

CRYOGENIC VALVES

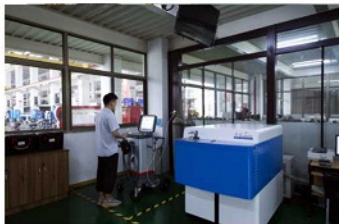


Quality Determines Survival

On the basis of strictly implementing ISO9001 Quality Management System, BTL also passed CE European Union Safety Certification in 2002. It passed American Petroleum Institute API-6D certification in 2003. It passed ISO14001 Environmental System Certification and ISO45001 Occupational Health and Safety Certification as well as National Pressure Vessel Safety Registration (TS) Certification in 2003, all of which pro-

vide Passport for the company to enter international market. BTL not only makes full Use of domestic scientific research resources, but also employs first class technical talents from abroad. Through continuous improvement and development, it has formed complete quality control system, which provides reliable quality guarantee for "BTL manufacturing". From spare parts inspection, on-site inspection to

complete machine inspection, BTL implements quality control in every chain in inspection instruments, strictly controls The production. The BTL quality control center, equipped with first class inspection instruments, strictly controls every product to consistently carry out the "Fine Product" strategy.



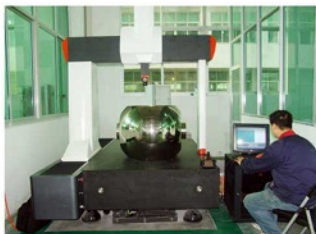
Spectrograph



tensile test machine



ultrasonic test device



metallographic analyzer

Cryogenic valve overview



Cryogenic valve overview

media temperature: -40℃ to -196℃

Cryogenic valves include Cryogenic ball, gate, globe, check, butterfly and so on. They are used for ethylene, LNG facility, LPG storage tank, air facility, Petroleum and chemical tail gas separation equipment, Low temperature storage tank and tank lorry of LOX, LN, liquid argon or carbon dioxide, VPSA facility and so on. Outputted low temperature liquid media, such as ethylene, LOX, LH, LNG, Liquid petroleum products and so on, is flammable, combustible and will gasify & inflate easily if temperature rises. LNG valves' material is very important. If the material is unqualified, there would be leakage from shell or sealing. If its parts couldn't reach enough Comprehensive mechanical properties, strength or rigidity, it would even cause explosion of leaked LGN, because of the parts broken. So the material is the key point in the processing of LNG valves' development, design or manufacturing. After so many years of manufacturing, we have already accumulated a lot of experience in design and manufacturing series of cryogenic valves.

Cryogenic valves specs.

pressure: 150Lb, 300Lb, 600Lb, 900Lb, 1500Lb, 2500Lb.

size: 15~1200 mm (1/2~48") .

connection end: RF, BW, NPT.

material: low carbon steel, stainless steel.

temperature: -40℃, -101℃, -196℃.

operation: handwheel, gearbox, electronic, pneumatic etc..

Cryogenic valves manufacturing

There's a strict manufacturing process and quality control of parts processing. And we use professional equipments to manufacture.

In order to ensure the valve no leakage in cryogenic media under severe temperature changes, we low-temperature treat it, put the rough machining parts in cooling medium for hours(about 2-6 hours) to release stress to guarantee the material's property in cryogenic media, and make an accurate finishing size. The assembly is also different from normal ones'. Its Parts' greasy dirt need to be carefully cleaned to ensure its using performance

Cryogenic valve testing equipment:

1. Cryogenic valve test device
2. Liquid nitrogen storage device
3. Low temperature treatment tank
4. Low temperature test rig to make sure the valve's performance good under low temperature
5. others

Cryogenic valves inspection & test:

In order to make sure valves are not brittle and can withstand cryogenic media's impact, we low-temperature treat the main components of the cryogenic valves and impulse test samples of each batch.

Tests as following:

1. Shell Test
2. low pressure upper seal test
3. low pressure seal test
4. low temperature upper air seal test (when needed)
5. low temperature air seal test to ensure the valve is qualified per standards
6. In order to make sure valves are not brittle and can withstand cryogenic media's impact, we low-temperature treat the main components of the cryogenic valves and impulse test samples of each batch.
7. Cryogenic valves are low-temperature treated and impulse tested according to the relevant material standards.
8. Antistatic function is more powerful. Resistance between body & stem or trim & body is less than 1 Ω



Metal Sealing Cryogenic butterfly valve



Structure Characteristics

■ online maintenance

Repair or replace the seat & disc seal ring without disassembling valves from pipeline.

■ body

Integrated cast structure, has good rigidity and no leakage characteristics.

The characteristics of leakage

■ Valves' key parts are through the finite element analysis and design.
safe and reliable.

■ Disc position indicator

is a reliable disc location signage of open or close.

■ stem

The external strength of stem is lower than that of internal strength, which ensures stem internal connection safe and reliable.

■ extended bonnet

More gasification space to avoid stem's packing been influenced by Cryogenic media.

■ stopper pin

Make sure rigid connection between yoke and valve body, reliable for transferring torque.

■ yoke

The overall rectangular bracket, better rigidity, more assembly space

■ stem anti-fly

Prevent valve stem from spray wounding under internal pressure.

■ anti-dust ring

To prevent granular media into the valve sleeve affecting operation

■ self-lubricating bushings

Reduce the rotational torque, supporting stem and its effective separation with the valve body, reducing the wear of the valve stem.

■ Disc pin

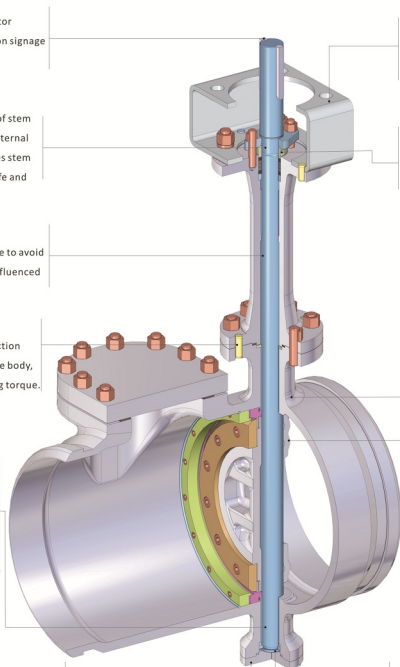
Close bonding of the plane area, reduce the local contact stresses between the pin and the stem, and to improve the reliability of the connection of the disc and stem.

■ bottom seal

Multiple-seal, ensure that the valve itself connection part no leakage.

■ axial positioning

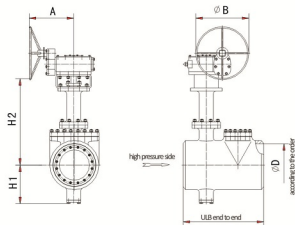
Axial reliable positioning, avoid the valves' trim playing along with the axial in the process of valve turn on and off.



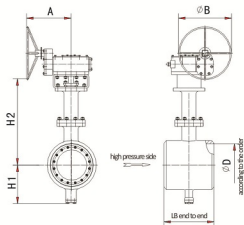
Metal Sealing Cryogenic butterfly valve



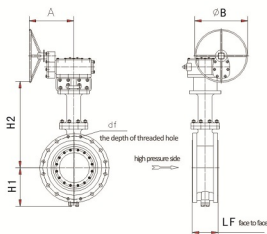
-196℃ Cryogenic butterfly valve's dimension



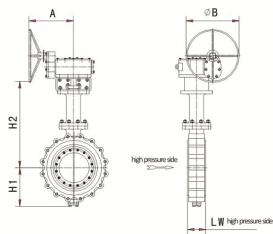
UBW



BW



DFS



LW

manufacture standards

1. Design std.API 609, MSS SP134etc.
2. face to face: RF & lug type per API 609, ISO 5752, . UBL type per factory's std.
3. RF & lug connection per standards accordingly
- 4 BW connection : ASME B16.25
- 5 inspection : API 598, MSS SP134
6. fire test : API 607
7. temperature : -196℃ ~+150℃

(*) If there are other standards or requirements for manufacturing valves, please contact us.

Main Material

No.	Name	Material
1	Body\bottom cover\cover\plate	304 316
2	Heightening tube \Yoke	304 316
3	Stem \Pin	INCONEL
4	Disc	304 316
5	seat sealing	STL, stellite
6	seal ring	304+graphite 316+graphite
7	gland flange	304 316
8	bearing	304/316+hard surface
9	fastener	B8/8 B8M/8M
10	Packing	Braided graphite+flexible graphite

Metal Sealing Cryogenic butterfly valve



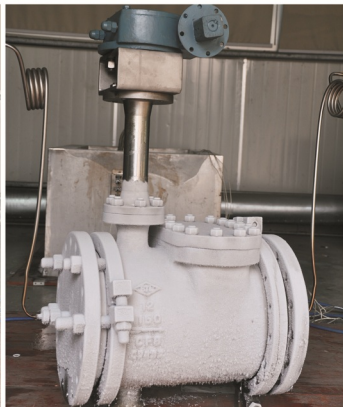
Class150										Weight (Kg)			
NPS	ULB	LB	LF	LW	H1	H2	A	B	df	UBW	BW	DFS	LW
4	380	190	127	54	130	520	162	200	-	27	20	30	25
6	400	210	140	57	155	600	162	200	-	37	25	42	34
8	420	230	152	64	190	680	230	350	-	65	49	58	55
10	450	250	165	71	225	780	360	600	-	95	71	105	85
12	500	270	178	81	265	820	402	600	-	140	104	145	116
14	550	290	190	92	290	900	402	600	-	195	144	180	145
16	600	310	216	102	325	980	520	600	-	245	180	250	205
18	650	330	222	114	355	1050	543	750	-	318	232	325	265
20	700	350	229	127	400	1100	543	750	-	350	272	385	305
24	750	390	267	154	455	1200	604	750	-	560	415	570	455
28	800	430	292	165	520	1350	642	750	35	790	605	925	675
30	800	450	318	190	555	1400	642	750	35	900	705	1080	765
32	850	470	318	190	580	1450	660	750	40	952	720	1280	900
36	900	510	330	203	650	1600	855	800	40	1215	930	1715	1200
40	950	550	410	216	710	1650	855	800	40	2015	1670	2310	1750
48	1000	630	470	254	820	1800	950	915	40	3070	2600	3500	2520

Class300										Weight (Kg)			
NPS	ULB	LB	LF	LW	H1	H2	A	B	df	UBW	BW	DFS	LW
4	420	190	127	54	145	550	162	200	25	42	32	37	30
6	450	210	140	59	180	680	230	350	25	80	60	68	55
8	500	230	152	73	210	720	402	600	30	133	101	96	76
10	550	250	165	83	245	850	520	600	30	195	146	166	135
12	600	270	178	92	290	880	520	600	35	243	175	210	175
14	650	290	190	117	325	980	543	750	35	356	262	296	245
16	700	310	216	133	365	1050	604	750	40	473	348	390	326
18	750	330	222	149	395	1150	604	750	40	570	410	465	380
20	800	350	229	159	425	1250	642	750	40	748	548	617	510
24	850	390	267	181	505	1300	660	750	45	1005	732	840	680
28	900	430	292	229	580	1450	855	800	50	1445	1125	1295	1035
30	900	450	318	241	620	4500	855	800	55	1793	1410	1615	1310
32	950	470	318	241	650	1550	855	800	55	2025	1570	1810	1450
36	1000	510	330	241	710	1680	900	915	60	2775	2210	2520	2060
40	1050	550	410	300	730	2100	1056	950	50	3740	3052	3460	2850
48	1100	630	470	350	830	2200	1056	950	55	4570	3745	4335	3460

Class600										Weight (kg)			
NPS	ULB	LB	LF	LW	H1	H2	A	B	df	UBW	BW	DFS	LW
6	550	210	210	78	230	700	402	600	30	125	100	114	91
8	600	230	230	102	255	800	520	600	35	223	175	202	165
10	650	250	250	117	315	900	543	750	35	383	283	325	263
12	700	270	270	140	345	1000	604	750	35	520	376	425	350
14	750	290	290	155	380	1050	604	750	40	628	433	497	400
16	800	310	310	178	420	1130	642	750	45	870	613	705	568
18	850	330	330	200	470	1230	660	750	50	1077	745	860	686
20	900	350	350	216	510	1320	754	800	50	1458	1040	1190	965
24	950	390	390	232	565	1380	855	800	55	2057	1475	1701	1362
28	1000	430	430	270	630	1600	900	915	60	3013	2236	2560	2074
30	1000	450	450	290	660	2000	1056	950	60	3710	2832	3200	2648
32	1050	470	470	310	695	2050	1056	950	70	4130	3075	3495	2868
36	1100	510	510	350	755	2200	1056	950	75	4880	3560	4100	3290

Metal Sealing Cryogenic butterfly valve

ISTL



Cryogenic ball valve

BTL

Advantages

■ Online maintenance: Repair or replace the seat seal ring without disassembling valves from pipeline.

■ body: Integrated cast structure, has good rigidity and no leakage characteristics.

■ Valves' key parts are through the finite element analysis and design, safe and reliable

■ Valves' parts are interchangeable

■ Ball position indicator: a reliable ball location signage of open or close.

■ Disc spring compensation device
Ensure the valve no leakage under severe temperature changes

■ stem
The external strength of stem is lower than that of internal strength, which ensures stem internal connection safe and reliable.

■ extended bonnet
More gasification space to avoid stem's packing been influenced by Cryogenic media.

■ plane bearing
Reduce the rotational torque, supporting stem and its effective separation with the valve bonnet, reducing the wear of the valve stem.

■ one-way valve
Automatic pressure release when overpressure in the cavity to avoid risk of low temperature medium vaporization

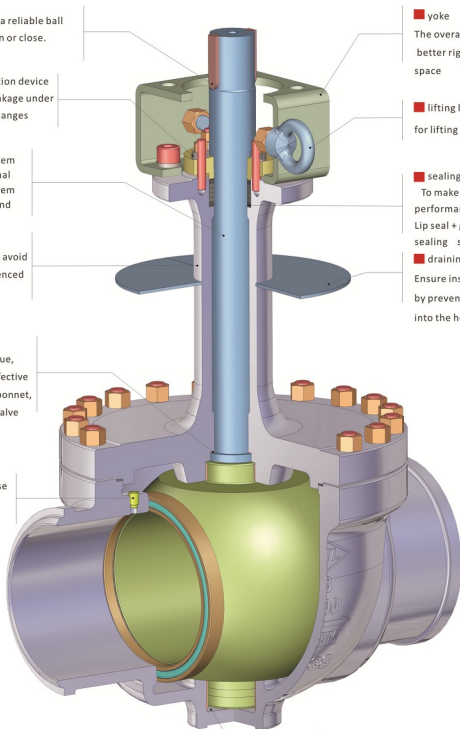
■ yoke
The overall rectangular bracket, better rigidity, more assembly space

■ lifting lug
for lifting transportation.

■ sealing packing
To make sure its reliable performance by using the Lip seal + graphite double sealing structure.

■ draining board
Ensure insulation function by preventing water entering into the heat preservation layer

■ self-lubricating bushings
Reduce the rotational torque, supporting ball and its effective separation with the valve body & bonnet, reducing the wear of the lever.



Cryogenic ball valve



Class 150				
NPS	A	B(*)	C	Weight (Kg)
6	394	680	245	115
8	457	950	340	225
10	533	1040	405	335
12	610	1060	405	450
14	686	1140	435	675
16	762	1280	435	995
18	864	1500	440	1710
20	914	1540	440	2025
24	1067	1750	520	3625

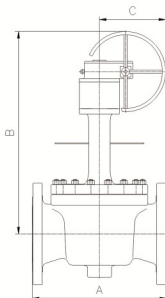
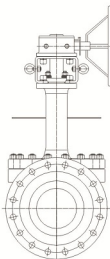
Class 300				
NPS	A	B(*)	C	Weight (Kg)
6	403	680	245	140
8	502	950	340	260
10	568	1040	405	415
12	648	1060	405	560
14	762	1140	435	815
16	838	1280	435	1125
18	914	1500	440	1920
20	991	1540	440	2270
24	1143	1750	520	4025

Class 600				
NPS	A	B(*)	C	Weight (Kg)
3	356	675	210	65
4	432	760	334	115
6	559	910	343	255
8	660	955	424	460
10	787	1020	384	690
12	838	1350	384	850
14	889	1450	384	1390
16	991	1500	384	1940
18	1092	1600	510	2880
20	1194	1750	510	3370
24	1397	1850	510	4500

Class 900				
NPS	A	B(*)	C	Weight (Kg)
3	381	675	254	90
4	457	860	380	185
6	610	940	380	350
8	737	1035	380	555
10	838	1300	510	760
12	965	1450	510	1540
14	1029	1550	510	1995
16	1130	1750	510	2610
18	1219	1850	510	3650
20	1321	1950	510	5500

Class 1500				
NPS	A	B(*)	C	Weight (Kg)
3	470	730	334	120
4	546	885	385	240
6	705	1040	406	455
8	832	1100	510	1100
10	991	1450	510	1410
12	1130	1650	510	1810
14	1257	1850	510	2500
16	1384	2150	510	3150

Class 2500				
NPS	A	B(*)	C	Weight (Kg)
11/2	384	670	300	90
2	451	740	400	115



Class 150 ~ 2500
reduced port
top-entry
flanged end
lever operator

body and bonnet
ASTM A351-CF8/CF8M
ASTM A351-CF3/CF3M
gasket: graphite
packing: graphite

valves according to
ASME B16.34
ASME B16.10
ASME B16.5

(*) If there are other standards or requirements for manufacturing valves, please contact us.

Cryogenic ball valve

BTL

Class 150				
NPS	A	B(*)	C	Weight (Kg)
4	229	800	245	105
6	394	950	340	235
8	457	1050	405	435
10	533	1150	425	680
12	610	1240	440	940
14	686	1280	440	1000
16	762	1500	435	1350
18	864	1540	435	2040
20	914	1650	520	3670
24	1067	1780	520	5300

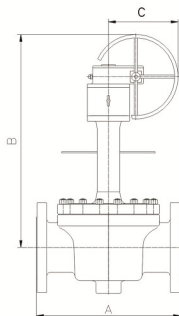
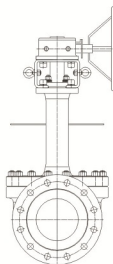
Class 300				
NPS	A	B(*)	C	Weight (Kg)
4	305	800	245	135
6	403	950	340	280
8	502	1050	405	505
10	568	1150	425	750
12	648	1240	440	1025
14	762	1280	440	1110
16	838	1500	435	1520
18	914	1540	435	2300
20	991	1650	520	4015

Class 600				
DN	A	B(*)	C	Weight (Kg)
3	356	675	215	75
4	432	760	335	155
6	559	910	343	320
8	660	955	424	565
10	787	1020	384	1020
12	838	1350	384	1460
14	889	1450	384	2120
16	991	1500	384	2450
18	1092	1600	510	3200
20	1194	1750	520	4310

Class 900				
NPS	A	B(*)	C	Weight (Kg)
3	381	675	254	120
4	457	860	380	210
6	610	940	380	405
8	737	1035	380	840
10	838	1300	510	1250
12	965	1450	510	1855
14	1029	1550	510	2450
16	1130	1750	510	3810
18	1219	1850	510	4900
20	1321	1950	520	6010

Class 1500				
NPS	A	B(*)	C	Weight (Kg)
3	470	730	334	155
4	546	875	381	310
6	705	1040	406	525
8	832	1100	510	1355
10	991	1450	510	1900
12	1130	1650	510	2525
14	1257	1850	510	3500
16	1384	2150	510	5500

Class 2500				
DN	A	B(*)	C	Weight (Kg)
11/2	384	670	300	90
2	451	740	400	115



Class 150 ~ 2500

full port

top-entry

flanged end

lever operator

body and bonnet

ASTM A351-CF8/CF8M

ASTM A351-CF3/CF3M

gasket: graphite

packing: graphite

valves according to

ASME B16.34

ASME B16.10

ASME B16.5

(*)If there are other standards or requirements for manufacturing valves, please contact us.

Cryogenic ball valve



Class 150				
NPS	A	B(*)	C	Weight (Kg)
6	457	680	245	95
8	521	950	340	190
10	559	1040	405	300
12	635	1060	405	405
14	762	1140	435	630
16	838	1280	435	940
18	914	1500	440	1610
20	991	1540	440	1870
24	1143	1750	520	3555

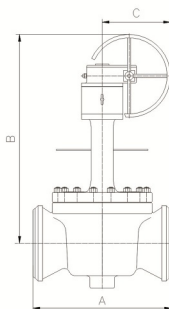
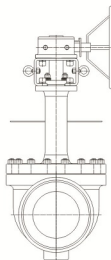
Class 300				
NPS	A	B(*)	C	Weight (Kg)
6	457	680	245	105
8	521	950	340	220
10	559	1040	405	450
12	635	1060	405	470
14	762	1140	435	690
16	838	1280	435	930
18	914	1500	440	1675
20	991	1540	440	2010
24	1143	1750	520	3600

Class 600				
NPS	A	B(*)	C	Weight (Kg)
3	356	675	215	50
4	432	760	334	80
6	559	910	343	200
8	660	955	424	350
10	787	1020	384	500
12	838	1350	384	670
14	889	1450	384	1120
16	991	1500	384	1650
18	1092	1600	510	2590
20	1194	1750	510	2850
24	1397	1850	510	4100

Class 900				
NPS	A	B(*)	C	Weight (Kg)
3	381	675	254	65
4	457	860	380	145
6	610	940	380	270
8	737	1035	380	425
10	838	1300	510	650
12	965	1450	510	1275
14	1029	1550	510	1700
16	1130	1750	510	2975
18	1219	1850	510	3000
20	1321	1950	510	4015

Class 1500				
NPS	A	B(*)	C	Weight (Kg)
3	470	730	334	90
4	546	885	385	170
6	705	1040	406	435
8	832	1100	510	930
10	991	1450	510	1175
12	1130	1650	510	1600
14	1257	1850	510	2100
16	1384	2150	510	2810

Class 2500				
NPS	A	B(*)	C	Weight (Kg)
11/2	384	670	300	70
2	451	740	400	95



Class 150 ~ 2500
reduced port
top-entry
BW end
lever operator

body and bonnet
ASTM A351-CF8/CF8M
ASTM A351-CF3/CF3M
gasket : graphite
packing: graphite

valves according to
ASME B16.34
ASME B16.10
ASME B16.5

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Cryogenic ball valve

BTL

Class 150				
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4	305	800	245	100
6	457	950	340	220
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14	762	1280	440	920
16	838	1500	435	1240
18	914	1540	435	1870
20	991	1650	520	3475
24	1143	1780	520	4990

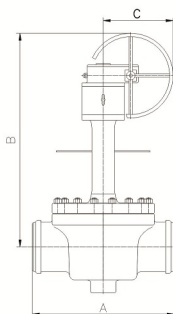
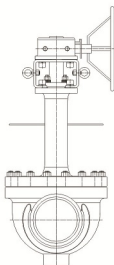
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NPS	A	B(*)	C	Weight (Kg)
4	305	800	245	105
6	457	950	340	225
8	521	1050	405	435
10	559	1150	425	660
12	635	1240	440	950
14	762	1280	440	950
16	838	1500	435	1275
18	914	1540	435	1995
20	991	1650	520	3670

Class 600				
NPS	A	B(*)	C	Weight (Kg)
3	356	675	215	58
4	432	760	335	120
6	559	910	343	260
8	660	955	424	475
10	787	1020	384	890
12	838	1350	384	1300
14	889	1450	384	1850
16	991	1500	384	2110
18	1092	1600	510	2890
20	1194	1750	520	3970

Class 900				
NPS	A	B(*)	C	Weight (Kg)
3	381	675	254	95
4	457	860	380	165
6	610	940	380	325
8	737	1035	380	740
10	838	1300	510	1055
12	965	1450	510	1670
14	1029	1550	510	2190
16	1130	1750	510	3240
18	1219	1850	510	4350
20	1321	1950	520	5400

Class 1500				
NPS	A	B(*)	C	Weight (Kg)
3	470	730	334	120
4	546	875	381	230
6	705	1040	406	430
8	832	1100	510	1120
10	991	1450	510	1510
12	1130	1650	510	1920
14	1257	1850	510	2950
16	1384	2150	510	4915

Class 2500				
NPS	A	B(*)	C	Weight (Kg)
11/2	384	670	300	70
2	451	740	400	95



Class 150 ~ 2500

full port

top-entry

BW end

lever operator

body and bonnet

ASTM A351-CF8/CF8M

ASTM A351-CF3/CF3M

gasket: graphite

packing: graphite

阀门符合

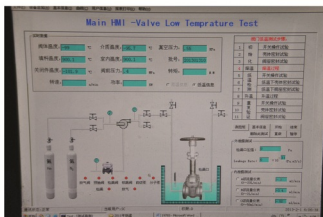
ASME B16.34

ASME B16.10

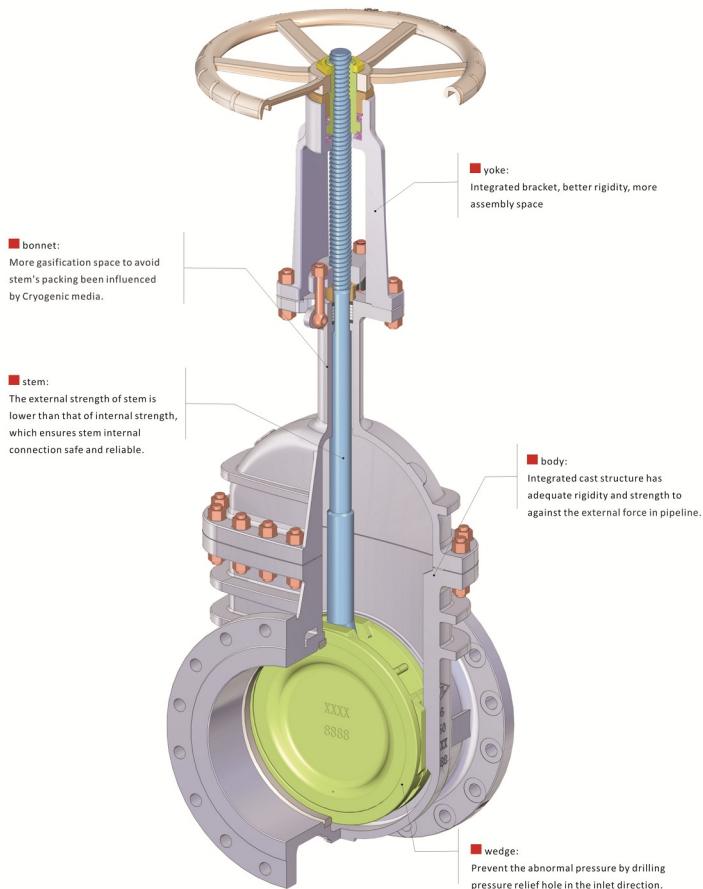
ASME B16.5

(*)If there are other standards or requirements for manufacturing valves, please contact us.

Cryogenic ball valve



Cryogenic flexible gate valve



Cryogenic flexible gate valve

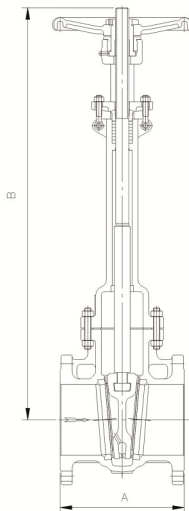


Class 150			
NPS	A	B(*)	Weight (Kg)
2	203	467	20
2 1/2	216	501	28
3	241	518	34
4	292	565	53
5	356	575	68
6	406	631	91
8	495	756	147
10	622	805	225
12	698	918	355
14	787	1013	430
16	914	944	520
18	978	1003	630
20	978	1116	800
24	1295	1285	1000

Class 300			
NPS	A	B(*)	Weight (Kg)
2	267	477	25
2 1/2	292	505	38
3	318	529	50
4	356	569	75
5	400	614	100
6	444	697	142
8	559	762	230
10	622	1026	425
12	711	1023	505
14	762	1090	610
16	864	1169	850
18	978	1106	965
20	1016	1256	1080
24	1346	1405	1200

Class 600			
NPS	A	B(*)	Weight (Kg)
2	292	495	32
2 1/2	330	525	45
3	356	556	60
4	432	615	102
5	508	945	250
6	559	1060	360
8	660	1010	490
10	787	965	620
12	838	1400	850
14	889	1040	950
16	991	1200	1100

Class 900			
NPS	A	B(*)	Weight (Kg)
2	371	480	65
2 1/2	422	590	100
3	384	680	160
4	460	800	240
6	613	880	530
8	740	990	750
10	841	1150	930
12	968	1350	1150
14	1039	1560	1400
16	1140	1750	1700



manufacture Standards

1. Design std.: API 600, BS6364
2. Face to Face: ASME B16.10
3. welded end connection.: ASME B16.25
4. flanged end connection: ASME B16.5
5. Inspection and test: API 598, BS6364

(*) If there are other standards or requirements for manufacturing valves, please contact us.

Class 1500			
NPS	A	B(*)	Weight (Kg)
2	371	610	80
2 1/2	422	640	130
3	473	850	210
4	549	660	320
6	711	1050	650
8	842	1170	830
10	1001	1300	1000
12	1146	1500	1300
14	1276	1650	1600

Cryogenic globe valve



■ stem

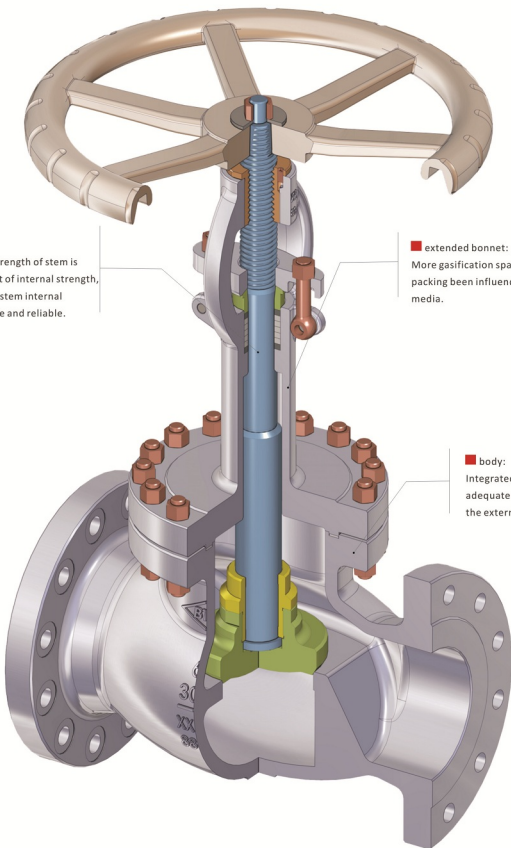
The external strength of stem is lower than that of internal strength, which ensures stem internal connection safe and reliable.

■ extended bonnet:

More gasification space to avoid stem's packing been influenced by Cryogenic media.

■ body:

Integrated cast structure has adequate strength to against the external force in pipeline.



Cryogenic globe valve

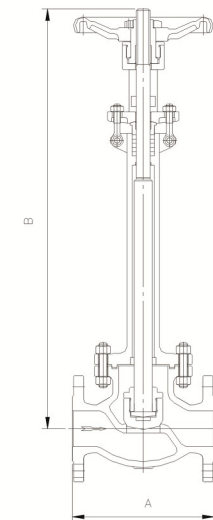


Class 150			
NPS	A	B(*)	Weight (Kg)
2	203	467	20
2 1/2	216	501	28
3	241	518	34
4	292	565	53
5	356	575	68
6	406	631	91
8	495	756	147
10	622	805	225
12	698	918	355
14	787	1013	430
16	914	944	520
18	978	1003	630
20	978	1116	800
24	1295	1285	1000

Class 300			
NPS	A	B(*)	Weight (Kg)
2	267	477	25
2 1/2	292	505	38
3	318	529	50
4	356	569	75
5	400	614	100
6	444	697	142
8	559	762	230
10	622	1026	425
12	711	1023	505
14	762	1090	610
16	864	1169	850
18	978	1106	965
20	1016	1256	1080
24	1346	1405	1200

Class 600			
NPS	A	B(*)	Weight (Kg)
2	292	495	32
2 1/2	330	525	45
3	356	556	60
4	432	615	102
5	508	945	250
6	559	1060	360
8	660	1010	490
10	787	965	620
12	838	1400	850
14	889	1040	950
16	991	1200	1100

Class 900			
NPS	A	B(*)	Weight (Kg)
2	371	480	65
2 1/2	422	590	100
3	384	680	160
4	460	800	240
6	613	880	530
8	740	990	750
10	841	1150	930
12	968	1350	1150
14	1039	1560	1400
16	1140	1750	1700



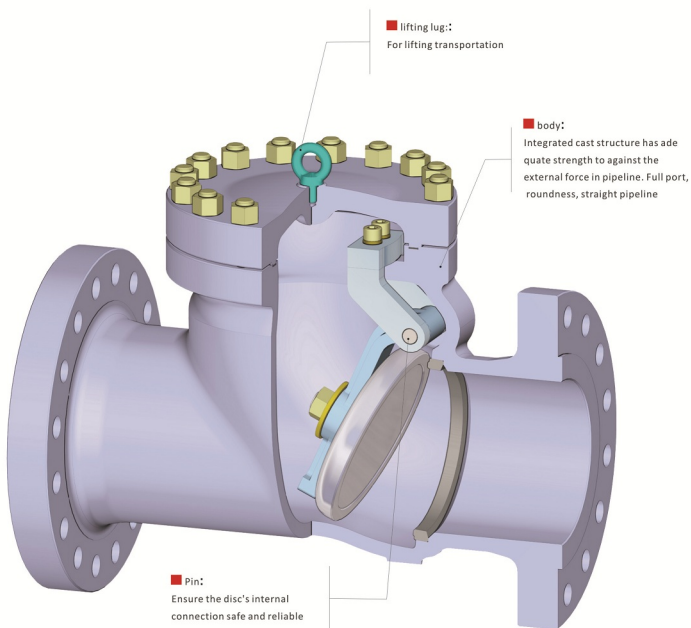
manufacture standards

1. design std.: BS1873, BS6364
2. face to face: ASME B16.10
3. welded end connection: ASME B16.25
4. flanged end connection: ASME B16.5
5. inspection and test: API 598, BS6364

(*) If there are other standards or requirements for manufacturing valves, please contact us.

Class 1500			
NPS	A	B(*)	Weight (Kg)
2	371	610	130
2 1/2	422	640	210
3	473	850	320
4	549	660	650
6	711	1050	830
8	842	1170	1000
10	1001	1300	1300
12	1146	1500	1600
14	1276	1650	

Swing check valve



Swing check valve

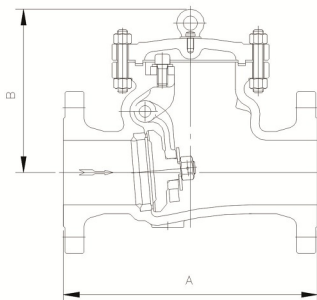


Class 150			
NPS	A	B(*)	Weight (Kg)
2	203	467	20
2 1/2	216	501	28
3	241	518	34
4	292	565	53
5	356	575	68
6	406	631	91
8	495	756	147
10	622	805	225
12	698	918	355
14	787	1013	430
16	914	944	520
18	978	1003	630
20	978	1116	800
24	1295	1285	1000

Class 300			
NPS	A	B(*)	Weight (Kg)
2	267	477	25
2 1/2	292	505	38
3	318	529	50
4	356	569	75
5	400	614	100
6	444	697	142
8	559	762	230
10	622	1026	425
12	711	1023	505
14	762	1090	610
16	864	1169	850
18	978	1106	965
20	1016	1256	1080
24	1346	1405	1200

Class 600			
NPS	A	B(*)	Weight (Kg)
2	292	495	32
2 1/2	330	525	45
3	356	556	60
4	432	615	102
5	508	945	250
6	559	1060	360
8	660	1010	490
10	787	965	620
12	838	1400	850
14	889	1040	950
16	991	1200	1100

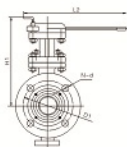
Class 900			
NPS	A	B(*)	Weight (Kg)
2	371	480	65
2 1/2	422	590	100
3	384	680	160
4	460	800	240
6	613	880	530
8	740	990	750
10	841	1150	930
12	968	1350	1150
14	1039	1560	1400
16	1140	1750	1700



manufacture standards

1. design std; BS1868, BS6364
 2. face to face; ASME B16.10
 3. welded end connection; ASME B16.25
 4. flanged end connection; ASME B16.5
 5. inspection and test; API 598, BS6364
- (*) If there are other standards or requirements for manufacturing valves, please contact us.

Class 1500			
NPS	A	B(*)	Weight (Kg)
2	371	610	80
2 1/2	422	640	130
3	473	850	210
4	549	660	320
6	711	1050	650
8	842	1170	830
10	1001	1300	1000
12	1146	1500	1300
14	1276	1650	1600



ZHEJIANG BOTELI TECHNOLOGY CO.,LTD.

/Add:San jiang Industrial District Yongjia
County Wenzhou,Zhejiang Province

/Tel: 0577-67378656 67376668

/Fax: 0577-67376693 67378398

/Http: www.botelitech.com

/E-mail:boteli@boteli.com
