



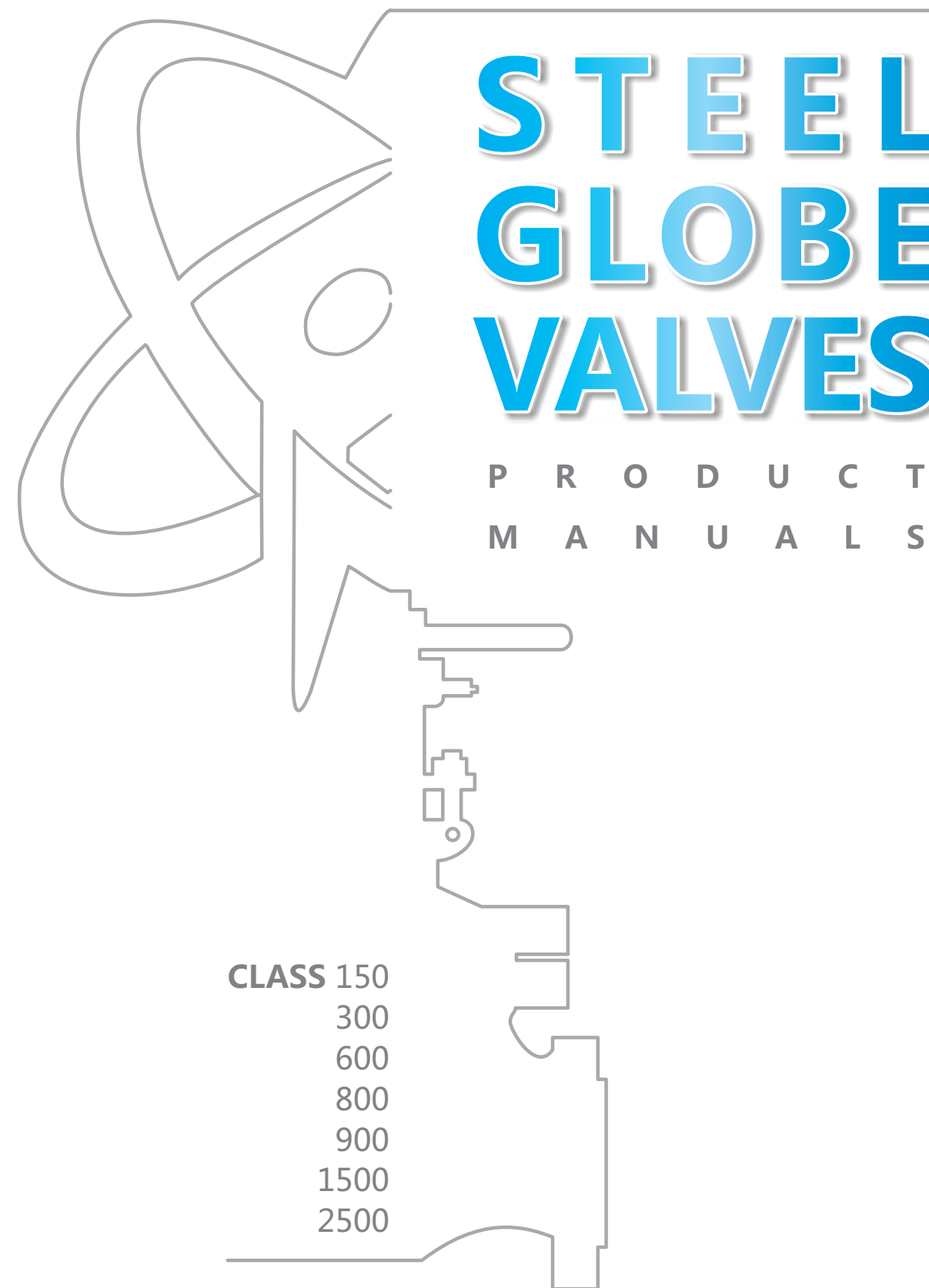
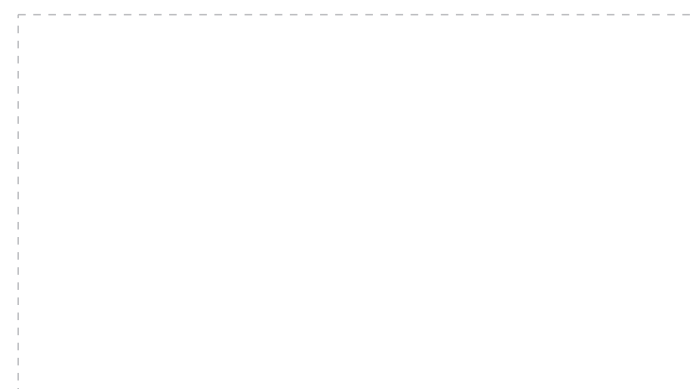
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CLASS 150
300
600
800
900
1500
2500

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INTRODUCTION

Globe valves are used where throttling or both throttling and shut off are required. They can also be used for on-off service, but because of high pressure drop, this is generally confined to applications where the valve is normally closed and pressure drop is not important when the valve is open. Globe valves are available with a complete range of manual or remote actuators. This sample includes bolted bonnet

forged steel T-type globe valves (as show figure1), bolted bonnet cast steel T-type globe valves (as show figure2), packing seal forged steel T-type globe valves(as show figure3), pressure seal cast steel T-type globe valves(as show figure4), packing seal forged steel Y-type globe valves(as show figure5),and pressure seal cast steel Y-type globe valves(as show figure6).

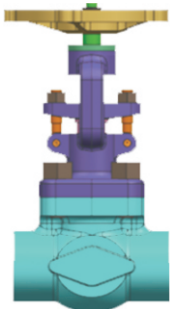


Figure 1

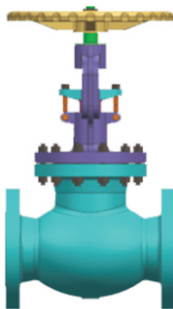


Figure 2



Figure 3

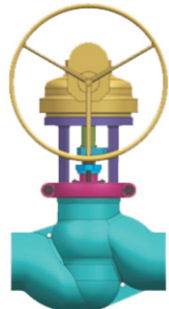


Figure 4

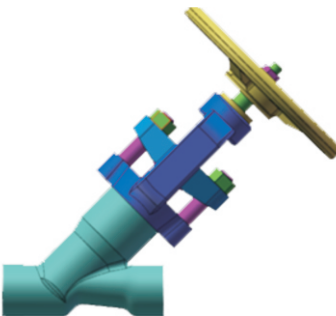


Figure 5

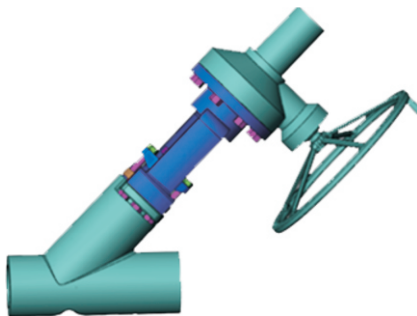


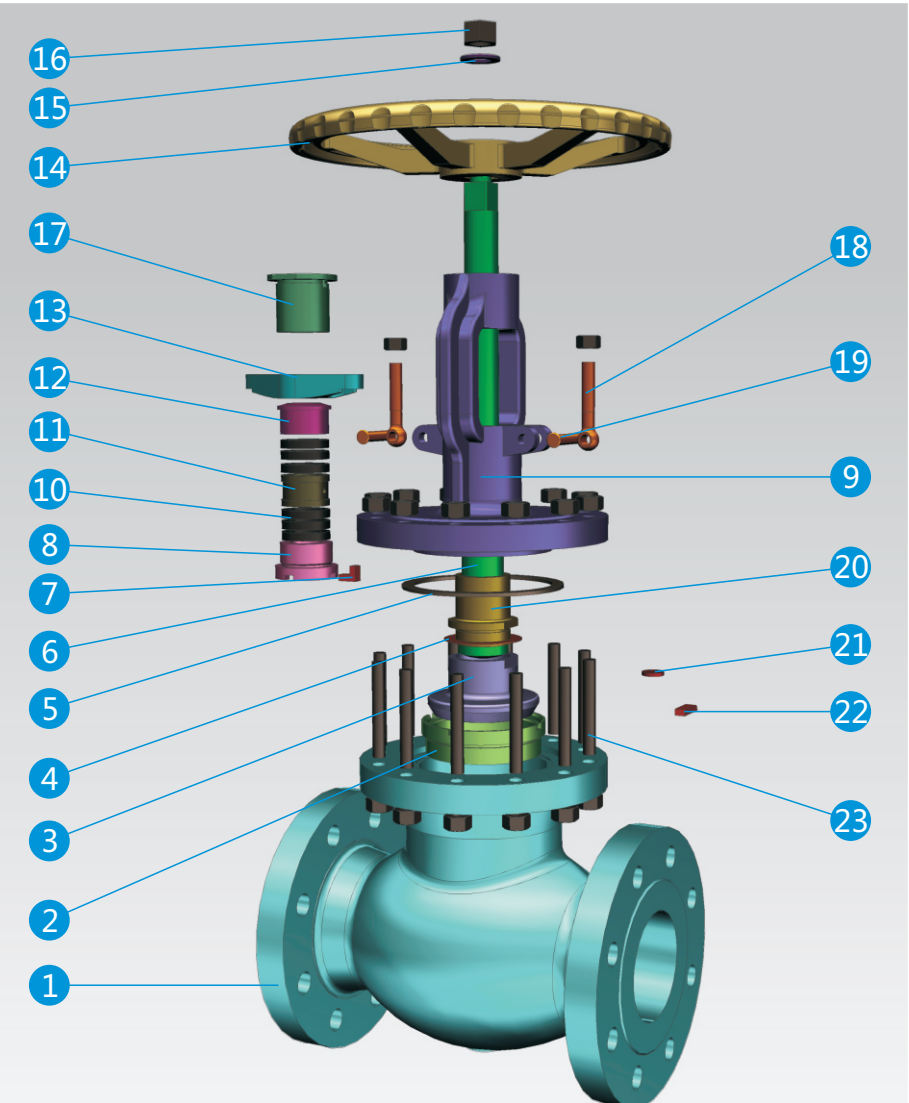
Figure 6

INDUSTRY STANDARDS

Pressure/Temperature Ratings	ASME B16.34
Basic Design	BS 1873/API 623
Face-to-Face/End- to- End	ASME B16.10
Flange Dimensions	ASME B16.5
Butt-Welding End	ASME B16.25
Socket Welding End	ASME B16.11
Threaded End	ASME B1.20.1
Testing	API 598

MAJOR FEATURE

BOLTED BONNET CAST STEEL T-TYPE GLOBE VALVES



NO.	Name
1	Body
2	Seat Ring
3	Disc
4	Retaining Washer
5	Gasket
6	Stem
7	Tabs
8	Back Seat
9	Bonnet
10	Packing
11	Lantern
12	Gland
13	Gland Flange
14	Handwheel
15	Washer
16	Handwheel nut
17	Stem Nut
18	Gland Eyebolts/Nuts
19	Pins
20	Disc Nut
21	Thrust Plate
22	Tabs
23	Bolts/Nuts

PRODUCT RANGE

CLASS 150	2" -20"
CLASS 300	2" -20"
CLASS 600	2" -20"

DESIGN STANDARDS

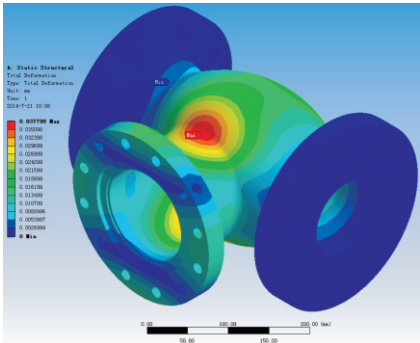
BS 1873/API 623
ASME B16.34

DESIGN FEATURES

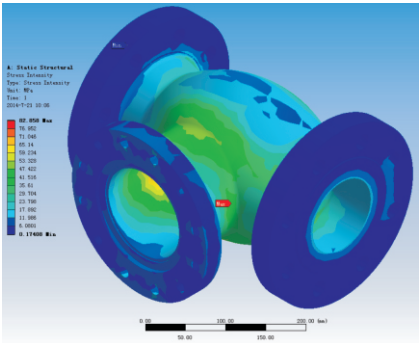
Bolted Bonnet
Spiral Stem/ Rising Stem
Rising Handwheel

FINITE ELEMENT ANALYSIS

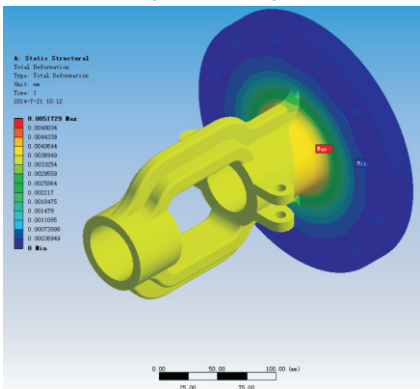
Analyze stress and strain of body and bonnet, observe the position and value of the maximum stress and strain, in order to get the most appropriate design.



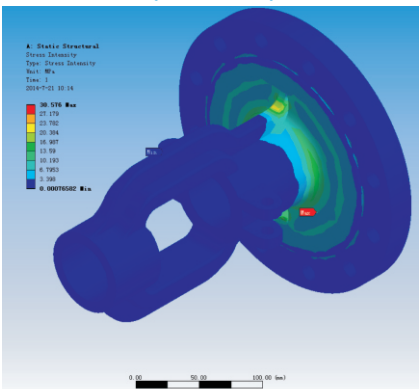
Body stress analysis



Body strain analysis

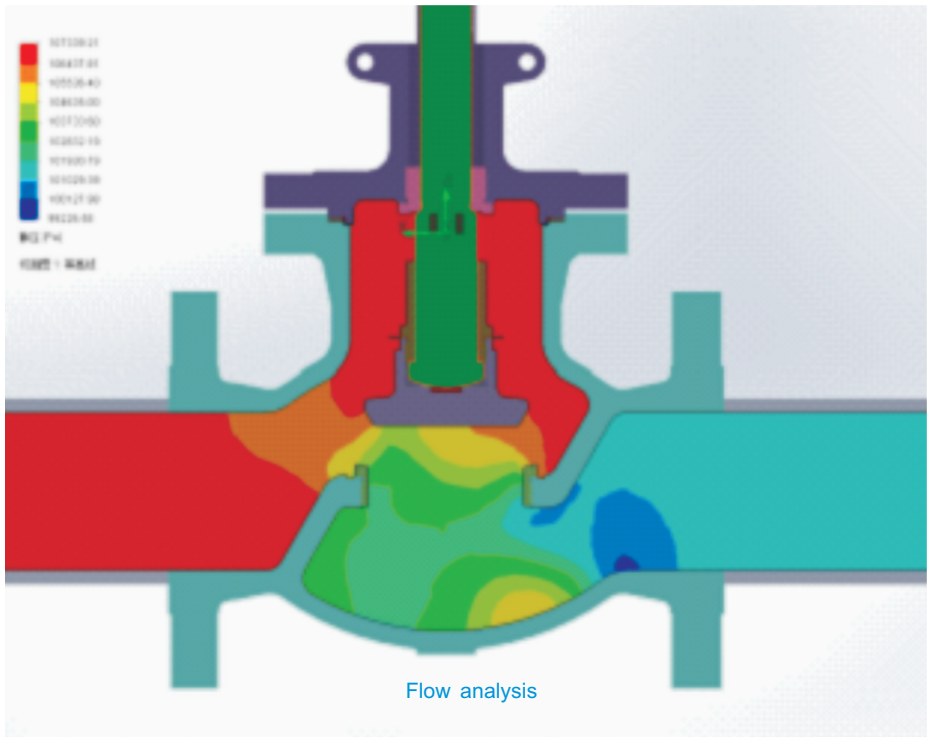


Bonnet stress analysis



Bonnet strain analysis

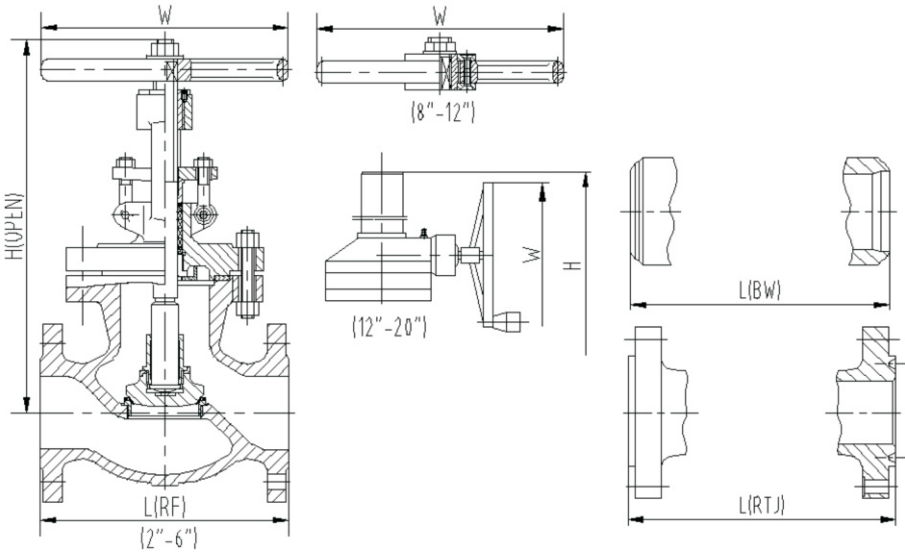
Flow analysis is to get the valve's flow resistance coefficient and C.V values, which is to achieve the purpose of optimizing the valve design.



Flow analysis

DIMENSIONS AND WEIGHTS

BOLTED BONNET CAST STEEL T-TYPE GLOBE VALVES
CLASS 150



CLASS 150

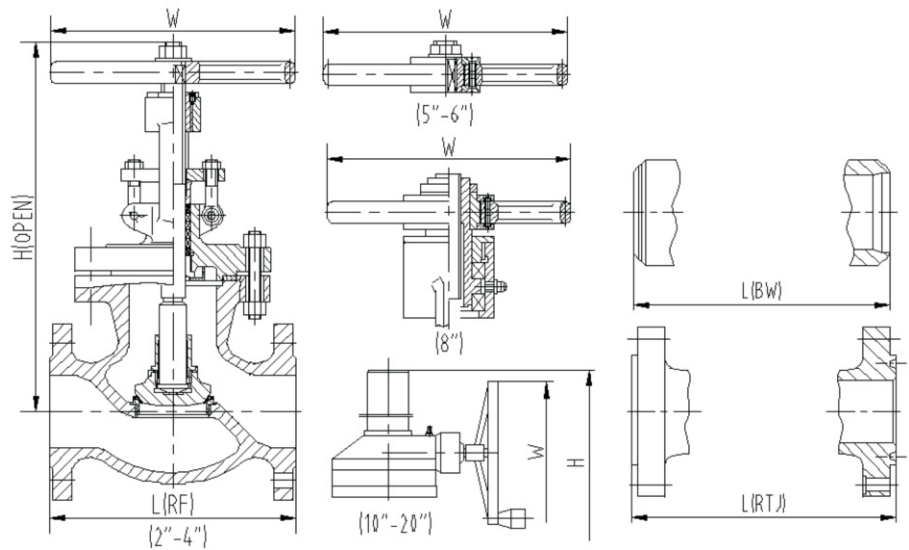
Note: Torque calculation pressure: 2 Mpa

NPS	In	2	2-1/2	3	4	5	6	8
DN	mm	50	65	80	100	125	150	200
L(RF/BW)	mm	203	216	241	292	356	406	495
L(RTJ)	mm	216	229	254	305	369	419	508
H(OPEN)	mm	341	372	391	457	500	534	616
W	mm	200	250	250	300	350	350	400
WT(RF/RTJ)	Kg	18.5	26.9	35.3	51.1	71	91.5	142
WT(BW)	Kg	14.6	20.9	28.4	40.6	58.5	76.2	139
Torque	N.m	21	36	58	91	135	187	351
C.V		60	84	100	185	215	440	810

NPS	In	10	12	14	16	18	20
DN	mm	250	300	350	400	450	500
L(RF/BW)	mm	622	698	787	914	978	978
L(RTJ)	mm	635	711	800	927	991	991
H(OPEN)	mm	721	949	988	1193	1275	1295
W	mm	450	560	610	710	710	710
WT(RF/RTJ)	Kg	216	348	770	984	1346	1386
WT(BW)	Kg	183	298	671	836	1144	1180
Torque	N.m	661	870	1232	2033	2580	2602
C.V		1260	1890	2441	3234	4308	5164

DIMENSIONS AND WEIGHTS

BOLTED BONNET CAST STEEL T-TYPE GLOBE VALVES
CLASS 300



CLASS 300

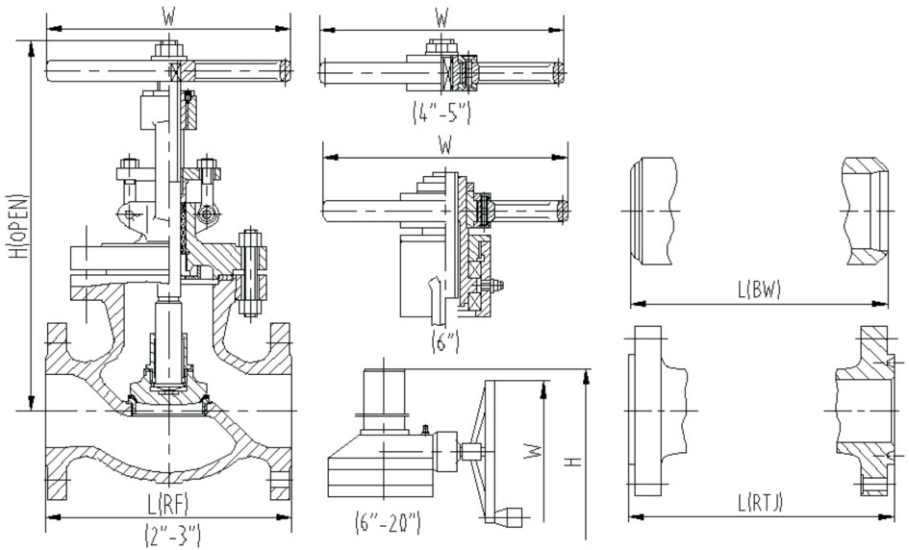
Note: Torque calculation pressure: 5 Mpa

NPS	In	2	2-1/2	3	4	5	6	8
DN	mm	50	65	80	100	125	150	200
L(RF/BW)	mm	267	292	318	356	400	444	559
L(RTJ)	mm	283	308	334	372	416	460	575
H(OPEN)	mm	378	422	443	537	627	687	899
W	mm	200	250	250	300	400	450	560
WT(RF/RTJ)	Kg	23.6	35.7	47.1	73.6	110	145	257
WT(BW)	Kg	17.9	29.4	35.8	55.8	88	116	213
Torque	N.m	46	78	128	219	412	643	963
C.V		60	84	100	185	215	440	810

NPS	In	10	12	14	16	18	20
DN	mm	250	300	350	400	450	500
L(RF/BW)	mm	622	711	838	864	978	1016
L(RTJ)	mm	638	727	854	880	994	1035
H(OPEN)	mm	930	1100	1241	1393	1666	1666
W	mm	458	610	610	810	1000	1000
WT(RF/RTJ)	Kg	440	802	869	1193	1959	1993
WT(BW)	Kg	380	716	764	1049	1724	1755
Torque	N.m	1752	2631	3521	5783	10201	10317
C.V		1260	1890	2441	3234	4183	4926

DIMENSIONS AND WEIGHTS

BOLTED BONNET CAST STEEL T-TYPE GLOBE VALVES
CLASS 600



CLASS 600

Note: Torque calculation pressure: 10 Mpa

NPS	In	2	2-1/2	3	4	5	6	8
DN	mm	50	65	80	100	125	150	200
L(RF/BW)	mm	292	330	356	432	508	559	660
L(RTJ)	mm	295	333	359	435	511	562	663
H(OPEN)	mm	433	459	532	612	711	901	954
W	mm	250	250	350	400	400	560	458
WT(RF/RTJ)	Kg	35.4	47	69.3	115	184	266	477
WT(BW)	Kg	29.2	37.9	57.1	90	141	227	406
Torque	N.m	102	162	273	484	842	1123	2285
C.V		58	84	100	185	335	440	780

NPS	In	10	12	14	16	18	20
DN	mm	250	300	350	400	450	500
L(RF/BW)	mm	787	838	889	991	1092	1194
L(RTJ)	mm	790	841	892	994	1095	1200
H(OPEN)	mm	1149	1340	1520	1700	1850	2000
W	mm	610	810	1000	1200	1200	1200
WT(RF/RTJ)	Kg	979	1179	1605	2031	2460	2890
WT(BW)	Kg	862	1040	1410	1788	2165	2545
Torque	N.m	3877	8139	11301	14494	20422	20934
C.V		1200	1810	2250	2934	3781	4396

MAJOR FEATURE

BOLTED BONNET FORGED STEEL T-TYPE GLOBE VALVES

- NO. Name
- 1

Body
- 2

Disc
- 3

Stem
- 4

Gasket
- 5

Bonnet
- 6

Packing
- 7

Pins
- 8

Gland Eyebolts/Nuts
- 9

Gland
- 10

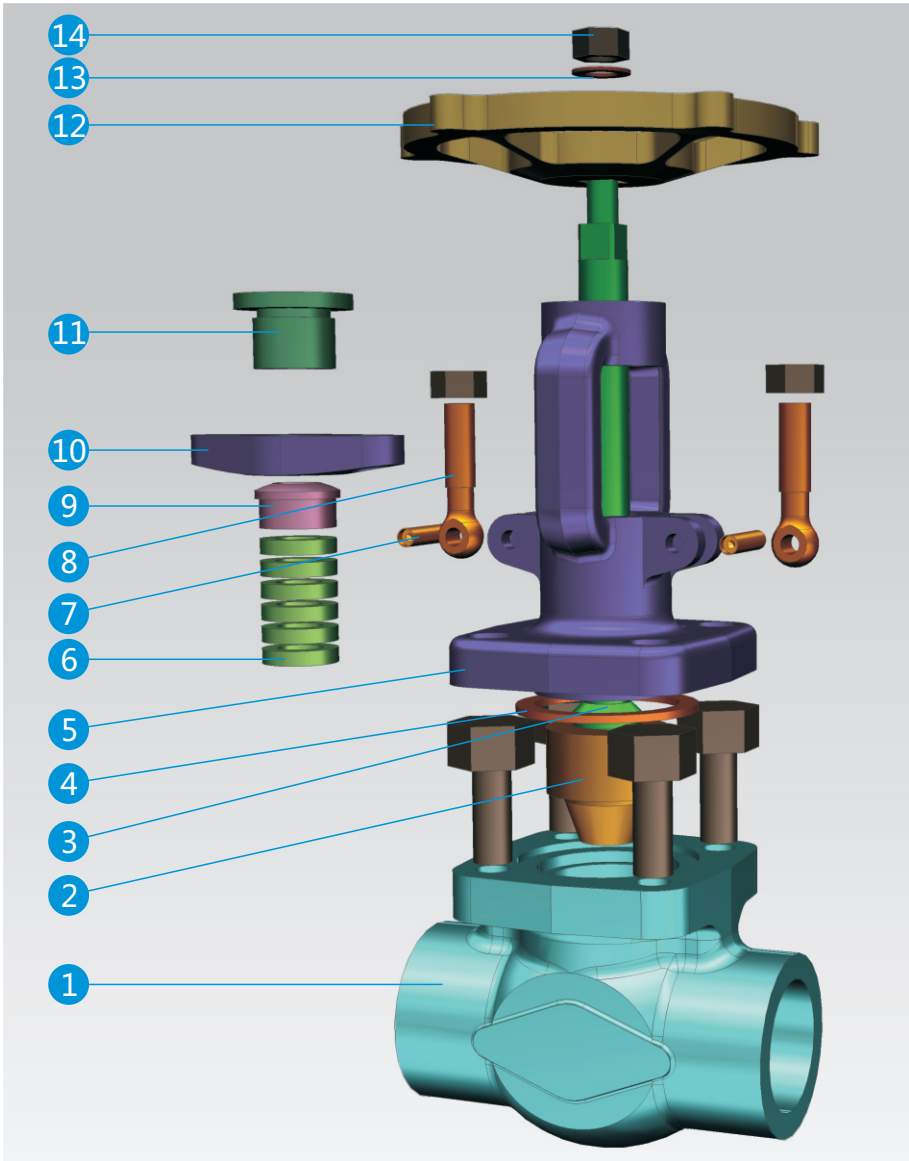
Gland Flange
- 11

Stem Nut
- 12

Handwheel
- 13

Washer
- 14

Handwheel nut



PRODUCT RANGE

CLASS 150	2" -20"
CLASS 300	2" -20"
CLASS 600	2" -20"

DESIGN STANDARDS

BS 1873/API 623
ASME B16.34

DESIGN FEATURES

Bolted Bonnet
Spiral Stem/ Rising Stem
Rising Handwheel

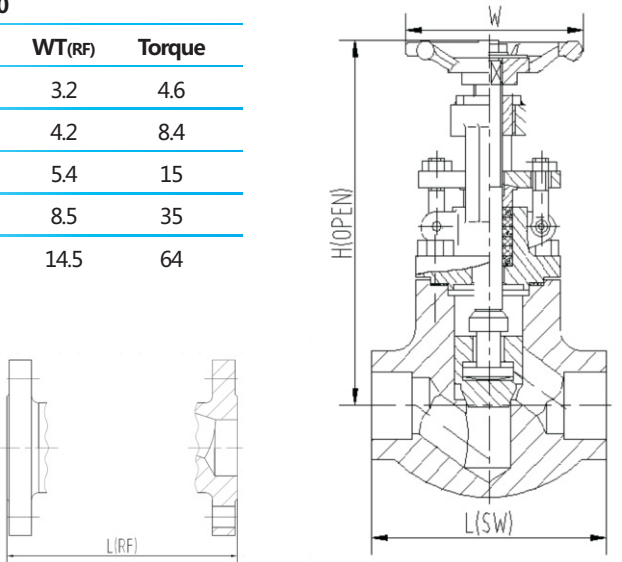
DIMENSIONS AND WEIGHTS

BOLTED BONNET FORGED STEEL T-TYPE GLOBE VALVES

Note: Torque calculation pressure: 14MPa

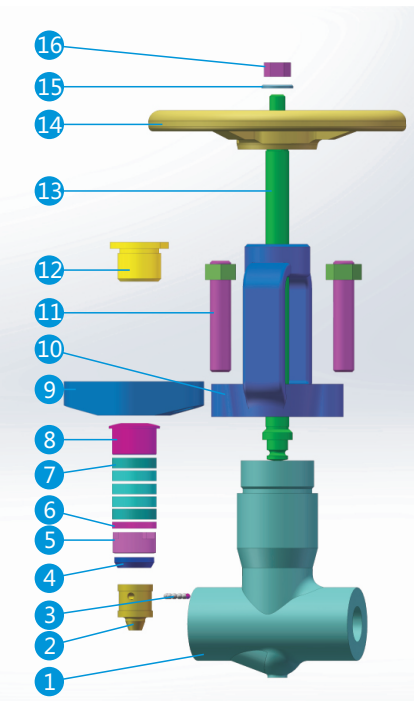
NPS	DN	CLASS 150, 300, 600, 800					
		L(SW/BW)	H(OPEN)	W	WT(SW/BW)	WT(RF)	Torque
1/2	15	76	150	80	1.6	3.2	4.6
3/4	20	86	155	80	2.4	4.2	8.4
1	25	102	190	100	2.8	5.4	15
1-1/2	40	152	234	140	5.0	8.5	35
2	50	171	277	180	10.2	14.5	64

L(RF)		
CLASS 150	CLASS 300	CLASS 600
108	152	165
117	178	190
127	203	216
165	229	241
203	267	292



MAJOR FEATURE

PACKING SEAL FORGED STEEL T-TYPE GLOBE VALVES



- NO. Name
- 1

Body
- 2

Disc
- 3

Steel Ball
- 4

Back Seat
- 5

Screw Thread
- 6

Packing Spacer
- 7

Packing
- 8

Gland
- 9

Gland Flange
- 10

Yoke
- 11

Gland Eyebolts/Nuts
- 12

Stem Nut
- 13

Stem
- 14

Handwheel
- 15

Washer
- 16

Handwheel nut

PRODUCT RANGE

CLASS 900	1/2" -2"
CLASS 1500	1/2" -2"
CLASS 2500	1/2" -2"

DESIGN STANDARDS

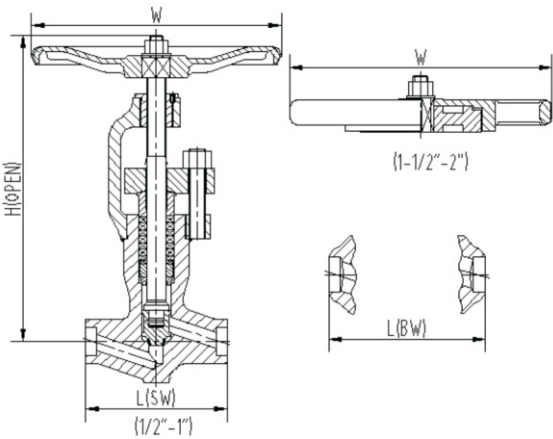
ASME B16.34

DESIGN FEATURES

Bolted Bonnet
Spiral Stem
Rising Handwheel

DIMENSIONS AND WEIGHTS

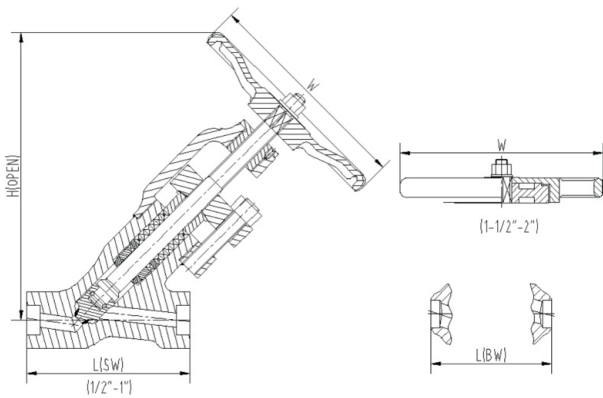
PACKING SEAL FORGED STEEL T-TYPE GLOBE VALVES



Note:
CLASS 900 Torque calculation
pressure: 15MPa
CLASS 1500 Torque
calculation pressure: 25MPa
CLASS 2500 Torque
calculation pressure: 42MPa

NPS	DN	CLASS 900, 1500, 2500					L(RF)		
In	mm	L(SW/BW)	H(OPEN)	W	WT(SW/BW)	CLASS 900	CLASS 1500	CLASS 2500	
1/2	15	127	310	200	9.9	24.3	40.5	42.9	
3/4	20	127	312	250	9.9	27.7	46.1	50.9	
1	25	170	391	300	15.6	58.7	97.7	116.2	
1-1/2	40	210	445	350	33.8	120.7	201.2	222.6	
2	50	279	537	350	44.5	197.1	329.4	371.7	

PACKING SEAL FORGED STEEL T-TYPE GLOBE VALVES

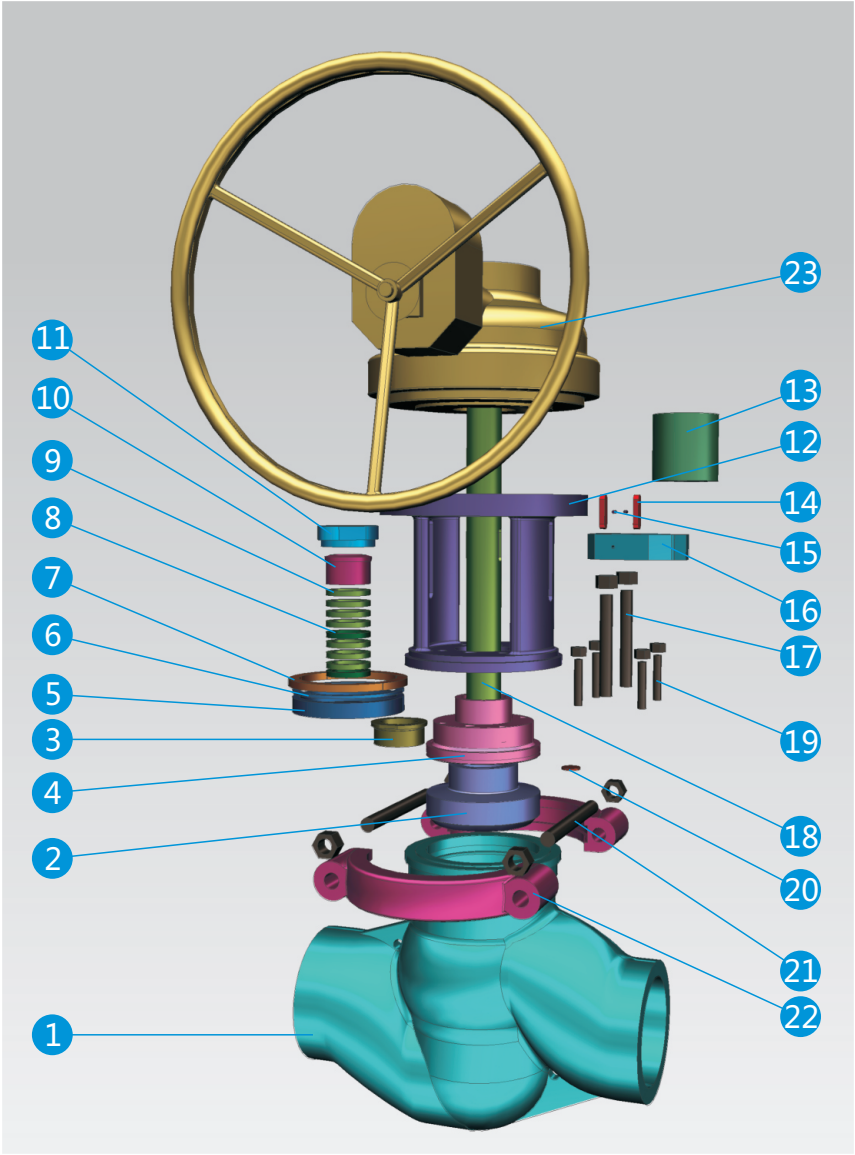


Note:
CLASS 900 Torque calculation
pressure: 15MPa
CLASS 1500 Torque
calculation pressure: 25MPa
CLASS 2500 Torque
calculation pressure: 42MPa

NPS	DN	CLASS 900, 1500, 2500					L(RF)		
In	mm	L(SW/BW)	H(OPEN)	W	WT	CLASS 900	CLASS 1500	CLASS 2500	
1/2	15	152	285	200	8.8	24.3	40.5	42.9	
3/4	20	152	303	250	10.5	27.7	46.1	50.9	
1	25	170	376	300	16.2	58.7	97.7	116.2	
1-1/2	40	232	432	350	36	120.7	201.2	222.6	
2	50	279	487	350	46	197.1	329.4	371.7	

MAJOR FEATURE

PRESSURE SEAL CAST STEEL T-TYPE GLOBE VALVES



NO.	Name
1	Body
2	Disc
3	Disc Nut
4	Stuffing Box
5	Seal Ring
6	Ring
7	Segment Ring
8	Packing Spacer
9	Packing
10	Gland
11	Gland Flange
12	Yoke
13	Stem Nut
14	Key
15	Screw
16	Guide Plate
17	Gland Eyebolts/Nuts
18	Stem
19	Bolts/Nuts
20	Thrust Plate
21	Bolts/Nuts
22	Clamp Ring
23	Gear Box

PRODUCT RANGE

CLASS 900	3" -16"
CLASS 1500	3" -14"
CLASS 2500	3" -12"

DESIGN STANDARDS

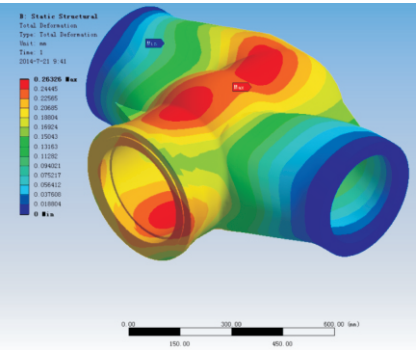
BS 1873/API 623
ASME B16.34

DESIGN FEATURES

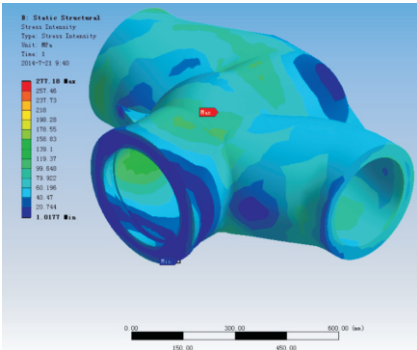
Bolted Bonnet
Rising Stem
Non- Rising Handwheel

FINITE ELEMENT ANALYSIS

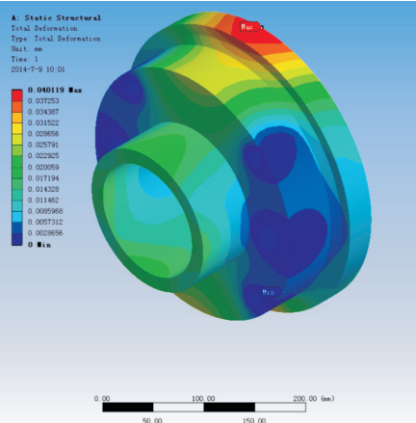
Analyze stress and strain of body and bonnet, observe the position and value of the maximum stress and strain, in order to get the most appropriate design.



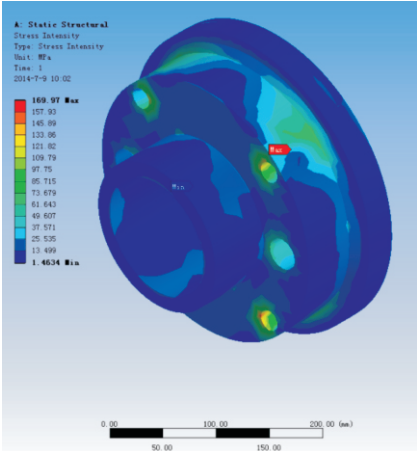
Body stress analysis



Body strain analysis

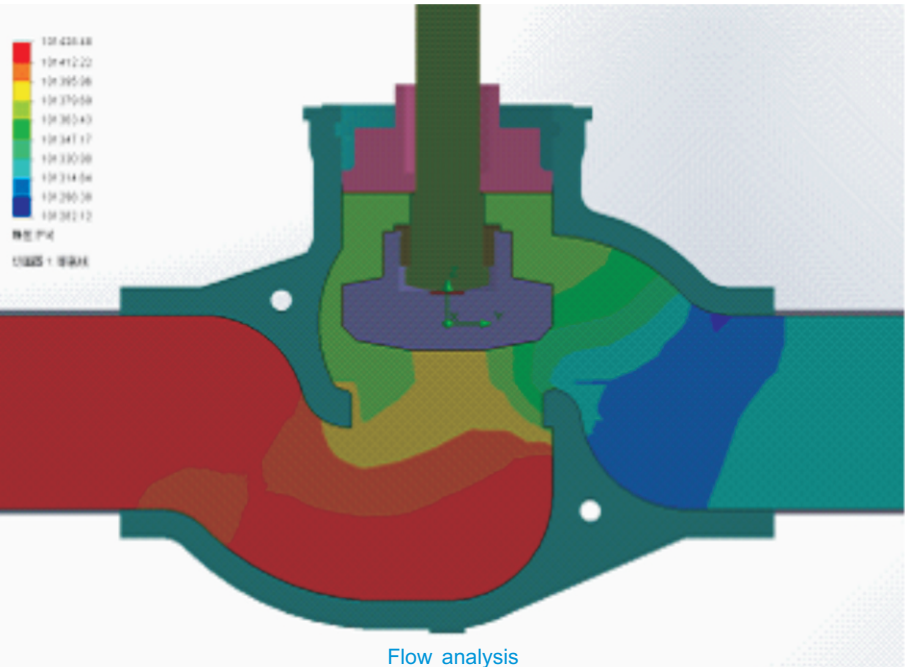


Bonnet stress analysis



Bonnet strain analysis

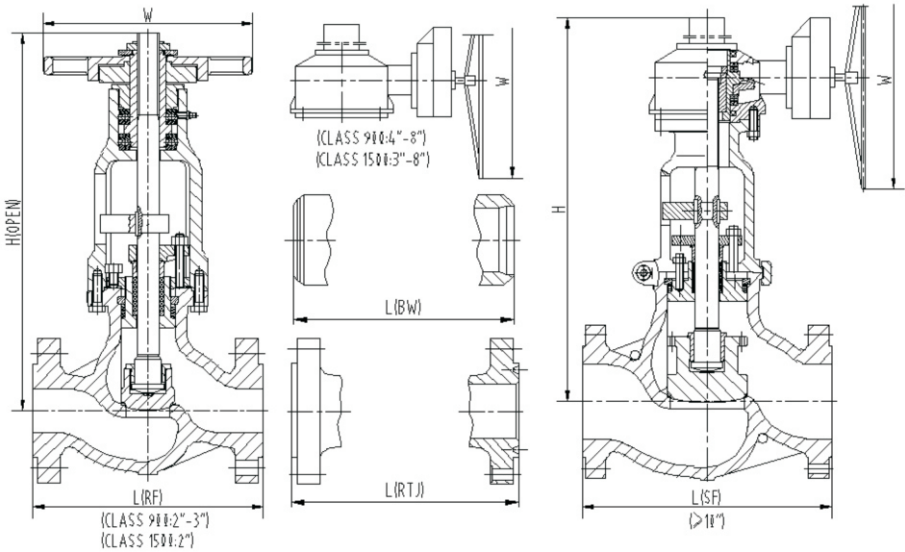
Flow analysis is to get the valve’s flow resistance coefficient an C.V values, which is to achieve the purpose of optimizing the valve design.



Flow analysis

DIMENSIONS AND WEIGHTS

PRESSURE SEAL CAST STEEL T-TYPE GLOBE VALVES
CLASS 900~1500



CLASS 900

Note: Torque calculation pressure: 15MPa

NPS	In	3	4	6	8	10	12	14	16
DN	mm	80	100	150	200	250	300	350	400
L(RF/BW)	mm	381	457	610	737	838	965	1039	1130
L(RTJ)	mm	384	460	613	740	841	968	1049	1140
H(OPEN)	mm	680	821	921	1096	1284	1262	1454	1613
W	mm	350	460	610	610	1000	1000	1200	1200
WT(BW)	Kg	118	214	360	708	1143	1460	1769	2114
WT(RF/RTJ)	Kg	150	254	447	842	1325	1713	2032	2431
Torque	N.m	335	674	1920	3825	8540	12423	15765	24363
C.V		110	200	530	910	1400	2000	2400	2880

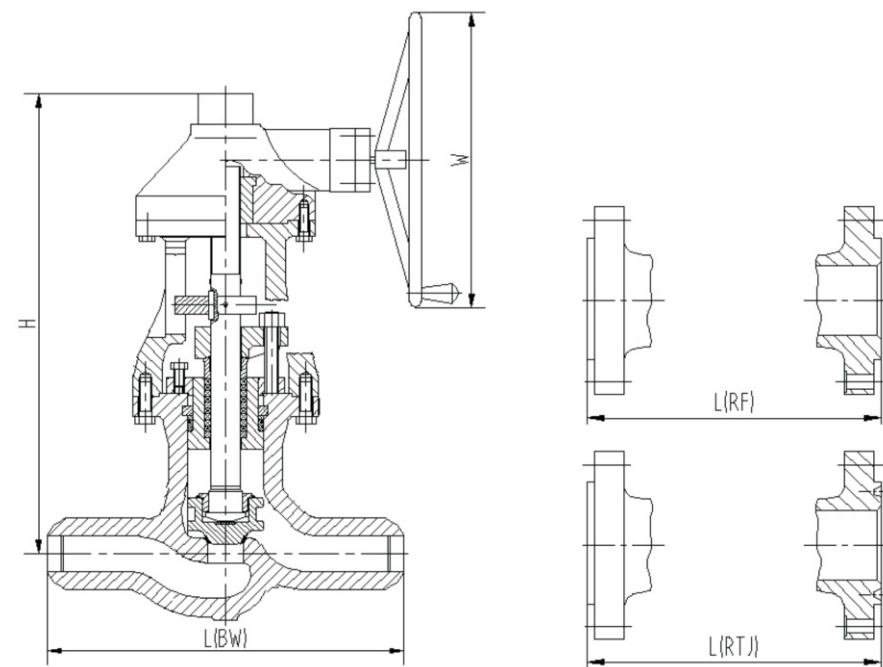
CLASS 1500

Note: Torque calculation pressure:25 MPa

NPS	In	3	4	6	8	10	12	14
DN	mm	80	100	150	200	250	300	350
L(RF/BW)	mm	470	546	705	832	991	1130	1257
L(RTJ)	mm	473	549	711	842	1001	1146	1276
H(OPEN)	mm	695	932	1116	1168	1322	1418	1619
W	mm	460	610	710	810	1000	1200	1200
WT(BW)	Kg	169	233	454	865	1609	2029	2941
WT(RF/RTJ)	Kg	209	290	578	1040	1940	2513	3624
Torque	N.m	495	1251	3146	7262	13394	20492	27117
C.V		110	200	465	790	1250	1750	2100

DIMENSIONS AND WEIGHTS

PRESSURE SEAL CAST STEEL T-TYPE GLOBE VALVES
CLASS 2500



CLASS 2500

Note: Torque calculation pressure: 42MPa

NPS	In	3	4	6	8	10	12
DN	mm	80	100	150	200	250	300
L(BW/RF)	mm	578	673	914	1022	1270	1422
L(RTJ)	mm	584	683	927	1038	1292	1444
H(OPEN)	mm	777	1139	1410	1655	1903	2342
W	mm	458	610	710	1000	1000	1200
WT(BW)	Kg	243	288	673	1228	1433	2290
WT(RF/RTJ)	Kg	316	415	969	1642	2225	3550
Torque	N.m	530	1006	3440	8103	13175	21239
C.V		68	110	310	530	980	1450

DIMENSIONS AND WEIGHTS

PRESSURE SEAL CAST STEEL Y-TYPE GLOBE VALVES
CLASS 900~2500

CLASS 900

Note: Torque calculation pressure: 15 Mpa

NPS	In	3	4	6	8	10	12	14	16	18
DN	mm	80	100	150	200	250	300	350	400	450
L(BW)	mm	305	356	508	660	787	914	991	1092	1219
L(RF)	mm	381	457	610	737	838	965	1029	1130	1219
L(RTJ)	mm	384	460	613	740	841	968	1039	1140	1232
H(OPEN)	mm	948	899	1252	1585	1854	1857	2110	2455	2800
W	mm	305	460	610	610	1000	1000	1000	1200	1200
WT(BW)	Kg	150	189	377	474	1211	1517	1840	2350	3245
WT(RF/RTJ)	Kg	168	206	426	820	1575	1973	2392	3055	4219
Torque	N.m	335	674	1920	3825	8540	12423	15765	24363	32065
C.V		250	470	1050	1820	2850	4000	5220	6430	7590

CLASS 1500

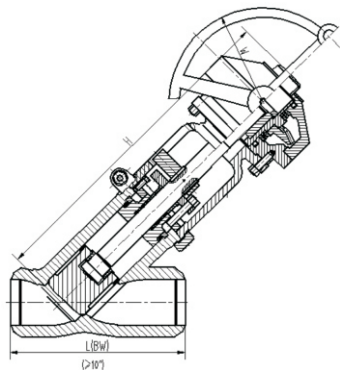
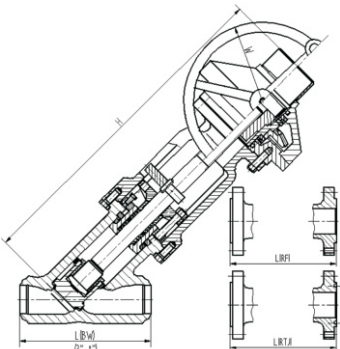
Note: Torque calculation pressure: 25MPa

NPS	In	3	4	6	8	10	12	14	16	18
DN	mm	80	100	150	200	250	300	350	400	450
L(BW)	mm	305	406	559	711	864	991	1067	1194	1346
L(RF)	mm	470	546	705	832	991	1130	1257	1384	1537
L(RTJ)	mm	473	549	711	842	1001	1146	1276	1406	1559
H(OPEN)	mm	944	1032	1242	1498	1740	1984	2221	2555	2890
W	mm	610	610	710	810	1000	1000	1200	1200	1200
WT(BW)	Kg	214	225	447	827	1622	2104	2714	3284	4100
WT(RF/RTJ)	Kg	254	282	571	1002	1953	2588	3397	4159	5124
Torque	N.m	495	1251	3146	7262	13394	20492	27117	37848	53901
C.V		250	420	930	1570	2460	3510	4520	5550	6500

CLASS 2500

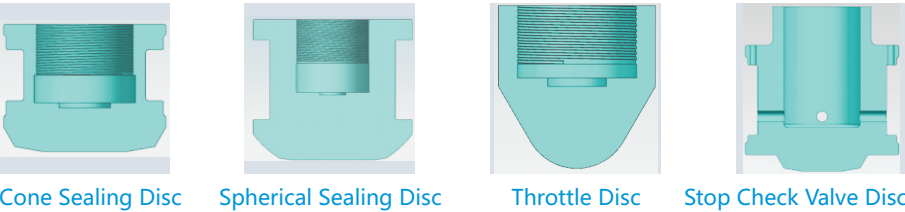
Note: Torque calculation pressure: 42MPa

NPS	In	3	4	6	8	10	12	14	16	18
DN	mm	80	100	150	200	250	300	350	400	450
L(BW)	mm	368	457	610	762	914	1041	1238	1238	1473
L(RF)	mm	578	673	914	1022	1270	1422	—	—	—
L(RTJ)	mm	584	683	927	1038	1292	1444	—	—	—
H(OPEN)	mm	944	1138	1437	1690	1682	2143	2325	2500	3080
W	mm	610	610	800	1000	1000	1000	1000	1200	1200
WT(BW)	Kg	200	330	585	1071	1698	2498	3100	3620	6204
WT(RF/RTJ)	Kg	273	457	881	1485	2490	3758	—	—	—
Torque	N.m	530	1006	3440	8103	13175	21239	26879	39311	54000
C.V		153	246	581	967	1480	2106	3381	3406	5268

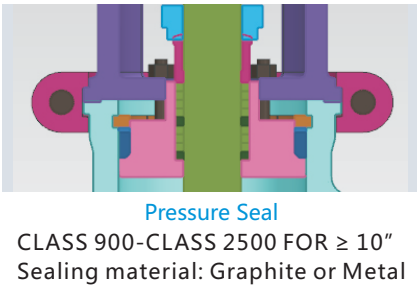
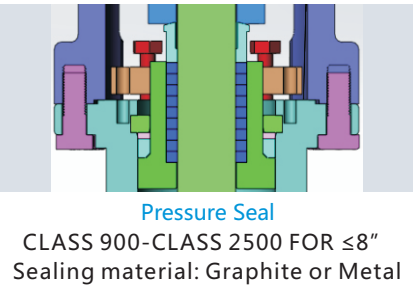
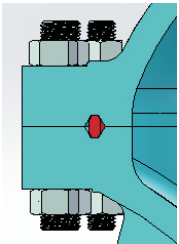
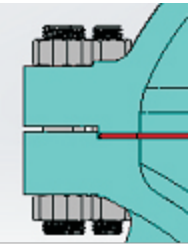
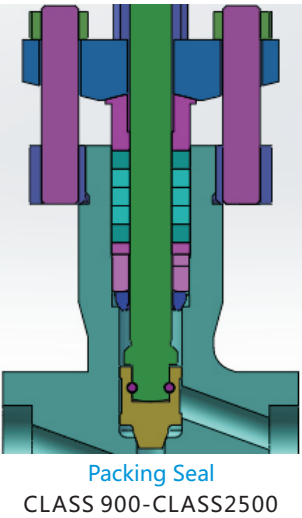


TYPE OF CONSTRUCTION

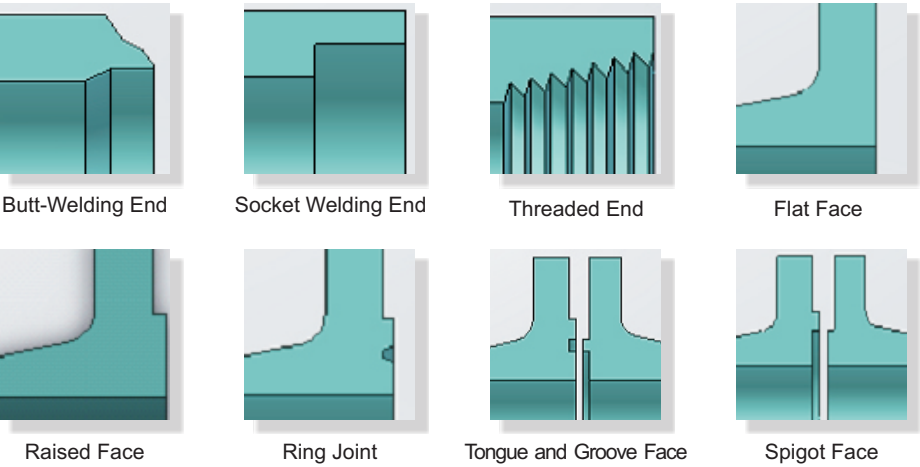
DISC



BODY-TO-BONNET JOINT

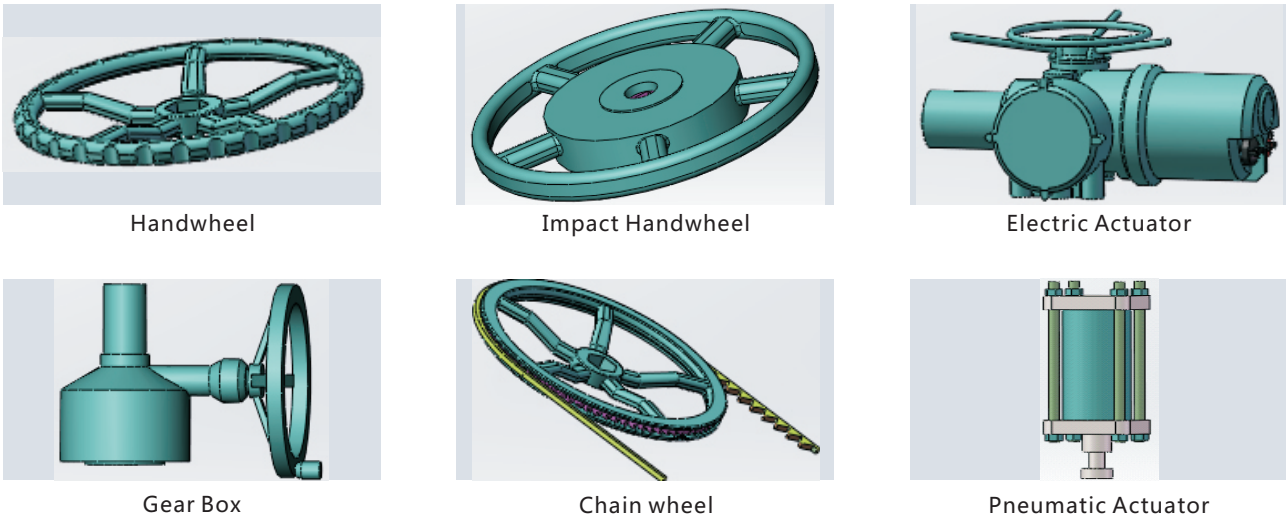


END CONNECTIONS

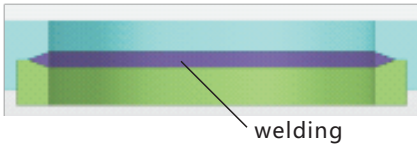


TYPE OF CONSTRUCTION

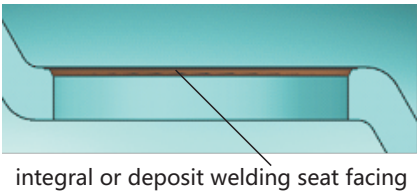
OPERATION



SEAT RING



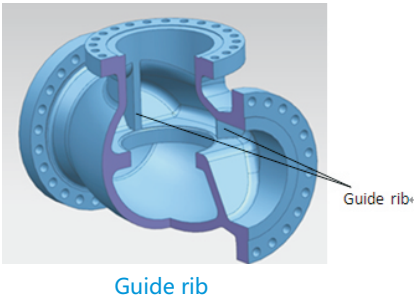
Welded Seat Ring
This welded seat ring is suitable for the globe valve, which NPS is 10" -12" (CLASS 150), 8" -12" (CLASS 300) and 6" -10" (CLASS 600).



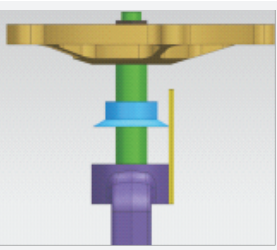
TYPE OF CONSTRUCTION

DISC GUIDING

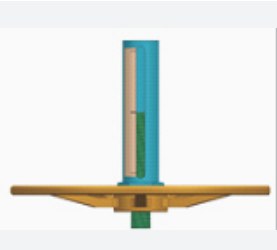
The valve guide bar structure can play a role in the valve guide.



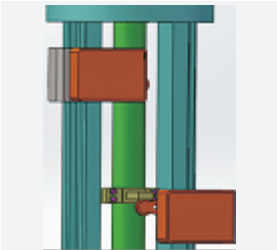
SPECIAL REQUIREMENTS



Position Indicator
(Spiral Type)



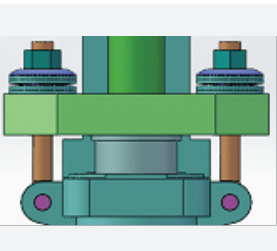
Position Indicator
(Rising Type)



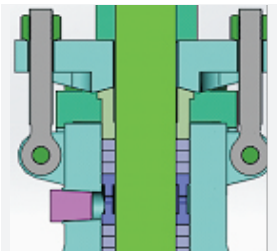
Travel Limit Button



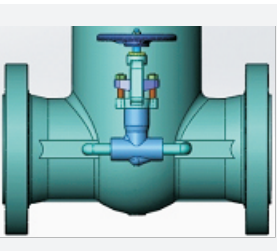
ISO Top Flange



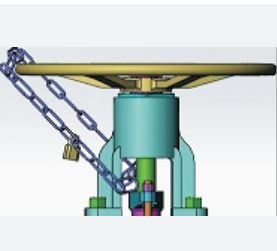
Spring Loaded on Stuffing Box



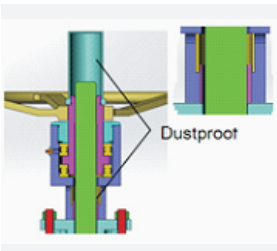
Packing Spillage Detection



Bypass Valve



Chain-Lock



Dustproof Structure

Bypass valve can apply to inlet and outlet, or inlet and cavity, in order to balance the pressure of the two ends.

SPECIAL SERVICE

NACE Valves

SUFA NACE valves are applicable to the oil exploration and natural gas where contain hydrocarbon medium, such as H₂ and H₂S. The NACE valves can prevent materials crack including sulfide stress cracking (SSC), stress corrosion cracking (SCC) and hydrogen induced cracking (HIC), which are caused by H₂S, since a long time under acidic conditions.

The quality control of SUFA NACE valves:

1. Material and heat treatment are in strict accordance with NACE MR0175 standard requirements, without using

material which is untested proved.

2. Strengthen heat treatment quality control of materials, with particular emphasis on the hardness control of the weldment's base and heat-affected zone, ensuring the hardness of the base and the heat-affected zone are similar, and the welding parts should be annealing to reduce the sensitivity of the SSC.

3. The hardness of the base material, weld and heat-affected zone should be less than or equal 22HRC (after heat treatment to eliminate stress).

Valve Parts	ASTM Specification	NACE Hardness	API 600 Hardness
Body/Bonnet	A216 WCB	≤HRC 22(234HB)	---
Disc	A216 WCB+13Crdeposit**	≤HRC 22(234HB)	≥250HB*
Seat Rings	A105+13Crdeposit**	≤HRC 22(234HB)	≥250HB*
Stem	A276 410	≤HRC 22(234HB)	≥200HB
Gland	A276 410	≤HRC 22(234HB)	---
Back seat	A276 410	≤HRC 22(234HB)	≥250HB
Bonnet Bolts	A193 B7M	≤HRC 22	---
Bonnet Nuts	A194 2HM	≤HRC 22	---

* Hardness differential of 50 HB is required between the seats.

** Double Tempered

Hydrogenation Valves

SUFA Hydrogenation valves are applicable to the hydrotreater where include oil, hydrogen, sulfide, and their mixture or other conditions. They can protect the valves' reliability from harsh conditions, which include Metallic materials' variability caused by hydrogen ions and H₂S stress corrosion cracking under the room temperature (SSC), Hydrogen ions to the inside and outside of the metal decarbonization, rapid and

uniform corrosion caused by H₂S, Stress corrosion cracking is accelerated by hydrogen and chloridion together under the high temperature(HIC).

The quality control of SUFA Hydrogenation valves:

1. Using reasonable structure design, the maximum to avoid stress concentration and stress corrosion generation in the harsh conditions.
2. Material and heat treatment are in strict accordance with hydrogenation

standard requirements, without using material which is untested proved.

3. Carbon steel and alloy steel use the electric furnace + VOD or furnace + AOD smelting method. And strictly control the material’ s chemical composition and mechanical properties, such as the content of sulfur, phosphorus and other harmful impurities elements, grain size, non-metallic entrainment and other

indicators.

4. Body and bonnet of SUFA hydrogenation valves not only apply RT or UT inspection, but also apply the whole surface MT or PT.

5. In addition to routine factory tests, and increase low pressure gas seals test, micro-leakage test, and high-pressure gas strength test according to user requirements.

THE SELECTION RECOMMENDATION TABLE
OF SUFA HYDROGENATION VALVE BODY MATERIAL.

Medium	Temperature	Body Material
Oil	≤260℃	ASTM A105、 ASTM A216 WCB
Oil	261-350℃	ASTM A105、 ASTM A216 WCB
Oil	261-350℃	ASTM A182 F321 or F347、 ASTM A351 CF8C
H2	≤260℃	ASTM A105、 ASTM A216 WCB
H2+H2S	≤200℃	ASTM A105、 ASTM A216 WCB
H2+H2S	201-280℃	ASTM A182 F11、 ASTM A217 WC6
H2+H2S	281-350℃	ASTM A182 F22、 ASTM A217 WC9
H2+H2S	≥351℃	ASTM A182 F321 or F347、 ASTM A351 CF8C
Oil+H2+H2S	≤200℃	ASTM A105、 ASTM A216 WCB
Oil+H2+H2S	201-280℃	ASTM A182 F11、 ASTM A217 WC6
Oil+H2+H2S	281-350℃	ASTM A182 F22、 ASTM A217 WC9
Oil+H2+H2S	≥351℃	ASTM A182 F321 or F347、 ASTM A351 CF8C

TESTING AND INSPECTION

TESTING

General valve, NACE Valves and Hydrogenation Valves testing are according to the API598.However, Hydrogenation Valves testing time is two times of the requirements, and full (100%) valves must be done high

pressure seal testing with liquid and gas seal testing with 0.6MPa.Hydrogenation valves’ micro leak testing is according to requirements of the ISO 15848.The testing of Various valve are as follows.

Test Description	Valve Type		
	General valve	NACE Valves	Hydrogenation Valves
shell	√	√	√
backseat	√	√	√
low-pressure closure	optional	optional	√
high-pressure closure	√	√	√
Micro leak testing	—	—	√

INSPECTION

The inspections of SUFA various types of valves are in accordance with ASME and other related code requirements.

According to the different operating conditions and quality controls, the inspection items of the bearing pressure components (including stem) are shown in the following table.

Inspection Items	Valve Type			Normative References
	General valve	NACE Valves	Hydrogenation Valves	
Visual inspection	√	√	√	MSS SP-55
Dimensions	√	√	√	Design Requirements
Hardness control	a	√	√	NACE MR0175
Chemical composition	√	√	√	Relevant Material specifications of ASTM
mechanical properties	√	√	√	Relevant Material specifications of ASTM
Forging ultrasonic testing	b	b	√	ASTM A388
Casting ray testing	c	c	√	ASME B16.34
Surface magnetic particle and penetrant testing	—	—	d	MT: ASTM A275, ASTM E709; PT: ASTM E165
Surfacing sealing surface penetrant testing	√	√	√	ASME BPVC VIII
Butt end beveling ray testing and surface penetration testing	√	√	√	ASME B16.34
others	—	—	e	

NOTE：

1. When there are clear requirements for the inspection items in the order, the inspection must be carried out with requirements of the order.

a—The bearing pressure components of General valve' hardness reference requirements of the ASTM code.

b—General valves and NACE valves, which pressure rating is CLASS≥900, the forgings do the ultrasonic testing, however hydrogenation valves are all done in all pressure ratings.

c—General valves and NACE valves, which pressure rating is CLASS≥900, the Castings do ray testing, however

hydrogenation valves are all done in all pressure ratings.

d—The outer surface and the inner surface which can be reached of the carbon steel and alloy steel bearing pressure components shall be magnetic particle testing everyone, and penetrant testing for stainless steel. Of course, penetrant testing can take the place of magnetic particle testing for carbon steel and alloy steel.

e—The hydrogenation valves also need to inspect the content of harmful elements(such as S and P),grain size, metallurgical structure and so on.

1. The high-pressure closure includes seat ring and disc seal, body and bonnet flange seal.

2. When the purchaser specifies an “optional” test, the test shall be performed in addition to the required tests.

3. When there are clear requirements for the testing items in the order, the testing must be carried out with requirements of the order.