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2025 Version

SAMPLE FOR THE MODEL SELECTION OF GATE VALVE

Parallel double-gate valve

Flat gate valve

Wedge gate valve

Zhejiang Decca Control Valve Meter Co.,Ltd.



About Us

Zhejiang Deca Control Valve Meter Co., Ltd. is a national high-tech enterprise, specializing in the design and development, production and sales, transportation and maintenance of control valves, products include: regulating valves, gate valves, ball valves, butterfly valves, low temperature valves and special valves. Our company is also SINOPEC, CNPC, CNOOC, CNAFG, CNCC, and Shell Petrochemicals Company Limited, Rosneft Oil, Tatneft Oil and other suppliers into the network units. The company is located in Wencheng Economic Development Zone, Wencheng Country, Wenzhou City, Zhejiang Province, covering an area of nearly 39,000 square meters and a building area of 33,000 square meters.

The company has passed the People's Republic of China Special Equipment manufacturing (pressure pipeline components) A1, A2, B class license, B class license, ISO 9001 international quality system certification, API 6D, API 600, API 609 certification, API 607, API 6FA valve fire test certification, ISO 15848-1 German TUV low Leakage certification, German TUV product safety function level S13 certification, Eurasian Economic Union EAC certification, Eu CE certification. Environmental management system certification ISO 14001, Occupational Health and safety Management System certification ISO 45001, HSE Health and Safety environment certification, management system evaluation certification; In 2018, the company presided over the drafting and release of Zhejiang manufacturing group standards "Pneumatic control valves for petroleum, petrochemical, natural gas and related industries" and "Pneumatic ball valves for Petroleum, petrochemical and related industries"; In 2019, the company won the Quality Award of Wencheng Country Chief, Wenzhou two-chemical integration demonstration enterprise, passed the Zhejiang manufacturing product label certification in 2020, participated in the development of two group standards of "direct stroke electric actuator" "Low temperature butterfly valve", "Industrial valve escape test" and "Industrial valve pressure test" two national standards. The company has won 77 national patents (12 inventions, 60 utility models, 3 software Copyrights, 2 Ruian Science and Technology Progress Awards, 2 overseas invention patent, 1 new product was included in Ruian Science and technology plan, 22 products passed provincial new product identification, 1 product was included in Wenzhou patent industrialization, in 2017, 2018, 2019 and 2020 Wencheng seed capital project was obtained for four consecutive years, and one new product was included in Wenzhou major project.



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Design, Innovation, Improvement and Excellence

In 2021, it was rated as a civilized unit in Wencheng County, a green factory in Wenzhou City, a leading enterprise in Wenzhou City, and a top 100 high-tech enterprises in Wenzhou City and a water-saving benchmark enterprise in Zhejiang Province in 2022. At the same time, the company is the national top 500 quality enterprises, as well as the bank credit rating AAA enterprises.

The company's control valve products are widely used in China's petroleum, natural gas, chemical, power station, metallurgy, light industry, paper making, medicine, food, urban construction, environmental protection and other fields, and has achieved good performance, won the praise of users, and exported to the Russia, Iran, Kazakhstan and other countries.

Over the years, the company adhere to the road of "people-oriented, science and technology development", and a wide range of domestic petrochemical design institute, industrial automation instrument research institute close cooperation, for the majority of new and old users to provide high-quality control valves and high-quality after-sales service; "Customer first, quality first, dedicated service" is the purpose we have always followed, enthusiasm to provide users with technical advice, technical lectures, product selection, three guarantees and maintenance is our obligation. We will continue to improve technology, enhance equipment, continue to adhere to the careful cooperation with customers, win-win interests, and jointly create a brilliant tomorrow.

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Parallel Double-gate Valve



Overview

Z42 parallel double-gate valve is a new generation of quick cut-off gate valve designed and successfully developed by the company introducing and absorbing the foreign advanced technology. Pneumatic parallel double-gate valve has been rated as a provincial high-tech product and has obtained a number of national patents. Patent No.: ZL2010 1 024 6138.1, ZL 2015 1 003 5911.2.

Parallel double-gate valves are featured with the superior performance, rapid opening and closing, labor-saving, good sealing performance, long service life, safe operation and convenient maintenance. It is very suitable for cutting off or releasing the gas and liquid medium conveying pipeline, and it is convenient for remote control and can accommodate to the harsh working conditions such as high temperature, high pressure, explosion-proof and corrosion-proof requirements. It has been widely used in petroleum, chemical, light industry, oil depot, metallurgy, electric power and other industries. This product has been applied successfully for many years, and has been trusted and praised by users with good service.



Model description

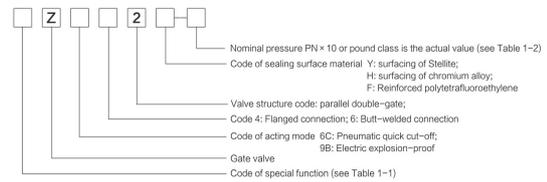


Table 1-1

Sulfur-resistant type	Flanged type	Low temperature type (standard)	High temperature type (heat sale)	Extended rod type	Bellows type	Heat preservation type
K	F	D	S	C	W	B

Table 1-2

Nominal standard MPa	1.6	2.0	2.5	4.0	6.3	10.0	16.0	25.0	42.0
Code	16	20	25	40	63	100	160	250	420
U.S. Standard Class	150	300	400	600	900	1500	2500		
Code	CL150	CL300	CL400	CL600	CL900	CL1500	CL2500		

Parallel Double-gate Valve



Design and manufacturing standards and specifications

Table 1-3

Standards and specifications	National standards and industry standards	U.S. Standards
Design and manufacturing standards	GB/T 12234, GB/T 15672	API 6D, API 600
Structure length	GB/T 12221	ASME B16.10, API 6D
Flange size	JBT 79, GB/T 9124, SH3406, HG/T 20692-20623	ASME B16.5, ASME B16.47
Pressure and temperature grade	GB/T 9124, GB/T 12224	ASME B16.34
Inspection and test	GB/T 26480, GB/T 13927	API 598, API 6D
Leakage level	GB/T4213	ANSI/API 77-2, ASME B16.104

Note:

- Select the size standard of connecting flange for valves in the above table according to the needs of users;
- Inspection and test standards can also be selected by users in the above table;
- Standards for special requirements: valve sulfur resistance: NACE MR0175 and NACE MR0103, and valve fire protection: API 6FA, Low-leakage test of valve: ISO 15848.

Main performance parameters

- Nominal pressure(MPa): 1.6, 2.0, 2.5, 4.0, 5.0, 6.3, 10.0, 11.0, 15.0, 16.0, 20.0, 42.0
- Nominal diameter: DN40-1700 mm (NPS 1-1/2-68)
- Applicable temperature: Low-temperature type (-196~-29°C), normal-temperature type (-29~+250°C), intermediate-temperature type (+250~+425°C), and high-temperature type (+425~+600°C)
- Applicable medium: water, steam, oil, gas
- Bonnet form standard type(-20~+300°C), high-temperature (heat sink) type(+300~+600°C)
Low-temperature (extended) type(-100~-20°C), Ultra-low temperature (extended) type(-196~-100°C)
- Leakage level of valve: Level V for hard seal, Level VI for soft seal (Level VI hard seal shall be ordered specifically)
As per GB/T4213 and ASME B16.104
- Optional driving forms: pneumatic, electric, electro-hydraulic, manual.

Working principle

Parallel double-gate valve is of the structure composed of the metal hard seal without diversion hole and the open wedge valve plug. The valve plug is characterized by a wedge movable valve plug assembly, which is composed of five parts, such as wedge block, expansion block and round valve plate, etc. The components are connected with large clearances, and the oblique angle of wedge block is larger than the self-locking angle. This design makes the friction coefficient greatly reduced and the opening torque small when the valve is opened. When the valve is opened, the valve stem moves up to overcome the friction between the wedge block and expansion block first. When the wedge block rises, the two round valve plates do not make radial displacement, but their shaft ends become smaller, shrink inward and break away from the sealing surface of the valve seat. The valve is featured with the quick opening, labor saving, no friction and jamming, and can reach the full opening state. When the valve is closing, the actuator makes the valve stem move down. The large wedge angle of the wedge block acts on the two parallel round valve plates through the expansion block, the left and right gate plates press the sealing seat tightly, and the sealing effect is more ideal, so as to meet the requirements of two-way sealing of the valve.



Fig. 1.1 1) Wedge block 2) Expansion block 3) Valve plate

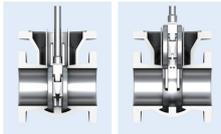


Fig. 1.2 Fully close



Fig. 1.3 Fully open

Parallel Double-gate Valve



Materials of main parts

Table 1-4

Part name	Material name	Trade mark		Remarks
		National standard (GB/T)	U.S. Standards (ASTM)	
Valve body and valve bonnet	Carbon steel	WCB	A216 WCB	Other materials shall be ordered through negotiation
		LCB	A352 LCB	
	High-temperature alloy steel	WC6	A217 WC6	
		WC9	A217 WC9	
		CS	A217 C5	
		CF8	A351 CF8	
Austenitic stainless steel	CF8C	A351 CF8C		
	CF8M	A351 CF8M		
	CF3M	A351 CF3M		
	CF3	A351 CF3		
Valve plate	Carbon steel	20	ASTM A105	
		12Cr13	A276 410	
	Austenitic stainless steel	06Cr19Ni10	A182 F304	
06Cr17Ni2Mo2 06Cr18Ni11Ti		A182 F316 A182 F321		
Valve stem	Chromium stainless steel	12Cr13	A276 410	
		20Cr13	A276 420	
	Precipitated stainless steel	05Cr17Ni4Cu4Nb	A564 630 (17-4PH)	
Wedge block	Austenitic stainless steel	06Cr19Ni10	A182 F304	
		06Cr17Ni2Mo2 06Cr18Ni11Ti	A182 F316 A182 F321	
		Chromium stainless steel	ZG02Cr13	A743 CA40
Sealing surface (part of valve seat and valve plate)	Reinforced polytetrafluoroethylene Chromium alloy Stellite alloy	RPTFE G-13 Series 802, 812	RPTFE E3C STELLITE NO.6	
		Packing pressure plate	Carbon steel Austenitic stainless steel	WCB
ZG08Cr18Ni9	A351 CF8			
Packing	Flexible graphite Polytetrafluoroethylene PTFE	PTFE	A194 2H A194 7 A194 8	
		Nut	High-quality carbon steel/ High-temperature alloy steel/ Austenitic stainless steel	45
30CrMo	A194 7			
06Cr19Ni10	A194 8			
Double-head stud	High-quality carbon steel/ High-temperature alloy steel/ Austenitic stainless steel	35CrMo	A193 B7	
		25Cr2MoV	A193 B16	
		06Cr19Ni10	A194 B8	
Sealing gasket	Metal winding gasket /Flexible graphite	06Cr19Ni10 /Flexible graphite	A276 304 /Flexible graphite	

Note: 1. The material of valve firm can be selected by users; 2. Packing can also be used according to user requirements.

Parallel Double-gate Valve



Structure Chart of Parallel Double-Gate Valve (Typical)

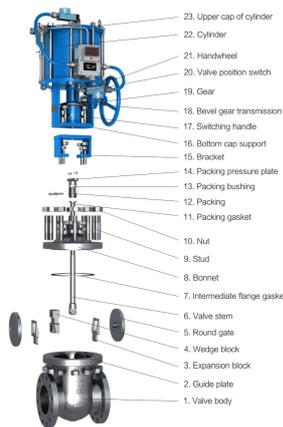
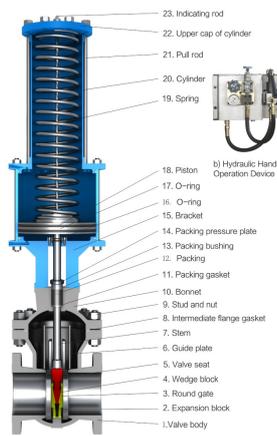


Fig.1.4 Structure Chart of Pneumatic Double-acting Parallel Double-gate Valve with Handwheel

Pneumatic single-acting (spring return) parallel double-gate valve (typical)



a) Air-to-open Single-acting (spring Return) Actuator (for DN250 Mm)
Fig.1.5 Structure Chart of Pneumatic Single-acting (Spring Return) Parallel Double-gate Valve

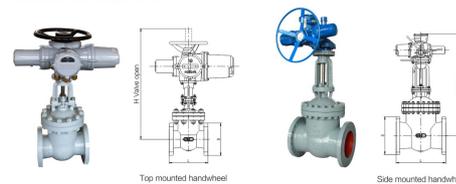
Parallel Double-gate Valve



Structural characteristics

- (1) Valve stem is designed with anti-dropping structure, which can ensure that the valve stem will not be blown out by medium even under extreme conditions such as abnormal pressure increase in the valve cavity and failure of packing pressure plate, and the head of the valve stem has an inverted sealing structure, and the sealing performance of the structure improves with the increase of pressure; the head of the valve stem is made of integral forging material, and its excellent tensile strength effectively ensures the safety and reliability of the anti-dropping structure.
- (2) The sealing surface of fire-proof parallel double-gate valve is of the metal-to-metal structure, the sealing packing material of valve stem is flexible graphite, and the gasket is made of the fire-proof stainless steel + flexible graphite; the valve ensures the reliable sealing performance even in case of fire and meets the requirements of API6FA fire protection standard.
- (3) The gate valve is designed with all-metal structure and has anti-static function, conforming to the requirements of API6D anti-static resistance test.
- (4) Self-cleaning function: the plate of parallel double-gate valve has self-cleaning function. When the valve is opened and closed, the medium flow in the pipeline makes the floating round gate naturally rotate and slide, thus finishing the self-cleaning, and the sealing performance and service life can be improved.
- (5) Friction of sealing surface: Parallel double-gate valve depends on wedge block moving up and down to wedge tightly or loosen expansion block, so that floating round gate plate translates to horizontal two sides and clings to valve seat seal or separation, and the wear of sealing surface is transferred, so as to avoid the friction between the sealing surfaces, decrease the operating force, improve the sealing performance and prolong the service life.
- (6) The oblique pressure angle of the wedge block is larger than the self-locking angle. In the opening process, the actuator outputs force to make the valve stem move up, which first overcomes the friction between the wedge block and the expansion block, so that the expansion block drops by its own weight, and the valve plate contracts inward axially and leaves the sealing surface of the valve seat. When the valve is opened, the sealing surface has no friction, and the valve opens quickly and moves smoothly, saving the labor and avoiding the jamming.
- (7) All closing parts are connected flexibly, which can make compensation automatically that the deformation of the valve plate caused by temperature change will not affect the sealing performance and the opening/closing of the valve, so that the valve operation is more reliable.
- (8) A guide plate and a guide rib are arranged in the valve cavity above the valve seat to limit the free space of the valve plate after the valve is opened and ensure that the wedge valve plug assembly is always in the middle.
- (9) A limit stop device is set at the bottom of the valve body of the parallel double-gate valve to provide stroke protection for the gate when it is closed, and the valve leakage will not be caused by closing dislocation of valve.
- (10) Parallel double-gate valve is generally installed on the horizontal pipeline and the valve stem is perpendicular to the ground, so it cannot be installed in the horizontal direction of the valve stem on the vertical pipeline, otherwise the valve cannot be opened and closed normally; if it shall be installed on vertical pipeline, the special order shall be placed.
- (11) Parallel double-gate valve has good two-way sealing performance. When the changes of external temperature cause the thermal expansion of the medium in the valve cavity, which will produce excessive pressures in the cavity, it is necessary to open a pressure relief hole on the upstream side valve plate to relieve pressure or set up a special safety pressure relief device in the middle cavity to ensure the safety of the valve.
- (12) Parallel double-gate valve can be designed as bellow type and insulation jacket type according to user requirements.

Electric parallel double-gate valve - main overall dimensions and connection dimensions



- Note: 1. When placing the orders, please indicate the brand, explosion-proof grade, control mode, operation time, electrical interface and other requirements of the electric actuator, and provide the operating conditions such as maximum closing differential pressure of valve.
2. Please refer to Table 1-5 ~ 1-10 for the main overall dimensions and connection dimensions of electric parallel double-gate valves.

Parallel Double-gate Valve



Pressure grade: 150LB, flange size according to HG/T20615, HG/T20623 B as shown in the table;
The lengths of structures are in accordance with ASME B16.10 and API6D as shown in Table 1-5.

Table 1-5

Nominal diameter NPS DN	Structure length (L) ASME GB	Nominal pressure — PN1.6, 2.5(MPa), Class 150				Sealing surface RF d	Opening height H	Reference weight (kg)			
		Dimensions of flanged connection									
		D	K	n-L	C	f1					
1 1/2	40	165	200	125	98.4	4-16	15.9	73.0	2	630	42
2	50	178	250	150	120.7	4-18	17.5	92.1	2	640	45
2 1/2	65	190	270	180	139.7	4-18	20.7	104.8	2	690	55
3	80	203	280	190	152.4	4-18	22.3	127.0	2	750	68
4	100	229	300	230	190.5	8-18	22.3	157.2	2	780	80
5	125	254	325	255	215.9	8-22	22.3	185.7	2	850	110
6	150	267	350	280	241.3	8-22	23.9	215.9	2	940	130
8	200	292	400	345	298.5	8-22	27.0	269.9	2	1120	220
10	250	330	450	405	362.0	12-26	28.6	323.8	2	1330	270
12	300	356	500	485	431.8	12-26	30.2	381.0	2	1530	370
14	350	381	550	535	476.3	12-30	33.4	412.8	2	1710	510
16	400	406	600	595	539.8	16-30	35.0	469.9	2	1890	650
18	450	432	650	635	577.9	16-33	38.1	533.4	2	2160	1150
20	500	457	700	700	635.0	20-33	41.3	584.2	2	2360	1380
24	600	508	800	815	749.3	20-36	46.1	692.2	2	2680	1520
28	700	610	900	935	795.3	40-22	43.0	762	2	2990	2390
32	800	690	1000	940	900.1	48-22	44.6	864	2	3350	2890
36	900	711	1100	1055	1009.6	44-26	50.9	972	2	3740	3620
40	1000	813	1200	1175	1120.8	44-30	54.1	1080	2	4200	4590
42	1050	813	-	1225	1171.6	48-30	57.3	1130	2	4280	5080
48	1200	914	-	1390	1335.1	44-33	63.6	1289	2	4900	-
54	1350	1067	-	1550	1492.2	56-33	71.6	1441	2	5880	-
60	1500	1295	-	1725	1662.1	52-36	74.7	1600	2	6350	-
68	1700	1549	-	-	-	-	-	-	-	7200	-

Note: Nominal pressure is 1.6, 2.5 (MPa); flange size as per HG/T 20592; structure length as per GB/T 12221.

Pressure grade: 300LB, flange size according to HG/T20615, HG/T20623 B as shown in the table;
The lengths of structures are in accordance with ASME B16.10 and API6D as shown in Table 1-6.

Table 1-6

Nominal diameter NPS DN	Structure length (L) ASME GB	Nominal pressure — PN4.0, 6.3(MPa), Class 300				Sealing surface RF d	Opening height H	Reference weight (kg)			
		Dimensions of flanged connection									
		D	K	n-L	C	f1					
1 1/2	40	190	200	155	114.3	4-22	19.1	73.0	2	640	45
2	50	216	250	165	127.0	8-18	20.7	92.1	2	650	50
2 1/2	65	241	280	190	149.2	8-22	23.9	104.8	2	690	70
3	80	263	310	210	168.3	8-22	27.0	127.0	2	750	80
4	100	305	350	255	200.0	8-22	30.2	157.2	2	800	100
5	125	381	400	280	235.0	8-22	33.4	185.7	2	910	180
6	150	403	450	320	269.9	12-22	35.0	215.9	2	1000	210
8	200	419	550	380	330.2	12-26	39.7	269.9	2	1160	250
10	250	457	650	445	387.4	16-30	46.1	323.8	2	1350	420
12	300	502	750	520	450.8	16-33	49.3	381.0	2	1620	590
14	350	562	850	585	514.4	20-33	52.4	412.8	2	1820	870
16	400	608	950	650	571.5	20-36	55.6	469.9	2	1930	1180
18	450	614	1050	710	628.6	24-36	58.8	533.4	2	2150	1380
20	500	691	1150	775	685.8	24-36	62.0	584.2	2	2350	1980
24	600	1143	1350	915	812.8	24-42	68.3	692.2	2	2660	2380
28	700	1346	1450	920	857.2	36-36	67.4	787	2	3050	3300
32	800	1524	1650	1055	977.9	32-42	101.6	902	2	3360	5100
36	900	1727	-	1170	1089	32-45	101.6	1010	2	3790	7200
40	1000	1981	-	1275	1190.6	40-45	114.3	1114	2	4260	9000
42	1050	1981	-	1335	1244.6	36-48	117.5	1168	2	4340	-
48	1200	2295	-	1510	1416.0	40-51	127.0	1327	2	4680	-
54	1350	2438	-	1675	1578.0	48-51	145.0	1480	2	5980	-
60	1500	2591	-	1880	1763.7	40-60	149.3	1651	2	6380	-
68	1700	2743	-	-	-	-	-	-	-	7250	-

Note: Nominal pressure is 4.0, 6.3 (MPa); flange size as per HG/T 20592; structure length as per GB/T 12221.

Parallel Double-gate Valve



Pressure grade: 600LB, flange size according to HG/T20615, HG/T20623 B as shown in the table;
The lengths of structures are in accordance with ASME B16.10 and API6D as shown in Table 1-7.

Table 1-7

Nominal diameter NPS DN	Structure length (L) ASME GB	Nominal pressure — PN10.0(MPa), Class 600				Sealing surface RF d	Opening height H	Reference weight (kg)						
		Dimensions of flanged connection												
		D	K	n-L	C	f1								
1 1/2	40	241	241	241	155	114.3	4-22	22.3	73.0	7	90.5	6.35	650	60
2	50	292	295	250	165	127.0	8-18	25.4	92.1	7	108	7.92	650	70
2 1/2	65	330	333	280	190	149.2	8-22	28.6	104.8	7	127	7.92	710	85
3	80	356	359	310	210	168.3	8-22	31.8	127.0	7	146	7.92	765	110
4	100	432	435	350	275	215.9	8-26	38.1	157.2	7	175	7.92	820	180
5	125	508	511	400	330	266.7	8-30	44.5	185.7	7	210	7.92	960	270
6	150	559	562	450	355	292.1	12-30	47.7	215.9	7	241	7.92	1050	330
8	200	660	664	550	420	349.2	12-33	55.6	269.9	7	302	7.92	1200	620
10	250	787	791	650	510	431.8	16-36	63.5	323.8	7	356	7.92	1450	980
12	300	838	841	750	560	489.0	20-36	66.7	381.0	7	413	7.92	1720	1360
14	350	889	892	850	605	527.0	20-39	69.9	412.8	7	457	7.92	2040	1720
16	400	991	994	950	685	603.2	20-42	76.2	469.9	7	508	7.92	2150	2150
18	450	1092	1095	1050	745	654.0	20-45	82.6	533.4	7	575	7.92	2320	2980
20	500	1194	1200	1150	815	723.9	24-45	88.9	584.2	7	635	9.52	2650	3400
24	600	1397	1407	1350	940	838.2	24-51	101.6	692.2	7	749	11.13	3150	4700
28	700	1649	1662	1450	950	863.8	28-48	115.9	784	7	861	12.70	3450	-
32	800	1778	1794	1650	1085	984.2	28-55	130.2	895	7	984	14.27	3750	-
36	900	2083	2099	-	1215	1104.9	28-60	146.1	1010	7	1092	14.27	5100	-

Note: Nominal pressure is 10.0 (MPa); flange size as per HG/T 20592; structure length as per GB/T 12221.

Pressure grade: 900LB, flange size according to HG/T20615, HG/T20623 B as shown in the table;
The lengths of structures are in accordance with ASME B16.10 and API6D as shown in Table 1-8.

Table 1-8

Nominal diameter NPS DN	Structure length (L) ASME GB	Nominal pressure — PN16.0(MPa), Class 900				Sealing surface RF d	Opening height H	Reference weight (kg)						
		Dimensions of flanged connection												
		D	K	n-L	C	f1								
2	50	368	371	300	215	165.1	8-26	38.1	92.1	7	124	7.92	650	92
2 1/2	65	419	422	340	245	190.5	8-30	41.3	104.8	7	137	7.92	710	110
3	80	381	384	300	240	190.5	8-26	38.1	127.0	7	156	7.92	765	140
4	100	457	460	450	290	235.0	8-33	44.5	157.2	7	181	7.92	820	200
5	125	509	562	525	350	279.4	8-36	50.8	185.7	7	216	7.92	990	340
6	150	610	613	600	380	317.5	12-33	55.6	215.9	7	241	7.92	1140	465
8	200	737	740	750	470	393.7	12-39	63.5	269.9	7	308	7.92	1220	720
10	250	838	841	-	545	469.9	16-39	69.9	323.8	7	362	7.92	1600	1020
12	300	905	908	-	610	533.4	20-39	79.4	381.0	7	419	7.92	1750	1390
14	350	1029	1038	-	640	558.8	20-42	85.8	412.8	7	467	11.13	2040	1800
16	400	1130	1140	-	705	616.0	20-45	88.9	469.9	7	524	11.13	2290	2450
18	450	1219	1232	-	785	685.8	20-51	101.6	533.4	7	594	12.70	2350	3060
20	500	1321	1334	-	855	749.3	20-55	108.0	584.2	7	648	12.70	2690	3900
24	600	1549	1568	-	1040	901.7	20-68	139.7	692.2	7	772	15.88	3150	5000
28	700	1778	1800	-	1105	971.6	20-74	147.7	810	7	889	17.48	3480	-
32	800	2083	2105	-	1240	1092.2	20-80	160.4	927	7	1003	17.48	3780	-
36	900	2387	2416	-	1345	1200.2	24-80	173.1	1029	7	1124	20.62	5100	-

Note: Nominal pressure is 16.0 (MPa); flange size as per HG/T 20592; structure length as per GB/T 12221.

Parallel Single-gate Valve



Design and manufacturing standards and specifications

Table 2-1

Standards and specifications	National standards and industry standards	U.S. Standards
Design and manufacturing standards	GB/T 19627, GB/T 20173, JB/T 5298	API 6D
Structure length	GB/T 12221, GB/T 20173, JB/T 5298	ASME B16.10, API 6D
Flange size	GB/T 9124, SH 3406, HG/T 20592-20623	ASME B16.5, ASME B16.47
Pressure and temperature grade	GB/T 9124, GB/T 12224	ASME B16.34
Inspection and test	GB/T 13927, GB/T 20173, GB/T 26480	API 598, API 6D
Leakage level	GB/T 4213	ANSI/FCI 70-2, ASME B16.104

Note:

1. Select the size standard of connecting flange for valves in the above table according to the needs of users;
2. Inspection and test standards can also be selected by users in the above table;
3. Standards for special requirements: valve sulfur resistance: NACE MR0175 and NACE MR0103, valve fire protection: API 6FA, low-leakage test of valve: ISO 15845.

Working principle

Parallel single-gate valve is of a parallel single-gate valve plug structure, valve seats are installed on both sides of the valve body, valve seats are equipped with O-rings, and the back of the valve seat is arranged with the pre-tightening springs to form a floating valve seat. The pre-tightening force of the springs pushes the floating valve seat to the gate sealing surface, so that the valve inlet and outlet form a two-way seal. The sealing surface of the valve seat is surfaced with Stellite alloy (or inlaid RPTFE), and the gate is surfaced (or sprayed) with Stellite alloy. The hardened gate and valve seat sealing surface have good scratch resistance, excellent valve sealing performance and long service life. Floating valve seat with spring pre-tightening can remove stains on the gate and have the function of self-cleaning sealing surface; When the valve is closed for a long time, due to the thermal expansion of the medium in the valve cavity caused by the change of external temperature, the pressure in the cavity is greater than that in the pipe, and the floating valve seat on the inlet side will be automatically pushed back by the high-pressure medium, which will release the dangerous excessive pressure in the cavity and discharge it to the upstream pipeline, thus ensuring the safe use of the valve (see the following figure for details). Auxiliary seal grease injection port is set at the stuffing box of valve bonnet to truly achieve the zero leakage of packing seal.

1. When the internal pressure of the valve is equivalent (1), the gate is closed, and the elastic force of the spring or O-ring behind the valve seat makes the sealing ring form an initial seal. Every time when the valve is opened and closed, the valve seat can automatically clean both sides of the gate. (Fig. 2.1)
2. When pipe pressure is applied to the valve (2), the pressure acts on the gate, forcing the gate close to the sealing ring of outlet valve seat, thus forming a double seal. In addition, the pressure (3) causes the O-ring to prevent any rear medium flow from forming a seal. (Fig. 2.2)

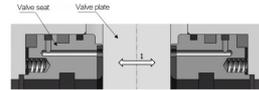


Fig 2.1

3. Before the valve cavity relieves pressure, an inlet seal is formed, and the pipe pressure acts on the valve seat (4) at the inlet side to move it to the gate, thus forming a seal, and at the same time, O-ring (5) forms a tight seal with the groove of the valve seat. (Fig. 2.3)



Fig 2.3

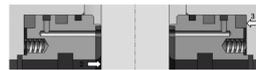


Fig 2.2

4. The valve automatically releases excess pressure. When the pressure in the valve cavity is greater than that in the pipe, the inlet valve seat is pushed to the groove due to thermal expansion, and the excess pressure in the valve cavity is released into the pipe between the valve seat and the gate. (Fig. 2.4)



Fig 2.4

Parallel Single-gate Valve



Structure Chart of Parallel Single-gate Valve without Diversion Hole (Typical)



Fig 2.5

Materials of main parts

Table 2-2

Part name	Material name			
	National standard (GB/T)	Ordinary	U.S. Standards (ASTM)	Sulfur-resistant type
Valve body and valve bonnet	WCB	A216 WCB	WCB (H2S)	A216 WCB(AHTI+H2S)
Gate	16Mn+ENP	A105+ ENP	06Cr19Ni10+STL6	A276 304+STL6
Valve seat	16Mn+RP/TFE	A105+RP/TFE	06Cr19Ni10+STL6	A276 304+STL6
Valve stem	20Cr13	A276 420	06Cr19Ni10	A276 304
Intermediate flange bolt	35CrMoA	A193 B7	42CrMo	A193 B7M
Intermediate flange nut	45	A194 2H	30CrMo	A194 2HM
Packing		Polytetrafluoroethylene, flexible graphite		
Spring	17-7PH	InconelX-750	06Cr19Ni10	InconelX-750
O-ring	Nitrile rubber buna	Nitrile rubber buna	Fluorine rubber	Fluorine rubber
Stem nut	ZQA19-4	C85500	ZQA19-4	C85500
Packing gland	WCB	A216 WCB	WCB	A216 WCB
Intermediate flange sealing gasket	06Cr19Ni10 + Flexible graphite	A276 304 + Flexible graphite	06Cr19Ni10 + Flexible graphite	A276 304 + Flexible graphite

Note: The material of O-ring is based on the chemical characteristics of the medium used by users, and shall be selected according to the temperature resistance and corrosion resistance;

Parallel Single-gate Valve



Structural characteristics

- (1) Valve stem is designed with anti-dropping structure, which can ensure that the valve stem will not be blown out by medium even under extreme conditions such as abnormal pressure increase in the valve cavity and failure of packing pressure plate, and the head of the valve stem has an inverted sealing structure, and the sealing performance of the structure improves with the increase of pressure; the head of the valve stem is made of integral forging material, and its excellent tensile strength effectively ensures the safety and reliability of the anti-dropping structure.
- (2) The sealing surface of fire-proof parallel single-gate valve is of the metal-to-metal structure, the sealing packing material of valve stem is flexible graphite, and the gasket is made of the fire-proof stainless steel + flexible graphite; the valve ensures the reliable sealing performance even in case of fire and meets the requirements of API6FA fire protection standard.
- (3) The valve has anti-static function, so that the resistance between the gate and the valve stem and valve body does not exceed 10Ω; the static electricity generated in the process of valve switching is led to the earth through the valve body to avoid the danger of spark and explosion caused by static electricity charge.
- (4) The seat of the flat gate valve can self-relieve the pressure. When the changes of external temperature cause the thermal expansion of the medium in the valve cavity and produce the excessive pressure in the cavity, the valve seat at the inlet will be automatically pushed back to release the dangerous excessive pressure in the cavity and discharge it to the upstream pipe, thus ensuring the safe use of the valve.
- (5) Parallel single-gate valve has double block and bleed (DBB) function, and if specified by the buyer, additional DBB test can be carried out.
- (6) Particle-proof structure design: there is a stop step between the valve seat and the valve body, which can block impurities and larger particles from entering the spring and the valve seat cavity, prevent the valve seat from being blocked and stuck by particles, and effectively prolong the service life (not applicable to dual medium).
- (7) The valve seat and valve stem can be equipped with secondary sealing structure, and the two valve seats are correspondingly provided with independent grease injection ports, which can be replaced under pressure for emergency use.
- (8) A limit block is set at the bottom of the valve body of the parallel single-gate valve to provide stroke protection for the gate when it is closed, and the valve leakage will not be caused by closing dislocation of valve.
- (9) Self-cleaning function: Parallel single-gate valve with spring pre-tightening floating valve seat can remove stains on the gate, and can self-clean the sealing surface, thus improving the sealing performance and service life.
- (10) When the valve with diversion hole is fully opened, the diversion hole of the gate and the channel form a smooth straight line, and the gate protects the sealing surface of the valve seat and avoids it from being washed by the medium. The flow resistance coefficient of the valve is extremely small, and there is no pressure loss. The pipeline can be cleaned by fur ball.
- (11) For the flat gate valves without diversion holes, the upper bottom of the regulating gate is designed with a crescent-shaped opening structure with the same radius as the valve body channel (see Fig. 2.6); it has approximately equal percent flow characteristics as the gate of flat gate valves with diversion holes (see Fig. 2.7).

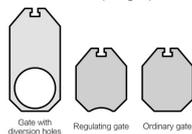


Fig. 2.6

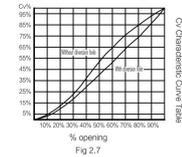


Fig. 2.7

- (12) Valves are not affected by the installation method and can be installed on vertical pipes (to be proposed in the order).
- (13) The valve seat is provided with O-ring, and its long-term operating temperature is up to 220°C, and is made of high fluorine rubber; the material of O-ring shall be selected based on the chemical characteristics of medium in the inquiry specification of user with the suitable temperature resistance and corrosion resistance.
- (14) DN-Cv graph of flat gate valve with diversion holes (see Fig. 2.8).
- (15) Structure Chart of Element Assembly of Parallel Single-gate Valve without Diversion Hole

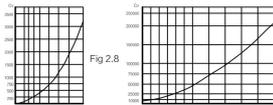


Fig. 2.8



Fig. 2.9

Parallel Single-gate Valve



Parallel single gate valve structure with diversion hole (typical diagram)

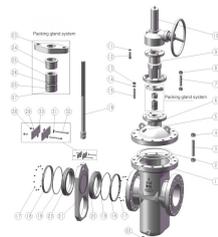


Table 2-3

No.	Part name	No.	Part name	No.	Part name	No.	Part name
1	Valve body	9	Yoke	17	Spring	25	Packing
2	Sealing gasket	10	Gearbox	18	O-ring	26	Spacer ring
3	Stud	11	Spring washer	19	Square packing	27	Packing gasket
4	Nut	12	Screw	20	Valve seat	28	Nut
5	Grease injection valve	13	Nut	21	Gate	29	Spring washer
6	Valve bonnet	14	Flat washer	22	Plug screw	30	Baffle
7	Stud	15	Stud	23	Packing pressure plate	31	Gasket
8	Nut	16	Valve stem	24	Packing bushing	32	Screw

Main overall dimensions and connection dimensions

Table 2-1 ~ Table 2-4 Main Overall and Connection Dimensions of Electric Flat Gate Valves (with/without Diversion Hole)

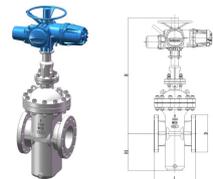


Fig. 2.11 Electric Flat Gate Valve (Top-mounted Handwheel)

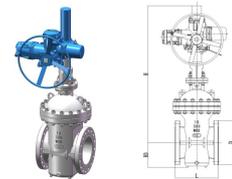


Fig. 2.12 Electric Flat Gate Valve (Side-mounted Handwheel)

Parallel Single-gate Valve



Table 2-4

Unit: mm

Nominal diameter	NPS	DN	Structure length			Electric		Dimensions of flanged connection					Sealing surface RF		Without diversion hole		With diversion hole		
			Flange L	Butt-welded L1	Lightweight L2	H	H2	D	K	n-L	C	d	f1	H3	H1	H3	H1		
2	50	178	216	108	690	350	150	120.7	4-18	17.5	92.1	2	92	122					
2 1/2	65	190	241	112	730	390	160	130.7	4-18	20.7	104.8	2	105	154					
3	80	203	283	114	790	420	190	152.4	4-18	22.3	127.0	2	122	169					
4	100	229	305	127	810	470	230	190.5	8-18	22.3	157.2	2	146	193					
5	125	254	381	130	920	580	255	215.9	8-22	22.3	185.7	2	148	262					
6	150	267	403	140	970	630	280	241.3	8-22	23.9	215.9	2	160	285					
8	200	292	419	152	1110	768	345	298.5	8-22	27.0	259.9	2	190	352					
10	250	330	457	165	1390	910	405	362.0	12-26	28.6	323.8	2	225	440					
12	300	356	502	178	1560	1056	485	431.8	12-26	30.2	381.0	2	255	514					
14	350	381	572	190	1720	1175	535	476.3	12-30	33.4	412.8	2	285	602					
16	400	406	610	216	1920	1315	595	538.8	16-30	35.0	469.9	2	320	678					
18	450	432	660	222	2120	1458	635	577.9	16-33	38.1	533.4	2	350	785					
20	500	457	711	229	2310	1595	700	635.0	20-33	41.3	584.2	2	380	855					
24	600	508	813	267	2730	1906	815	749.3	20-36	46.1	692.2	2	445	1045					
28	700	610	914	292	3150	2200	835	795.3	40-22	43.0	762	2	500	1190					
32	800	650/711	965	318	3490	2438	940	900.1	48-22	44.6	864	2	550	1350					
36	900	711/813	1016	330	3840	2680	1055	1009.6	44-26	50.9	972	2	610	1510					
40	1000	813/914	—	—	4250	3020	1175	1120.8	44-30	54.1	1080	2	660	1720					
42	1050	813/914	—	—	—	—	—	1225	1171.6	48-30	57.3	1190	2	700	1780				
48	1200	914/1016	—	—	—	—	—	1390	1335.1	44-33	63.6	1299	2	820	1950				
54	1350	1067	—	—	—	—	—	1550	1492.2	56-33	71.6	1441	2	1150	2200				
60	1500	1295	—	—	—	—	—	1725	1662.1	52-36	74.7	1600	2	1310	2450				
68	1700	1549	—	—	—	—	—	—	—	—	—	—	—	1450	2750				

Note: ① Pressure grade: 150L.B, flange size according to HG/T20615, HG/T20623 B as shown in the table;
 ② Nominal pressure is 1.6, 2.5 (MPa), flange size as per HG/T 20592; ③ Structure length as per GB/T 12221 and GB/T 20173.

Table 2-5

Unit: mm

Nominal diameter	NPS	DN	Structure length			Electric		Dimensions of flanged connection					Sealing surface RF		Without diversion hole		With diversion hole		
			Flange L	Butt-welded L1	Lightweight L2	H	H2	D	K	n-L	C	d	f1	H3	H1	H3	H1		
2	50	216	216	690	350	165	127.0	8-18	20.7	92.1	2	95	137						
2 1/2	65	241	241	730	390	190	149.2	8-22	23.9	104.8	2	106	169						
3	80	283	283	760	420	210	168.3	8-22	27.0	127.0	2	124	194						
4	100	305	305	826	486	255	200.0	8-22	30.2	157.2	2	150	218						
5	125	381	381	920	580	280	236.0	8-22	33.4	185.7	2	165	260						
6	150	403	403	980	635	320	269.9	12-22	35.0	215.9	2	180	311						
8	200	419	419	1150	790	380	330.2	12-26	39.7	259.9	2	210	382						
10	250	457	457	1390	912	445	387.4	16-30	46.1	323.8	2	242	476						
12	300	502	502	1590	1092	520	450.8	16-33	49.3	381.0	2	290	545						
14	350	562	562	1750	1190	585	514.4	20-33	52.4	412.8	2	312	645						
16	400	638	638	1930	1322	650	571.5	20-36	55.6	469.9	2	350	728						
18	450	711	711	2130	1465	710	628.6	24-36	58.8	533.4	2	385	800						
20	500	791	791	2310	1595	775	688.8	24-36	62.0	584.2	2	415	930						
24	600	1143	1143	2760	1929	915	812.8	24-42	68.3	692.2	2	485	1110						
28	700	1346	1346	3170	2212	920	857.2	36-36	87.4	787	2	510	1260						
32	800	1524	1524	3570	2505	1055	977.9	32-42	101.6	902	2	580	1420						
36	900	1727	1727	3960	2768	1170	1089	32-45	101.6	1010	2	635	1580						
40	1000	1981	1981	4340	3050	1275	1190.6	40-45	114.3	1114	2	690	1720						
42	1050	1981	1981	—	—	—	—	1335	1244.6	36-48	117.5	1168	2	750	1800				
48	1200	2286	2286	—	—	—	—	1510	1416.0	40-51	127.0	1327	2	890	1980				
54	1350	2438	—	—	—	—	—	1675	1578.0	48-51	145.0	1480	2	1150	2200				
60	1500	2591	—	—	—	—	—	1880	1763.7	40-60	149.3	1651	2	1310	2450				
68	1700	2743	—	—	—	—	—	—	—	—	—	—	—	1450	2750				

Note: ① Pressure grade: 300L.B, flange size according to HG/T20615, HG/T20623 B as shown in the table;
 ② Nominal pressure is 4.0, 5.0 (MPa), flange size as per HG/T 20592; ③ Structure length as per GB/T 12221 and GB/T 20173.

Parallel Single-gate Valve



Table 2-6

Unit: mm

Nominal diameter	NPS	DN	Structure length			Electric		Dimensions of flanged connection					Sealing surface RF		Without diversion hole		With diversion hole	
			Flange L	Butt-welded L1	Lightweight L2	H	H2	D	K	n-L	C	d	f1	H3	H1	H3	H1	
2	50	292	292	700	360	165	127.0	8-18	25.4	92.1	7	108	158					
2 1/2	65	330	330	760	420	190	149.2	8-22	28.6	104.8	7	125	190					
3	80	356	356	790	450	210	168.3	8-22	31.8	127.0	7	145	225					
4	100	432	432	870	530	275	215.9	8-26	38.1	157.2	7	165	255					
5	125	508	508	950	610	330	266.7	8-30	44.5	185.7	7	195	300					
6	150	559	559	1060	710	355	292.1	12-30	47.7	215.9	7	220	330					
8	200	660	660	1250	870	420	349.2	12-33	55.6	269.9	7	260	410					
10	250	787	787	1460	1010	510	431.8	16-36	63.5	323.8	7	330	490					
12	300	838	838	1620	1120	560	489.0	20-36	66.7	381.0	7	380	570					
14	350	889	889	1810	1250	605	527.0	20-39	69.9	412.8	7	430	650					
16	400	991	991	2020	1420	685	603.2	20-42	78.2	469.9	7	480	735					
18	450	1092	1092	2220	1580	745	654.0	20-45	82.6	533.4	7	530	810					
20	500	1194	1194	2430	1720	815	723.9	24-45	88.9	584.2	7	580	905					
24	600	1397	1397	2870	2040	940	838.2	24-51	101.6	692.2	7	700	1160					
28	700	1549	1549	3290	—	950	893.5	28-48	115.9	784	7	830	1330					
32	800	1778	1778	3700	—	1085	984.2	28-55	130.2	895	7	970	1540					
36	900	2083	2083	4000	—	1215	1104.9	28-60	146.1	1010	7	1050	1650					

Note: ① Pressure grade: 600L.B, flange size according to HG/T20615, HG/T20623 B as shown in the table;
 ② Nominal pressure is 10.0 (MPa), flange size as per HG/T 20592;
 ③ Structure length as per GB/T 12221 and GB/T 20173.

Table 2-7

Unit: mm

Nominal diameter	NPS	DN	Structure length			Electric		Dimensions of flanged connection					Sealing surface RF		Without diversion hole		With diversion hole	
			Flange L	Butt-welded L1	Lightweight L2	H	H2	D	K	n-L	C	d	f1	H3	H1	H3	H1	
2	50	368	368	700	360	215	165.1	8-26	38.1	92.1	7	115	178					
2 1/2	65	419	419	790	420	245	190.5	8-30	41.3	104.8	7	140	210					
3	80	381	381	790	450	240	190.6	8-26	38.1	127.0	7	150	245					
4	100	457	457	870	530	290	235.0	8-33	44.5	157.2	7	180	275					
6	150	610	610	1060	720	380	317.5	12-33	55.6	215.9	7	235	350					
8	200	737	737	1260	880	470	383.7	12-39	63.5	269.9	7	295	430					
10	250	838	838	1470	1020	545	469.9	16-39	69.9	323.8	7	345	510					
12	300	965	965	1640	1140	610	533.4	20-39	79.4	381.0	7	400	600					
14	350	1029	1029	1840	1280	640	568.8	20-42	85.8	412.8	7	450	675					
16	400	1130	1130	2050	1450	705	616.0	20-45	88.9	469.9	7	505	765					

Wedge Gate Valve

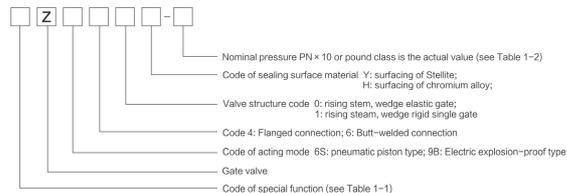


Overview

The wedge gate valves are a new generation of wedge elastic gate valves designed and developed by the company on the basis of integrating the advanced product process structure at home and abroad and conforming to international and national standards. The gate valve is of the wedge single gate form and the elastic structure, and it is designed compactly and reasonably with the good valve rigidity, light and flexible action, high sealing performance, safe operation and simple maintenance. This series of valves can meet the requirements of high temperature, high pressure, corrosion prevention, fire protection and other harsh working conditions. It has been widely used in petroleum, chemical, light industry, metallurgy, electric power and power plant heat pipe network and many other industrial sectors. This product has been applied successfully for many years, and has been trusted and praised by users with good service.



Model description



Design and manufacturing standards and specifications

Table 3-1

Standards	Design and manufacturing	Structure length	Flange size	Pressure and temperature grade	Inspection and test	Leakage level
National standards and industry standards	GB/T 12234	GB/T 12221	GB/T 9124 HG/T 20592-20635 SH 3409	GB/T 9124 GB/T 12224	GB/T 26480	GB/T4213
U.S. Standards	API 600	ASME B16.10	ASME B16.5 ASME B16.47	ASME B16.34	API 598	ANSI/FICI 70-2 ASME B16.104

Note: 1. Select the size standard of connecting flange for valves in the above table according to the needs of users;
2. Standards for special requirements: valve sulfur resistance: NACE MR0175 and NACE MR0103, and valve fire protection: API 6FA, Low-leakage test of valve: ISO 15848

Wedge Gate Valve



Main performance parameters

- Nominal pressure(MPa): 1.6, 2.0, 2.5, 4.0, 5.0, 6.3, 10.0, 11.0, 16.0, 26.0, 42.0;
- Nominal diameter: DN15-1700 mm (NPS 1/2-68)
- Applicable temperature: Low-temperature type (-196~-29°C), normal-temperature type (-29~+250°C), intermediate-temperature type (-29~+425°C), and high-temperature type (+425~+600°C)
- Applicable medium: water, steam, oil, gas
- Bonnet forms: Standard type (-20~+300°C), High-temperature (heat sink) type (+300~+600°C)
- Low-temperature (extended) type (-100~-20°C), Ultralow temperature (extended) type (-196~-100°C)
- Leakage level of valve: Level V for hard seal (Level VI hard seal shall be ordered specifically) as per GB/T4213 and ASME B16.104
- Optional driving forms: pneumatic, electric, electro-hydraulic, manual.

Working principle

Wedge single-gate valve is a traditional metal hard seal gate valve, with an elastic wedge gate as the valve plug; the sealing surfaces on both sides of the gate are fitted with the sealing surfaces of the valve seats at the inlet and outlet, and there are symmetrical elastic grooves in the middle of the gate; When the gate and the valve seat are tightly closed, the machining technically is improved by the micro elastic deformation compensation of the deformation groove, the sealing accuracy of the valve is improved, and the sealing performance of the valve is optimized; The gate and valve seat are hardened by the surfacing of carbide material, which has good scratch resistance, excellent sealing performance and long service life. Adequate wear allowance (width of sealing surface) is reserved between gate and valve seat. Due to the simple valve plug structure, it is more suitable for viscous and coking-prone media compared with double-gate valve. Compared with rigid single-gate valve, this valve has the advantages of good sealing performance, small friction coefficient, less wear, stable and reliable operation.

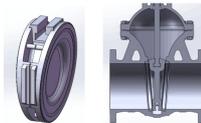


Fig. 3.1 Wedge Elastic Gate Fig. 3.2 Valve Fully Closed

Structural characteristics

- (1) Valve stem is designed with anti-dropping structure, which can ensure that the valve stem will not be blown out by medium even under extreme conditions such as abnormal pressure increase in the valve cavity and failure of packing pressure plate, and the head of the valve stem has an inverted sealing structure, and the sealing performance of the structure improves with the increase of pressure; the head of the valve stem is made of integral forging material, and its excellent tensile strength effectively ensures the safety and reliability of the anti-dropping structure.
- (2) The sealing surface of fire-proof wedge single-gate valve is of the metal-to-metal structure, the sealing packing material of valve stem is flexible graphite, and the gasket is made of the fire-proof stainless steel + flexible graphite; the valve ensures the reliable sealing performance even in case of fire and meets the requirements of API6FA fire protection standard.
- (3) The gate valve is designed with all-metal structure and has anti-static function, conforming to the requirements of AP16D anti-static resistance test.
- (4) The gate of the gate valve is wedge-shaped and elastic. There are two sealing surfaces on the wedge gate at a certain self-locking angle, which coincide with the angles of the two valve seats after the gate is wedged into the valve body, so that the two sealing surfaces are closely combined to achieve good sealing effect; The valve inlet and outlet can be sealed in both directions.
- (5) When the wedge gate valve is fully opened, the channel is full diameter, with the small flow resistance coefficient and pressure loss.
- (6) The wedge gate is provided with a guide groove, which forms a sliding mechanism with the guide key in the valve body after it is wedged. Valves are not affected by the installation method and can be installed on vertical pipes (to be proposed in the order).
- (7) Wedge single-gate valve is a forced sealing structure, with the good sealing performance, light and flexible operation and simple maintenance.
- (8) The wedge gate valve is designed according to standard API600 or GB/T12234, and the wear stroke allowance of the gate sealing surface (width) after the valve is closed shall not be less than the criterion.
- (9) Wedge single-gate valve can be designed as bellow type and insulation jacket type according to user requirements.
- (10) Pressure grade < CL900 (PN16.0 MPa) for bolted bonnet, and pressure grade ≥ CL900 (PN16.0 MPa) for pressure self-sealing bonnet.

Wedge Gate Valve



Materials of main parts

Table 3-2

Part name	Material name	Trade mark		Remarks
		National standard (GB/T)	U.S. Standards (ASTM)	
Valve body, valve bonnet, valve plate	Carbon steel	WCB	A216 WCB	Other materials shall be ordered through negotiation
	Low-temperature carbon steel	LCB	A352 LCB	
	High-temperature alloy steel	WC6	A217 WC6	
		WC9	A217 WC9	
	Austenitic stainless steel	ZG08Cr18Ni9	A351 CF8	
ZG03Cr18Ni10		A351 CF3		
ZG1Cr18Ni11Ti		A351 CF8C		
ZG08Cr18Ni2Mo2		A351 CF8M		
Valve seat	Carbon steel	Z0	ASTM A105	
	Austenitic stainless steel	06Cr19Ni10	A182 F304	
		06Cr17Ni2Mo2	A182 F316	
	Chromium stainless steel	12Cr13	A276 410	
Valve stem	Austenitic stainless steel	06Cr19Ni10	A182 F304	
		06Cr17Ni2Mo2	A182 F316	
	Chromium alloy	13Cr	A182 F321	
Sealing surface pair of valve seat and valve plate	Cr13	802 812	13Cr	
	Stellite alloy		STELLITE NO.6	
Packing pressure plate	Carbon steel	WC	A216 WCB	
	Austenitic stainless steel	BZG08Cr18Ni9	A351 CF8	
Packing	Flexible graphite			
Nut	High-quality carbon steel	35	A194 2H	
	High-temperature alloy steel	30CrMo	A194 7	
	Austenitic stainless steel	06Cr19Ni10	A194 8	
Double-head stud	High-quality carbon steel	40	A193 B7	
	High-temperature alloy steel	35CrMoA	A193 B16	
	Austenitic stainless steel	06Cr19Ni10	A194 B8	
Sealing gasket	Metal winding gasket	06Cr19Ni10	A276 304	
	Flexible graphite		Flexible graphite	
Stem nut	Aluminum bronze	ZQA19-4	C95500	

Note 1: The material of valve trim can be selected by users; 2: Packing can also be in accordance with user requirements

Structure Chart of Pneumatic Wedge Gate Valve

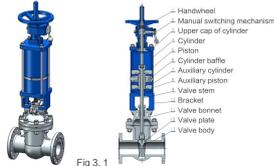


Fig 3.1

Wedge Gate Valve



Main overall and connection dimensions of electric wedge gate valve

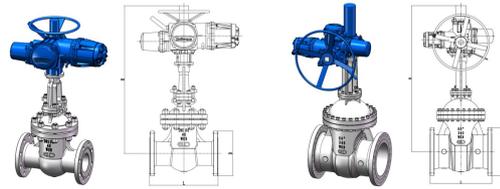


Fig 3.2

Fig 3.3

Table 3-3

Unit: mm

Model	Nominal diameter		Structure length L		Overall dimensions		Dimensions of flanged connection				Sealing surface RF		Reference weight (kg)
	DN	ASME	GB	ASME	H	H ₀	D	K	e-L	C	d	f	
Z41	1/2	15	108	130	550	160	90	60.3	4-16	9.6	34.9	2	28
	3/4	20	117	150	560	170	100	69.9	4-16	11.2	42.9	2	29
	1	25	127	160	560	170	110	79.4	4-16	12.7	50.8	2	32
	1 1/4	32	140	180	560	170	115	88.9	4-16	14.3	63.5	2	33
	1 1/2	40	165	200	700	304	125	98.4	4-16	15.9	73.0	2	42
	2	50	178	250	715	318	150	120.7	4-16	17.5	86.1	2	45
	2 1/2	65	190	270	750	360	180	139.7	4-18	20.7	104.8	2	55
	3	80	203	280	790	395	190	152.4	4-18	22.3	127.0	2	68
	4	100	229	300	830	435	230	180.5	8-18	22.3	157.2	2	80
	5	125	254	325	860	560	255	215.9	8-22	22.3	185.7	2	95
Z40	6	150	267	350	890	590	280	241.3	8-22	23.9	215.9	2	135
	8	200	292	400	1160	740	345	298.5	8-22	27.0	269.9	2	218
	10	250	330	450	1345	875	405	362.0	12-26	28.6	323.8	2	295
	12	300	356	500	1550	1010	485	431.8	12-26	30.2	381.0	2	390
	14	350	381	550	1730	1190	535	475.3	12-30	33.4	412.8	2	550
	16	400	406	600	1920	1295	595	539.8	16-30	35.0	469.9	2	690
	18	450	432	650	2160	1420	635	577.9	16-33	36.1	533.4	2	1160
	20	500	457	700	2360	1540	700	635.0	20-33	41.3	584.2	2	1220
	24	600	508	800	2670	1800	815	749.3	20-36	46.1	692.2	2	1680
	28	700	610	900	3010	2050	835	795.3	40-22	43.0	762	2	2260
32	800	660	1000	3360	2280	940	900.1	48-22	44.6	864	2	2680	
36	900	711	1100	3740	2525	1055	1009.6	44-26	50.9	972	2	3580	
40	1000	813	1200	4150	2790	1175	1120.8	44-30	54.1	1080	2	4820	
42	1050	813	—	4280	2915	1225	1171.6	48-30	57.3	1130	2	5350	
48	1200	914	—	4950	3380	1390	1335.1	44-33	63.6	1289	2	7260	
54	1350	1067	—	—	—	1550	1492.2	56-33	71.6	1441	2	—	
60	1500	1295	—	—	—	1725	1662.1	52-36	74.7	1600	2	—	
68	1700	1549	—	—	—	—	—	—	—	—	—	—	

Note: 1: Pressure grade: 150LB, flange size according to HG/T20615, HG/T20623 B as shown in the table;
2: Nominal pressure is 1.6, 2.5 (MPa); flange size as per HG/T 20592; structure length as per GB/T 12221.

Wedge Gate Valve



Table 3-4

Unit: mm

Model	Nominal diameter		Structure length L		Nominal pressure — PN10(MPa), Class 300				Dimensions of flanged connection				Sealing surface RF		Reference weight (kg)
	NPS	DN	ASME	GB	H	H2	D	K	e-L	C	d	f	d	f	
Z41	1/2	15	140	130	550	160	90	60.3	4-16	9.6	34.3	2	30	—	—
	3/4	20	152	150	560	170	100	69.9	4-18	11.2	42.9	2	30	—	—
	1	25	165	160	560	170	110	79.4	4-18	12.7	50.8	2	34	—	—
	1 1/4	32	178	180	560	170	115	88.9	4-18	14.3	63.5	2	34	—	—
	1 1/2	40	190	200	700	314	125	98.4	4-22	15.9	73.0	2	45	—	—
	2	50	216	250	730	330	165	127.0	8-18	20.7	92.1	2	50	—	—
	2 1/2	65	241	280	750	365	190	149.2	8-22	23.9	104.8	2	70	—	—
	3	80	283	310	790	400	210	168.3	8-22	27.0	127.0	2	85	—	—
	4	100	305	350	850	460	255	200.0	8-22	30.2	157.2	2	104	—	—
	5	125	381	400	960	565	280	235.0	8-22	33.4	185.7	2	135	—	—
	6	150	403	450	1020	620	320	269.9	12-22	35.0	215.9	2	200	—	—
	8	200	419	550	1190	775	380	330.2	12-26	39.7	269.9	2	320	—	—
10	250	457	650	1380	885	445	387.4	16-30	46.1	323.8	2	458	—	—	
12	300	502	750	1670	1090	520	450.8	16-33	49.3	381.0	2	620	—	—	
14	350	562	850	1920	1175	585	514.4	20-33	55.4	412.8	2	960	—	—	
16	400	638	950	1950	1270	650	571.5	20-36	55.6	469.9	2	1350	—	—	
18	450	694	1050	2180	1410	710	628.6	24-36	58.8	533.4	2	1490	—	—	
20	500	691	1150	2360	1540	775	685.8	24-36	62.0	584.2	2	1970	—	—	
24	600	1143	1350	2700	1800	915	812.8	24-42	68.3	692.2	2	2760	—	—	
28	700	1346	1450	3090	2065	920	857.2	30-36	87.4	762	2	4050	—	—	
32	800	1524	1650	3450	2320	1055	977.9	32-42	101.6	864	2	4670	—	—	
36	900	1727	—	—	—	1170	1089	32-45	101.6	972	2	7320	—	—	
40	1000	1981	—	—	—	1275	1190.6	40-45	114.3	1080	2	—	—	—	
42	1050	1981	—	—	—	1335	1244.8	36-48	117.5	1130	2	—	—	—	
48	1200	2286	—	—	—	1510	1416.0	40-51	127.0	1289	2	—	—	—	
54	1350	2436	—	—	—	1675	1578.0	48-51	145.0	1480	2	—	—	—	
60	1500	2691	—	—	—	1880	1783.7	40-60	149.3	1651	2	—	—	—	
68	1700	2743	—	—	—	—	—	—	—	—	—	—	—	—	

Note: 1: Pressure grade: 300L B, flange size according to HG/T20615, HG/T20623 B as shown in the table;
2: Nominal pressure is 4.0 (MPa); flange size as per HG/T 20592; structure length as per GB/T 12221.

Table 3-5

Unit: mm

Model	Nominal diameter		Structure length L		Nominal pressure — PN16(MPa), Class 400				Dimensions of flanged connection				Sealing surface RF		Reference weight (kg)
	NPS	DN	ASME	GB	H	H2	D	K	e-L	C	d	f	d	f	
Z41	1/2	15	165	170	550	160	95	66.7	4-16	14.3	34.9	7	32	—	—
	3/4	20	190	190	560	170	115	82.6	4-18	15.9	42.9	7	32	—	—
	1	25	216	210	560	170	125	88.9	4-18	17.5	50.8	7	38	—	—
	1 1/4	32	229	230	560	170	135	98.4	4-18	20.7	63.5	7	38	—	—
	1 1/2	40	241	240	700	314	155	114.3	4-22	22.3	73.0	7	50	—	—
	2	50	282	250	730	330	165	127.0	8-18	25.4	92.1	7	62	—	—
	2 1/2	65	330	280	750	365	190	149.2	8-22	28.6	104.8	7	74	—	—
	3	80	356	310	790	400	210	168.3	8-22	31.8	127.0	7	92	—	—
	4	100	406	350	850	460	255	200.0	8-26	35.0	157.2	7	136	—	—
	5	125	457	400	960	565	280	235.0	8-26	38.1	185.7	7	199	—	—
	6	150	495	450	1020	620	320	269.9	12-26	41.3	215.9	7	296	—	—
	8	200	597	550	1190	775	380	330.2	12-30	47.7	269.9	7	480	—	—
10	250	673	650	1360	885	445	387.4	16-33	54.0	323.8	7	750	—	—	
12	300	762	750	1670	1090	520	450.8	16-36	57.2	381.0	7	980	—	—	
14	350	826	850	1820	1175	585	514.4	20-36	60.4	412.8	7	1150	—	—	
16	400	902	950	1950	1270	650	571.5	20-39	63.5	469.9	7	1580	—	—	
18	450	978	1050	2160	1410	710	628.6	24-39	66.7	533.4	7	2080	—	—	
20	500	1054	1150	2360	1540	775	685.8	24-42	69.9	584.2	7	2540	—	—	
24	600	1322	1350	2700	1800	915	812.8	24-48	76.2	692.2	7	3480	—	—	
28	700	1397	1450	3090	2065	914.4	838.2	24-42	95.3	762.0	7	—	—	—	
32	800	1651	1650	3450	2320	1035	962.5	28-45	108	873.3	7	—	—	—	
36	900	1880	—	—	—	1155.7	1066.8	28-48	119.2	980.9	7	—	—	—	

Note: 1: Pressure grade: 400L B, flange size according to HG/T20615, HG/T20623 B as shown in the table;
2: Nominal pressure is 6.3 (MPa); flange size as per HG/T 20592; structure length as per GB/T 12221.

Wedge Gate Valve



Table 3-6

Unit: mm

Model	Nominal diameter		Structure length L		Nominal pressure — PN10(MPa), Class 600				Dimensions of flanged connection				Sealing surface RF		Reference weight (kg)
	NPS	DN	ASME	GB	H	H2	D	K	e-L	C	d	f	d	f	
Z41	1/2	15	165	170	550	160	95	66.7	4-16	14.3	34.9	7	35	—	—
	3/4	20	190	190	560	170	115	82.6	4-18	15.9	42.9	7	38	—	—
	1	25	216	210	560	170	125	88.9	4-18	17.5	50.8	7	40	—	—
	1 1/4	32	229	230	560	170	135	98.4	4-18	20.7	63.5	7	42	—	—
	1 1/2	40	241	240	700	314	155	114.3	4-22	22.3	73.0	7	54	—	—
	2	50	292	250	740	340	165	127.0	8-18	25.4	92.1	7	78	—	—
	2 1/2	65	330	280	750	360	190	149.2	8-22	28.6	104.8	7	108	—	—
	3	80	356	310	850	465	210	168.3	8-22	31.8	127.0	7	135	—	—
	4	100	432	350	920	515	275	215.9	8-26	38.1	157.2	7	190	—	—
	5	125	508	400	1020	610	330	266.7	8-30	44.5	185.7	7	282	—	—
	6	150	559	450	1080	665	355	292.1	12-30	47.7	215.9	7	360	—	—
	8	200	660	550	1280	834	420	349.2	12-33	55.6	269.9	7	590	—	—
10	250	787	650	1470	985	510	431.8	16-36	63.5	323.8	7	970	—	—	
12	300	838	750	1710	1140	560	489.0	20-36	66.7	381.0	7	1285	—	—	
14	350	889	850	1850	1220	605	527.0	20-39	69.9	412.8	7	1690	—	—	
16	400	991	950	2060	1360	685	603.2	20-42	76.2	469.9	7	2140	—	—	
18	450	1092	1050	2190	1450	745	654.0	20-45	82.6	533.4	7	2820	—	—	
20	500	1194	1150	2420	1590	815	723.9	24-45	88.9	584.2	7	3480	—	—	
24	600	1397	1350	2780	1850	940	838.2	24-51	101.6	692.2	7	4290	—	—	
28	700	1549	1450	3150	2120	950	863.6	28-48	115.9	784.0	7	5920	—	—	
32	800	1778	1650	3510	2370	1085	984.2	28-55	130.2	895.0	7	—	—	—	
36	900	2083	—	—	—	3910	2650	1215	1104.9	28-60	146.1	1010	7	—	—

Note: 1: Pressure grade: 600L B, flange size according to HG/T20615, HG/T20623 B as shown in the table;
2: Nominal pressure is 10.0 (MPa); flange size as per HG/T 20592; structure length as per GB/T 12221.

Table 3-7

Unit: mm

Model	Nominal diameter		Structure length L		Nominal pressure — PN16(MPa), Class 900				Dimensions of flanged connection				Sealing surface RF		Reference weight (kg)
	NPS	DN	ASME	GB	H	H2	D	K	e-L	C	d	f	d	f	
Z41	1/2	15	165	170	550	160	120	82.6	4-22	22.3	60.5	6.35	35	—	—
	3/4	20	190	190	560	170	130	88.9	4-22	25.4	66.5	6.35	38	—	—
	1	25	216	210	560	170	150	101.6	4-26	28.6	71.5	6.35	40	—	—
	1 1/4	32	229	230	560	170	160	111.1	4-26	28.6	81.0	6.35	42	—	—
	1 1/2	40	241	240	700	314	180	123.8	4-30	31.8	92.0	6.35	54	—	—
	2	50	292	250	740	340	210	157.5	8-26	38.1	124	7.92	100	—	—
	2 1/2	65	330	280	750	360	240	190.5	8-30	41.3	137	7.92	158	—	—
	3	80	384	390	850	500	240	190.5	8-26	38.1	156	7.92	185	—	—
	4	100	460	450	920	630	290	235.0	8-33	44.5	181	7.92	235	—	—
	5	125	562	525	1160	700	350	275.4	8-36	50.8	216	7.92	330	—	—
	6	150	613	600	1260	780	380	317.5	12-33	55.6	241	7.92	520	—	—
	8	200	740	750	1380	900	470	393.7	12-39	63.5					

Wedge Gate Valve



Table 3-8

Unit: mm

Model	Nominal diameter		Structure length L		Nominal pressure — PN2.0(MPa), Class 1500					Sealing surface RF	Reference weight (kg)		
	NPS	DN	ASME	GB	H	H2	D	K	e-L				
Z41	1/2	15	216	—	690	350	120	82.6	4-22	25.3	66.5	6.35	45
	3/4	20	229	—	690	350	130	88.9	4-22	25.4	66.5	6.35	48
	1	25	254	—	690	350	150	101.6	4-26	28.6	71.5	6.35	50
	1 1/4	32	273	—	730	390	160	111.1	4-26	28.6	81.0	6.35	55
	1 1/2	40	305	—	730	390	180	123.8	4-30	31.8	92.0	6.35	65
	2	50	371	—	750	410	215	165.1	8-26	38.1	124	7.92	112
	2 1/2	65	422	—	860	455	245	190.5	8-30	41.3	137	7.92	160
	3	80	473	—	900	510	265	203.2	8-33	41.7	168	7.92	205
	4	100	549	—	1040	630	310	241.3	8-36	54.0	194	7.92	285
	5	125	676	—	1180	700	375	292.1	8-42	73.1	229	7.92	360
Z40	6	150	711	—	1250	780	395	317.5	12-39	82.6	248	9.53	630
	8	200	842	—	1390	910	485	393.7	12-45	92.1	318	11.13	950
	10	250	1001	—	1580	1060	585	482.6	12-51	108.0	371	11.13	1280
	12	300	1146	—	1790	1210	675	571.5	16-65	123.9	438	14.27	1620
	14	350	1276	—	—	—	750	635.0	16-60	133.4	489	15.88	—
	16	400	1407	—	—	—	825	704.8	16-68	146.1	546	17.48	—
	18	450	1559	—	—	—	915	774.7	16-74	162.0	613	17.48	—
	20	500	1686	—	—	—	985	831.8	16-80	177.8	673	17.48	—
	24	600	1972	—	—	—	1170	990.6	16-94	203.2	794	20.62	—

Note: 1. Pressure grade: 1500L B, flange size according to HG/T20615 as shown in the table;
2. Nominal pressure is 2.0 (MPa), flange size as per HG/T 20592; structure length as per GB/T 12221.

Table 3-9

Unit: mm

Model	Nominal diameter		Structure length L		Nominal pressure — PN4.0(MPa), Class 2500					Sealing surface RF	Reference weight (kg)		
	NPS	DN	ASME	GB	H	H2	D	K	e-L				
Z41	1/2	15	264	—	720	380	135	88.9	4-22	30.2	65.0	6.35	47
	3/4	20	273	—	720	380	140	95.2	4-22	31.8	73.0	6.35	50
	1	25	308	—	720	380	160	108.0	4-26	35.0	82.5	6.35	52
	1 1/4	32	352	—	750	410	185	130.2	4-30	38.1	102	6.35	58
	1 1/2	40	387	—	750	410	205	146.0	4-33	44.5	104	6.35	72
	2	50	454	368	800	460	235	171.4	8-30	50.9	133	7.92	130
	2 1/2	65	514	419	840	520	265	196.8	8-33	57.2	149	9.53	190
	3	80	584	470	1010	600	305	228.6	8-36	66.7	168	9.53	240
	4	100	683	546	1110	650	355	273.0	8-42	76.2	203	11.13	325
	5	125	807	673	1160	700	420	323.8	8-48	92.1	241	12.70	480
Z40	6	150	927	705	1300	850	485	368.3	8-55	108.0	279	12.70	780
	8	200	1038	832	1510	1028	550	438.2	12-55	127.0	340	14.27	920
	10	250	1292	991	1810	1290	675	539.9	12-68	165.1	425	17.48	1330
	12	300	1445	1130	1950	1320	760	619.1	12-74	184.2	495	17.48	1820
	14	350	—	1287	—	—	—	—	—	—	—	—	—
	16	400	—	1384	—	—	—	—	—	—	—	—	—
	18	450	—	1537	—	—	—	—	—	—	—	—	—
	20	500	—	1664	—	—	—	—	—	—	—	—	—
	24	600	—	1943	—	—	—	—	—	—	—	—	—

Note: 1. Pressure grade: 2500L B, flange size according to HG/T20615 as shown in the table;
2. Nominal pressure is 4.0 (MPa), flange size as per HG/T 20592; structure length as per GB/T 12221.

Instructions for Ordering



1. Please indicate the following information when ordering such as model and specification, nominal pressure, working pressure, closing differential pressure, nominal diameter, medium, medium temperature, end connection standard, inspection and test standard;
2. Put forward the requirements of limit ambient temperature, explosion-proof grade and protection grade on the site;
3. Valve body and sealing surface materials;
4. Form of actuator: pneumatic, electro-hydraulic, electric, etc;
5. The action mode of pneumatic actuator (see technical parameters for selection);
6. Please put forward the requirements of control parts and accessories of pneumatic actuators when ordering. (For example, the single electronic control unit or double electronic control units for solenoid valve, etc.);
7. If users have special requirements, please contact the company;
8. The company reserves the right to change the technology of the samples for selection without prior notice.

After-sales Service

Our products all enjoy the "three guarantees" service. If you are in need of technical consultation in the order, selection, inspection and use or the troubleshooting, please contact our Sales Service Department, we will solve problems and meet your needs as soon as possible.