Worlds Valve

CE 0038 ISO9000 WRAS APPROVED PRODUCT ACS

TIANJIN WORLDS VALVE CO.,LTD.

天津沃得斯阀门有限公司

Worlds Valve

Tianjin Worlds Valve Co.,Ltd.

CE 0038 ISO9000

TIANJIN WORLDS VALVE LTD. is located at TIAN JIN BIN HAI where is only 3 kilometers away from Tianjin Xingang Port,TIANJIN WORLDS VALVE LTD. is a specialized manufacture enterprise that focuses producing, installing, sale and service. The main products include Center Line Butterfly Valve, Flanged Butterfly Valve, Metal Butterfly Valve, Check Valve, Gate Valve, Waterpower Control Valve, Microresistance Slow Close Check Valve, Multi-function Pump Control Valve and their series products. Moreover, we can produce control valve and pressure reducing valve that are different materials, pressures, specifications actuation ways. Our products include more than 50 serials and 1200 species, and the annual production output is more than 8.000 metric tons. WORLDS valves have been selling well a ll over China and exporting to Europe, America and other countries and areas, which are used widely in water supply and drainage, electric power, petrol chemical industry, metallurgy and other trades. Our products are quite creative, good quality, good price and excellent credit, so customers trust our products.

WORLDS has advanced technicians and engineers and has a lot of large and middle machines including 178 sets of manufacturing equipments and 32 sets of performance testing equipments importing from overseas. Our products have original design, exquisite technique, perfect manufacture and complete testing ways. It has passed ISO 9001 international quality system certification of DNV.WORLDS must supply best products and service for all customers.

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Certificates And Patents

WORLDS has advanced technicians and engineers and has a lot of large and middle machines including 178 sets of manufacturing equipments and 32 sets of performance testing equipments importing from overseas. Our products have original design, exquisite technique, perfect manufacture and complete testing ways. It has made special equipment license TS, ISO9001 quality system certification and the European Pressure Equipment CE certification, the American Petroleum Institute API certification and a series of international certification auth -ority, over the years, with its first class enterprise management and product quality consistent valve industry . in order to ensure product quality, the company's main production equipment and testing instruments all use well-known brand, all products are in strict accordance with international standards, whether it is production management, and quality assurance system are comprehensive use of international advanced mode.

Worlds Valve

Tianjin Worlds Valve Co.,Ltd.

CE 0038 ISO9000

Measuring And Packaging






Production System

The perfect process not only because of our advanced manufacturing technique equipment and complete tests but also for worlds multi department teams.

The technicians participance make our products be equipped with excellent quality and potential value during they being well manufactured



Normal Features

---Ductile Iron Body &Bonnet with high strength and impact restance
---Rubber Encapsulated DI wedge to ensure drop tight sealing.
---Rubber bonnet gasket for longevity and protection of bonnet bolts
---Stainless Steel Stem with high strength and corrosion resistance.
---Back sealing facility to allow for replacement of seals under full operating pressure.
---Straight through full bore to avoid debris traps.
---Isolated fasteners for corrosion protection.
---Wiper ring to prevent impurities from entering the stem sealing system.
---Anti friction thrust washer for low operating torques. Integral cast in foot for safe and easy storage.
---Full diameter waterway Hand wheel, square cap operation.

Application

Resilient Seated Gate Valves are general service valves that can be made in a broad spectrum of sizes using a variety of materials. Resilient Seated Gate Valves are suitable for use in drinking water and waste water, which can be installed under or above ground. Rising stem gate valves are normally used in fire service application and socket resilient gate valves are normally used in PVC pipelines.Gate valves are primarily used to turn on or shut the flow as opposed to regulating flow and are characterized by a traveling wedge, which is moved with the operation of the stem nut. The wedge travels perpendicular to the direction of the flow. Gate valves usually have a minimum pressure drop when fully opened, provide tight shut-off when fully closed, and remain relatively free of contamination build up.

The turns for full open/close

SIZE(mm)	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	DN600
The Turns For FullOpen/Close	10	12.5	16.5	20	25	25	30	40	42	50	58	67	75	83	100

Valve torque

SIZE(mm)	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300	DN350	DN400	DN450	DN500	DN600
Torque (PN1.0Mpa /PN1.6Mpa)	60	75	75	100	125	150	200	250	300	325	350	425	525	800

Parameter

Size: DN40 –600 Working pressure：10Bar-16Bar

General Design： AWWA C 509/ BS5163/ DIN3352 /BS EN 1171 /MSS SP-70 API 600 / API 6D

Face To Face : ASME/ANSI B16.10 /AWWA C509 /BS5163 /DIN 3202 F4/ F5

Flange End : ASME/ANSI B 16.5 & B16.47/ ASME B16.42 /AWWA C207 ISO7005 /DIN28533/ DIN EN1092/ DIN2501/ JIS B 2220

Pressure Rating : ASME/ANSI B16.34

Fire Safe Design : API 6FA

Inspection & Test :API 598 / API 6D/ISO5208

Valve parts design

Body Oval bore design to ensure good compression and deformation resist performance . Body surface coated to ensure good ageing resistance & weather resisting property.

Disc : Solid and Flexible Wedge

Stem: Gate valves are characterized as having either a rising or a non-rising stem. Rising stems provide a visual in dication of valve position. Non-rising stems are used where vertical space is limited or underground.Embedded type

seat, safety and integrated

Bonnet：Screw-in bonnets are the simplest design, offering a durable, pressure-tight seal. Union bonnets are suitable for applications requiring frequent inspection and cleaning. They also give the body added strength. Bolted bonnets are used for larger valves and higher pressure applications.

Back Seat：All gate valves have a back seating design. . When the gate valve is at fully open position, the sealing of the back seat is very reliable.

Gasket： Compound Graphite gasket,good performance and long service life

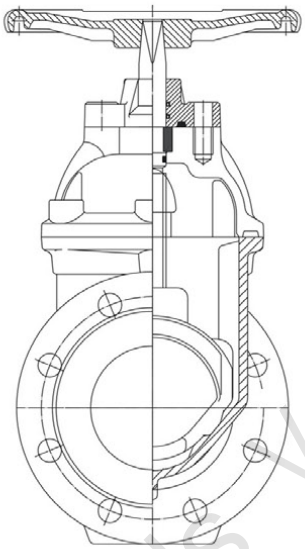
Bolt, Nut, Half Ring ： Stem is oriented by half ring and double bolt&nut to ensure the disc on-off freely.

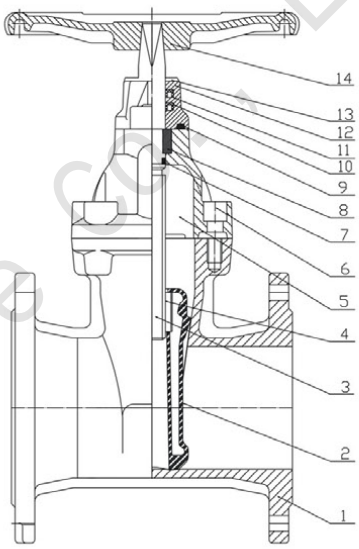
Handwheel：Handwheel with tapered square hole, easy to install and fasten.

Packing ：Soft graphite, long service life,easy to sealing and maintain

Stem Nut：Usually, the stem nut is made of copper alloy or ASTM A439 D2. For large sized gate valves (NPS 10 for Class 150, NPS 8 for Class 300, NPS 6 for Class 600, NPS 5 for Class 900), a roller bearing is fitted under side of the stem nut in order to minimize the opening and closing torque of the gate valve.

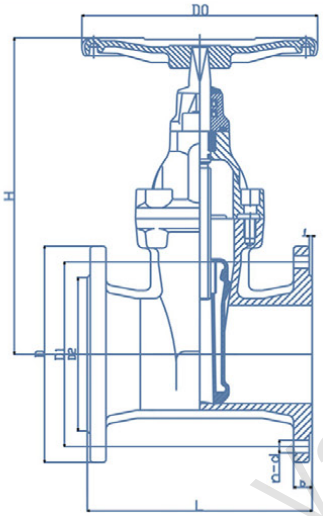
Main Spare Part Material Quality



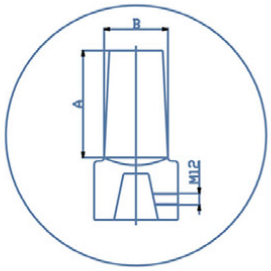


ITEM NO	DESCRIPTION	MATERIAL		SPECIFICATION
1	Body	Ductile Iron	GGG50	ASTM A536
2	Wedge	GGG50 +NBR	Ductile Iron +NBR	ASTM A536 +NBR
		GGG50 +EPDM	Ductile Iron +EPDM	ASTM A536 +NBR
3	Stem	Stainless Steel	2Cr13/Cr13/20Cr13	SS420/SS410/SS416
4	Wedge Nu	Brass	Brass	ASTM B16
5	Bonnet	Ductile Iron	GGG50	ASTM A536
6	Bolt			
7	“O” Ring	EPDM /NBR	EPDM /NBR	EPDM /NBR
8	Stem Collar	Brass	Brass	ASTM B16
9	Bonnet Gasket	EPDM /NBR	EPDM /NBR	EPDM /NBR
10	“V” Ring	EPDM /NBR	EPDM /NBR	EPDM /NBR
11	“V” Ring	EPDM /NBR	EPDM /NBR	EPDM /NBR
12	Top Cap	Ductile Iron	GGG50	ASTM A536
13	Dust Shield	EPDM /NBR	EPDM /NBR	EPDM /NBR
14	HandWheel	Ductile Iron	GGG50	ASTM A536

Design & Pressure



BASIC DESIGN STANDARDS	
Basic Design	DIN 3352
Face to Face	DIN 3202-F4
Flanges	DIN EN 1092-2 PN 10/16
Testing	DIN 3230



DN	A	B
50	63	35
65	63	35
80	63	35
100	63	35
125	63	35
150	63	35
200	63	35
250	63	35
300	63	35
350	75	48
400	75	48
450	75	48
500	75	48
600	75	48

PRESSURE TEST TO DIN 3230			
DN	Pressure Rating (PN)	Hydro-Test Pressure(Mpa)	
		Body	Seat
40-600	PN10	1.5	1.1
40-600	PN16	2.4	1.76

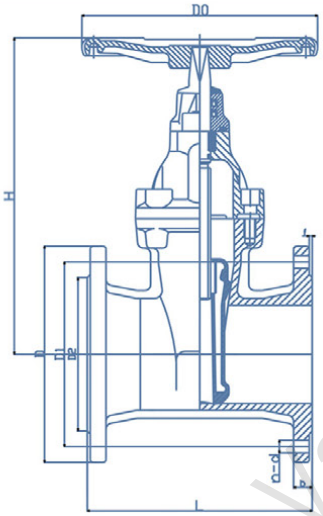
Outline Dimensions &Weight (PN10)

SIZE (mm)	L	DO	H	D	D1	D2	n-d	f	b	Weight Handwheel	Weight Wrench Nut
40	140	160	220	150	110	84	4-19	3	19	10	10
50	150	160	220	165	125	99	4-19	3	19	10	10
65	170	180	235	185	145	118	4-19	3	19	12.3	12.4
80	180	200	280	200	160	132	8-19	3	19	16	16
100	190	200	320	220	180	156	8-19	3	19	19.5	19.7
125	200	250	360	250	210	184	8-19	3	19	27.5	26.5
150	210	250	400	285	240	211	8-23	3	19	33	32
200	230	322	510	340	295	266	8-23	3	20	54	51.5
250	250	353	600	395	350	319	12-23	3	22	86	81
300	270	353	675	445	400	370	12-23	4	24.5	120	115
350	290	460	820	505	460	429	16-23	4	24.5	158	151.5
400	310	460	890	565	515	480	16-28	4	24.5	223	216.5
450	330	530	1080	615	565	530	20-28	4	25.5	276	266.5
500	350	530	1220	670	620	582	20-28	4	26.5	430	421.7
600	390	625	1340	780	725	682	20-31	5	30	575	562.7

Outline Dimensions &Weight (PN16)

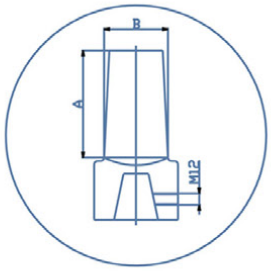
SIZE (mm)	L	DO	H	D	D1	D2	n-d	f	b	Weight Handwheel	Weight Wrench Nut
40	140	160	220	150	110	84	4-19	3	19	10	10
50	150	160	220	165	125	99	4-19	3	19	10	10
65	170	180	235	185	145	118	4-19	3	19	12.3	12.4
80	180	200	280	200	160	132	8-19	3	19	16	16
100	190	200	320	220	180	156	8-19	3	19	19.5	19.7
125	200	250	360	250	210	184	8-19	3	19	27.5	26.5
150	210	250	400	285	240	211	8-23	3	19	33	32
200	230	322	510	340	295	266	12-23	3	20	54	51.5
250	250	353	600	405	355	319	12-28	3	22	86	81
300	270	353	675	460	410	370	12-28	4	24.5	120	115
350	290	460	820	520	470	429	16-28	4	26.5	158	151.5
400	310	460	890	580	525	480	16-31	4	28	223	216.5
450	330	530	1080	640	585	548	20-31	4	30	276	266.5
500	350	530	1220	715	650	609	20-34	4	31.5	430	421.7
600	390	625	1340	840	770	720	20-37	5	36	575	562.7

Design & Pressure



BASIC DESIGN STANDARDS	
Basic Design	DIN 3352
Face to Face	DIN 3202-F5
Flanges	DIN EN1092-2 PN 10/16
Testing	DIN 3230

PRESSURE TEST TO DIN 3230			
DN	Pressure Roting (PN)	Hydro-Test Pressure(Mpa)	
		Body	Seat
40-600	PN10	1.5	1.1
40-600	PN16	2.4	1.76



DN	A	B
50	63	35
65	63	35
80	63	35
100	63	35
125	63	35
150	63	35
200	63	35
250	63	35
300	63	35
350	75	48
400	75	48
450	75	48
500	75	48
600	75	48

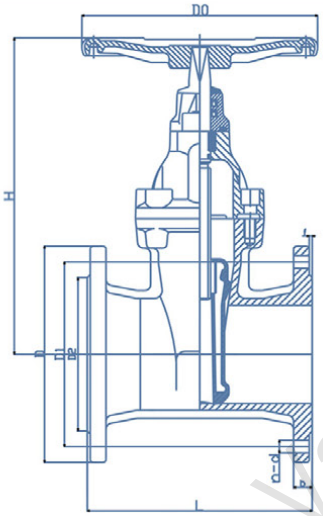
Outline Dimensions &Weight (PN10)

SIZE (mm)	L	DO	H	D	D1	D2	n-d	f	b	Weight	
										Handwheel	Wrench Nut
40	240	160	220	150	110	84	4-19	3	19	11	11
50	250	160	220	165	125	99	4-19	3	19	11	11
65	270	180	235	185	145	118	4-19	3	19	14	14.2
80	280	200	280	200	160	132	8-19	3	19	17.8	18
100	300	200	320	220	180	156	8-19	3	19	23.2	23.5
125	325	250	360	250	210	184	8-19	3	19	31	31
150	350	250	400	285	240	211	8-23	3	19	40	40
200	400	322	510	340	295	266	8-23	3	20	64	61.5
250	450	353	600	395	350	319	12-23	3	22	93	87.8
300	500	353	675	445	400	370	12-23	4	24.5	130	124.85
350	550	460	820	505	460	429	16-23	4	24.5	165	158.5
400	600	460	890	565	515	480	16-28	4	24.5	247	240.5
450	650	530	1080	615	565	530	20-28	4	25.5	300	290.5
500	700	530	1220	670	620	582	20-28	4	26.5	480	471.7
600	800	625	1340	780	725	682	20-31	5	30	662	649.7

Outline Dimensions &Weight (PN16)

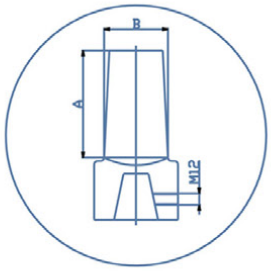
SIZE (mm)	L	DO	H	D	D1	D2	n-d	f	b	Weight	
										Handwheel	Wrench Nut
40	240	160	220	150	110	84	4-19	3	19	11	11
50	250	160	220	165	125	99	4-19	3	19	11	11
65	270	180	235	185	145	118	4-19	3	19	14	14.2
80	280	200	280	200	160	132	8-19	3	19	17.8	18
100	300	200	320	220	180	156	8-19	3	19	23.2	23.5
125	325	250	360	250	210	184	8-19	3	19	31	31
150	350	250	400	285	240	211	8-23	3	19	40	40
200	400	322	510	340	295	266	12-23	3	20	64	61.5
250	450	353	600	405	355	319	12-28	3	22	93	87.8
300	500	353	675	460	410	370	12-28	4	24.5	130	124.85
350	550	460	820	520	470	429	16-28	4	26.5	165	158.5
400	600	460	890	580	525	480	16-31	4	28	247	240.5
450	650	530	1080	640	585	548	20-31	4	30	300	290.5
500	700	530	1220	715	650	609	20-34	4	31.5	480	471.7
600	800	625	1340	840	770	720	20-37	5	36	662	649.7

Design & Pressure



BASIC DESIGN STANDARDS	
Basic Design	BS5163
Face to Face	BS5163
Flanges	BS4504 PN 10/16
Testing	EN 12266-1

PRESSURE TEST TO EN 12266-1			
DN	Pressure Rating (PN)	Hydro-Test Pressure/Mpa	
		Body	Seat
40-600	PN10	1.5	1.1
40-600	PN16	2.4	1.76



DN	A	B
50	63	35
65	63	35
80	63	35
100	63	35
125	63	35
150	63	35
200	63	35
250	63	35
300	63	35
350	75	48
400	75	48
450	75	48
500	75	48
600	75	48

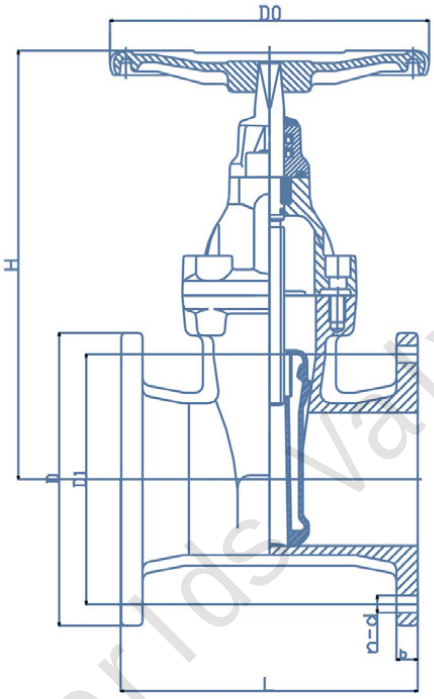
Outline Dimensions &Weight (PN10)

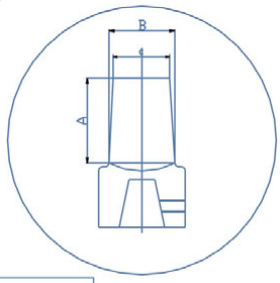
SIZE (mm)	L	DO	H	D	D1	D2	n-d	f	b	Weight	
										Handwheel	Wrench Nut
40	165	160	220	150	110	84	4-19	3	19	10	10
50	178	160	220	165	125	99	4-19	3	19	10.5	10.3
65	190	180	235	185	145	118	4-19	3	19	12.5	12.3
80	203	200	280	200	160	132	8-19	3	19	16	15.9
100	229	200	320	220	180	156	8-19	3	19	21	20.9
125	254	250	360	250	210	184	8-19	3	19	29	27.75
150	267	250	400	285	240	211	8-23	3	19	35	33.75
200	292	322	510	340	295	266	8-23	3	20	57	54.4
250	330	353	600	395	350	319	12-23	3	22	92	86.9
300	356	353	675	445	400	370	12-23	4	24.5	129	123.9
350	381	460	820	505	460	429	16-23	4	24.5	180	173.6
400	406	460	890	565	515	480	16-28	4	24.5	240	233.6
450	432	530	1080	615	565	530	20-28	4	25.5	320	312.7
500	457	530	1220	670	620	582	20-28	4	26.5	470	462.7
600	508	625	1340	780	725	682	20-31	5	30	640	628.6

Outline Dimensions &Weight (PN16)

SIZE (mm)	L	DO	H	D	D1	D2	n-d	f	b	Weight	
										Handwheel	Wrench Nut
40	165	160	220	150	110	84	4-19	3	19	10	10
50	178	160	220	165	125	99	4-19	3	19	10.5	10.3
65	190	180	235	185	145	118	4-19	3	19	12.5	12.3
80	203	200	280	200	160	132	8-19	3	19	16	15.9
100	229	200	320	220	180	156	8-19	3	19	21	20.9
125	254	250	360	250	210	184	8-19	3	19	29	27.75
150	267	250	400	285	240	211	8-23	3	19	35	33.75
200	292	322	510	340	295	266	12-23	3	20	57	54.4
250	330	353	600	405	355	319	12-28	3	22	92	86.9
300	356	353	675	460	410	370	12-28	4	24.5	129	123.9
350	381	460	820	520	470	429	16-28	4	26.5	180	173.6
400	406	460	890	580	525	480	16-31	4	28	240	233.6
450	432	530	1080	640	585	548	20-31	4	30	320	312.7
500	457	530	1220	715	650	609	20-34	4	31.5	470	462.7
600	508	625	1340	840	770	720	20-37	5	36	640	628.6

Design & Pressure





DN	A	B	C
50	44.5	50.8	49.2
65	44.5	50.8	49.2
80	44.5	50.8	49.2
100	44.5	50.8	49.2
125	44.5	50.8	49.2
150	44.5	50.8	49.2
200	44.5	50.8	49.2
250	44.5	50.8	49.2
300	44.5	50.8	49.2
350	44.5	50.8	49.2
400	44.5	50.8	49.2
450	44.5	50.8	49.2
500	44.5	50.8	49.2
600	44.5	50.8	49.2

BASIC DESIGN STANDARDS	
Basic Design	AWWA C509
Face to Face	AWWA C509/ANSI B16.10
Flanges	ASME B 16.1 125LB
Testing	API 598

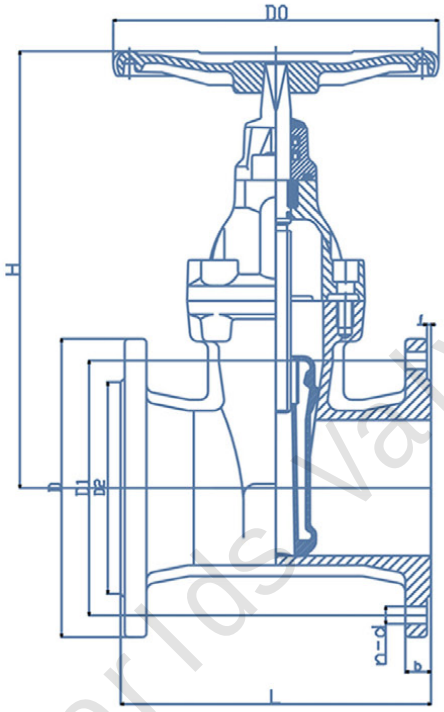
PRESSURE TEST TO API 598

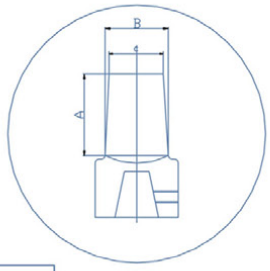
DN	Pressure Rating (Class)	Hydro-Test Pressure/Mpal	
		Body	Seat
40-600	125	1.5	1.1

Outline Dimensions &Weight (125LB)

SIZE (mm)	L	DO	H	D	D1	n-d	b	Weight Handwheel	Weight Wrench Nut
40	165	160	220	127	98.4	4-19	14	10	10
50	178	160	220	152.4	120.7	4-19	15	10.5	10.3
65	190	180	235	177.8	139.7	4-19	17	12.5	12.3
80	203	200	280	190.5	152.4	4-19	19	16	15.9
100	229	200	320	228.6	190.5	8-19	23	21	20.9
125	254	250	360	254	215.9	8-22	23	29	27.75
150	267	250	400	279.4	241.3	8-22	25	35	33.75
200	292	322	510	342.9	298.5	8-22	28	57	54.4
250	330	353	600	406.4	362.0	12-25	30	92	86.9
300	356	353	675	482	431.8	12-25	31	129	123.9
350	381	460	820	533.4	476.3	12-28	35	180	173.6
400	406	460	890	596.9	539.8	16-28	36.5	240	233.6
450	432	530	1080	635	577.9	16-32	39	320	312.7
500	457	530	1220	698.5	635.0	20-32	42	470	462.7
600	508	625	1340	812.8	749.3	20-35	47	640	628.6

Design & Pressure





DN	A	B	C
50	44.5	50.8	49.2
65	44.5	50.8	49.2
80	44.5	50.8	49.2
100	44.5	50.8	49.2
125	44.5	50.8	49.2
150	44.5	50.8	49.2
200	44.5	50.8	49.2
250	44.5	50.8	49.2
300	44.5	50.8	49.2
350	44.5	50.8	49.2
400	44.5	50.8	49.2
450	44.5	50.8	49.2
500	44.5	50.8	49.2
600	44.5	50.8	49.2

BASIC DESIGN STANDARDS	
Basic Design	AWWA C509
Face to Face	AWWA C509/ANSI B16.10
Flanges	ASME B 16.5 150LB
Testing	API 598

PRESSURE TEST TO API 598

DN	Pressure Rating (Class)	Hydro-Test Pressure/Mpa	
		Body	Seat
40-600	150	2.4	1.76

Outline Dimensions &Weight (150LB)

SIZE (mm)	L	DO	H	D	D1	D2	n-d	f	b	Weight Handwheel	Wrench Nut
40	165	160	220	125	98.4	73	4-16	2	17	10	10
50	178	160	220	150	120.7	92	4-19	2	19	10.5	10.3
65	190	180	235	180	139.7	104	4-19	2	22	12.5	12.3
80	203	200	280	190	152.4	127	4-19	2	23	16	15.9
100	229	200	320	230	190.5	157	8-19	2	23	21	20.9
125	254	250	360	255	215.9	185	8-22	2	24	29	27.75
150	267	250	400	280	241.3	216	8-22	2	25	35	33.75
200	292	322	510	345	298.5	269	8-22	2	28	57	54.4
250	330	353	600	405	362.0	323	12-25	2	30	92	86.9
300	356	353	675	485	431.8	381	12-25	2	31	129	123.9
350	381	460	820	535	476.3	412	12-28	2	35	180	173.6
400	406	460	890	595	539.8	470	16-28	2	36	240	233.6
450	432	530	1080	635	577.9	533	16-32	2	39	320	312.7
500	457	530	1220	700	635.0	584	20-32	2	42	470	462.7
600	508	625	1340	815	749.3	692	20-35	2	47	640	628.6

Installation

1 The valve should be checked to ensure it is suitable for the service conditions e.g. pres sure, temperature and service media.

2 Remove all packing/protection material from the valve. Before installation examine the pipeline for impurities and foreign matter, removing and cleaning if necessary.

3 The valves may be installed in horizontal pipework with the stem in the vertical position, or in vertical pipework with the stem horizontal. The valves should not be installed in horizon tal pipework with the stem horizontal because shut off performance may be impaired.

4 Consideration should be given to access for operation and maintenance. Valves installed outside will need protection against the direct effects of extreme weather conditions.

5 Suitable flange gaskets should be used during installation of the valve. The distance be tween the pipe flanges should exceed the face to face dimension of the valve by at least 20mm. This will ensure that raised faces are not damaged and gaskets can be inserted.

6 In accordance with good engineering practice mating flanges must be parallel and concen tric. Bolt tightening must be even and diagonal to prevent distortion.

Operation & Maintenance

1.Valves should be stored in a dry room, neatly stacked, not allowed to be stored outside to prevent damage and corrosion.

2.If the valve is stored for a long period of time, it should be inspected regularly and coated with anti-rust oil on the processing surface.

3.Regularly check the condition of the valve and related pipe lines. Valves should be cleaned regularly.

4.The valve may start to leak in winter or cold areas, which is not a quality problem, and will return to normal when it is used.

Technical appendix - flow data

Definitions / formulas:

Kv-value: Actual flow of water (m^2/hr) creating pressure loss of 1 bar.

Pressure loss coefficient Zeta (K)value:

Ratio of static and dynamic pressure loss.

Pressure loss coefficient,

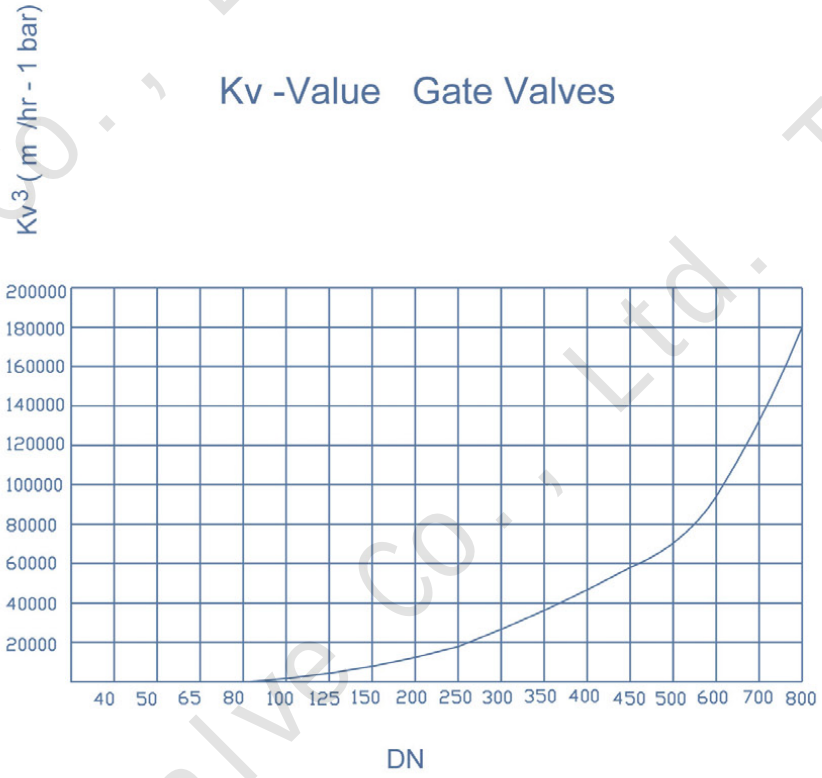
Zeta (K-value) = Diff pressure /(500 X V^2)

Diff pressure (Pa)

V: Water flow velocity (m/sec)

Actual diff pressure (bar) = $(Q / Kv)^2$

Q: Actual water flow (m^3/hr)



Zeta values:

DN 40-125:	0.06
DN 150-250:	0.04
DN 300-800:	0.02

Hydraulic values, fully open valve

	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
Kv (m^3/hr-1bar)	310	555	650	1050	1945	2770	5715	7755
Cv(Usg/min-1psi)	363	649	761	1229	2276	3241	6687	9073
Zeta	0.04	0.03	0.07	0.06	0.04	0.05	0.02	0.04

	DN250	DN300	DN350	DN400	DN450	DN500	DN600	DN700	DN800
Kv (m^3/hr-1bar)	15405	27295	37150	48520	61410	75815	109175	148600	194090
Cv(Usg/min-1psi)	18024	31935	43466	56768	71850	88704	127735	173862	227085
Zeta	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02

Calculated flow (m^3/hr) going through a nominal valve size at different flow velocities

Q m^3/h

Flow velocity (m/sec)	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
1.0	4.5	7.1	11.9	18.1	28.3	44.2	63.6	113.1
1.5	6.8	10.6	17.9	27.1	42.4	66.3	95.4	169.6
2.0	9.0	14.1	23.9	36.2	56.5	88.4	127.2	226.2
2.5	11.3	17.7	29.9	45.2	70.7	110.4	159	282.7
3.0	13.6	21.2	35.8	54.3	84.8	132.5	190.9	339.3
3.5	15.8	24.7	41.8	63.3	99	154.6	222.7	395.8
4.0	18.1	28.3	47.8	72.4	113.1	176.7	254.5	452.4
4.5	20.4	31.8	53.8	81.4	127.2	198.8	286.3	508.9
5.0	22.6	35.3	59.7	90.5	141.4	220.9	318.1	565.5

Q m^3/h

Flow velocity (m/sec)	DN250	DN300	DN350	DN400	DN450	DN500	DN600	DN700	DN800
1.0	176.7	254.5	346.4	452.4	572.6	706.9	1017.9	6267.6	12791
1.5	265.1	381.7	519.5	678.6	858.8	1060.3	1526.8	9401.4	19186.5
2.0	353.4	508.9	692.7	904.8	1145.1	1413.7	2035.8	12535.2	25582
2.5	441.8	636.2	865.9	1131	1431.4	1767.1	2544.7	15669	31977.5
3.0	530.1	763.4	1039.1	1357.2	1717.7	2120.6	3053.6	18802.8	38373
3.5	618.5	890.6	1212.3	1583.4	2003.9	2474	3562.6	21936.6	44768.5
4.0	706.9	1017.9	1385.4	1809.6	2290.2	2827.4	4071.5	25070.4	51164
4.5	795.2	1145.1	1558.6	2035.8	2576.5	3180.9	4580.4	28204.2	57559.5
5.0	883.6	1272.3	1731.8	2261.9	2862.8	3534.3	5089.4	31338	63955

Kv values, valve in different position.

Kv

Opening%	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200
10%	20	15	22	36	64	122	135	293
20%	41	40	53	96	159	238	273	549
30%	63	60	83	148	247	366	461	850
40%	86	85	129	219	359	530	688	1244
50%	118	133	204	351	549	741	1024	1729
75%	240	314	431	722	1094	1527	2335	4033
100%	291	520	606	984	1819	2588	5339	7246

Kv

Opening%	DN250	DN300	DN350	DN400	DN450	DN500	DN600	DN700	DN800
10%	383	498	678	886	1121	1384	1994	2713	3544
20%	773	1103	1502	1962	2483	3065	4413	6007	7846
30%	1247	1722	2344	3061	3874	4783	6888	9375	12245
40%	1869	2523	3433	4485	5676	7007	10090	13734	17938
50%	2731	3424	4660	6086	7703	9510	13694	18639	24345
75%	5325	7082	9640	12591	15935	19673	28329	38559	50363
100%	14395	25508	34719	45348	57393	70856	102032	138877	181390

Tianjin Worlds Valve Co.,Ltd.

天津沃得斯阀门有限公司

International Sales Department:

QQ:596019673

Face Book: Fan Diego

Tel:0086-22-28522277

Skype:Diegofan3

Domestic Sales Department:

QQ:915085812

Fax: 0086-22-28522288

Website : www.worldsvalve.com

Linkedin: TianJin Worlds Valve Co., Ltd

Email: worlds@worldsvalve.com

sales@worldsvalve.com

Address: NO.25 Fuhui Road,Beizhakou Industrial Park,

Jinnan District,Tianjin-China