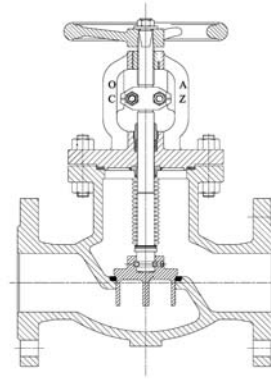


**Maintenance-free**  
**Operation : 10000**  
**Witzenmann bellows**  
**Design acc. : ASME B16.34**  
**Face to face : ASME B16.10**  
**Flange end : ASME B16.5**  
**Test and inspection : API 598**  
**Body : CF8M / WCB**

**FIG : 146**

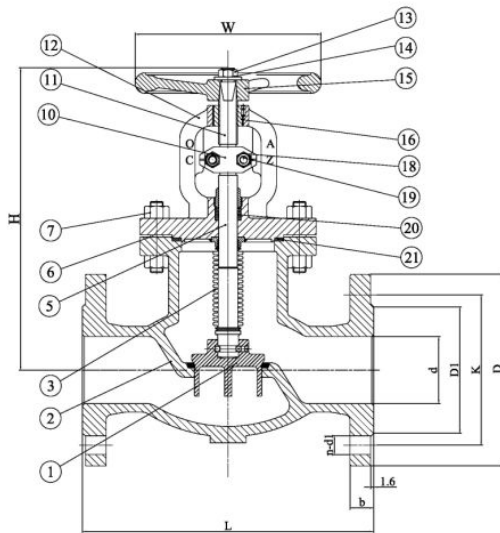


FIG.	Class	Material	Range
131.146	150	WCB	1/2"-4"
132.146	300	WCB	1/2"-4"
151.146	150	CF8M	1/2"-4"
152.146	300	CF8M	1/2"-4"

**Maintenance-free**  
**Operation : 10000**  
**Witzenmann bellows**  
**Design acc. : ASME B16.34**  
**Face to face : ASME B16.10**  
**Flange end : ASME B16.5**  
**Test and inspection : API 598**

**Material List**

NO.	Part	Material	
		FIG.131.146 / 132.146	FIG.151.146 /152.146
1	Disc	A105	F316
2	Body	WCB	CF8M
3	Bellow	F321	F316L
5	Low stem	F6a	F316
6	Bolts	B7	B8M/B8
7	Nuts	2H	8M/8
10	Connecting block	CF8M	CF8M
11	Up stem	F6a	F316
12	Bonnet	WCB	CF8M
13	Nut	2H	8M/8
14	Gasket	1045	304
15	Handwheel	Gr.60-40-18	Gr.60-40-18
16	Stem nut	Gr.60-40-18	Gr.60-40-18
18	Bolt	B7	B8M
19	Nut	2H	8M
20	Packing	Graphite	Graphite
21	Seal	Graphite +304	Graphite +316

**Dimension List**

Class	NPS	d	L	D	K	D1	b	n-d1	H(Open)	W
150LB	1/2"	15	108	89	60.5	35	11.6	4-15.7	232	120
	3/4"	20	117	98.0	70	43	12.8	4-15.7	232	120
	1"	25	127	108.0	79.4	50.8	14.3	4-15.7	251	140
	1 1/2"	40	165	127.0	98.4	73.0	17.5	4-15.7	302	180
	2"	50	203	152.4	120.7	92.1	19.1	4-19.1	302	180
	2 1/2"	65	216	177.8	139.7	104.8	22.2	4-19.1	321	180
	3"	80	241	190.5	152.4	127.0	23.8	4-19.1	394	250
300LB	1/2"	15	152	95	66.5	35	14.3	4-15.7	232	120
	3/4"	20	178	117	82.5	43	15.9	4-19.1	232	120
	1"	25	203	124.0	88.9	50.8	17.5	4-19.1	251	140
	1 1/2"	40	229	155.6	114.3	73.0	20.7	4-22.4	302	180
	2"	50	267	165.1	127.0	92.1	22.2	8-15.9	302	180
	2 1/2"	65	292	190.5	149.2	104.8	25.4	8-19.0	321	180
	3"	80	318	209.6	168.3	127.0	28.6	8-19.0	394	250
4"	100	356	254.0	200.0	157.2	31.8	8-19.0	402	300	

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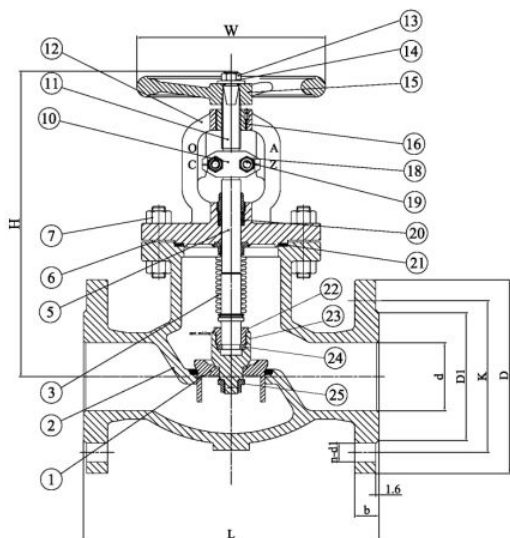


FIG.	Class	Material	Range
131.146	150	WCB	6"-12"
132.146	300	WCB	6"-12"
151.146	150	CF8M	6"-12"
152.146	300	CF8M	6"-12"

**Maintenance-free  
 Operation : 10000  
 Witzenmann bellows  
 Design acc. : ASME B16.34  
 Face to face : ASME B16.10  
 Flange end : ASME B16.5  
 Test and inspection : API 598**

**Material List**

NO.	Part	Material	
		FIG.131.146 / 132.146	FIG.151.146 /152.146
1	Disc	A105	F316
2	Body	WCB	CF8M
3	Bellow	F321	F316L
5	Low stem	F6a	F316
6	Bolts	B7	B8M/B8
7	Nuts	2H	8M/8
10	Connecting block	CF8M	CF8M
11	Up stem	F6a	F316
12	Bonnet	WCB	CF8M
13	Nut	2H	8M/8
14	Gasket	1045	304
15	Handwheel	Gr.60-40-18	Gr.60-40-18
16	Stem nut	Gr.60-40-18	Gr.60-40-18
18	Bolt	B7	B8M
19	Nut	2H	8M
20	Packing	Graphite	Graphite
21	Seal	Graphite +304	Graphite +316
22	Disc screw	316	F6a
23	Secondary disc	316	F6a
24	Split ring	316	304
25	Nut	2H	8M

**Dimension List**

Class	NPS	d	L	D	K	D1	b	n-d1	H(Open)	W
150LB	6"	150	406	279.4	241.3	215.9	25.4	8-22.4	502	400
	8"	200	495	342.9	298.5	269.9	28.6	8-22.4	589	500
	10"	250	622	406.4	362.0	323.9	30.2	12-25.4	1077	600
	12"	300	698	482.6	431.8	381.0	31.8	12-25.4		
300LB	6"	150	444	317.5	269.9	215.9	36.5	12-19.0	502	400
	8"	200	559	381.0	330.2	269.9	41.3	12-22.2	589	500
	10"	250	622	444.5	387.4	323.9	47.6	16-25.4	1077	600
	12"	300	711	520.7	450.9	381.0	50.8	16-31.8		