

***KOFLow***

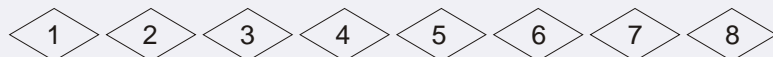
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# GATE VALVE SERIES

**01-31P**

## FIGURE NUMBER SYSTEM

### Steel Gate Valve Figure Number System



1	Size	xxin; xx, mm					
2	Operation type	1-Bare Stem	2-Chain-Wheel Operated	4-Spur Gear Operated	5-Cone Gear Operated	9-Electric Operated	Manual Operated (omit)
3	Valve Type	Z- Gate Valve					
4	Pressure	0-PN1.0	1-PN1.6 CLASS150	2-PN2.5	3-CLASS300	4-PN4.0 CLASS400	6-PN6.4 CLASS600
		9-CLASS900	10-PN10.0	15-CLASS1500	16-PN16.0	20-PN20.0	25-CLASS2500
5	Connection Ends	RF-Raised Face	FF-Flat Face	MFM-Male and Female Face	TG-Tongue and Groove Face	RJ-Ring Joint	BW-Buttweld
6	Structure Type	0-Flexible Wedge	1-Solid Wedge	2-Solid Double Wedge	3-Parellel Single Disc 3T-Adjust Type 3L-Adiversion Hole Type		4-Parellel Double Disc
7	Basic Material	C-WCB	C5-C5	C6-WC6	C9-WC9	BL-LCB	CL-LCC
		8-CF8	8M-CF8M	3-CF3	3M-CF3M	ML-MONEL	
8	Material of Seat face or Liner	H-Cr13 Cr13 S.S		E-18-8 18-8 S.S		R-Mo2Ti Mo2Ti S.S	
		D- Nitriding Steel		M- Monel Alloy		Y- Stellite	

#### Note:

- 1、 Use "W" to express seat sealing surface material which is processed directly by valve body.
- 2、 When the materials of sealing surface are different, use low hardness material symbol to express.
- 3、 Special requirements not shown ,should be indicated in the purchase order
- 4、 The models listed in the sample book have no reference to pressure、 sizes and valve material symbols, they are to be decided by users.

#### For example:

10 " -5Z1RF0CH

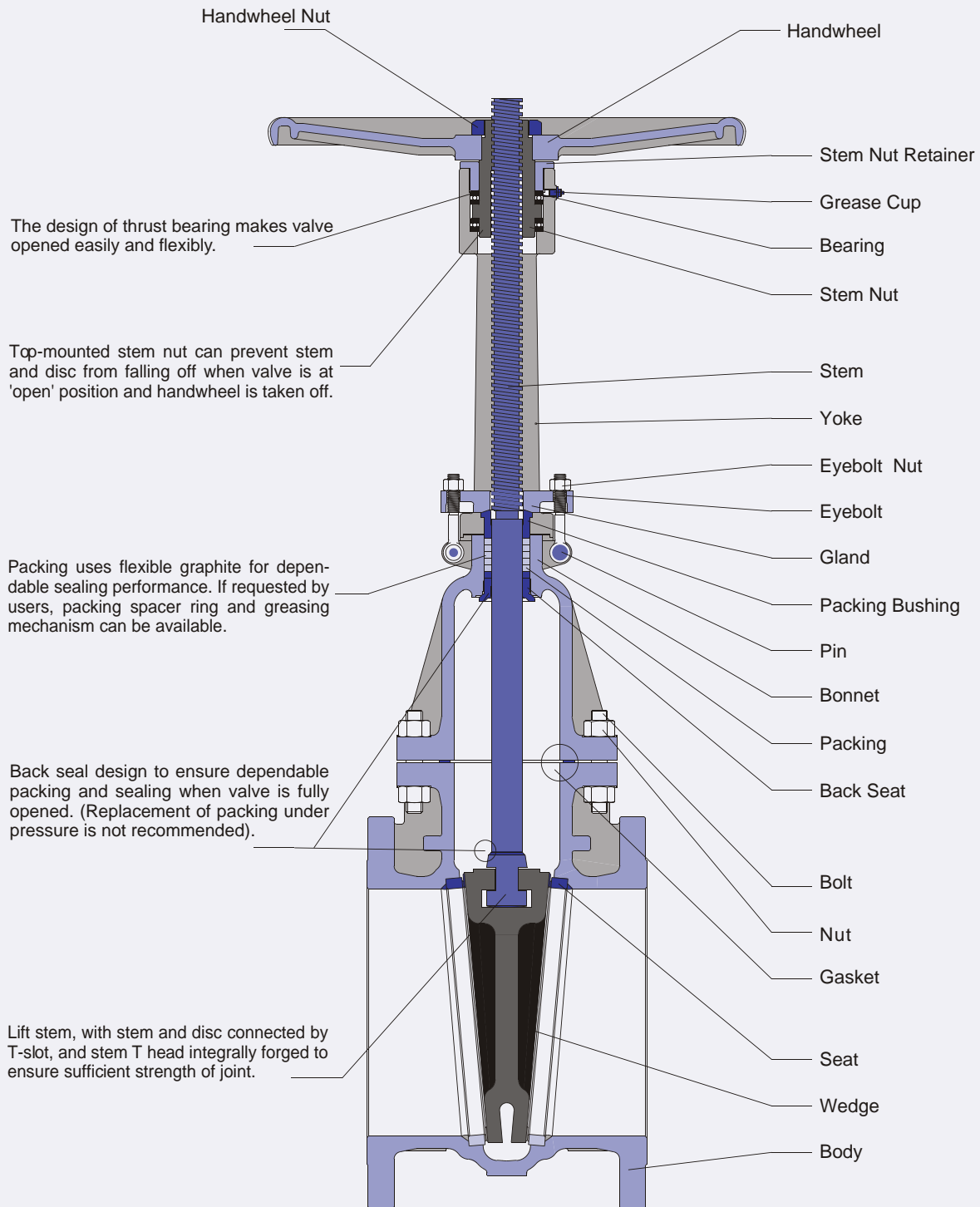
Gate valve, 10 " ANSI CLASS150, Raised Face Ends, Flexible wedge, Body&Bonnet&Wedge Cast Steel WCB, Seat sealing face material 13Cr Cone Gear operated

80-Z2RF08W

Gate valve, DN80 PN25, Raised Face Ends, Flexible wedge, Body&Bonnet& Wedge Stainless Steel CF8, Seat sealing face Body machined, Handwheel operated

## API CAST STEEL GATE VALVE

Design characteristics of API600 Cast steel Gate Valve with rising stem(OS&Y)



**Remark:**

- 1、 Type of end connection referred to Appendix I
- 2、 Type of disc structure referred to Appendix II
- 3、 Type of body and seat connection referred to Appendix III
- 4、 Type of body and bonnet connection referred to Appendix IV
- 5、 Stem packing structure referred to Appendix V
- 6、 Valve operation referred to Appendix VI

## API CAST STEEL GATE VALVE

### Materials list for API600 Cast steel Gate Valve with rising stem(OS&Y)

No.	Part Name	Carbon Steel	Stainless Steel	Alloy Steel	Low Temperature Steel
1	Body	ASTM A216 GR WCB	ASTM A351 GR CF8	ASTM A217 GR WC6	ASTM A352 GR LCB
2	Wedge	ASTM A216 GR WCB	ASTM A351 GR CF8	ASTM A217 GR WC6	ASTM A352 GR LCB
3	Seat	ASTM A105	/	ASTM A182 GR F304	ASTM A182 GR F304
4	Gasket	Soft Graphite + Ss304			
5	Nut	ASTM A194 GR 2H	ASTM A194 GR B8	ASTM A194 GR 4	ASTM A194 GR B8
6	Stud	ASTM A193 GR B7	ASTM A193 GR 8	ASTM A193 GR B7	ASTM A193 GR 8
7	Back Seat	ASTM A182 GR F6a	ASTM A182 GR F304	ASTM A182 GR F304	ASTM A182 GR F304
8	Packing	Soft Graphite			
9	Bonnet	ASTM A216 GR WCB	ASTM A351 GR CF8	ASTM A217 GR WC6	ASTM A352 GR LCB
10	Pin	ASTM A194 GR 2H	ASTM A276 TYPE 304	ASTM A276 TYPE 410	ASTM A276 TYPE 304
11	Packing Bushing	ASTM A182 GR F6a	ASTM A182 GR F304	ASTM A182 GR F6a	ASTM A182 GR F304
12	Gland	ASTM A216 GR WCB	ASTM A351 GR CF8	ASTM A216 GR WCB	ASTM A352 GR LCB
13	Eyebolt	ASTM A193 GR B7	ASTM A193 GR B8	ASTM A193 GR B7	ASTM A194 GR B8
14	Eyebolt Nut	ASTM A194 GR 2H	ASTM A193 GR 8	ASTM A193 GR 4	ASTM A193 GR 8
15	Yoke	ASTM A216 GR WCB	ASTM A351 GR CF8	ASTM A216 GR WCB	ASTM A352 GR LCB
16	Stem	ASTM A276 TYPE 410	ASTM A276 TYPE 304	ASTM A182 GR F22	ASTM A276 TYPE 304
17	Stem Nut	ASTM B148 UNS C95600	ASTM B148 UNS C95600	ASTM B148 UNS C95600	ASTM B148 UNS C95600
18	Bearing	/			
19	Grease cup	COPPER ALLOY			
20	Stem Nut Retainer	ASTM A108 GR 1020	ASTM A182 GR F304	ASTM A108 GR 1020	ASTM A182 GR F304
21	Handwheel	ASTM A197	ASTM A197	ASTM A197	ASTM A197
22	Handwheel Nut	ASTM A108 GR 1020	ASTM A182 GR F304	ASTM A108 GR 1020	ASTM A182 GR F304

#### Remark:

1. Select different materials for different working temperature and media
2. Trim materials and recommended service coverage referred to Appendix VII

## API CAST STEEL GATE VALVE

### Torque Table

The torque values listed in the following table have not been measured in practice but only serve as reference for selecting the actuator. The medium characteristics, internal parts and valve opening frequency remain to be taken into account as extra factors.

N.m

Size	Pressure(CALSS)								
	Bolted bonnet					Pressure sealed bonnet			
	150	300	600	900	1500	600	900	1500	2500
1-1/2	12	15	20	24	32				
2	13	16	23	39	54				
2-1/2	13	18		56	76				
3	15	21	50	64	108	29	40	69	110
4	27	42	68	118	167	50	71	111	194
6	36	86	183	243	426	129	174	307	381
8	63	128	270	427	801	232	319	537	727
10	84	215	479	783	1268	379	530	948	1398
12	131	289	650	1163	2078	550	740	1409	1980
14	151	423	988	1331	2392	/	1008	1823	2593
16	235	537	1243	/	/	/	1400	2516	3952
18	285	649	1512	/	/	/	1696	3767	5735
20	341	1009	2185	/	/	/	2302	5283	7804
24	602	1451	3053	/	/	/	4224	8228	11798
26	/	/	/	/	/	/	/	/	/
28	/	/	/	/	/	/	/	/	/
30	1079	3140	5452	/	/	/	/	/	/
32				/	/	/	/	/	/
36	1497	4293	7675	/	/	/	/	/	/

### Flow Coefficient Table

The flow coefficient of a valve is an index for measuring its flow capacity. The larger its flow coefficient value is, the smaller pressure loss it will have when the fluid flows through it. The following is the flow coefficient table for GB wedge gate valve (Cv stands for the US gallonage of +60 F (+16°C) water per minute flowing through the valve with a pressure drop of 1 lb./inch<sup>2</sup> (0.006894757MPa).

#### Cv

Size	Pressure(CALSS)								
	Bolted bonnet					Pressure sealed bonnet			
	150	300	600	900	1500	600	900	1500	2500
3	710	710	710	650	600	710	450	415	275
4	1300	1300	1300	1200	1070	1300	850	730	460
6	3100	2110	3110	2850	2500	3110	1925	1675	1100
8	5720	5720	5500	5025	4370	5500	3575	2925	1970
10	8940	8940	8485	7850	6850	8485	5250	4550	3130
12	13350	13350	12850	11500	9980	12850	7550	6570	4535
14	16275	16275	15370	13900	12000	15370	9150	7890	5500
16	21560	21560	20170	18150	15675	20170	11950	10325	7210
18	28720	27890	26200	23910	20640	26200	15575	13425	9415
20	35760	34840	32100	39550	25880	32100	27675	16820	11450
24	52165	51050	46750	42570	37175	46750	/	24150	16575
26	63500	62011	56300	/	/	56300	/	/	/
28	74800	73046	65900	/	/	65900	/	/	/
30	86235	84765	75520	/	/	75520	/	/	/
32	103000	100580	85180	/	/	85180	/	/	/
36	129500	125825	114250	/	/	114250	/	/	/
40	175860	171740	156127	/	/	/	/	/	/
42	223300	217000	197272	/	/	/	/	/	/
48	335500	326000	296300	/	/	/	/	/	/

# API CAST STEEL GATE VALVE

## API Cast steel Gate valve Product Line

Size		Pressure (CLASS)																
		Bolted Bonnet								Pressure Seal Bonnet								
DN	NPS	Manual operated					Gear operated				Manual operated				Gear operated			
		150	300	600	900	1500	300	600	900	1500	600	900	1500	2500	600	900	1500	2500
40	1-1/2	*	*	*	*	*												
50	2	*	*	*	*	*												
65	2-1/2	*	*	*	*	*												
80	3	*	*	*	*	*					*	*	*	*				
100	4	*	*	*	*	*					*	*	*	*				
125	5	*	*	*	*	*					*	*	*	*				
150	6	*	*	*	*	*					*	*	*	*				
200	8	*	*	*	*	*					*	*	*					*
250	10	*	*	*	*	*					*	*	*					*
300	12	*	*	*	*					*	*	*					*	*
350	14	*	*	*	*					*	*	*					*	*
400	16	*	*	*					*	*	*					*	*	*
450	18	*	*	*					*	*	*					*	*	*
500	20	*	*	*					*	*	*					*	*	*
600	24	*	*					*	*	*				*	*	*	*	*
650	26	*	*					*						*	*	*	*	*
700	28	*	*					*						*	*	*	*	*
750	30	*	*					*						*	*	*	*	*
800	32	*	*					*						*	*	*	*	*
900	36	*	*					*						*	*	*	*	*
1000	40	*						*	*									
1050	42	*						*	*									
1200	48	*						*	*									

For sizes and classes not shown, please contact our Sales Department

### Technical Specification

Design Standard		API600 API603					
Pressure-Temperature Rating		ASME B16.34					
Face-Face		ASME B16.10					
Flange Ends		ASME B16.5 、 ASME B16.47					
Buttwelding Ends		ASME B16.25					
Inspection & Test		API598					
Test Pressure(MPa)	Norminal Pressure(class)	150	300	600	900	1500	2500
	Shell Test	2.93	7.55	15.0	22.5	37.5	63.0
	High Pressure Seal Test	2.07	5.52	11.03	16.5	27.5	46.0
	Low Pressure Seal Test	0.6					

## API CAST STEEL GATE VALVE

Pressure:CLASS150

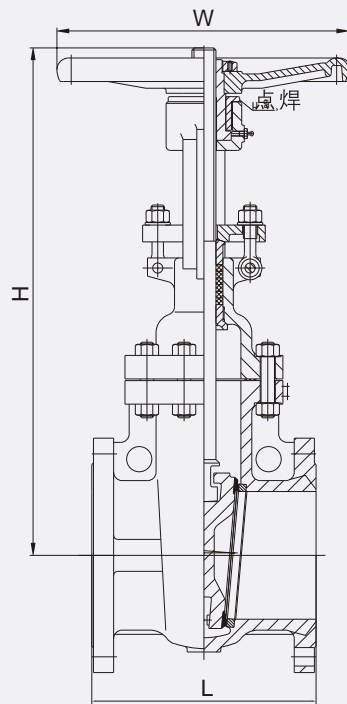


Fig.ZRF0

- Bolted bonnet
- Flexible wedge gate
- 10" and above : two pieces yoke

### Main Dimensions & Weight

CLASS150

Size		Valve Main Dimension					Weight (kg)	
mm	in.	L(RF)	L(BW)	L(RJ)	H	W	RF	BW
40	1-1/2	165	165	178	386	250	24	21
50	2	178	216	190	391	250	27	23
65	2-1/2	190	241	203	408	250	37	33
80	3	203	283	216	457	250	40	35
100	4	229	305	241	538	250	52	47
150	6	267	403	279	693	350	90	84
200	8	292	419	305	863	350	145	137
250	10	330	457	343	1036	450	225	207
300	12	356	502	368	1130	450	310	253
350	14	381	572	394	1272	610	445	376
400	16	406	610	419	1447	610	540	440
450	18	432	660	445	1701	720	800	722
500	20	457	711	470	1795	720	990	863
600	24	508	813	521	2189	720	1600	1519
650	26	559	864	-	2387	860	1850	1755
700	28	610	914	-	2590	860	2100	1995
750	30	610	914	622	2819	860	2700	2404
800	32	711	965	-	2870	860	3100	2840
900	36	711	1016	724	2997	860	3950	3690
1000	40	813	1067	-	3302	1020	4650	-
1050	42	813	1143	-	3479	1020	5100	-
1200	48	1067	1371	-	3962	1020	6500	-

**API CAST STEEL GATE VALVE**

Pressure:CLASS300

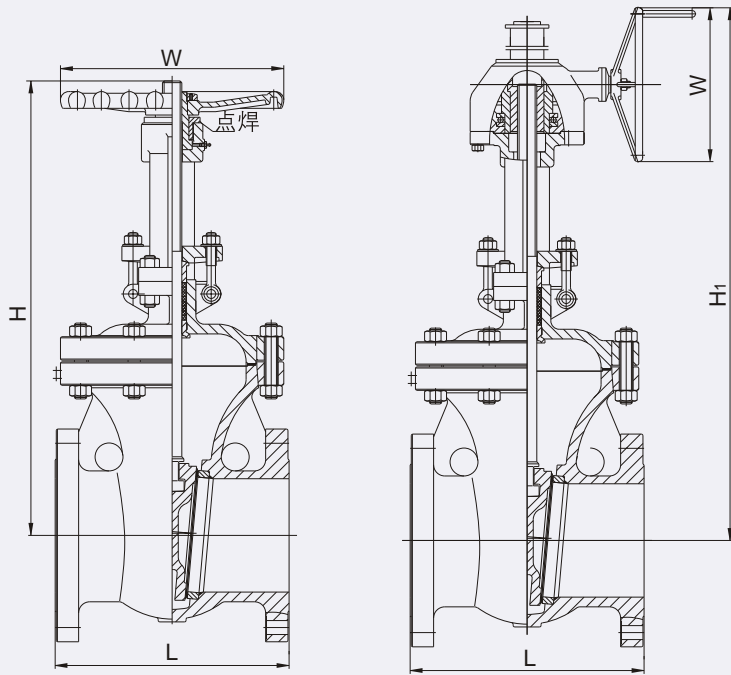


Fig.ZRF0

Fig.5ZRF0

- Bolted bonnet
- Flexible wedge gate
- 8" and above : two pieces yoke
- 40" and above : Gear operated

**Main Dimensions & Weight**

CLASS300

Size		Valve Main Dimension						Weight (kg)	
mm	in.	L(RF)	L(BW)	L(RJ)	H	H1	W	RF	BW
40	1-1/2	190	190	203	425	-	250	30	28
50	2	216	216	232	467	-	250	32	29
65	2-1/2	241	241	257	495	-	250	49	43
80	3	283	283	299	520	-	250	52	49
100	4	305	305	321	609	-	350	85	77
150	6	403	403	419	825	-	450	150	145
200	8	419	419	435	1009	-	450	240	227
250	10	457	457	473	1193	-	610	380	337
300	12	502	502	518	1282	-	610	486	430
350	14	762	762	778	1422	-	610	729	654
400	16	838	838	854	1549	-	720	931	876
450	18	914	914	930	1803	-	720	1504	1300
500	20	991	991	1010	1955	-	720	1938	1625
600	24	1143	1143	1165	2425	-	860	3411	2800
650	26	1245	1245	1270	2540	-	860	3570	3100
700	28	1346	1346	1372	2641	-	860	4027	3600
750	30	1397	1397	1422	2743	-	860	4310	3780
800	32	1524	1524	1553	2857	-	860	4850	4235
900	36	1727	1727	1756	3048	-	860	6632	5900
1000	40	1955	1955	-	-	3713	720	8100	-
1050	42	2032	2032	-	-	3916	720	9750	-
1200	48	2286	2286	-	-	4501	720	13050	-



## API CAST STEEL GATE VALVE

Pressure:CLASS600

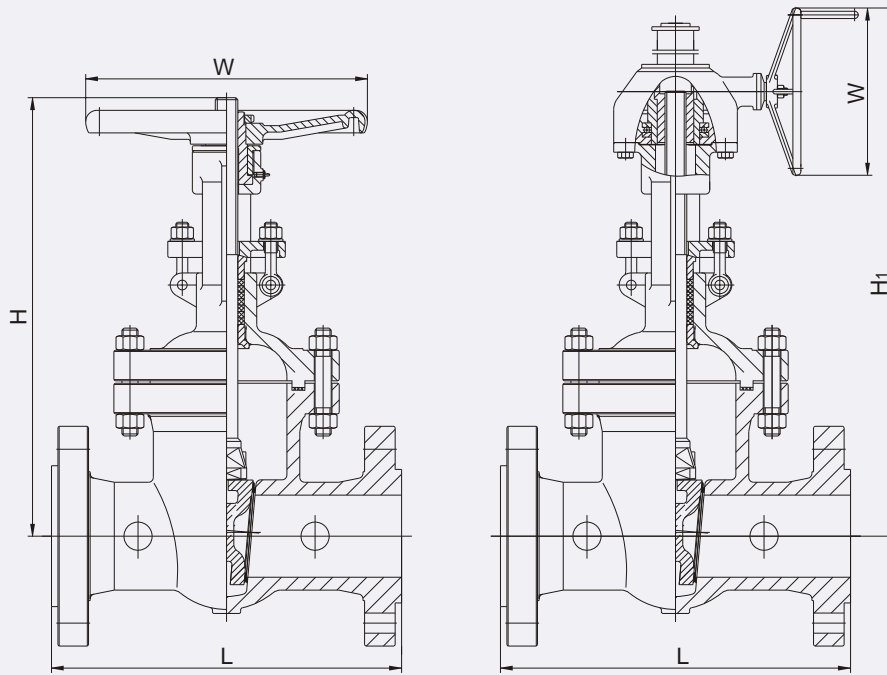


Fig.ZRF0

Fig.5ZRF0

- Bolted bonnet
- Flexible wedge gate
- 8" and above : two pieces yoke
- 24" and above : Gear operated

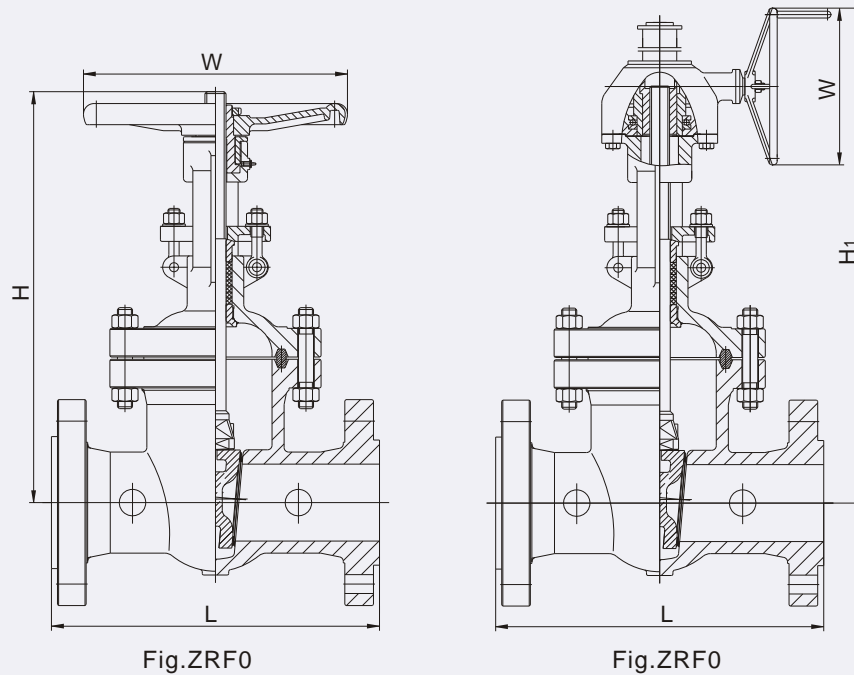
### Main Dimensions & Weight

CLASS600

Size		Valve Main Dimension						Weight (kg)	
mm	in.	L(RF)	L(BW)	L(RJ)	H	H <sub>1</sub>	W	RF	BW
40	1-1/2	241	241	241	375	-	250	41	28
50	2	292	292	295	387	-	250	50	39
65	2-1/2	330	330	333	483	-	250	54	53
80	3	356	356	359	537	-	350	85	67
100	4	432	432	435	647	-	350	126	101
150	6	559	559	562	914	-	610	274	230
200	8	660	660	664	1092	-	610	454	390
250	10	787	787	791	1181	-	720	628	566
300	12	838	838	841	1333	-	720	895	823
350	14	889	889	892	1473	-	720	1350	1198
400	16	991	991	994	1651	-	860	1700	1532
450	18	1092	1092	1095	1727	-	860	2140	1996
500	20	1194	1194	1200	2019	-	860	2683	2450
600	24	1397	1397	1407	-	2383	610	4550	3244
650	26	1448	1448	1461	-	2500	610	5260	-
700	28	1549	1549	1562	-	2663	610	5960	-
750	30	1651	1651	1664	-	2840	610	6700	6160
800	32	1778	1778	1794	-	3100	720	8312	-
900	36	2083	2083	2099	-	3450	720	10125	9580
1000	40	2149	2149	-	-	3600	720	14300	-
1050	42	2260	2260	-	-	3950	720	16460	-
1200	48	2667	2667	-	-	4600	720	22900	-

**API CAST STEEL GATE VALVE**

Pressure:CLASS900-1500



- Bolted bonnet
- Flexible wedge gate
- 8" and above : two pieces yoke
- class900, 16" and above ;  
class1500, 12" and above :  
Gear operated

**Main Dimensions & Weight**

CLASS	Size		Valve Main Dimension						Weight (kg)	
	mm	in.	L(RF)	L(BW)	L(RJ)	H	H <sub>1</sub>	W	F	BW
900	40	1-1/2	305	305	305	495	-	250	62	45
	50	2	368	368	371	523	-	250	116	98
	65	2-1/2	419	419	422	577	-	350	161	130
	80	3	381	381	384	609	-	350	142	136
	100	4	457	457	460	673	-	350	214	180
	150	6	610	610	613	863	-	610	408	405
	200	8	737	737	740	1079	-	610	731	644
	250	10	838	838	841	1231	-	720	1151	1010
	300	12	965	965	968	1384	-	720	1724	1455
	350	14	1029	1029	1038	1574	-	850	2060	1807
	400	16	1130	1130	1140	-	2159	760	2400	-
	450	18	1219	1219	1232	-	2362	760	3000	-
1500	500	20	1321	1321	1334	-	2463	760	3800	-
	600	24	1549	1549	1568	-	3048	900	4900	-
	40	1-1/2	305	305	305	495	-	250	62	45
	50	2	368	368	371	582	-	250	116	98
	65	2-1/2	419	419	422	635	-	350	161	130
	80	3	470	470	473	781	-	350	209	193
	100	4	546	546	549	876	-	450	296	250
	150	6	705	705	711	1104	-	610	720	652
	200	8	832	832	841	1142	-	720	1275	1134
	250	10	991	991	1000	1784	-	860	2092	1765
	300	12	1130	1130	1146	-	1955	760	2951	2386
	350	14	1257	1257	1276	-	2057	760	4382	3759
400	16	1384	1384	1407	-	2311	760	5043	-	
450	18	1537	1537	1559	-	2438	860	5705	-	
500	20	1664	1664	1686	-	2590	860	6750	-	
600	24	1943	1943	1972	-	2946	860	9500	-	

## API CAST STEEL GATE VALVE

Pressure:CLASS600 ~ 900

### Main Dimensions & Weight

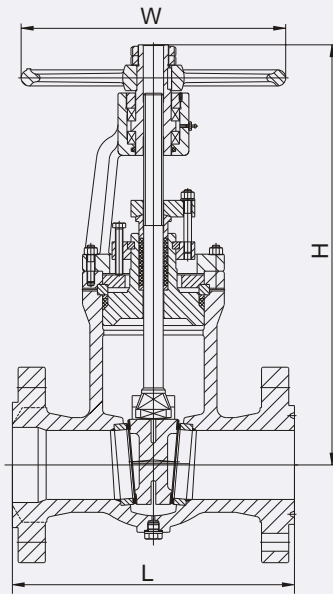


Fig.ZRJ0

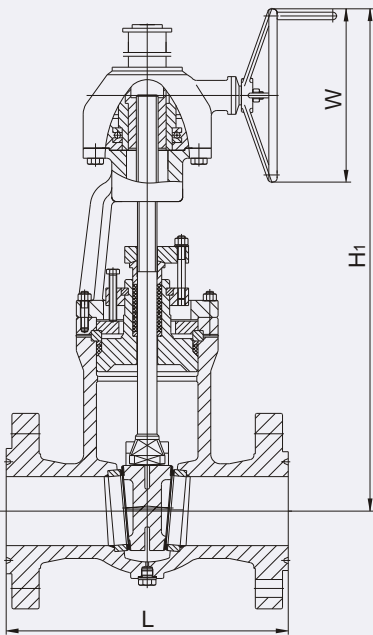


Fig.5ZRJ0

- Pressure sealed bonnet
- Flexible wedge gate
- class600, 24" and above ; class900, 16" and above : Gear operated

CLASS	Size		Valve Main Dimension					Weight (kg)		
	mm	in.	L(RF)	L(BW)	L(RJ)	H	H <sub>1</sub>	W	RF	BW
600	80	3	356	254	359	609	-	250	68	54
	100	4	432	305	435	762	-	350	112	84
	150	6	559	457	562	863	-	450	209	169
	200	8	660	584	664	1092	-	610	315	245
	250	10	787	711	791	1168	-	720	529	429
	300	12	838	812	841	1270	-	720	775	615
	350	14	889	889	892	1447	-	720	1210	960
	400	16	991	991	994	1651	-	860	1600	1200
	450	18	1092	1092	1095	1727	-	860	1895	1435
	500	20	1194	1194	1200	1981	-	860	2356	1794
	600	24	1397	1397	1407	-	2308	610	4300	3600
	650	26	1448	1448	1461	-	2500	610	4800	4070
	700	28	1549	1549	1562	-	2750	610	5600	4770
	750	30	1651	1651	1664	-	2840	610	6350	5410
800	32	1778	1778	1794	-	3150	720	7890	6840	
900	36	2083	2083	2099	-	3400	720	9112	7802	
900	80	3	381	305	384	584	-	350	95	77
	100	4	457	356	460	711	-	350	130	101
	150	6	610	508	613	863	-	610	280	245
	200	8	737	660	740	1016	-	610	460	341
	250	10	838	787	841	1181	-	720	820	640
	300	12	965	914	968	1320	-	720	1150	930
	350	14	1029	991	1038	1568	-	850	1500	1298
	400	16	1130	1092	1140	-	2159	760	2100	1855
	450	18	1219	1219	1232	-	2381	760	2750	2340
	500	20	1321	1321	1334	-	2451	760	3400	2800
	600	24	1549	1549	1568	-	2971	900	4400	3420
	650	26	1574	1574	-	-	3352	900	5500	4270
	700	28	1663	1663	-	-	3695	900	6900	5454
	750	30	1778	1778	-	-	4000	900	9000	7392
800	32	1854	1854	-	-	4165	900	11000	9042	
900	36	2032	2032	-	-	4597	900	13500	10874	

**API CAST STEEL GATE VALVE**

Pressure:CLASS1500 ~ 2500

**Main Dimensions & Weight**

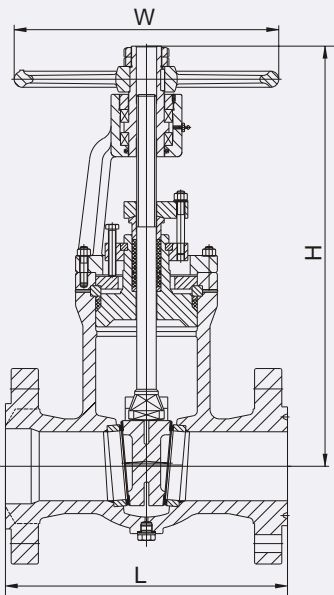


Fig.ZRJO

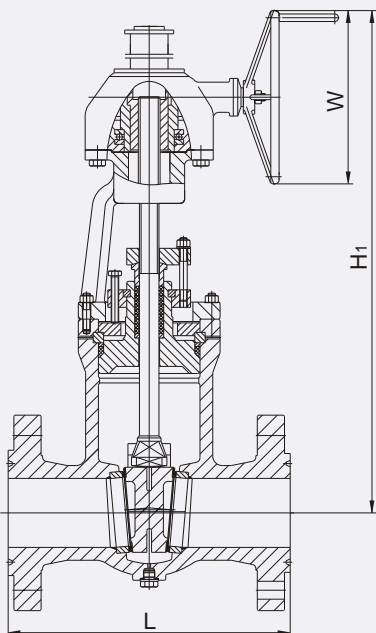


Fig.5ZRJO

- Pressure sealed bonnet
- Flexible wedge gate
- class1500, 12" and above ;  
class2500, 8" and above :
- Gear operated

CLASS	Size		Valve Main Dimension						Weight (kg)	
	mm	in.	L(RF)	L(BW)	L(RJ)	H	H1	W	RF	BW
1500	80	3	470	305	473	660	-	350	148	110
	100	4	546	406	549	736	-	450	236	180
	150	6	705	559	711	914	-	610	481	370
	200	8	832	771	841	1244	-	720	810	610
	250	10	991	864	1000	1485	-	860	1680	1300
	300	12	1130	991	1146	-	1905	760	2565	2000
	350	14	1257	1067	1276	-	1981	760	3260	2900
	400	16	1384	1194	1407	-	2108	760	4540	3490
	450	18	1537	1346	1559	-	2209	860	5225	4000
	500	20	1664	1473	1686	-	2387	860	6310	4800
	600	24	1943	1943	1972	-	2794	860	9050	7500
	650	26	2033	2033	-	-	3098	1020	9934	8900
	700	28	2209	2209	-	-	3403	1020	11174	10000
	750	30	2286	2286	-	-	3746	1020	14852	13500
800	32	2413	2413	-	-	3048	-	17443	16000	
900	36	2565	2565	-	-	3251	-	21246	18900	
2500	80	3	-	368	-	596	-	450	-	135
	100	4	-	457	-	698	-	610	-	215
	150	6	-	610	-	876	-	610	-	550
	200	8	-	762	-	-	1043	610	-	900
	250	10	-	914	-	-	1170	860	-	1600
	300	12	-	1041	-	-	1322	860	-	2300
	350	14	-	1118	-	-	1379	1020	-	3200
	400	16	-	1245	-	-	1481	1020	-	4100
	450	18	-	1397	-	-	1651	1020	-	5200
	500	20	-	1397	-	-	1811	1020	-	6800
	600	24	-	1625	-	-	1905	-	-	9500
	650	26	-	1778	-	-	2032	-	-	11000
	700	28	-	1905	-	-	2108	-	-	13100
	750	30	-	2032	-	-	2362	-	-	17200
800	32	-	2184	-	-	2463	-	-	19300	
900	36	-	2413	-	-	3063	-	-	2500	