Connection

X Special	B Butt-Weld (BW)
R RF Flanged	S Socket-Weld (SW)
J RTJ Flanged	W Wafer
F FF Flanged	L Lug
T Threaded	

### E Construction

1 Swing, Bolt Cover
2 Swing, Welded Cover
3 Swing, Pressure Seal
4 Lift Type, Bolt Cover
5 Lift Type, Welded Cover
6 Single Plate, Wafer
7 Dual Plate
8 Lift Type, Pressure Seal

### F Body Material

X0 Special	M9 A182 F22 CL 3	L5 A350 LF3	S6 A351 CF8M
C1 A105	M0 A217 WC9	L6 A352 LC3	S7 A182 F316L
C2 A216 WCA	E1 A182 F5	L7 A350 LF5	S8 A351 CF3M
C4 A216 WCB	E2 A217 C5	L8 A352 LCB	S9 A182 F347
C6 A216 WCC	E4 A217 C6	L9 A350 LF6	S0 A351 C F8C
M1 A182 F1	E5 A182 F9	LA A350 LF9	D1 A182 F51
M2 A217 WC1	E6 A217 C12	LB A352 LC9	D2 A995 4A
M3 A182 F2	E7 A182 F91	LD A352 LCC	D3 A182 F53
M4 A217 WC4	E8 A217 C12A	S1 A182 F304	D4 A995 5A
M5 A182 F12 CL 2	L1 A350 LF1	S2 A351 CF8	D5 A182 F55
M6 A217 WC5	L2 A352 LCA	S3 A182 F304L	D6 A995 6A
M7 A182 F11 CL 2	L3 A350 LF2	S4 A351 CF3	
M8 A217 WC6	L4 A352 LC2	S5 A182 F316	

### G Trim Material

00 Special	08 13Cr/Stellite /13Cr	16 Stellite /Stellite /316	25 F53 /F53 /F53
01 13Cr/13Cr/13Cr	09 Monel/Monel /Monel	17 Stellite /Stellite /347	32 316L /Stellite /316L
02 304/304/304	10 316/316/316	18 Stellite /Stellite /Alloy 20	33 Stellite /Stellite /316L
03 310/310/310	11 Monel/Stellite/Monel	20 304L /304L /304L	34 304L /Stellite /304L
04 Hard 13Cr/Hard 13Cr/13Cr	12 316/Stellite/316	21 316L /316L /316L	35 Stellite /Stellite /304L
05 Stellite /Stellite/13Cr	13 Alloy 20/Alloy 20 /Alloy 20	22 321 /321 /321	
06 13Cr/Cu-Ni/13Cr	14 Alloy 20/Stellite /Alloy 20	23 F55 /F55 /F55	
07 13Cr/Hard 13Cr /13Cr	15 Stellite /Stellite /304	24 F51/F51 /F51	

# CHECK VALVE

Nominal Size	Valve Type	Pressure Rating	End Conn.	Construction	Body Material	Trim Material	Seat	O-ring	Operation Mode
A	B	C	D	E	F	G	H	I	J
e.g. 1 6	C H	3	W	1	C 4	0 1	N	o	X

is a NPS 16 Class 300, Check Valve, Wafer Type, A216 WCB body, 13Cr Trim, Nonrenewable Seat, No O-ring, No Operation.

H Seat		I O-Ring		J Operation	
H	HNBR	o	None	X	No Operation
E	EPDM	1	Viton		
V	VITON	2	Teflon		
B	BUNA	3	HNBR		
R	Renewable Metal	4	NBR		
N	Non Renewable Metal	5	Special		
		6	EPDM		

## HOW THE FIGURE NUMBER SYSTEM WORKS

**Introduction.** Figure number system uses a code consisting 14 digits of letters and numbers to represent the specification of a valve of certain specification. Among 14 digits, they are separated into 10 groups identified by letters from A to J. Each group represents a parameter of a valve, together they contain almost all the essential parameters of the valve.

**Uses.** Using the figure number system to generate a code is easy. Under each group, the code is shown on the left while on the right is the meaning of the code. Start by selecting a code from group A, through group J. If the specification of the valve is not listed, select the code for "Special ". The total length of the figure number shall be exactly 14 digits.

**Cautions.** It is advised that you have as detailed the specification as possible to generate a figure number, which means eliminating "Specials". If you don't have enough specification or information about the valve you are ordering, or you're not sure how to use the system to generate a figure number, contact one of our sales representatives for help.

Note: FBV reserves the right to make any modifications without notice.



Offshore



Onshore

Pipeline



Refinery



**IMPORTANT NOTICE**

- All dimensions in inches not listed in standards are converted from millimeters. Weights in lbs (pounds) are converted from kilograms.
- Data listed in the catalog, including dimensions, weights, specifications and other valve related data are intended to provide general information and guidance only.
- FBV Inc. assumes no responsibility for errors or inadequacy relevant to any information provided in this catalog. Any information provided in this catalog is subject to change without notice.



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