

N V F® NINGBO VALVE FACTORY

Ball Valve



Since Professional We Can Do Better

COMPANY PROFILE

Found in 1959, NVF is a China-leading manufacturer of industrial valves, we have three specialized manufacturing plants in Wenzhou with more than 50000 square meters. With more than 50 years manufacturing experience and professional technical support, we are able to provide high quality industrial valves, including gate valve, globe valve, check valve, ball valve, butterfly valve, casting steel valve and forging steel valves with cost-effective and reliable service for the customers. Our products have been exported to more than 30 countries, including USA, Europe, Asia, Middle East, South America, South Africa etc., and have gained a good reputation in these markets.

The products are widely applied in petroleum, chemical industry, natural gas, electric power, metallurgy, pharmacy, pulp & paper, urban construction and long transportation pipeline projects. Our products are sold well worldwide include America, Europe, Southeast Asia, Middle East and Africa etc. Certificated with ISO9001, API6D, CE/ PED.

We has established the technical research, development center and quality inspection center with a relatively sound management system. In addition, it has introduced advanced manufacturing technology from abroad, and has advanced machining centers, CNC machine tools, metal cutting and processing equipment, physical and chemical testing equipment, nondestructive tester, spectrum analyzer, valve comprehensive performance tester and other equipment to ensure the products reach the purpose of zero leakage.

We insist on the concept of "Quality first, Prestige important", a well-trained and dedicated team including engineers, technicians and other employees, This allows us to offer customers quality product, competitive price and prompt delivery time.

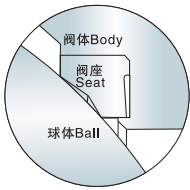
We always work hard to improve our existing products and pursue new ideas and ways to stay ahead of the every changing market. With our professional and experience hope can enlarge your market and obtain a new brilliance in the future.

APPLICATIONS

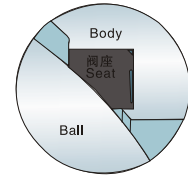
The valve are used in a broad spectrum of market sectors, including refining, chemical processing, power generation, marine, pulp and paper, petroleum production, and gas processing.

Applications include process liquids, process gases, flue gas, cryogenics, steam, condensate, petroleum products, thermal fluid, and water.





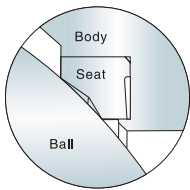
At lower medium pressure



At higher medium pressure

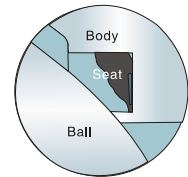
Construction and features of floating ball valve Application

Floating ball valves are suitable for use on various kinds of pipelines of Class 150 to Class 1500, Pn 16 to Pn100, and JIS 10K TO JIS 20K to turn on or off the pipeline medium, of which the operation types include manual, worm gear and pneumatic or electric actuators.



Before fire

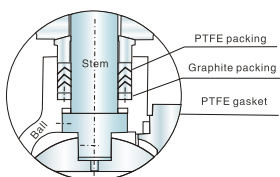
Fire safe design of seat



After fire

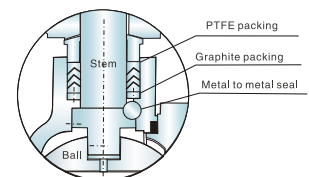
Reliable seat seal

The structure design of elastic sealing ring has been adopted for floating ball valves. This seat design features a bigger sealing pressure ratio between the ring surface and the ball when medium pressure gets lower, where the contacting area is smaller. Thus, the reliable seal is ensured. When the medium pressure gets higher, the contacting area between seat ring and ball becomes bigger as the sealing ring transforms elastically to undertake the bigger force pushed by the medium without any damage.



Before fire

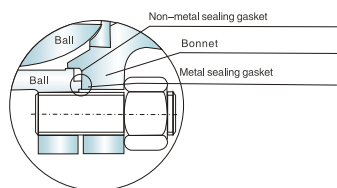
Fire safe design of stem



After fire

Fire safe design

With the valve heated in a fire application, the nonmetal material parts such as seat sealing ring of PTFE, stem back seat gasket, gland packing, and the sealing gasket between body and bonnet might disintegrate or be damaged due to high temperature. OK-valve specially designed structure of auxiliary metal to metal seal is provided to effectively prevent both internal and external leakage of the valve. As required by Customers, OKvalve floating ball valves with design can meet the requirement of API 607, API 6FA, BS 6755 and JB/T 6899.

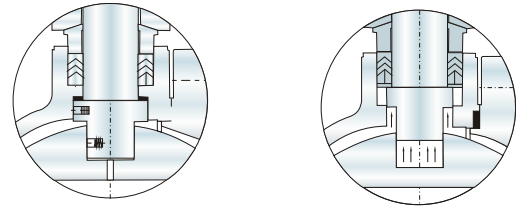


Fire safe design of valve body and bonnet flanges

Reliable stem seal

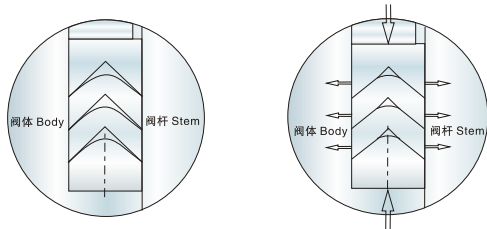
The blow-out proof design has been adopted for the stem to ensure that even if the pressure in the body cavity is risen accidentally and the packing flange becomes invalid, the stem may not be blown out by medium. The stem features the design with a backseat, being assembled from underneath. The sealing force against the backseat gets higher as the medium pressure becomes higher. So the reliable seal of the stem can be assured under variable medium pressure.

V type packing structure has been employed to effectively transform the pushing force of the gland flange and the medium pressure into the sealing force against the stem.



Stem assembled from underneath may not be blown out by medium

Stem assembled from underneath may not be blown out

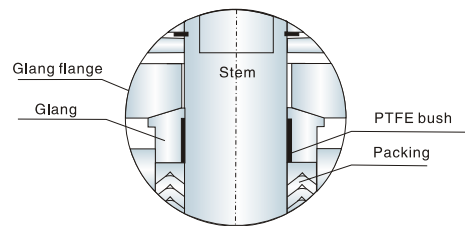


Packing before pressed

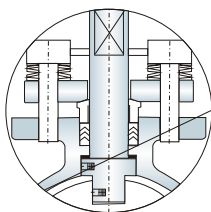
Packing after pressed

Based on customers' requirement, a packing tightening design may be employed to obtain more reliable stem packing seal, which is loaded by bevelling spring.

The traditional packing flange design has been improved to be of two piece structure, i.e., being as a gland flange and gland, the latter contacts the gland flange with spherical surface. Thus, the gland remains vertical always, and is lined internally with a PTFE bush to prevent the galling against and friction between the stem which can also reduce the operation torque of th valve.



Stem galling prevented in application

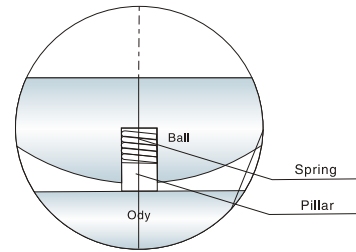


Anti-static feature

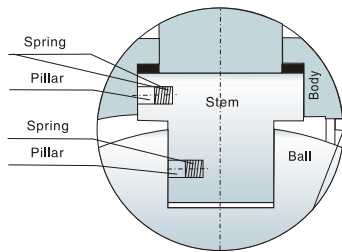
The traditional packing flange design has been improved to be of two piece structure, i.e., being as a packing flange plate and a follower, the latter contacts the flange plate with spherical surface. Thus, the follower remains vertical always, and is lined internally with a PTFE bush to prevent the galling against and friction between the stem, which can also reduce the operation torque of the valve.

Wrong operation prevention

To prevent the ball valve from wrong operation, the key lock with 90° of open and close positioning pad has been provided, which can be lock able as required. At the stem head, where the lever fixes, a flat is so designed that the valve opens with the lever in parallel to piping, and with the lever right-angled to the piping, the valve is closed. So, it ensured that the valve indicator of open and close can never make mistake.

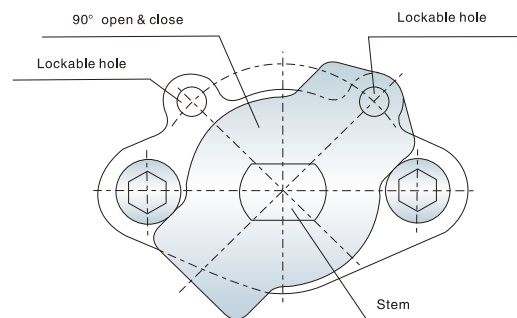
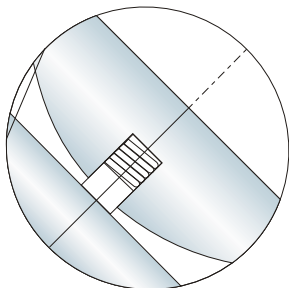


Anti-Static design for ball valve $\leq 25\text{mm}$
 $\text{DN} \leq 25$

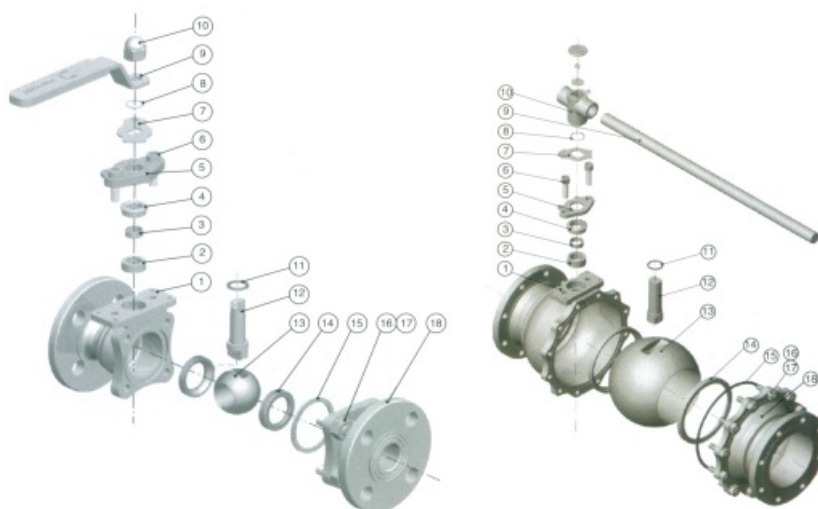


Anti-Static design for ball valve $\geq 32\text{mm}$
 $\text{DN} \geq 32$

Mounting pad provided



Okvalve company has provided for floating ball valve with a mounting pad, through which it is easy to fix the actuators, such as worm gear, pneumatic and electric actuators.



Administer Standard

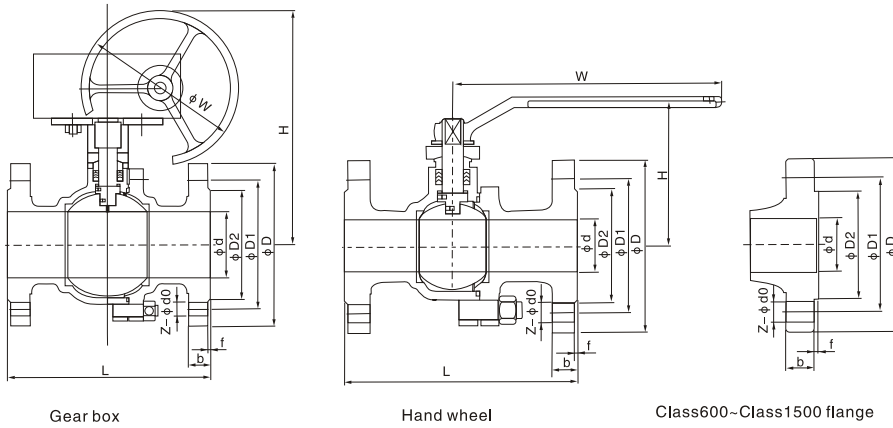
Ball valve type	Design And Manufacture	Face to face	Flange Dimension	Pressure– Temperature Lating	Inspection And Test
Float Ball Valve	API 608	ANSI B 16.10	ANSI B 16.5	ANSI B 16.34	API 598
Fixed Ball Valve	API 6D	API 6D			API 6D

Pressure Test

Nominal Pressore	Shell Test		Waster Seal Test		Air Seal Test	
	Mpa	Lbf/in ²	Mpa	Lbf/in ²	Mpa	Lbf/in ²
150	3.0	430	2.2	315	0.4–0.7	60–100
300	7.7	1110	5.7	815		
600	15.3	2220	11.3	1630		

Main Part Materials and Property

Body	WCB	CF8	CF8M	CF3	CF3M
Ball	2Cr13	304	316	304L	316L
Stem	2Cr13	304	316	304L	316L
Sest				PTFE	Stainless Steel / PTFE PPL
Gasket		PTFE	Stainless Steel/Graphite	PPL	
Stem Seat		PTFE	Stainless Steel/Graphite	PPL	
Packing		PTFE	Enhanced Flexible Graphite		
Gland	WCB	304	316	304L	316L
Temperature	≤ 150				
Medium	Water oil steam Nitric acid Acetic acid				

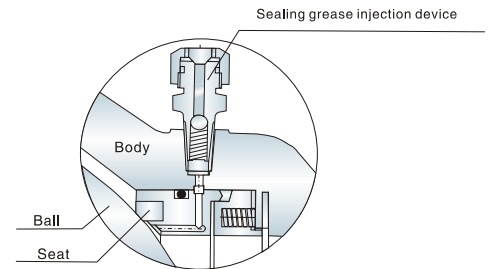


Pressure stage	Size 口径		Dimensions (mm)								Weight (kg)	
	DN	NPS	L		D	W		H		Hand wheel	Gear box	
			RF	RTJ		Hand wheel	Gear box	Hand wheel	Gear box			
Class 150 PN20	15	1/2	108	119	14	140	-	85	-	3	-	
	20	3/4	117	130	19	140	-	90	-	4	-	
	25	1	127	140	25	150	-	99	-	5	-	
	32	1 1/4	140	153	32	180	-	105	-	7	-	
	40	1 1/2	165	178	38	200	-	126	-	8	-	
	50	2	178	191	51	250	-	140	-	12	-	
	65	2 1/2	190	203	64	300	-	165	-	18	-	
	80	3	203	216	76	350	-	178	-	24	-	
	100	4	229	242	102	500	305	230	380	38	53	
	125	5	356	369	127	800	305	280	405	60	79	
Class 300 PN20	15	1/2	140	151	14	140	140	85	85	3	-	
	20	3/4	152	165	19	140	140	90	90	5	-	
	25	1	165	178	25	150	150	99	99	6	-	
	32	1 1/4	178	191	32	180	180	105	105	8	-	
	40	1 1/2	190	203	38	200	200	126	126	11	-	
	50	2	216	232	51	250	250	142	142	16	-	
	65	2 1/2	241	257	64	300	300	165	165	24	-	
	80	3	283	299	76	350	350	178	178	34	52	
	100	4	305	321	102	500	500	230	230	56	76	
	125	5	381	397	127	800	800	280	280	86	124	
Class 600 PN110	15	1/2	165	164	14	140	-	79	-	5	-	
	20	3/4	190	190	19	140	-	83	-	7	-	
	25	1	216	216	25	200	-	114	-	9	-	
	32	1 1/4	229	229	32	200	-	120	-	13	-	
	40	1 1/2	241	241	38	250	-	125	-	17	-	
	50	2	292	295	51	300	-	156	-	25	-	
	65	2 1/2	330	333	64	350	-	172	-	42	-	
	80	3	356	359	76	500	305	220	370	56	76	
Class 900 PN150	15	1/2	15	216	14	150	-	98	-	7	-	
	20	3/4	20	229	20	150	-	105	-	13	-	
	25	1	25	254	25	200	-	110	-	16	-	
	32	1 1/4	32	279	32	250	-	120	-	24	-	
	40	1 1/2	40	305	38	250	-	125	-	31	-	
Class 1500 PN260	15	1/2	216	216	14	182	-	98	-	10	-	
	20	3/4	229	229	20	200	-	105	-	14	-	
	25	1	254	254	25	250	-	110	-	17	-	
	32	1 1/4	279	279	32	300	-	120	-	25	-	
	40	1 1/2	305	305	38	350	-	130	-	33	-	

Design features of trunnion ball valve

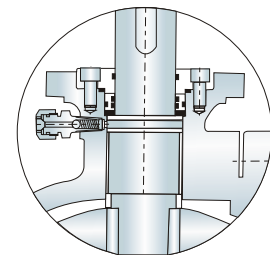
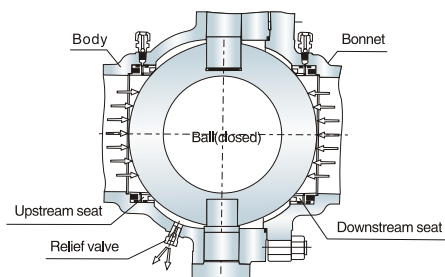
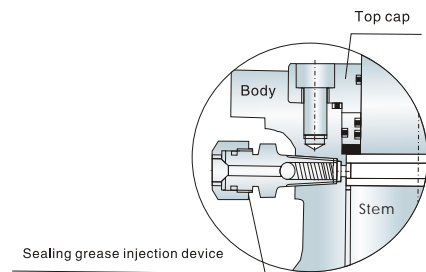
Urgent grease injection device

According to customers' requirement the trunnion ball valves made by Okvalve company are provided with devices for urgent grease injection, which are on both the stem and seat for the trunnion ball valves of DN>150mm(NPS6), and in the body cavity for the valve of DN>125mm. When the O ring of stem or the body seat ring is damaged due to accident, the medium leakage between body and stem can be prevented by injecting the sealing grease through the device.



Double-block and bleed functions

In general, OK-valve trunnion ball valve features the front ball sealing design structure. Each seat of the ball valve can separately cut of the medium at both inlet and outlet of the valve to realize double-block functions. When the ball valve is closed, body cavity and two of the body ends can be blocked with each other even if both the inlet and out let are under pressure, when the medium left in the body cavity might be bled through the relief valve.

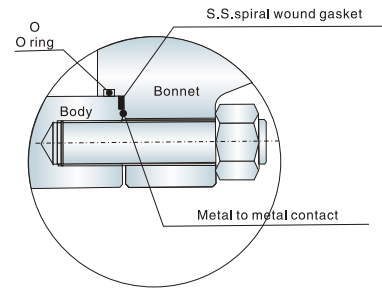


Blow-out proof stem

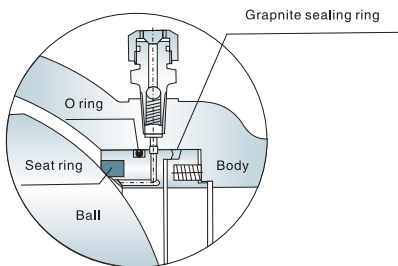
Blow-out proof structure is provided with for the stem, which is positioned by the up-end cap and screw, being guaranteed not to be blown-out by the medium even if at abnormal risen pressure in the cavity.

Fire safe design

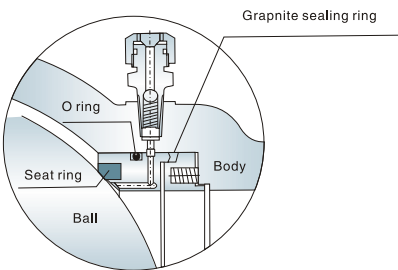
With the valve heated in a fire application ,the nonmetal material Parts such as seat sealing ring of PTFE, O ring for the stem, and sealing gasket for body and bonnet, might be damaged due to high temperature. OKvalve's special design of auxiliary metal to metal or the graphite seal is provided for the trunnion ball valve to effectively prevent both internal and external leakage of the valve As required by customers, Okvalve fire safe design for the trunnion ball valve meets the requirement of API607,API6Fa. Bs6755 and JB/T 6899.



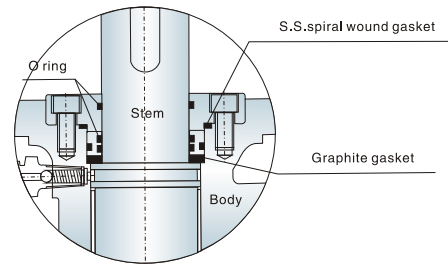
Fire safe design of valve body and bonnet flanges



Before fire



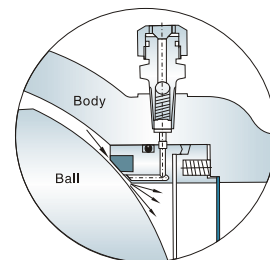
After fire
Fire safe design of seat



Fire safe design of stem

Self-relief in the body cavity

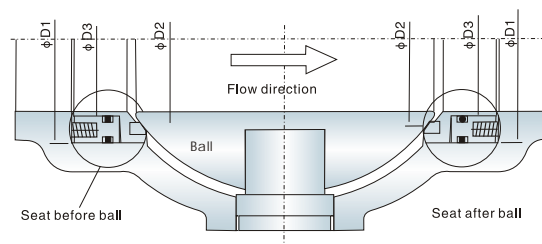
As the liquid medium left in the body cavity gasifies due to increased temperature, then pressure in the body cavity becomes abnormally higher, when the medium itself in the cavity would propel the seat and self-relieves the pressure to ensure the safety of valve.



The Bi-sealing design structure, i.e. Seat sealing in front of the ball and seat sealing behind the ball

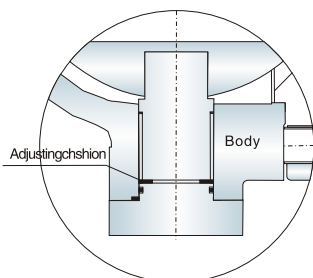
According to some special working conditions and customers' requirement, OK valve has provided the trunnion ball valve with the Bi-sealing design structure, i.e. seat sealing in front of the ball and seat sealing behind the ball, thus the reliable sealing of the valve is ensured because the valve can perform normally even if one of the effective sealing designs becomes lost due to the abnormal condition.

Regarding the seat in front of the ball, the piston effect formed by the area difference between $D1$ and $D2$, plus the pre-tightened force of a spring would cause the seat in front of the ball by the pressure difference of the medium before and after the valve to touch the ball closely to form the tightness, of which the sealing force will become bigger as the pressure difference gets higher. Regarding the seat after the ball, the piston effect formed by the area difference between $D2$ and $D3$, plus the pre-tightened force of a spring would cause the seat behind the ball to touch the ball closely to form the tightness, of which the sealing force will become bigger as the pressure difference gets higher.



Anti-static design

The ball of the trunnion ball valve gets close contact with each other through the trunnion, adjusting cushion, and down-end cap, the passage of static electricity thus forms together with the valve, which may lead the static electricity caused by sparks generated by friction between the ball and seat during on and off performance to the ground to possible risk of fire or explosion.

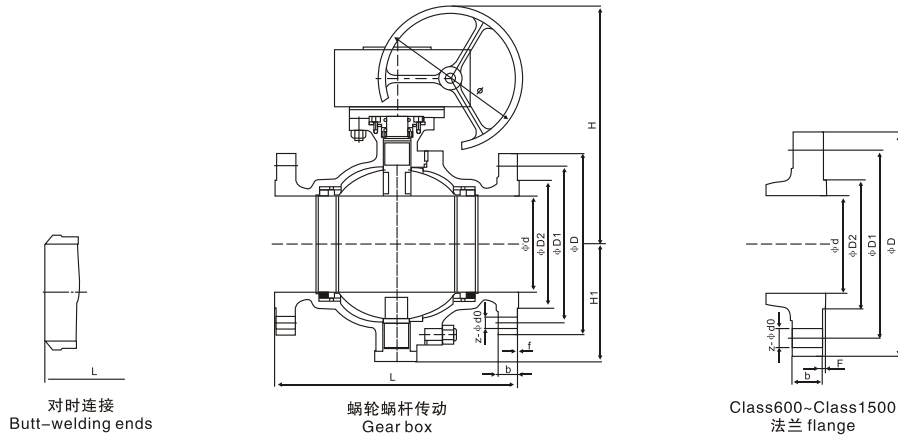


Mounting pad provided

OK valve has provided for trunnion ball valve with a mounting pad for fixing the actuators, such as worm gear, pneumatic, electric, hydraulic, and pneumatic & hydraulic actuators.



Main size and weight



Pressure stage	Size		Dimensions (mm)						Weight (kg)
	DN	NPS	L		d	H	H1	W	
			RF	BW					
Class150 PN20	100	4	229	305	102	330	135	300	60
	125	5	356	381	127	360	165	300	80
	150	6	394	457	152	392	193	300	101
	200	8	457	521	203	492	240	300	166
	250	10	533	229	254	548	293	300	283
	300	12	610	635	305	688	340	400	463
	350	14	686	762	337	722	372	400	622
	400	16	762	838	387	722	415	400	900
	450	18	864	914	438	804	462	500	1150
	500	20	914	991	489	952	511	600	1360
	600	24	1067	1143	591	1154	601	750	2514
	650	26	1143	1245	633	1300	700	750	3200
	700	28	1245	1346	684	1550	780	750	4000
	750	30	1295	1397	735	1650	830	750	4800
	800	32	1372	1524	779	1740	870	750	5800
900	36	1524	1737	874	1950	970	750	8000	
Class300 PN50	100	4	3058	305	102	340	140	300	70
	125	5	381	381	127	370	170	300	95
	150	6	403	457	152	402	192	300	128
	200	8	502	521	203	498	246	300	234
	250	10	568	229	254	655	303	400	403
	300	12	648	635	305	658	348	400	602
	350	14	762	762	337	686	378	400	803
	400	16	838	838	387	880	429	600	1273
	450	18	914	914	438	1050	518	750	1450
	500	20	991	991	489	1110	540	750	1700
	600	24	1143	1143	591	1400	650	750	3100
	650	26	1245	1245	633	1500	750	750	4500
	700	28	1346	1346	684	1600	800	750	6000
	750	30	1397	1397	735	1720	860	750	7500
	800	32	1524	1524	779	1800	900	750	9000
900	36	1727	1727	874	2200	1020	600	12000	

Pressure stage	Size		Dimensions (mm)						Weight (kg)
	DN	NPS	L		d	H	H1	W	
			RF	BW					
Class600 PN110	50	2	292	295	51	240	94	300	32
	65	2 ¹ / ₂	330	333	64	290	115	300	47
	80	3	356	359	76	340	136	300	68
	100	4	432	435	102	358	152	300	106
	125	5	508	511	127	400	180	300	170
	150	6	559	562	152	445	209	400	241
	200	8	660	664	203	498	263	400	444
	250	10	787	791	254	653	312	400	668
	300	12	838	841	305	665	354	500	1050
	350	14	889	892	334	738	389	600	1317
	400	16	991	994	385	920	440	750	1800
	450	18	1092	1095	436	1100	530	750	2400
	500	20	1194	1200	487	1200	560	750	3000
	600	24	1397	1407	538	1480	570	750	5400
Class900 PN150	50	2	368	371	51	250	98	300	45
	65	2 ¹ / ₂	419	422	64	300	120	300	55
	80	3	381	384	76	345	140	300	94
	100	4	457	460	102	415	162	300	141
	125	5	559	562	127	446	188	300	230
	150	6	610	613	152	477	213	400	325
	200	8	737	740	203	520	270	400	580
	250	10	838	841	254	628	322	400	850
	300	12	965	968	305	680	360	500	1330
	350	14	1029	1038	322	750	400	600	1660
	400	16	1130	1140	373	940	460	750	2280
Class1500 PN260	40	1 ¹ / ₂	305	305	38	280	100	300	44
	50	2	368	371	51	320	113	300	67
	65	2 ¹ / ₂	419	422	64	340	125	300	80
	80	3	470	473	76	385	138	300	130
	100	4	546	549	102	415	171	300	192
	125	5	673	676	125	480	200	400	335
	150	6	705	711	144	580	222	400	475
	200	8	832	841	192	584	280	400	850
	250	10	991	1000	239	650	340	500	1320
	300	12	1130	1146	287	700	370	600	2050
Class2500 PN420	40	1 ¹ / ₂	384	387	38	290	105	300	72
	50	2	451	454	42	320	120	300	104
	65	2 ¹ / ₂	508	514	52	350	130	300	140
	80	3	578	584	62	400	150	300	202
	100	4	673	683	87	425	180	400	305
	125	5	794	807	100	500	210	400	530
	150	6	914	927	131	590	230	500	760
	200	8	1022	1038	179	610	290	500	1200
	250	10	1270	1292	223	660	350	600	2080

Note: The chart above only lists out some common composition of steel gate valve parts. We may provide other different parts material composition according to the customer's request or the actual valve working condition.