

RHINOFLEX V A L V E



Complete Solutions for Industrial Valves

As a global leader of valve manufacture, Rhinoflex valve quality is dedicated to production, research, and development of industrial valves. Rhinoflex is committed to providing complete valve solutions to all industries through advanced engineering and innovation.

Rhinoflex valves line includes Ball, Gate, Globe, Check, Butterfly, Nuclear, Control, Subsea, Safety valves. Our high quality standards and innovative ability are recognized by many global end users and EPCs. Rhinoflex valves utilized in a wide variety of industries and working conditions such as Gas, Oil, Refining, Chemical, Coal Chemical, Offshore, FPSO, Air Separation, LNG, Nuclear Power, Power Generation, and Pipeline Transmission applications.

Facilities & Service

Advanced software (ANSYS, FE-Safe, CF-Design, Siemens PLM and NX) is applied at Rhinoflex for the Research & Development of products. We use SAP to control the traceability and status of all products during the manufacturing process. In order to ensure the safety, eco-friendliness, and reliability of our products, we use the most advanced fire-safe, cryogenic, high pressure, and fugitive emission test equipment.

As of Rhinoflex global strategy, to provide better service to our customers, we have established our overseas subsidiaries in North America, Brazil, Netherlands, Italy, Singapore, and Dubai along with over 80 agents and distributors worldwide.

High Quality, High Value

Rhinoflex is dedicated to pursuit of “Zero Defect”. We maintain a quality management system that encompasses our entire operation from order entry, to final inspection.

API 600 & ASME B16.34

Gate, Globe & Check Valves

Complete Solutions for Industrial Valves

**Rhinoflex
Valve
Solutions
Pty Ltd**

Cast Carbon Steel Gate ,Globe & Check Valves.

Valve Size		2"	2.5"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"	40"	42"	48"	52"	54"	56"	60"	64"
API 600 & B16.34 Bolted Bonnet Valve	Gate Valve	150	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		300	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		600	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		900	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		1500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		2500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Globe Valve	150	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		300	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		600	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		900	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		1500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		2500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Check Valve	150	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		300	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		600	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		900	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		1500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		2500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
API 600 & B16.34 Pressure Seal Valve	Gate Valve	600	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		900	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		1500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		2500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Globe Valve	600	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		900	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		1500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		2500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Check Valve	600	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		900	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		1500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		2500	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

Note:

1. Face to face and end to end dimension conform to BS 2080,ANSI B16.10 or ISO 5752.

2. Flange is in line with ANSI B16.5 in type and dimension.

3. BW end dimension conform to ANSI B16.25.

4. Inspection and test in accordance with API 598 or BS EN 12266.

5. Valves larger than 64"are manufactured per standards.

Technical Innovation

With cutting-edge computer technology utilized, Rhinoflex Technical Center focuses on providing outstanding quality products and developing new lines. There is a highly educated and well-trained engineering team, supported by a comprehensive internal computer network which links the entire operations of design, manufacturing and administration.

Rhinoflex design philosophy is to develop a safe and cost-efficient valve. We introduced the latest Ansys, Fe-safe, CF-design and NX software for all our new product design research which include the advanced finite element analysis, fluid and fatigue analysis to virtually verify the new design prior to production, which has resulted in dramatically shortening development duration and assure a safe and cost-efficient final product.

Rhinoflex technicians are always ready to offer on line or on site technical training and support for all of its distributors, agents and end users.



High Temperature Test



Low Temperature Test



Low Fugitive Emission Test



Flow Coefficient Test



Fire Safe Test



1



2



3



4

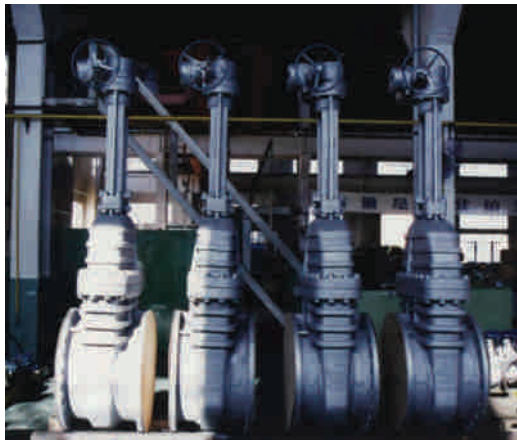


- 1 20" Class 300 Gate Valve
- 2 42" Class 600 Gate Valve
- 3 64" Class 150 Gate Valve
- 4 18" Class 600 Cryogenic Gate Valve
- 5 32" Electric Gate Valve
- 6 24" Class 300 Pneumatically Actuated Gate Valve
- 7 24" Class 600 Gate Valve
- 8 16" Class 900 Pressure Seal Gate Valve
- 9 42" Class 150 Check Valve
- 10 A217 Gr. C12A Gate Valve

10



5



6



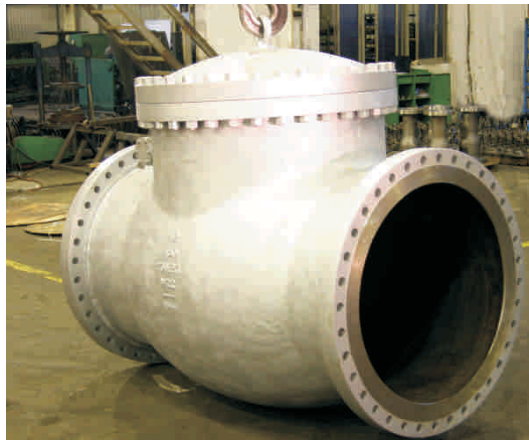
7



8



9



Example:

4

①

G

②

15

③

R

④

-

PS

⑤

-

G

⑥

,

WCB

⑦

/

NO.5

⑧

Rhinoflex figure numbers are designed to cover essential features. When ordering, please show the figure numbers and a detailed description to avoid misunderstanding of your requirements.

Following descriptions provide a basic guideline in valve specification:

① Valve Size

② Valve Type

Valve Type	Gate Valve	Globe Valve	Swing Check
Symbol	G	GL	S

③ ANSI Class

Code	1	3	6	9	15	25
Class (LB)	150	300	600	900	1500	2500

④ End Connection

Symbol	End	Symbol	End
R	Raised face flanged end	S	Socket welding end
J	RTJ flanged end	N	Screwed end
B	Butt-welding end	F	Flat face flanged end
W	Wafer		

⑤ ⑥ Actuator and Special Code

Symbol	Description	Symbol	Decription
	Handwheel Operator	SC	Stop check
G	Gear Operator	AN	Angle type globe
M	Electric Actuator	R	Reduce bore
P	Pneumatic actuator	GL	Seat and Stem Injection
NRS	Non rising stem	ASC	Angle type stop check
PS	Pressure seal	BP	By Pass

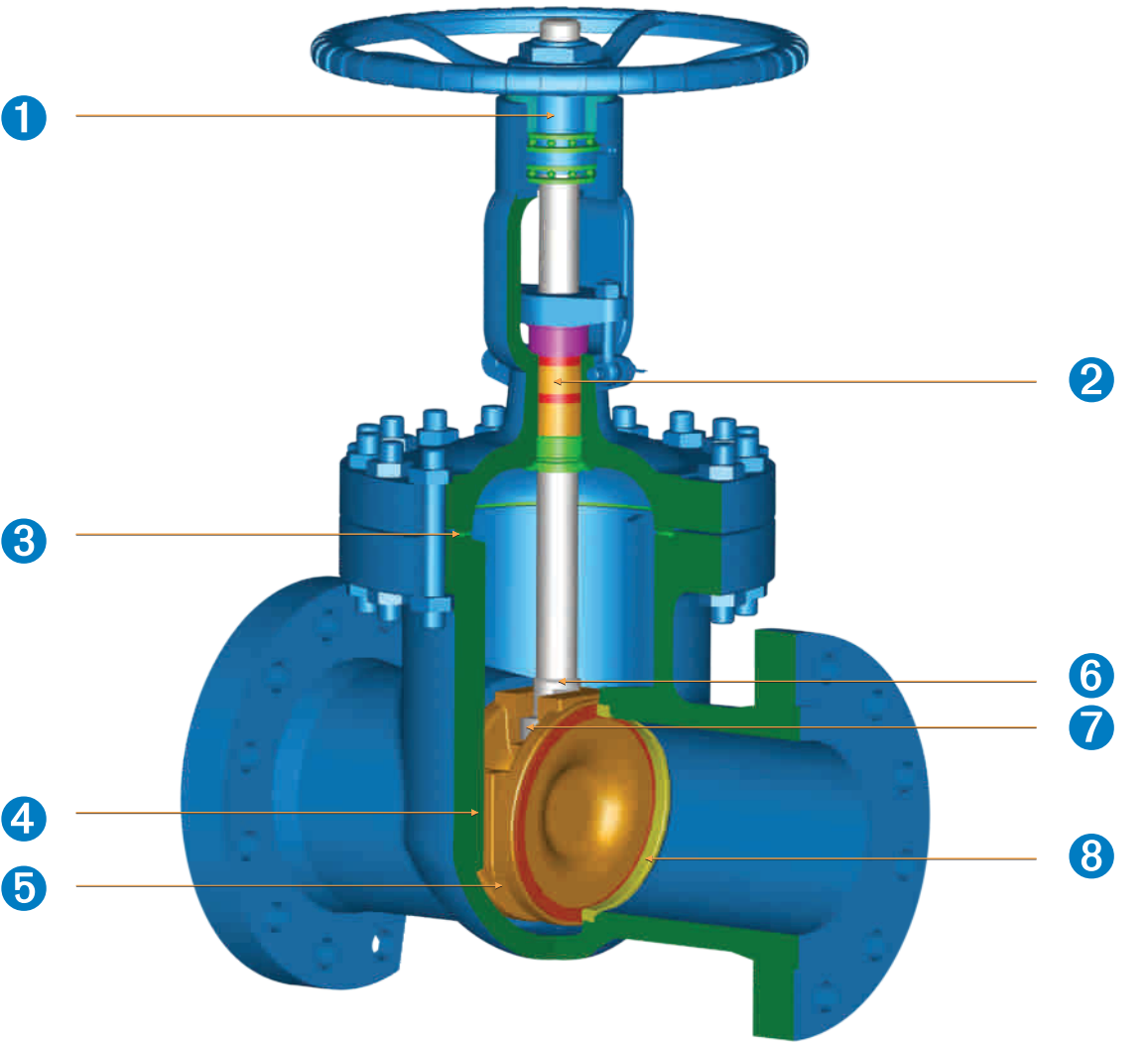
⑦ Shell Material

Material	WCB	LCB	LCC	WC6	WC9	C5	CF8	CF8M	CF3	CF3M	CD4MCuN
ASTM Ref	A216 Gr. WCB	A352 Gr. LCB	A352 Gr. LCC	A217 Gr. WC6	A217 Gr. WC9	A217 Gr. C5	A351 Gr. CF8	A351 Gr. CF8M	A351 Gr. CF3	A351 Gr. CF3M	A995 Gr. CD4MCuN

⑧ Trim Material

API600 Trim Number	Symbol	Disc Surface	Seat Surface	Stem Material
1	1	13%Cr	13%Cr	ASTM A182 Grade F6a
2	2	18%Cr,8%Ni	18%Cr,8%Ni	ASTM A182 Grade F304
5	5	Stellite	Stellite	ASTM A182 Grade F6a
8	8	13%Cr	Stellite	ASTM A182 Grade F6a
9	9	Monel	Monel	Ni Cu Alloy Monel
10	10	18%Cr,8%Ni	18%Cr,8%Ni	ASTM A182 Grade F316
12	12	18%Cr,8%Ni	Stellite	ASTM A182 Grade F316
13	13	Alloy 20 19%Cr,29%Ni	Alloy 20 19%Cr,29%Ni	ASTM B473
	16	Stellite	Stellite	ASTM A182 Grade F316
	20	Bronze	Bronze	Bronze

Note: 1.The denotation of trim No. 1 to 13 are the same as that of Table 8 in API 600.
2.Trim number 1 may be replaced by trim number 8 without notice.



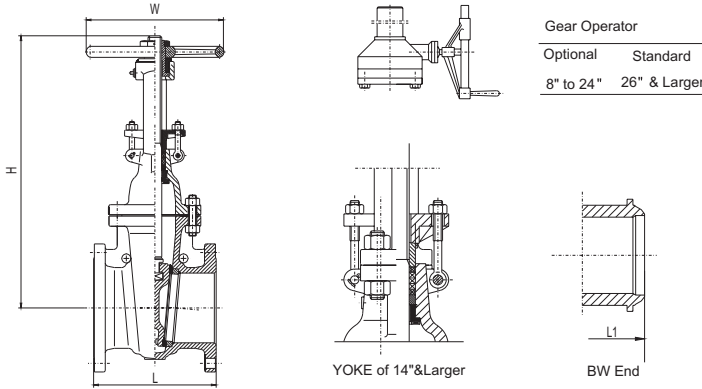
- 1 Long thread stem nut prolongs thread life and permits the removal of hand wheel in the fully open position.
- 2 Spacer ring in conjunction with packing is used in gate valves of 300 class and above while 150-class valve is only fitted with packing; packing with lantern ring is available upon customer request.
- 3 Flexible graphite gasket used for 150 Class gate valve, spiral wound gasket for Class 300 & 600 valves and metal ring gasket for gate valves of 900 or greater Class(600 Class is obtainable if customer requires)
- 4 Integral guide inside body keeps wedge self-centered during valve opening and closing.
- 5 Flexible wedge is able to compensate for seat surface distortion and body deformation caused by piping stress.
- 6 Blowout retention design: the tapered backseat face firmly contacts backseat of bonnet.
- 7 The strength of bonnet-wedge connection exceeds that of bonnet thread root.
- 8 Renewable seal welded seats with stellite 6 are standard design while screwed-in seats are optional.

Part	Standard	Low Temperature Service	Stainless Steel	High Temperature Service	Sour Service
BODY	ASTM A216-WCB	ASTM A352-LCC	ASTM A351-CF8M	ASTM A217-WC9	ASTM A216-WCB
BONNET	ASTM A216-WCB	ASTM A352-LCC	ASTM A351-CF8M	ASTM A217-WC9	ASTM A216-WCB
WEDGE	ASTM A216-WCB/CR13 OVERLAY ASTM A217-CA15(10"&Smaller)	ASTM A352-LCC/316 OVERLAY	ASTM A351-CF8M	ASTM A217-WC9/STL. OVERLAY	ASTM A216-WCB/CR13 OVERLAY-NC ASTM A217-CA15(10"&Smaller)-NC
STEM NUT	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2
GLAND FLANGE	ASTM A216-WCB	ASTM A352-LCB	ASTM A351-CF8	ASTM A216-WCB	ASTM A216-WCB
HANDWHEEL	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON
SEAT RING	ASTM A105/STL. OVERLAY	ASTM A182-F316/STL. OVERLAY	ASTM A182-F316/STL. OVERLAY	ASTM A182-F22/STL. OVERLAY	ASTM A105/STL. OVERLAY
STEM	ASTM A182-F6a	ASTM A182-F316	ASTM A182-F316	ASTM A182-F6a	ASTM A182-F6a-NC
BACK SEAT	ASTM A276-420	ASTM A276-316	ASTM A276-316	ASTM A276-420	ASTM A276-420-NC
GLAND	ASTM A276-420	STAINLESS STEEL	ASTM A276-316	ASTM A276-420	ASTM A276-420-NC
GASKET	SPIRAL WOUND GRAPHITE	SPIRAL WOUND GRAPHITE	SPIRAL WOUND GRAPHITE	SPIRAL WOUND GRAPHITE	SPIRAL WOUND GRAPHITE
MIDDLE PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
TOP/BOTTOM PACKING	316+GRAPHITE	316+GRAPHITE	316+GRAPHITE	316+GRAPHITE	316+GRAPHITE
RETAINING NUT	CARBON STEEL	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL
HANDWHEEL NUT	CARBON STEEL	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL
BONNET STUD	ASTM A193-B7	ASTM A320-L7M	ASTM A193-B8 Class 2	ASTM A193-B16	ASTM A193-B7M
BONNET NUT	ASTM A194-2H	ASTM A194-7M	ASTM A194-8	ASTM A194-7	ASTM A194-2HM
EYE BOLT	ASTM A193-B7	ASTM A320-L7M	ASTM A193-B8	ASTM A193-B16	ASTM A193-B7M
GLAND NUT	ASTM A194-2H	ASTM A194-7M	ASTM A194-8	ASTM A194-7	ASTM A194-2HM
GREASE FITTING	CARBON STEEL	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL
EYE BOLT PIN	CARBON STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	CARBON STEEL
RIVET	CARBON STEEL	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL
NAME PLATE	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL

Class 150 Cast Carbon Steel Gate Valve

API 600 Design,
Bolted Bonnet, OS&Y,
Screwed-in Back seat, Rising Stem,
Non-rising Handwheel,
Flexible Wedge

Figure NO.:
G1R,WCB/NO.8
G1B,WCB/NO.8

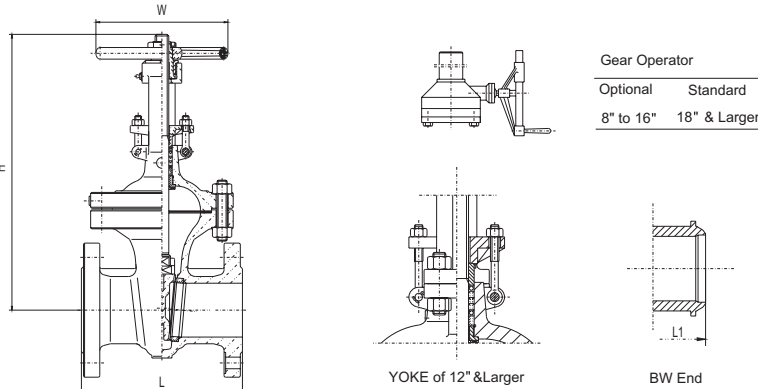


NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"	40"	42"	48"
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L(RF)	in	7	7.5	8	9	10	10.5	11.5	13	14	15	16	17	18	20	22	24	24	26	28	30	31	34
	mm	178	191	203	229	254	267	292	330	356	381	406	432	457	508	559	610	610	660	711	762	787	864
L1(BW)	in	8.5	9.5	11.12	12	15	15.88	16.5	18	19.75	22.5	24	26	28	32	34	36	36	38	40	42	43	46
	mm	216	241	283	305	381	403	419	457	502	572	610	660	711	813	864	914	914	965	1016	1067	1092	1168
W	in	8	8	10	12	12	12	14	16	18	20	22	24	27	30	24	24	24	24	24	24	32	32
	mm	200	200	250	300	300	300	350	400	450	500	550	600	680	760	610	610	610	610	610	610	610	610
H	in	15.2	17.1	18.9	23	26.8	30.1	37.6	45.2	53.2	59.4	67	74.5	83.4	98.4	110	117	124	129	146	157	190	233
	mm	386.5	434.5	480.5	584.5	681	765	956	1149	1350.5	1508	1703	1892	2119	2500	2806	2960	3148	3281	3721	3980	4820	5920
WT(RF)	Kg	19	26	35	49	64	81	127	204	291	400	486	610	788	1144	1570	1900	2540	2958	3380	4815	5300	7110
WT(BW)	Kg	15	18	26	41	58	69	108	156	248	365	482	587	752	1178	1521	1838	2261	2490	3310	4840	5275	7050

Class 300 Cast Carbon Steel Gate Valve

API 600 Design,
Bolted Bonnet, OS&Y,
Screwed-in Back seat, Rising Stem,
Non-rising Handwheel,
Flexible Wedge

Figure NO.:
G3R,WCB/NO.8
G3B,WCB/NO.8



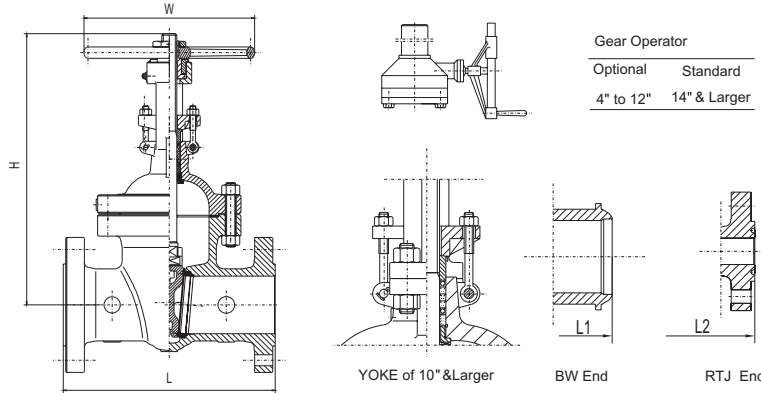
NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"	40"	42"	48"
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L-L1 (RF-BW)	in	8.5	9.5	11.12	12	15	15.88	16.5	18	19.75	30	33	36	39	45	49	53	55	60	68	76	78	88
	mm	216	241	283	305	381	403	419	457	502	762	838	914	991	1143	1245	1346	1397	1524	1727	1930	1981	2235
W	in	8	8	10	10	12	14	16	18	20	22	24	24	24	24	24	24	24	32	40	40	40	40
	mm	200	200	250	250	300	350	400	450	500	550	600	610	610	610	610	610	610	810	1000	1000	1000	1000
H	in	16.1	17.8	20	24.1	26.4	31.7	39.4	47.6	55.7	62.3	67.9	77.1	86.4	102.3	117.6	122.8	126.2	145.4	161.6	179	186.6	211.5
	mm	410	453	509	612	670	805	1000	1209	1416	1582	1725	1959	2194	2598	2986	3120	3205	3692	4104	4547	4739	5373
WT(RF)	Kg	26	35	52	75	102	147	235	350	472	683	950	1145	1634	2660	3090	3312	3597	4850	6850	8460	9500	12400
WT(BW)	Kg	17	26	52	74	102	113	164	344	485	565	805	1058	1412	2304	2540	2725	3057	4122	4990	6160	6800	9000

Class 600 Cast Carbon Steel Gate Valve

API 600 Design,
Bolted Bonnet, OS&Y,
Screwed-in Back seat, Rising Stem,
Non-rising Handwheel,
Flexible Wedge

Figure NO.:

G6R,WCB/NO.8
G6J,WCB/NO.8
G6B,WCB/NO.8



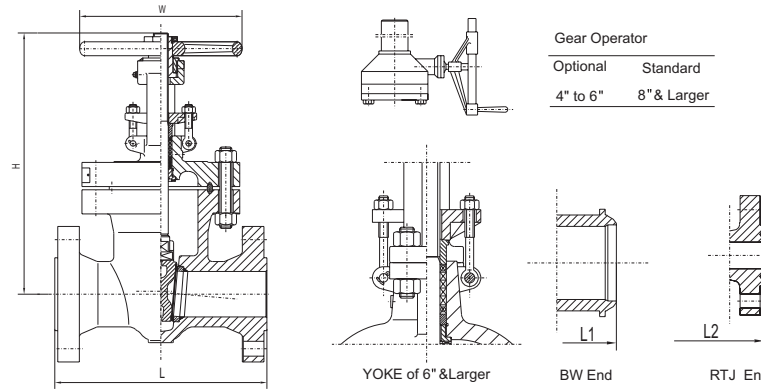
NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"	40"	42"	48"
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L-L1 (RF-BW)	in	11.5	13	14	17	20	22	26	31	33	35	39	43	47	55	57	61	65	70	82	90	96	100
	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397	1448	1549	1651	1778	2082	2286	2438	2540
L2(RTJ)	in	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	57.5	61.5	65.5	70.6	82.6	-	-	-
	mm	295	333	359	435	511	562	663	790	841	892	994	1095	1200	1407	1461	1562	1664	1794	2098	-	-	-
W	in	8	10	10	12	16	18	20	24	27	24	24	24	24	32	40	40	40	40	42	42	42	42
	mm	200	250	250	300	400	450	500	600	680	610	610	610	610	810	1000	1000	1000	1000	1200	1200	1200	1200
H	in	16.5	18.7	20.4	25.4	30.3	33	40.3	48.4	57.1	62	70.7	76.02	86.9	102	124	133	140	150	168	184	194	231
	mm	418	476	518	646	770	839	1024	1229	1450	1574	1797	1931	2207	2582	3150	3362	3549	3811	4260	4670	4921	5876
WT(RF)	Kg	39	52	68	120	170	273	402	610	902	1245	1530	2030	2735	3620	5220	6050	6945	8312	10000	14300	16460	22900
WT(BW)	Kg	28	42	55	84	125	204	337	548	905	974	1345	1730	2415	3017	4295	4980	5710	6834	8220	11755	13530	18824

Class 900 Cast Carbon Steel Gate Valve

API 600 Design,
Bolted Bonnet, OS&Y,
Screwed-in Back seat, Rising Stem,
Non-rising Handwheel,
Flexible Wedge

Figure NO.:

G9R,WCB/NO.5
G9J,WCB/NO.5
G9B,WCB/NO.5



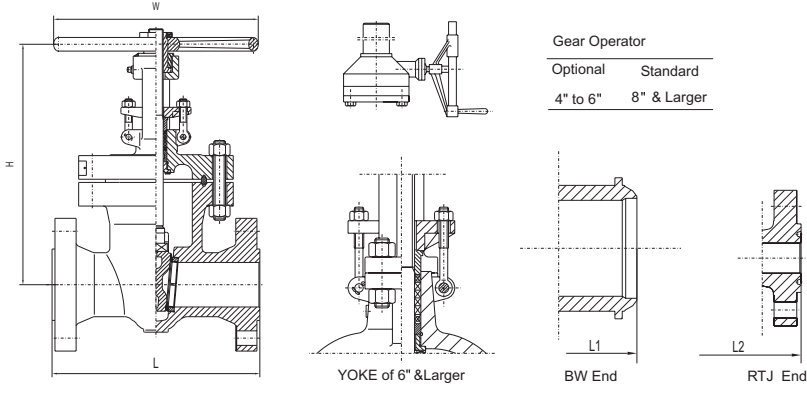
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L-L1 (RF-BW)	in	14.5	16.5	15	18	24	29	33	38	40.5	44.5	48	52	61	65	70	74	78	87
	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549	1664	1778	1892	2004	2232
L2(RTJ)	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	40.88	44.88	48.50	52.48	61.73	-	-	-	-	-
	mm	371	422	384	460	613	740	841	968	1038	1140	1232	1333	1568	-	-	-	-	-
W	in	10	10	12	14	20	24	24	24	24	24	32	40	40	40	40	47	47	47
	mm	250	250	300	350	500	600	610	610	610	610	810	1000	1000	1000	1000	1200	1200	1200
H	in	19.6	21.5	22.6	26.7	35.4	43.4	53	59.8	74.9	80.7	87	95	108.4	111.5	114.8	118	121.4	128
	mm	498	547	573	678	900	1103	1345	1520	1902	2051	2212	2417	2750	2833	2916	3000	3083	3250
WT(RF)	Kg	74	92	101	172	335	640	1100	1360	2250	2850	3870	4860	6100	7300	7600	9800	11950	15000
WT(BW)	Kg	54	65	70	110	258	498	810	1228	2009	2563	3300	4050	6120	5500	6900	9000	11000	13500

Class 1500 Cast Carbon Steel Gate Valve

API 600 Design,
Bolted Bonnet, OS&Y,
Screwed-in Back seat, Rising Stem,
Non-rising Handwheel,
Flexible Wedge

Figure NO.:

G15R,WCB/NO.5
G15J,WCB/NO.5
G15B,WCB/NO.5



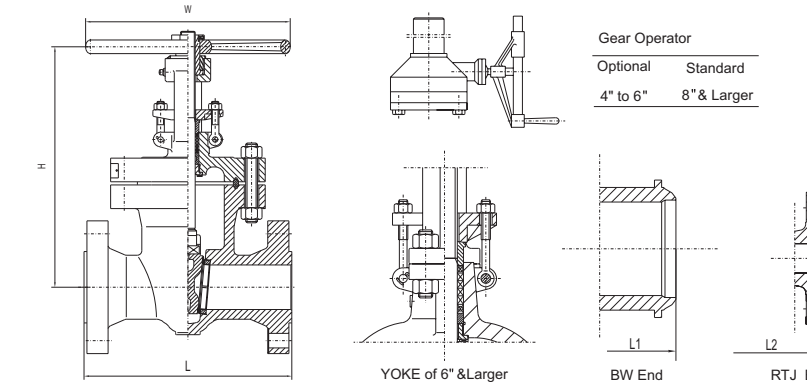
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750
L-L1 (RF-BW)	in	14.5	16.5	18.5	21.5	27.75	32.75	39	44.5	49.5	54.5	60.5	65.5	76.5	82	87.5	93
	mm	368	419	470	546	705	832	991	1130	1257	1384	1537	1664	1943	2083	2222.5	2362
L2(RTJ)	in	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12	50.25	55.38	61.4	66.4	77.6	-	-	-
	mm	371	422	473	549	711	842	1000	1146	1276	1407	1559	1686	1972	-	-	-
W	in	10	12	14	20	24	18	18	24	24	24	40	40	40	47	47	47
	mm	250	300	350	500	600	458	458	610	610	610	1000	1000	1000	1200	1200	1200
H	in	19.2	22.5	23.7	27.6	38.7	45.1	54	64.3	70.8	77.3	111	121	140.5	151	158	172
	mm	487	572	603	700	984	1146	1371	1633	1798	1963	2812	3078	3570	3836	4012	4368
WT(RF)	Kg	74	131	165	248	510	1040	1910	2685	4100	6200	8100	11130	13300	16500	18700	20900
WT(BW)	Kg	54	105	129	197	358	761	1640	2755	3200	5300	7100	10100	12900	15700	17500	19300

Class 2500 Cast Carbon Steel Gate Valve

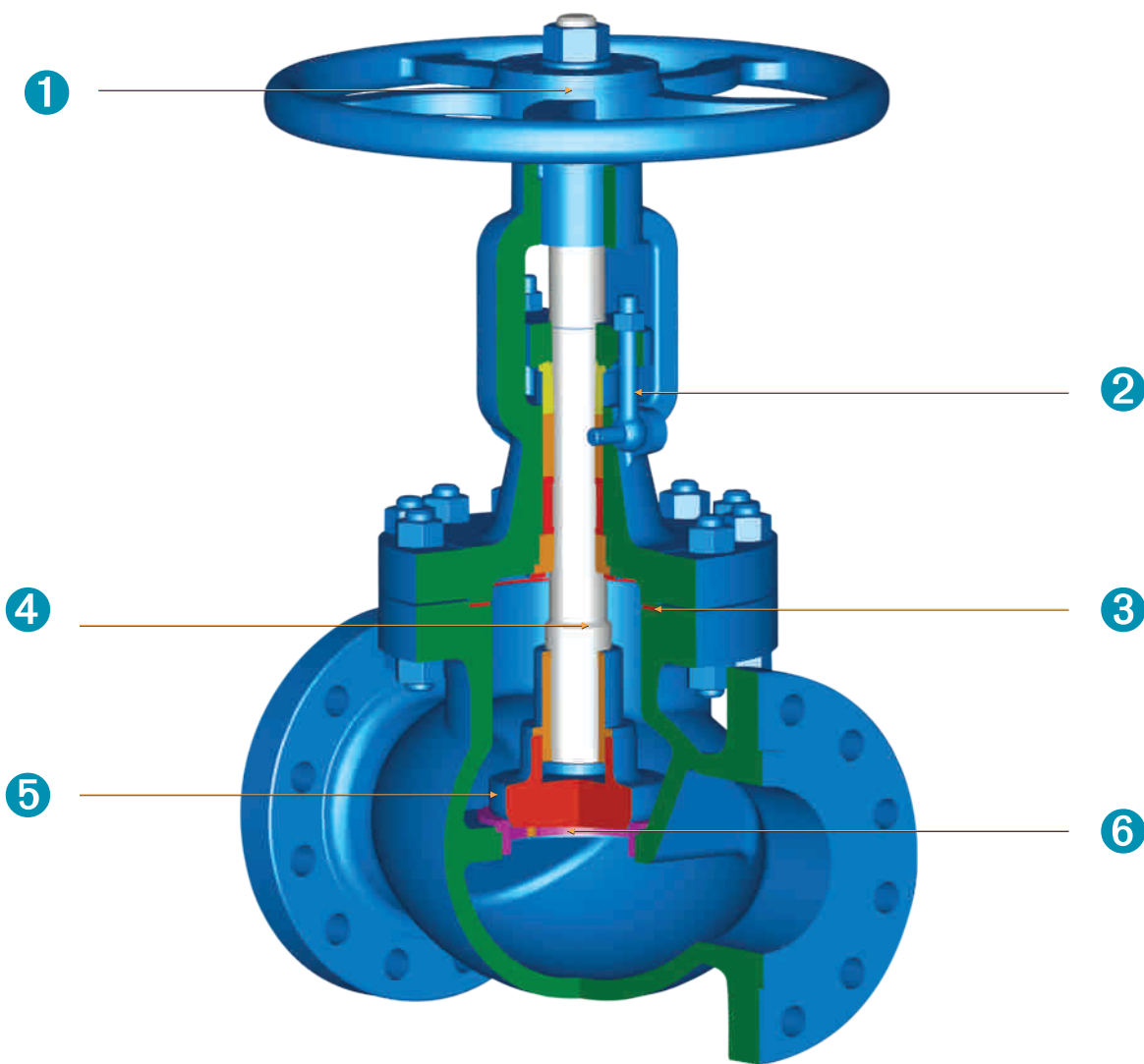
API 600 Design,
Bolted Bonnet OS&Y,Rising Stem,
Non-rising Handwheel,
Flexible Wedge

Figure NO.:

G25R,WCB/NO.5
G25J,WCB/NO.5
G25B,WCB/NO.5



NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L-L1 (RF-BW)	in	17.75	20	22.75	26.5	36	40.25	50	56	62	68	74	80	92
	mm	451	508	578	673	914	1022	1270	1422	1575	1727	1879	2031	2335
L2(RTJ)	in	17.88	20.25	23.00	26.88	36.50	40.88	50.88	56.88	-	-	-	-	-
	mm	454	514	584	683	927	1038	1292	1445	-	-	-	-	-
W	in	14	18	18	20	24	24	24	24	32	32	40	40	40
	mm	350	450	450	500	610	610	610	610	810	810	1000	1000	1000
H	in	22.2	22.2	22.9	34.3	57.1	63.4	81.7	89.8	319.7	400	100.6	112.6	136.6
	mm	563	563	582	870	1450	1610	2076	2281	1945	2250	2555	2860	3470
WT(RF)	Kg	130	200	245	490	1600	2450	4570	6100	8120	10170	12100	14700	16500
WT(BW)	Kg	95	150	175	375	1310	2010	3800	5200	7510	9730	10900	12100	14700



- 1 Impact handwheel supplied at manufacturer's option or on customer request.
- 2 Gland eyebolts are mounted to swing aside to facilitate packing maintenance.
- 3 Male and female bonnet joints for Class 150 to 600 valves, and ring joint for the Class 900 & above valves or as an option for Class 600 valves on customer request.
- 4 Anti blow-out stem design with conical backseat surface to permit repacking of valve in the fully open position.
- 5 Plug seat surface is standard disc design as well as spherical, parabola or flat seating surface is optional on customer request.
- 6 Seat face with stellite 6 is standard design.

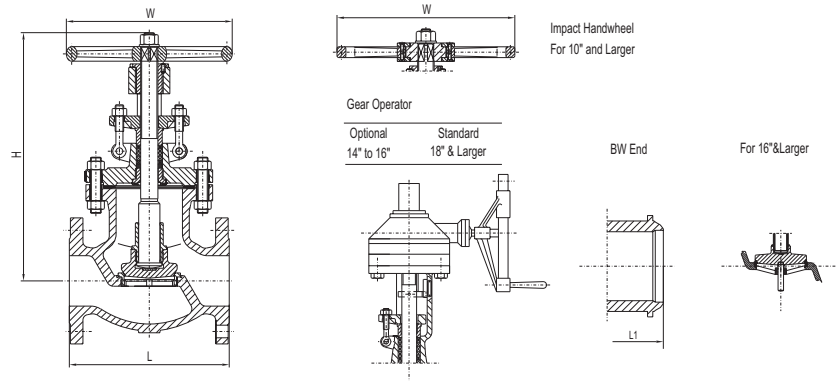
Part	Standard	Low Temperature Service	Stainless Steel	High Temperature Service	Sour Service
BODY	ASTM A216-WCB	ASTM A352-LCC	ASTM A351-CF8M	ASTM A217-WC9	ASTM A216-WCB
BONNET	ASTM A216-WCB	ASTM A352-LCC	ASTM A351-CF8M	ASTM A217-WC9	ASTM A216-WCB
DISC	ASTM A182-F6a ASTM A105/ER410 (FOR 4"&Larger)	ASTM A182-F316	ASTM A182-F316	ASTM A182-F22/STL.OVERLAY	ASTM A182-F6a-NC
STEM NUT	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2
GLAND FLANGE	ASTM A216-WCB	ASTM A352-LCB	ASTM A351-CF8	ASTM A216-WCB	ASTM A216-WCB
HANDWHEEL	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON
IMPACT BLOCK	CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL
RETAINER PLATE	CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL
SEAT RING	ASTM A105/STL.OVERLAY	ASTM A182-F316/STL.OVERLAY	ASTM A182-F316/STL.OVERLAY	ASTM A182-F22/STL.OVERLAY	ASTM A105/STL.OVERLAY
STEM	ASTM A182-F6a	ASTM A182-F316	ASTM A182-F316	ASTM A182-F6a	ASTM A182-F6a-NC
BACK SEAT	ASTM A276-420	ASTM A276-316	ASTM A276-316	ASTM A276-420	ASTM A276-420-NC
GLAND	ASTM A276-420	STAINLESS STEEL	ASTM A276-316	ASTM A276-420	ASTM A276-420-NC
SPACE RING	ASTM A276-420	ASTM A276-316	ASTM A276-316	ASTM A276-420	ASTM A276-420-NC
DISC NUT	ASTM A276-420	ASTM A276-316	ASTM A276-316	ASTM A276-420	ASTM A276-420-NC
STEM WASHER	ASTM A276-430	N/A	N/A	ASTM A276-430	STAINLESS STEEL
HANDWHEEL WASHER	CARBON STEEL	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL
BONNET GASKET	SOFT STEEL	ASTM A276-316	ASTM A276-316	SOFT STEEL	SOFT STEEL
PACKING	316+GRAPHITE	316+GRAPHITE	316+GRAPHITE	316+GRAPHITE	316+GRAPHITE
PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
BONNET STUD	ASTM A193-B7	ASTM A320-L7M	ASTM A193-B8 Class 2	ASTM A193-B16	ASTM A193-B7M
BONNET NUT	ASTM A194-2H	ASTM A194-7M	ASTM A194-8	ASTM A194-7	ASTM A194-2HM
EYE BOLT	ASTM A193-B7	ASTM A320-L7M	ASTM A193-B8	ASTM A193-B16	ASTM A193-B7M
GLAND NUT	ASTM A194-2H	ASTM A194-7M	ASTM A194-8	ASTM A194-7	ASTM A194-2HM
HANDWHEEL NUT	CARBON STEEL	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL
EYE BOLT PIN	CARBON STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	CARBON STEEL
RIVET	CARBON STEEL	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL
NAME PLATE	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL

Class 150 Cast Carbon Steel Globe Valve

BS 1873 Design,
Bolted Bonnet, OS&Y,
Screwed-in Back Seat,
Rising Stem and Handwheel,
Swivel Disc

Figure NO.:

GL1R,WCB/NO.8
GL1B,WCB/NO.8



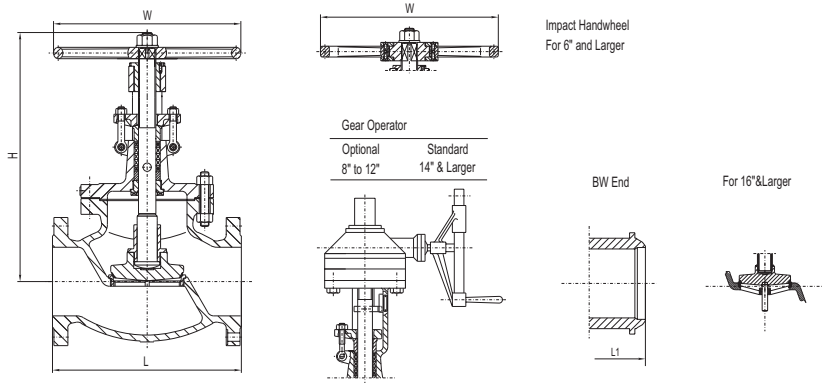
NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L-L1 (RF-BW)	in	8	8.5	9.5	11.5	14	16	19.5	24.5	27.5	31	36	38.5	38.5	51
	mm	203	216	241	292	356	406	495	622	699	787	914	978	978	1295
W	in	8	10	10	12	14	14	16	20	20	22	26	24	24	31.9
	mm	200	250	250	300	350	350	400	500	500	560	650	610	610	810
H	in	13.3	14.7	15.6	18.7	19.6	20.6	23.1	29.1	33.9	37.4	39.2	44.9	49.7	60
	mm	338	373	396	476	497	524	588	738	862	950	994	1140	1262	1524
WT(RF)	Kg	21	29	35	58	78	104	162	289	485	550	724	1400	2600	3700
WT(BW)	Kg	17	20	30	47	71	86	138	219	362	491	650	1250	2300	3250

Class 300 Cast Carbon Steel Globe Valve

BS 1873 Design,
Bolted Bonnet, OS&Y,
Screwed-in Back Seat,
Rising Stem and Handwheel,
Swivel Disc

Figure NO.:

GL3R,WCB/NO.8
GL3B,WCB/NO.8



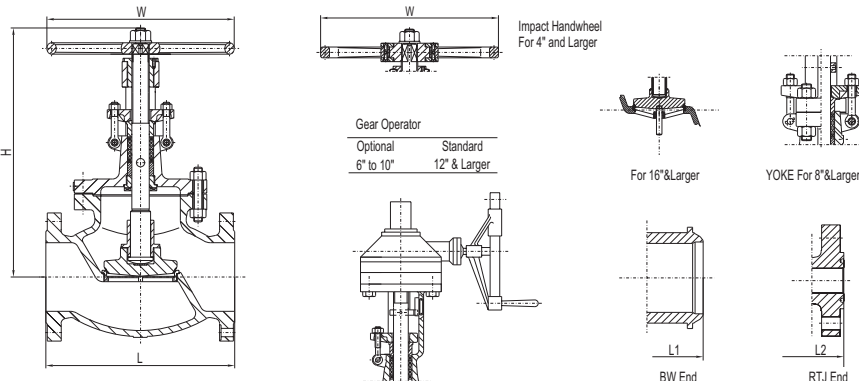
NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500
L-L1 (RF-BW)	in	10.5	11.5	12.5	14	15.75	17.5	22	24.5	28	33	34	38.5	40
	mm	267	292	318	356	400	445	559	622	711	838	864	978	1016
W	in	8	10	10	14	18	20	22	24	26	24	24	38.5	40
	mm	200	250	250	350	450	500	560	600	650	610	610	978	1016
H	in	13.9	15.3	16.6	19.5	22.7	26.6	35.9	37.4	40.6	44.5	51.6	57.5	64.3
	mm	353.5	388.5	420.5	495.5	576.5	674.5	911.5	949	1032	1130	1310	1460	1632
WT(RF)	Kg	26	38	51	76	125	173	297	500	724	1125	1650	2700	3650
WT(BW)	Kg	21	29	38	59	104	137	237	432	632	975	1450	2400	3200

Class 600 Cast Carbon Steel Globe Valve

BS 1873 Design,
Bolted Bonnet, OS&Y,
Screwed-in Back Seat,
Rising Stem and Handwheel,
Swivel Disc

Figure NO.:

GL6R,WCB/NO.8
GL6B,WCB/NO.8



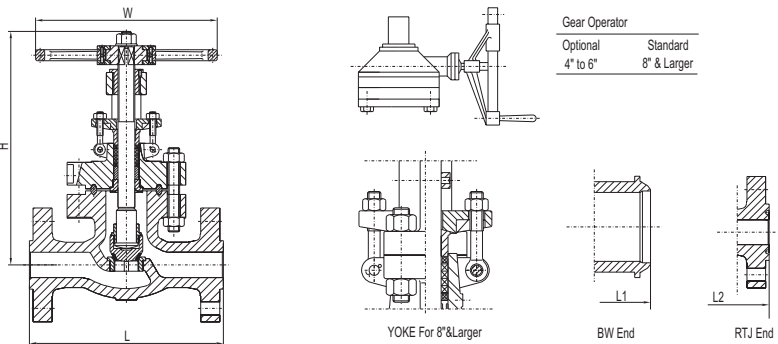
NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450
L-L1(RF-BW)	in	11.5	13	14	17	20	22	26	31	33	35	39	43
	mm	292	330	356	432	508	559	660	787	838	889	991	1092
L2(RTJ)	in	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12	35.12	39.12	43.1
	mm	295	333	359	435	511	562	663	790	841	892	994	1095
W	in	10	10	14	18	20	22	24	28	24	24	30	32
	mm	250	250	350	450	500	560	600	700	610	610	762	810
H	in	15.6	17.6	19.5	23.6	27.6	31.1	39.9	46.5	55	57.1	63.4	70.9
	mm	396.5	446	495.5	599	700	791	1014	1180	1397	1450	1610	1801
WT(RF)	Kg	37	50	62	150	187	294	543	1006	1350	1620	2160	3300
WT(BW)	Kg	30	40	58	132	142	227	460	729	1060	1330	1750	2800

Class 900 Cast Carbon Steel Globe Valve

BS 1873 Design,
Bolted Bonnet, OS&Y,
Screwed-in Back Seat,
Rising Stem and Handwheel,
Swivel Disc

Figure NO.:

GL9R,WCB/NO.5
GL9J,WCB/NO.5
GL9B,WCB/NO.5



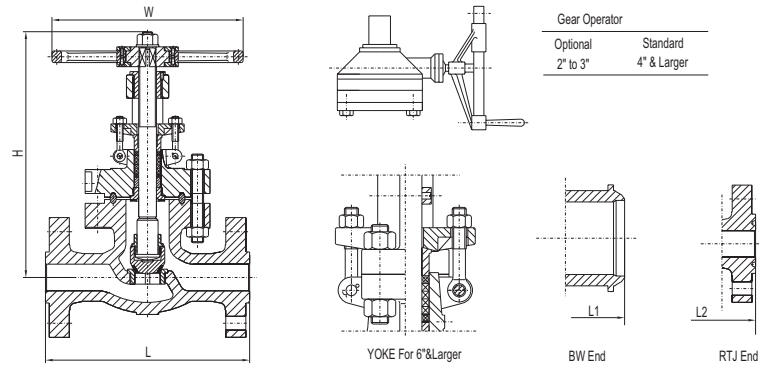
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"
DN	mm	50	65	80	100	150	200	250	300	350	400
L-L1 (RF-BW)	in	14.5	16.5	15	18	24	29	33	38	40.5	44.5
	mm	368	419	381	457	610	737	838	965	1029	1130
L2 (RTJ)	in	14.62	16.62	15.12	18.12	24.12	29.12	33.1	38.1	40.9	44.9
	mm	371	422	384	460	613	740	841	968	1038	1140
W	in	14	14	18	20	24	24	24	31.9	31.9	31.9
	mm	350	350	450	500	610	610	610	810	810	810
H	in	23.2	26	27.5	31.3	43.6	46.6	58.2	69.1	76.1	87
	mm	590	660	699	795	1108	1184	1479	1755	1934	2210
WT(RF)	Kg	95	138	110	197	435	720	1070	1920	2670	3520
WT(BW)	Kg	75	85	112	158	360	597	890	1690	2390	3170

Class 1500 Cast Carbon Steel Globe Valve

BS 1873 Design,
Bolted Bonnet, OS&Y,
Screwed-in Back Seat,
Rising Stem and Handwheel,
Swivel Disc

Figure NO.:

GL15R,WCB/NO.5
GL15J,WCB/NO.5
GL15B,WCB/NO.5



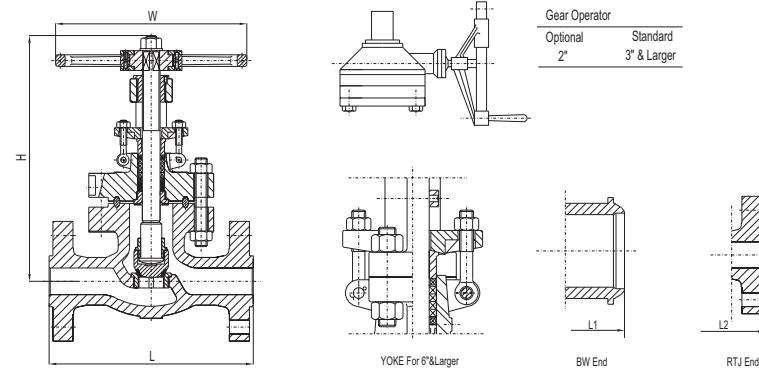
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"
DN	mm	50	65	80	100	150	200	250	300
L-L1 (RF-BW)	in	14.5	16.5	18.5	21.5	27.75	32.75	39	44.5
	mm	368	419	470	546	705	832	991	1130
L2 (RTJ)	in	14.62	16.62	18.62	21.62	28.00	33.13	39.4	45.1
	mm	371	422	473	549	711	842	1000	1146
W	in	14	14	20	22	24	24	31.9	31.9
	mm	350	350	500	560	610	610	810	810
H	in	21.7	22.5	22.9	31.3	50.3	77.2	96.5	114.3
	mm	550	572	582	795	1278	1960	2450	2904
WT(RF)	Kg	85	138	215	350	560	990	1530	2570
WT(BW)	Kg	75	112	129	299	462	830	1330	2270

Class 2500 Cast Carbon Steel Globe Valve

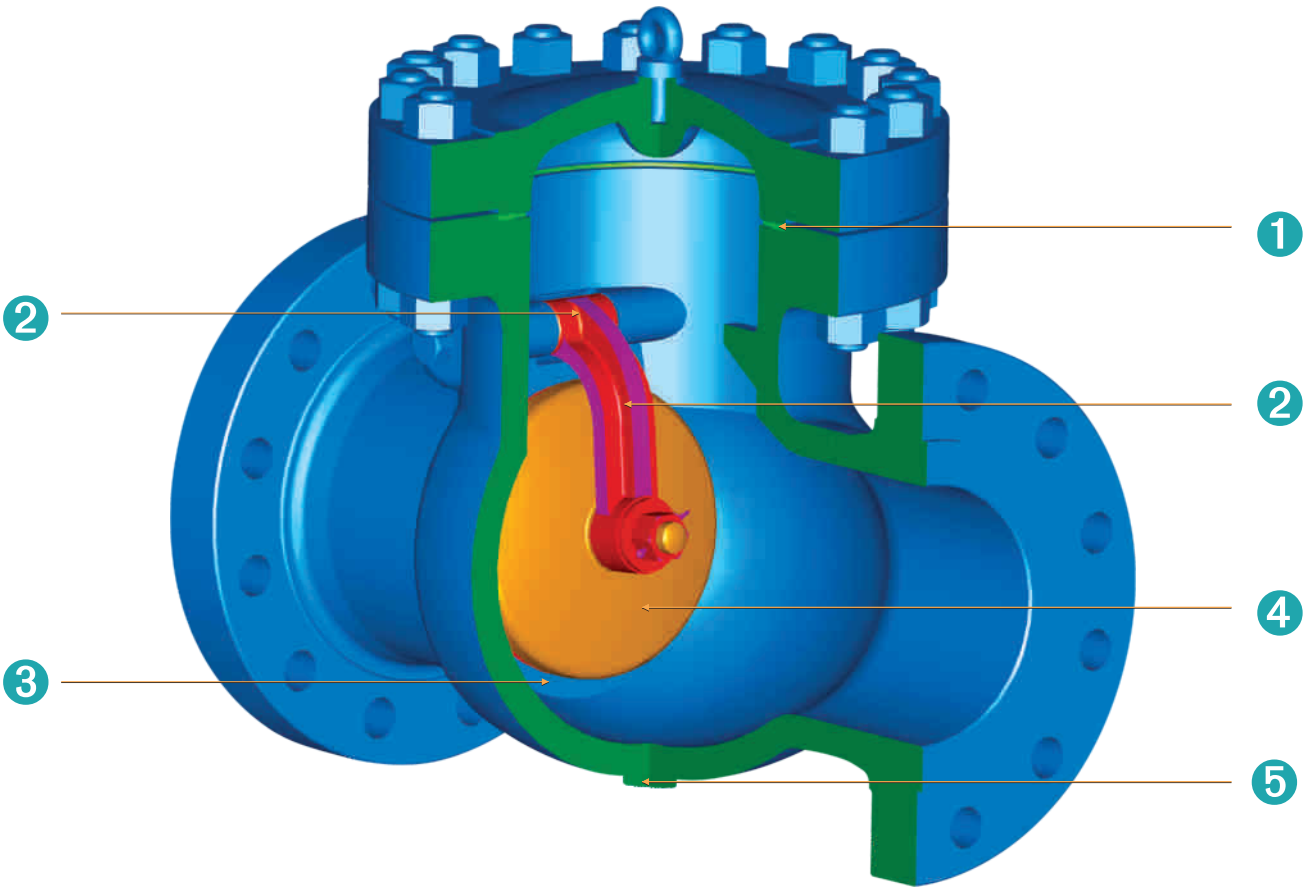
BS 1873 Design,
Bolted Bonnet, OS&Y,
Screwed-in Back Seat,
Rising Stem and Handwheel,
Swivel Disc

Figure NO.:

GL25R,WCB/NO.5
GL25J,WCB/NO.5
GL25B,WCB/NO.5



NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"
DN	mm	50	65	80	100	150	200	250
L-L1 (RF-BW)	in	17.75	20	22.75	26.5	36	40.25	50
	mm	451	508	578	673	914	1022	1270
L2(RTJ)	in	17.88	20.25	23.00	26.88	36.50	40.88	50.9
	mm	454	514	584	683	927	1038	1292
W	in	16	20	22	24	24	24	31.9
	mm	400	500	560	610	610	610	810
H	in	28.3	31.5	34.8	49.6	75	97	122.4
	mm	720	800	885	1260	1905	2465	3108
WT(RF)	Kg	176	264	308	759	1990	4390	5290
WT(BW)	Kg	141	214	238	644	1700	3950	4390



- 1 Flexible graphite gasket for Class 150 valves, spiral wound gasket for Class 300 & 600 valves, and ring joint for Class 900 & above valves or as an option for the Class 600 valves on customer request.
- 2 A hinge and hinge pin provided and mounted so as to permit full movement of the disc.
- 3 Standard renewable seal welded seat with stellite 6 while optional screwed-in seat.
- 4 Standard swing disc type, used in horizontal position for liquid service application or used in vertical position where liquid flow from bottom to top.
- 5 Provision of standard bosses for a drain tapping at location G at the lower part of body centerline. Additional bosses conform to customer requirements.

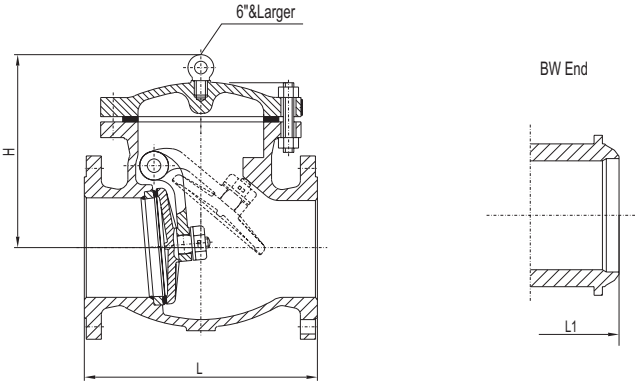
Part	Standard	Low Temperature Service	Stainless Steel	High Temperature Service	Sour Service
BODY	ASTM A216-WCB	ASTM A352-LCC	ASTM A351-CF8M	ASTM A217-WC9	ASTM A216-WCB
COVER	ASTM A216-WCB	ASTM A352-LCC	ASTM A351-CF8M	ASTM A217-WC9	ASTM A216-WCB
DISC	ASTM A217-CA15(4"&Smaller) &ASTM A216-WCB/ER410	ASTM A352-LCC/316 OVERLAY	ASTM A351-CF8M	ASTM A217-WC9/STL. OVERLAY	ASTM A217-CA15-NC(4"&Smaller) &ASTM A216-WCB/ER410-NC
HINGE	ASTM A216-WCB	ASTM A352-LCC	ASTM A351-CF8M	ASTM A217-WC9	ASTM A216-WCB
SEAT RING	ASTM A105/STL. OVERLAY	ASTM A182-F316/STL. OVERLAY	ASTM A182-F316/STL. OVERLAY	ASTM A182-F22/STL. OVERLAY	ASTM A105/STL. OVERLAY
HINGE PIN	ASTM A276-410	ASTM A276-316	ASTM A276-316	ASTM A276-410	ASTM A276-410-NC
PLUG FOR HINGE PIN	CARBON STEEL	ASTM A276-316	ASTM A276-316	STAINLESS STEEL	CARBON STEEL
WASHER	STAINLESS STEEL	ASTM A276-316	ASTM A276-316	STAINLESS STEEL	STAINLESS STEEL
DISC NUT	ASTM A276-420	ASTM A276-316	ASTM A276-316	ASTM A276-420	STAINLESS STEEL
DISC WASHER	ASTM A276-420	ASTM A276-316	ASTM A276-316	ASTM A276-420	STAINLESS STEEL
DISC SPLIT PIN	ASTM A276-420	ASTM A276-316	ASTM A276-316	ASTM A276-420	STAINLESS STEEL
BONNET RING JOINT	SOFT STEEL	ASTM A276-316	ASTM A276-316	ASTM A276-304	SOFT STEEL
BONNET STUD	ASTM A193-B7	ASTM A320-L7M	ASTM A193 B8 Class 2	ASTM A193-B16	ASTM A193-B7M
BONNET NUT	ASTM A194-2H	ASTM A194-7M	ASTM A194 8	ASTM A194-7	ASTM A194-2HM
RIVET	CARBON STEEL	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL
NAME PLATE	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL
HOOK SCREW	CARBON STEEL	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL

Class 150 Cast Carbon Steel Check Valve

BS 1868 Design, Bolted Cover, Swing Type Disc

Figure NO.:

S1R,WCB/NO.8
S1B,WCB/NO.8



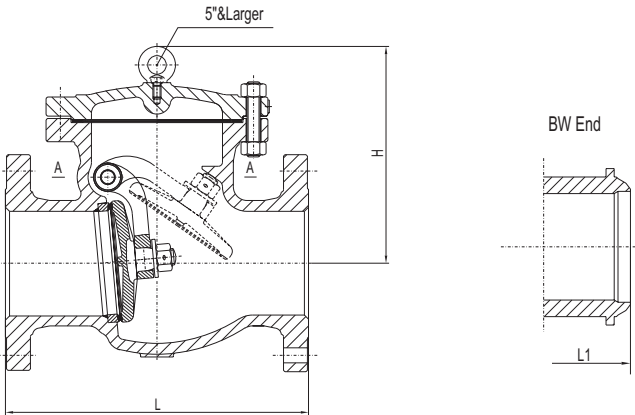
NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"	40"	42"	48"
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L-L1 (RF-BW)	in	8	8.5	9.5	11.5	13	14	19.5	24.5	27.5	31	34	38.5	38.5	51	51	57	60	68	77	85	89	101
	mm	203	216	241	292	330	356	495	622	699	787	864	978	978	1295	1295	1448	1524	1727	1956	2159	2261	2566
H	in	5.9	6.6	6.7	8	9.1	11.7	13.8	15.3	17.2	18.8	20.7	22.9	24.7	34.6	35.8	36.8	38.2	49.2	54.2	55.5	57.8	64.6
	mm	150.5	168	171	204	230	296.5	351.5	389.5	437.5	476.5	525	582	627	880	910	935	970	1250	1377	1410	1468	1642
WT(RF)	Kg	15	22	28	42	57	79	131	177	282	380	542	632	855	970	1276	1600	2020	2430	3130	4230	5030	6680
WT(BW)	Kg	10	12	17	29	45	57	96	143	227	294	468	552	755	831	1120	1420	1760	2130	2930	3730	4430	5680

Class 300 Cast Carbon Steel Check Valve

BS 1868 Design, Bolted Cover, Swing Type Disc

Figure NO.:

S3R,WCB/NO.8
S3B,WCB/NO.8



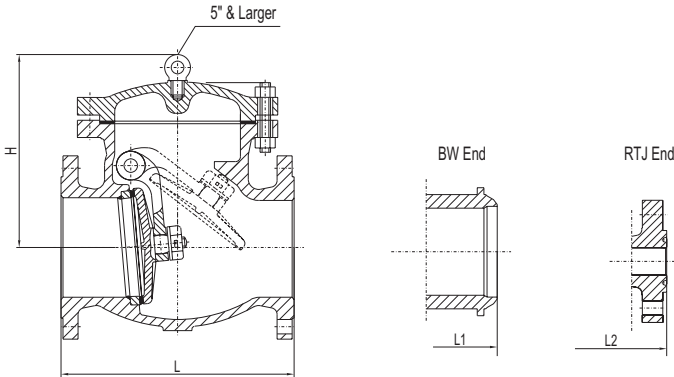
NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"	40"	42"	48"
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L-L1 (RF-BW)	in	10.5	11.5	12.5	14	15.75	17.5	21	24.5	28	33	34	38.5	40	53	53	59	62.75	68	82	96	103	124
	mm	267	292	318	356	400	445	533	622	711	838	864	978	1016	1346	1346	1499	1594	1727	2083	2438	2617	3151
H	in	6.9	7.3	8.5	10.2	12	12.5	15	17.1	20.1	22.1	23.5	26.6	28.7	33.9	36.6	45.8	50	50.0	59.4	68.9	73.6	87.8
	mm	176	185	216	259	304	317	380	434	511	561	596	675	730	860	930	1163	1270	1270	1510	1750	1870	2230
WT(RF)	Kg	20	30	40	65	84	118	193	310	450	595	840	933	1320	1848	2375	2660	3680	3880	5030	6290	7050	9310
WT(BW)	Kg	16	22	30	53	73	101	157	232	414	455	766	774	960	1792	1995	2260	2780	3380	4430	5640	6150	8310

Class 600 Cast Carbon Steel Check Valve

BS 1868 Design, Bolted Cover,
Swing Type Disc

Figure NO.:

S6R,WCB/NO.8
S6B,WCB/NO.8



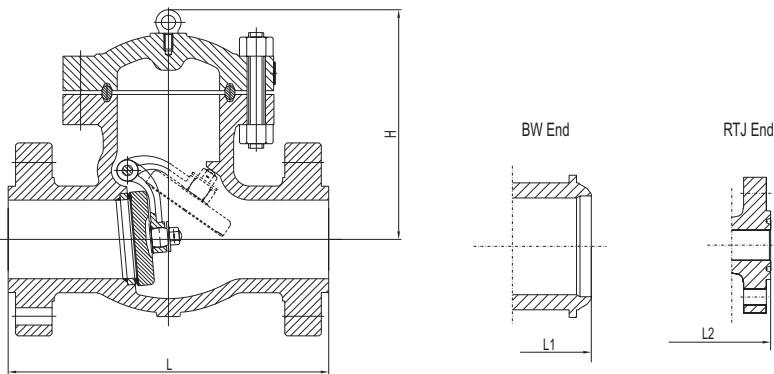
NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"	40"	42"	48"
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750	800	900	1000	1050	1200
L-L1 (RF-BW)	in	11.5	13	14	17	20	22	26	31	33	35	39	43	47	55	57	63	65	70	82	90	96	100
	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397	1448	1600	1651	1778	2083	2286	2438	2540
L2 (RTJ)	in	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38	57.5	63.5	65.5	70.6	82.6	-	-	-
	mm	295	333	359	435	511	562	663	790	841	892	994	1095	1200	1407	1461	1613	1664	1794	2099	-	-	-
H	in	7.2	8.3	9.1	10.4	11.6	14.7	16.8	20.4	22.4	24.5	26.8	29.6	38.4	43.7	43.7	46.9	52.1	53.8	60.7	67.0	70.9	85.5
	mm	184	210	232	263	295	374	426	517	569	622	680	752	975	1111	1110	1192	1324	1367	1542	1702	1800	2171
WT(RF)	kg	30	43	55	93	160	208	339	547	715	885	1310	1620	2120	3100	3800	4600	5500	6800	8100	8900	9800	11100
WT(BW)	kg	21	35	43	64	115	145	256	375	589	694	932	1279	1702	2497	3100	3900	4700	6000	7200	8100	9900	10200

Class 1500 Cast Carbon Steel Check Valve

BS 1868 Design, Bolted Cover,
Swing Type Disc

Figure NO.:

S15R,WCB/NO.8
S15B,WCB/NO.8
S15J,WCB/NO.8



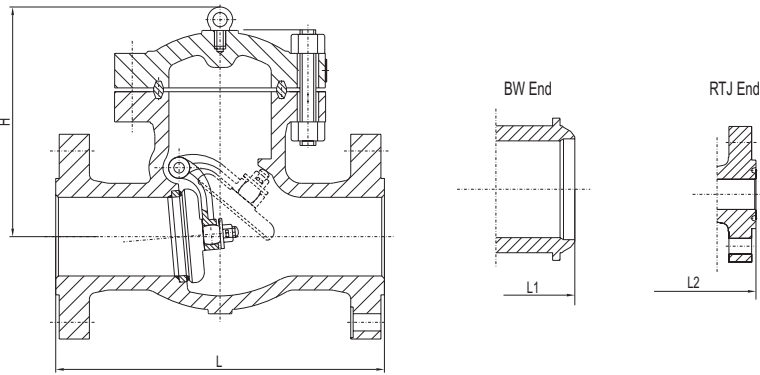
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750
L-L1 (RF-BW)	in	14.5	16.5	18.5	21.5	27.75	32.75	39	44.5	49.5	54.5	60.5	65.5	76.5	82.0	87.5	93.0
	mm	368	419	470	546	705	832	991	1130	1257	1384	1537	1664	1943	2083	2222.5	2362
L2 (RTJ)	in	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12	50.25	55.38	61.4	66.4	77.6	-	-	-
	mm	371	422	473	549	711	842	1000	1146	1276	1407	1559	1686	1972	-	-	-
H	in	11.7	11.8	13.4	16.2	20.1	26.8	29.8	33.7	37.4	40.1	45.2	50.6	60.6	70.6	80.7	90.7
	mm	296	300	341	412	511	680	756	857	950	1020	1147	1284	1539	1794	2049	2304
WT(RF)	kg	70	100	150	245	550	1010	1476	2280	3060	4500	6100	8000	9800	11600	13400	15200
WT(BW)	kg	50	77	115	190	452	750	1012	1780	2290	3500	5200	7500	8400	9300	10200	11100

Class 900 Cast Carbon Steel Check Valve

BS 1868 Design, Bolted Cover,
Swing Type Disc

Figure NO.:

S9R,WCB/NO.8
S9B,WCB/NO.8
S9J,WCB/NO.8



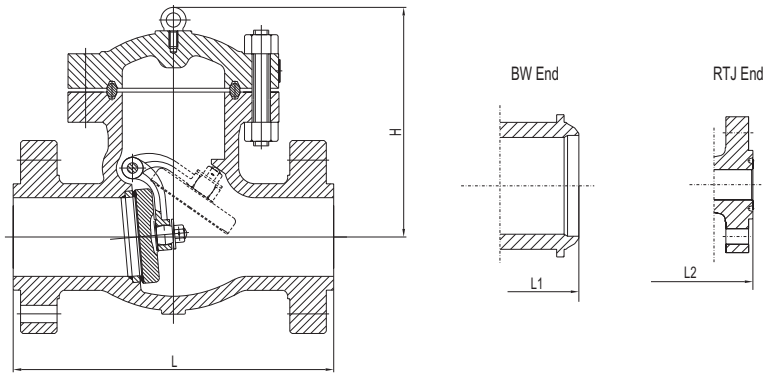
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"	32"	36"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750	800	900
L-L1 (RF-BW)	in	14.5	16.5	15	18	24	29	33	38	40.5	44.5	48.0	52.0	61.0	65.0	69.0	73.0	77.0	84.9
	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549	1651	1753	1854	1956	2156
L2 (RTJ)	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	40.88	44.88	48.5	52.5	61.7	65.9	69.9	73.9	-	-
	mm	371	422	384	460	613	740	841	968	1038	1140	1232	1333	1568	1673	1775	1876	-	-
H	in	11.7	11.8	11.8	12.9	17.4	19.8	26.1	30.5	30.8	33	33.0	36.7	36.4	44.1	54.0	59.9	65.8	71.7
	mm	296	300	300	327	441	502	664	775	782	838	839	932	924	1121	1372	1521	1671	1821
WT(RF)	kg	70	100	110	150	305	510	810	1120	1380	1900	3000	4000	5200	6600	7550	8850	10150	12750
WT(BW)	kg	50	68	77	113	230	387	632	901	1139	1613	2650	3550	4650	5630	6420	7510	8600	10780

Class 2500 Cast Carbon Steel Check Valve

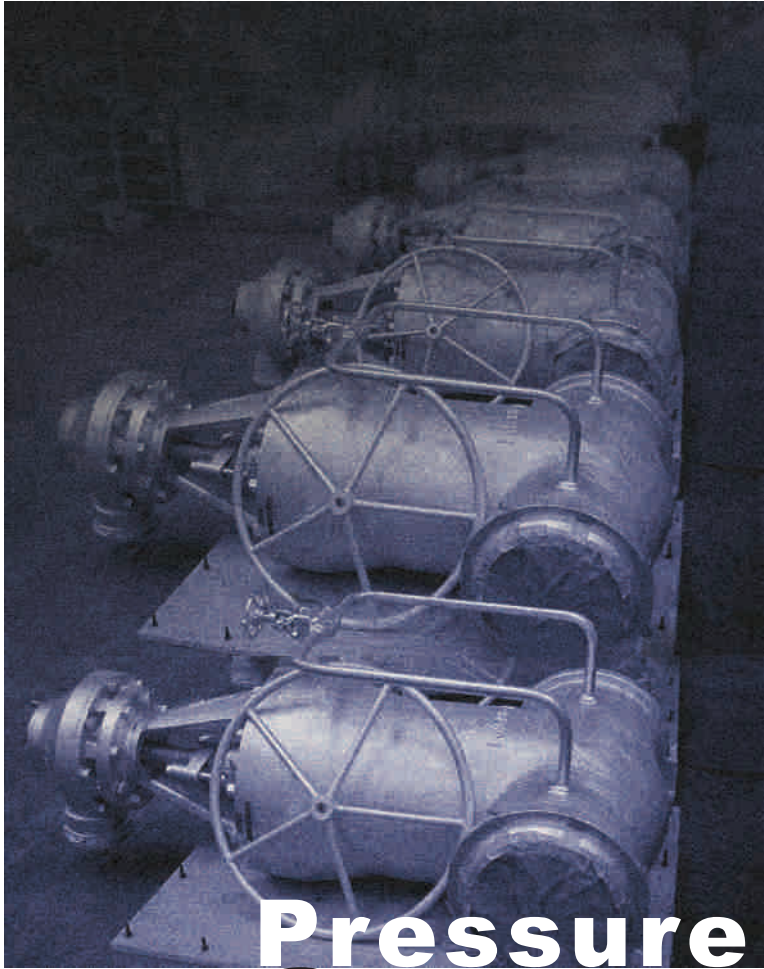
BS 1868 Design, Bolted Cover,
Swing Type Disc

Figure NO.:

S25R,WCB/NO.8
S25B,WCB/NO.8
S25J,WCB/NO.8



NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L-L1 (RF-BW)	in	17.75	20	22.75	26.5	36	40.25	50	56	62.0	68.0	73.9	79.9	91.9
	mm	451	508	578	673	914	1022	1270	1422	1575	1727	1877	2029	2334
L2 (RTJ)	in	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88	-	-	-	-	-
	mm	454	514	584	683	927	1038	1292	1445	-	-	-	-	-
H	in	16.4	16.5	17.4	18.9	20.1	28	33.5	39.4	47.2	51.2	55.1	59.1	63.0
	mm	416	419	441	479	511	711	851	1000	1200	1300	1400	1500	1600
WT(RF)	kg	145	240	330	650	806	2420	3750	5500	7400	9010	11200	12700	14000
WT(BW)	kg	110	190	260	535	665	1980	2980	4350	6200	8250	9400	11890	13000



Pressure Seal Valve

Prolonged function and more compact valves characterized by light weight, small volume and less maintenance, specifically designed for the high temperature and the high pressure services encountered in nuclear and fossil fuel power plants.

Cast Alloy Steel A217 of Grade C12A

Rhinoflex has developed Gate,Globe & Check valves for high pressure and high temperature application in power plant

To cater for the tendency of increasing power plant temperature and pressure to improve efficiencies and meet other high temperature industries, Rhinoflex has successfully developed cast alloy steel A217 Gr. C12A, this alloy exhibits excellent high-temperature properties based on the formation of a particular microstructure containing submicroscopic carbides; the alloy is also much more resistant to thermal fatigue than the austenitic stainless steel because of its lower thermal expansion rating and higher thermal conductivity. Table 1

below shows the allowable stresses (MPa) for several ASTM materials widely used in high temperature industries, and the chemical composition of C12A is shown in table 2 below :

High Temp. Cast Alloy Steel

Table 1 Unit: Mpa

Temperature		Castings			Forgings		
°C	°F	WC9	C12	C12A	F22	F9	F91
38	100	138	177.2	146.9	147.6	167.5	167.5
260	500	133	169.6	133	141.3	160.7	166.2
343	650	131.7	164.8	126.9	139.3	155.8	161.3
482	900	109	113	111	108.9	113	131.7
538	1050	35.2	34.5	78.6	35.2	34.5	96.5
593	1100	22	22.8	60.7	22	22.8	71

Table 1: ASME boiler and pressure standard code section II allowable stresses.
Note: Alloy C12A or F91 provides much higher allowable stresses in temperature ranging from 482~593°C (900~1100°F)

Table 2

Grade	Basic element											
	C	Si	Mn	S	P	Cr	V	N	Nb	Mo	Ni	AL
ASTM A217 C12A	0.08-0.12	0.20-0.50	0.30-0.60	≤0.01	≤0.03	8.00-9.50	0.18-0.25	0.03-0.07	0.06-0.10	0.85-1.05	≤0.4	≤0.04

In order to create the special microstructure required to meet the high temperature properties as well as nomal ambient temperature conditions, a number of metallurgical processes must be properly

executed; they include deoxidation, heat-treatment, proper welding process and PWHT(post welding heat treatment). Then, the special microstructure can be formed, Fig.1, 2 & 3 show the accepted microstructures:



Figure 1: Acceptable microstructure of castings (100X)⁽¹⁾



Figure 2: Acceptable microstructure after welding. (100X)⁽¹⁾

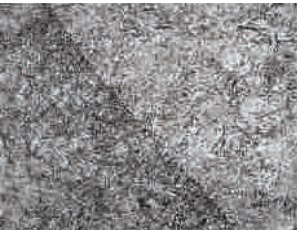


Figure 3: Acceptable microstructure in heat affected zone. (100X)⁽¹⁾

In response to special requirements of steel types, long-term preparation and R&D have been made. The materials have been verified in all properties and qualified to fulfill the application requirements.

1. Deoxidization

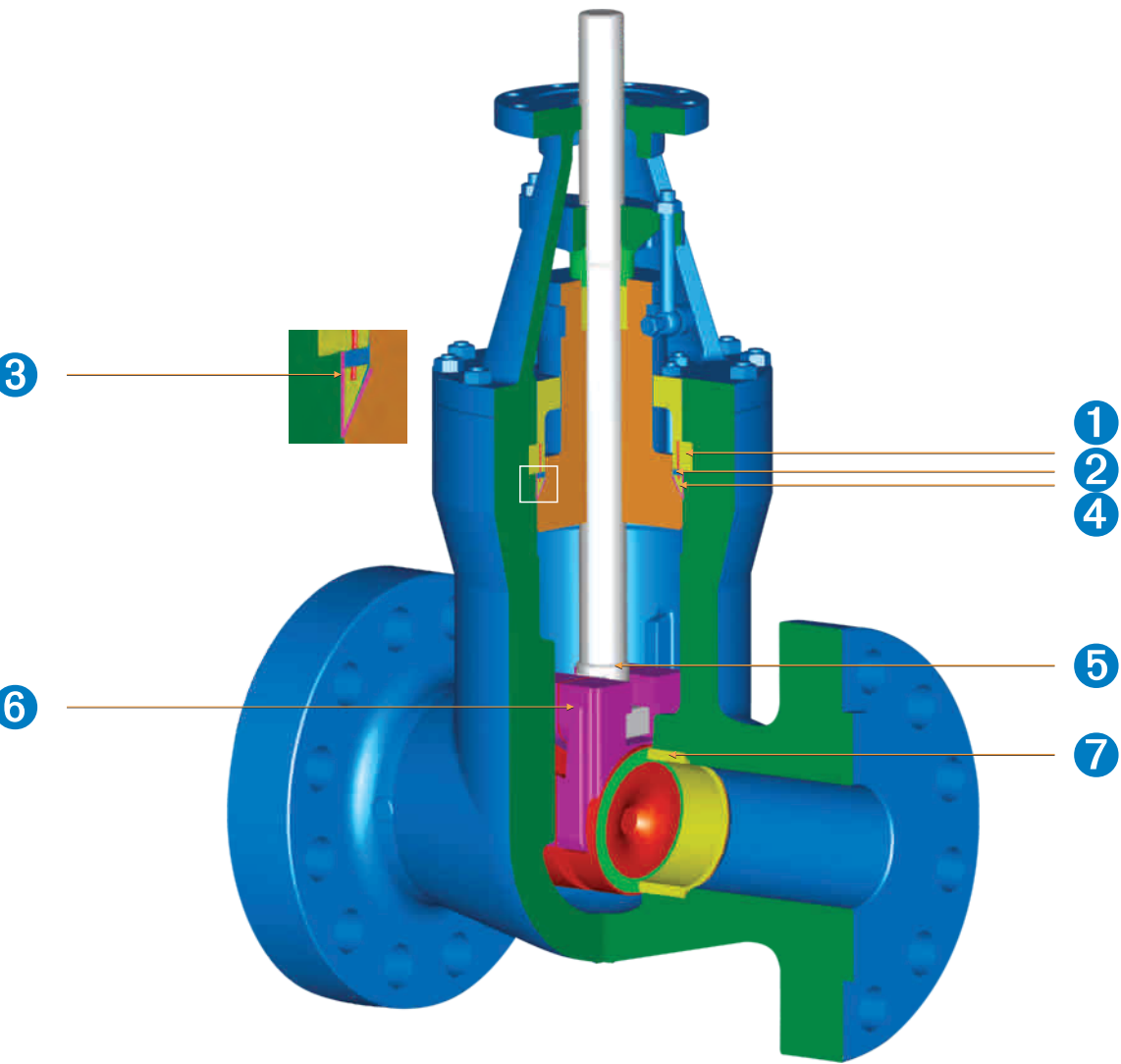
To remove free oxygen prior to pouring castings, a small quantity of deoxidizers materials, with a high affinity for oxygen, are added into the melted metal; they combine with the oxygen to form solid oxygen inclusion particles. The most common deoxidizers are manganese, silicon and aluminum. This is a critical process to ensure that an acceptable microstructure is obtained (see Fig 1) and we can achieve high temperature creep strength.

2. Heat treatment

This processing is also one of the key procedures to ensure the proper microstructure. In order to meet the high temperature properties, we perform strict heat treatment procedures; metal temperature,heating and cooling periods are critical in this process.

3. Welding & Post-weld heat treatment (PWHT)

To achieve the proper creep resistance and toughness for the high chrome alloy, we use special weld & PWHT procedures, which include pre-heating temperature control and welding filler materials, particular attention is given to PWHT.All processes are controlled precisely to allow the formation of martensite in the weld and heat affected zone (HAZ). Figure 2 & 3 show the acceptable microstructure in weld area and HAZ.



- 1 Separated rings absorb the thrust along the stem applied by the internal pressure.
- 2 Sealing rings are used to withstand pressure and prevent deformation of the gaskets.
- 3 Stainless steel inlay to ensure soundness and corrosion-resistance in the critical body sealing zone for carbon and alloy steel valves.
- 4 Mild steel gasket seal to provide large contact area for perfect sealing.
- 5 Blowout proof stem design features tapered sealing surface which contacts against bonnet backseat when the valve is fully open.
- 6 Flexible wedge can compensate for seat face distortion and body deformation due to pipe stress.
- 7 Seat ring with stellite 6 overlay is standard design and installed with seal weld.

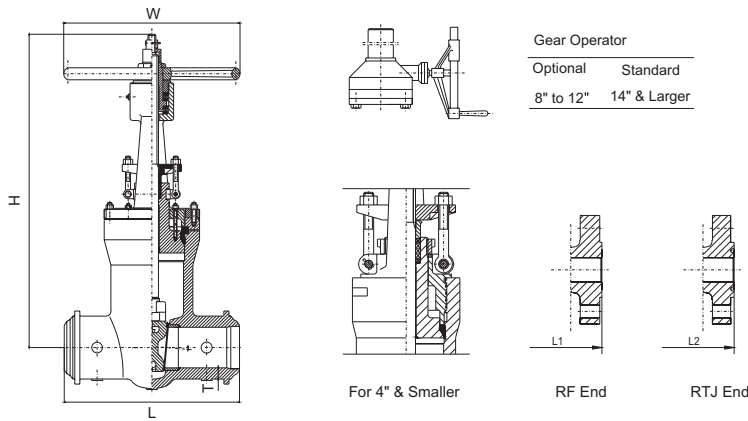
Part	Standard	Stainless Steel	High temperature Service		
			ASTM A217-WC6	ASTM A217-WC9	ASTM A217-C12A
BODY	ASTM A216-WCB	ASTM A351-CF8M	ASTM A217-WC6	ASTM A217-WC9	ASTM A217-C12A
BONNET	ASTM A105	ASTM A182-F316	ASTM A182-F11	ASTM A182-F22	ASTM A217-C12A
WEDGE	ASTM A216-WCB/ER410 & ASTM A217-CA15	ASTM A351-CF8M/STL.OVERLAY	ASTM A217-WC6/ER410 & ASTM A217-CA15	ASTM A217-WC9/ER410 & ASTM A217-CA15	ASTM A217-C12A/ER410
STEM NUT	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2
GLAND FLANGE	ASTM A216-WCB	ASTM A351-CF8	ASTM A216-WCB	ASTM A216-WCB	ASTM A216-WCB
HANDWHEEL	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON
SEAT RING	ASTM A105/STL.OVERLAY	ASTM A182-F316/STL.OVERLAY	ASTM A182-F11/STL.OVERLAY	ASTM A182-F22/STL.OVERLAY	ASTM A182-F6a/STL.OVERLAY
STEM	ASTM A182-F6a	ASTM A182-F316	ASTM A182-F6a	ASTM A182-F6a	ASTM A182-F6a
BONNET SEAL RING	ASTM A182-F304(4"&Smaller GRAPHITE)	ASTM A182-F316L(4"&Smaller GRAPHITE)	ASTM A182-F304(4"&Smaller GRAPHITE)	ASTM A182-F304(4"&Smaller GRAPHITE)	ASTM A182-F304(4"&Smaller GRAPHITE)
GLAND	ASTM A276-420	ASTM A276-316	ASTM A276-420	ASTM A276-420	ASTM A276-420
RETAINING NUT FOR STEM NUT	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL
YOKE	ASTM A216-WCB	ASTM A351-CF8	ASTM A216-WCB& ASTM A217-WC6	ASTM A216-WCB& ASTM A217-WC6	ASTM A216-WCB
PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
BONNET SEPARATE RING	CARBON STEEL	ASTM A276-420	ANSI 4140	ANSI 4140	ANSI 4140
CLIPPING RING	ASTM A216-WCB	ASTM A351-CF8	ASTM A217-WC6	ASTM A217-WC6	ASTM A276-420
HANDWHEEL NUT	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL
BONNET STUD	ASTM A193-B7	ASTM A193-B8	ASTM A193-B16	ASTM A193-B16	ASTM A193-B16
BONNET NUT	ASTM A194-2H	ASTM A194-8	ASTM A194-4	ASTM A194-4	ASTM A194-4
YOKE STUD	ASTM A193-B7	ASTM A193-B8	ASTM A193-B16	ASTM A193-B16	ASTM A193-B16
YOKE NUT	ASTM A194-2H	ASTM A194-8	ASTM A194-4	ASTM A194-4	ASTM A194-4
GLAND EYE BOLT	ASTM A193-B7	ASTM A193-B8	ASTM A193-B16	ASTM A193-B16	ASTM A193-B16
GLAND NUT	ASTM A194-2H	ASTM A194-8	ASTM A194-4	ASTM A194-4	ASTM A194-4
BONNET THRUST RING	CARBON STEEL	ASTM A276-420	AISI 4140	AISI 4140	ANSI 4140
SUPPORTING COVER	ASTM A105	ASTM A276-420	AISI 4140	AISI 4140	ANSI 4140
CLIPPING RING BOLT	CARBON STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL
RIVET	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL	STAINLESS STEEL
NAME PLATE	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL

Class 600 Cast Carbon Steel Gate Valve

ASME B16.34,
Pressure Seal, OS&Y, Rising Stem,
Non-rising Handwheel,
Flexible Wedge

Figure NO.:

G6R-PS,WCB/NO.5
G6B-PS,WCB/NO.5
G6J-PS,WCB/NO.5



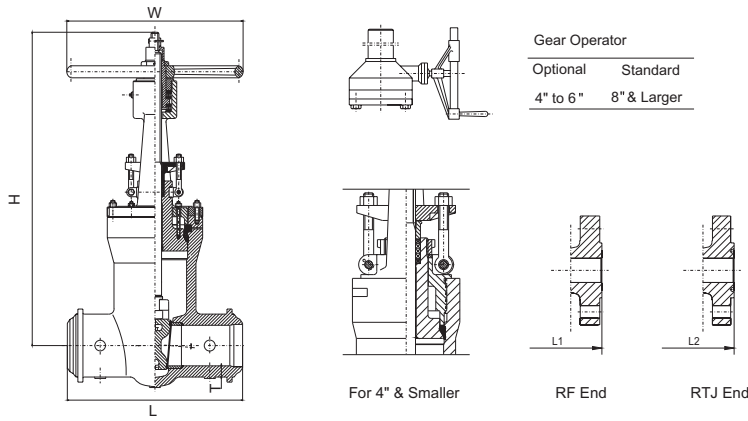
NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750
L-L1 (RF-BW)	in	11.5	13	14	17	20	22	26	31	33	35	39	43	47	55	57	61	65
	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397	1448	1549	1651
L2 (RTJ)	in	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12	35.12	39.12	43.13	47.25	55.38	57.50	61.50	65.50
	mm	295	333	359	435	511	562	663	790	841	892	994	1095	1200	1407	1460.5	1562	1664
W	in	7.9	9.8	9.8	13.8	15.7	17.7	19.7	23.6	26.8	24	24	24	24	31.50	31.50	39.38	39.38
	mm	200	250	250	350	400	450	500	600	680	610	610	610	610	800	800	1000	1000
H	in	23.2	24.8	26.3	36	39.4	42.5	49.9	59.5	70.5	73.1	85.1	88.63	97.25	118.13	128	137.88	149
	mm	590	629	667	914	1000	1080	1267	1511	1791	1857	2162	2251	2470	3000	3251	3502	3785
WT(RF)	kg	70	95	100	148	208	245	320	430	515	670	905	1150	1445	2080	2445	2835	3250
WT(BW)	kg	62	80	84	115	150	171	215	268	318	435	570	720	890	1285	1510	1750	2010

Class 900 Cast Carbon Steel Gate Valve

ASME B16.34,
Pressure Seal, OS&Y, Rising Stem,
Non-rising Handwheel,
Flexible Wedge

Figure NO.:

G9R-PS,WCB/NO.5
G9B-PS,WCB/NO.5
G9J-PS,WCB/NO.5



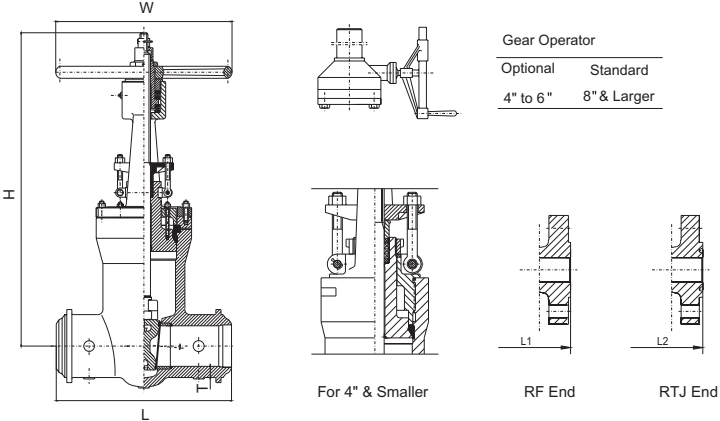
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750
L (BW)	in	8.5	10	12	14	20	26	31	36	39	43	48	52	61	64.5	68	71.5
	mm	216	254	305	356	508	660	787	914	991	1092	1219	1321	1549	1638	1727	1816
L1 (RF)	in	14.5	16.5	15	18	24	29	33	38	40.5	44.5	48	52	61	-	-	-
	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549	-	-	-
L2 (RTJ)	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	40.88	44.88	48.5	52.5	61.75	-	-	-
	mm	371	422	384	460	613	740	841	968	1038	1140	1232	1333	1568	-	-	-
W	in	10	10	12	14	20	24	24	24	24	24	30.5	30.5	39.38	39.38	39.38	47.25
	mm	250	250	300	350	500	600	610	610	610	610	800	800	1000	1000	1000	1200
H	in	23	30	30	34	40	50	61	70	80	89	97.25	108.25	127.62	138.25	149	159.5
	mm	594	753	756	864	1013	1276	1543	1781	2026	2261	2470	2750	3242	3512	3785	4051
WT(RF)	kg	63	99	107	158	294	693	1008	1418	1785	2520	3320	4400	6770	-	-	-
WT(BW)	kg	42	67	70	108	194	520	772	1103	1470	2048	2730	3685	5430	6370	7385	8480

Class 1500 Cast Carbon Steel Gate Valve

ASME B16.34,
Pressure Seal, OS&Y, Rising Stem,
Non-rising Handwheel,
Flexible Wedge

Figure NO.:

G15R-PS,WCB/NO.5
G15B-PS,WCB/NO.5
G15J-PS,WCB/NO.5



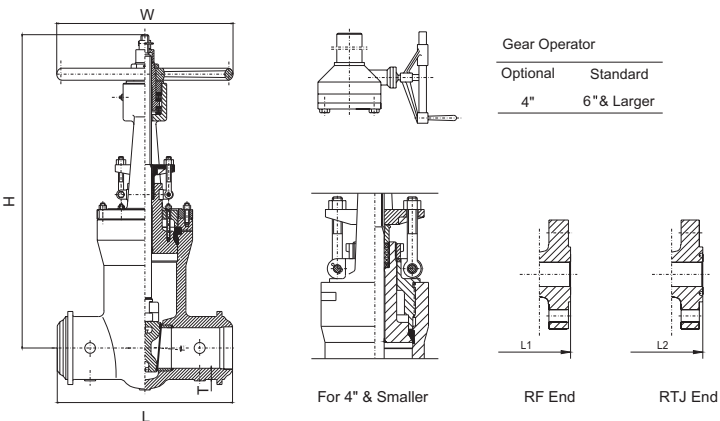
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L (BW)	in	8.5	10	12	16	22	28	34	39	42	47	53	58	66
	mm	216	254	305	406	559	711	864	991	1067	1194	1346	1473	1676
L1 (RF)	in	14.5	16.5	18.5	21.5	27.75	32.75	39	44.5	49.5	54.5	60.5	65.5	76.5
	mm	368	419	470	546	705	832	991	1130	1257	1384	1537	1664	1943
L2 (RTJ)	in	14.62	16.62	18.62	21.62	28	33.13	39.38	45.12	50.25	55.38	61.38	66.38	77.63
	mm	371	422	473	549	711	842	1000	1146	1276	1407	1559	1686	1972
W	in	10	12	14	20	24	18	18	24	24	24	39.38	47.25	35.5
	mm	250	300	350	500	600	458	458	610	610	610	1000	1200	900
H	in	23	30	30	34	39	53	58.3	73.6	87	92	111.13	122.13	148.25
	mm	594	753	756	864	994	1349	1480	1870	2216	2331	2823	3102	3766
WT(RF)	kg	63	99	126	218	504	956	1481	2184	2741	3780	5960	7370	10610
WT(BW)	kg	42	67	87	150	367	718	1071	1523	1890	2888	4630	5720	8240

Class 2500 Cast Carbon Steel Gate Valve

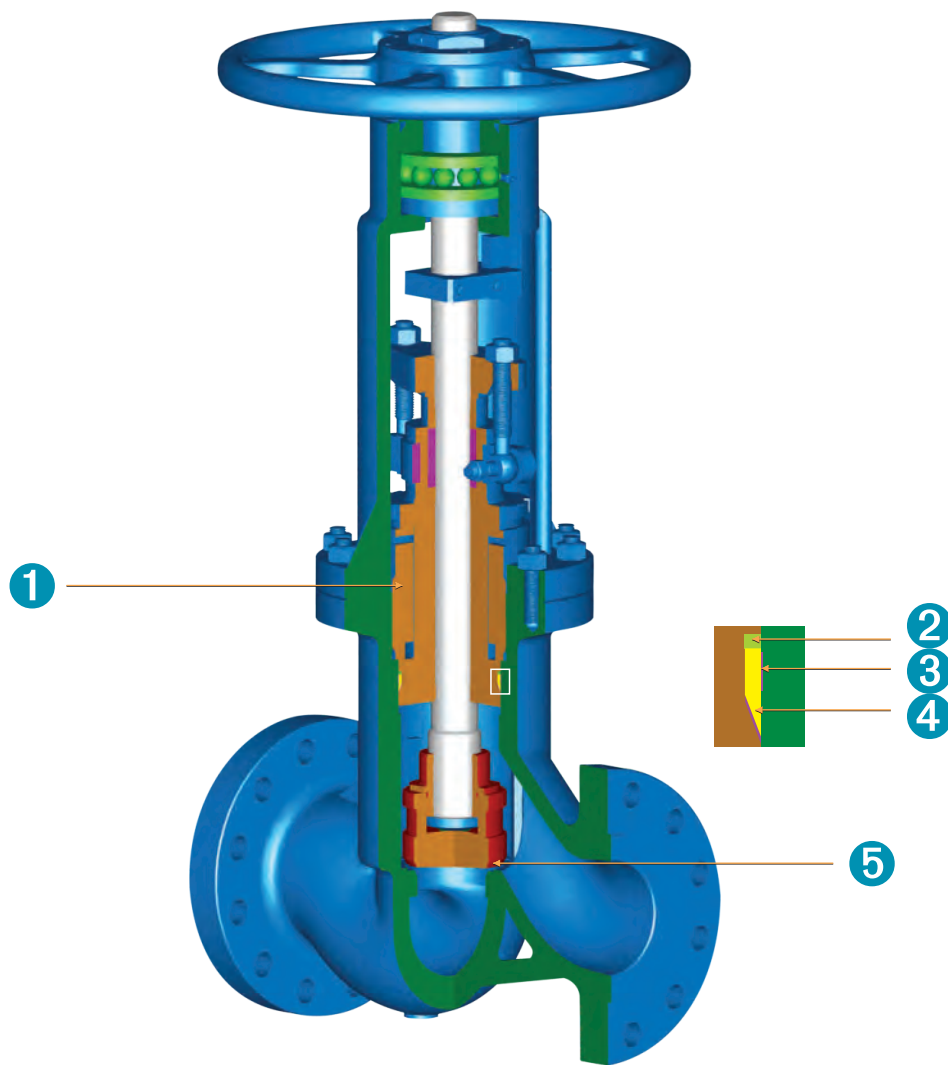
ASME B16.34,
Pressure Seal, OS&Y, Rising Stem,
Non-rising Handwheel,
Flexible Wedge

Figure NO.:

G25R-PS,WCB/NO.5
G25B-PS,WCB/NO.5
G25J-PS,WCB/NO.5



NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L (BW)	in	11	13	14.5	18	24	30	36	41	44	49	55	61	68
	mm	279	330	368	457	610	762	914	1041	1118	1245	1397	1549	1727
L1 (RF)	in	17.75	20	22.75	26.5	36	40.25	50	56	-	-	-	-	-
	mm	451	508	578	673	914	1022	1270	1422	-	-	-	-	-
L2 (RTJ)	in	17.88	20.25	23	26.88	36.5	40.88	50.88	56.88	-	-	-	-	-
	mm	454	514	584	683	927	1038	1292	1445	-	-	-	-	-
W	in	14	18	18	20	24	24	24	24	24	24	31.5	31.5	39.38
	mm	350	450	450	500	610	610	610	610	610	610	800	800	1000
H	in	23	30	30	34	44	55	69	74	94.13	97.25	116.13	128.75	153.63
	mm	594	753	756	870	1129	1389	1748	1873	2291	2470	2950	3270	3902
WT(RF)	kg	89	142	173	346	851	1386	2493	3091	-	-	-	-	-
WT(BW)	kg	53	95	100	200	488	850	1680	2330	3400	4200	5000	6170	8880



- 1 Separated rings absorb the thrust along the stem applied by the internal pressure.
- 2 Sealing rings are used to withstand pressure and prevent deformation of the gaskets.
- 3 Stainless steel inlay to ensure soundness and corrosion-resistance in the critical body sealing zone for carbon and alloy steel valves.
- 4 Mild steel gasket seal to provide large contact area for perfect sealing.
- 5 Seat ring with stellite 6 overlay is standard design and installed with seal weld.

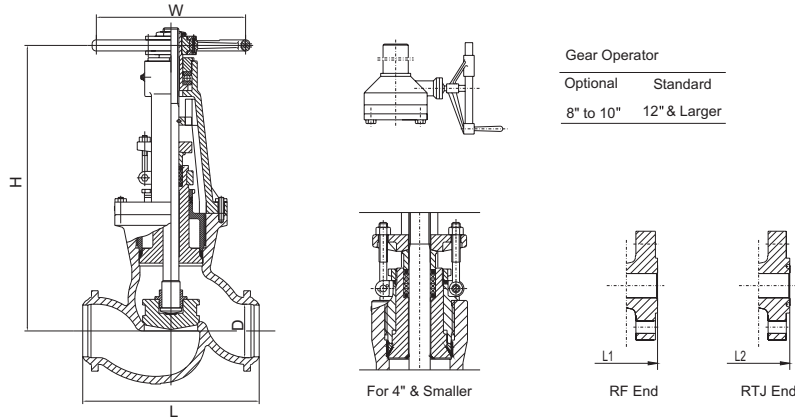
Part	Standard	Stainless Steel	High temperature Service		
			ASTM A217-WC6/STL.OVERLAY	ASTM A217-WC9/STL.OVERLAY	ASTM A217-C12A/STL.OVERLAY
BODY	ASTM A216-WCB/STL.OVERLAY	ASTM A351-CF8M/STL.OVERLAY	ASTM A217-WC6/STL.OVERLAY	ASTM A217-WC9/STL.OVERLAY	ASTM A217-C12A/STL.OVERLAY
BONNET	ASTM A105	ASTM A182-F316	ASTM A182-F11	ASTM A182-F22	ASTM A217-C12A
DISC	ASTM A182-F6a & ASTM A105/ER410	ASTM A182-F316	ASTM A182-F6a & ASTM A182-F11/ER410	ASTM A182-F6a & ASTM A182-F22/ER410	ASTM A182-F6a
STEM NUT	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2	ASTM A439 D-2
GLAND FLANGE	ASTM A216-WCB	ASTM A351-CF8	ASTM A216-WCB	ASTM A216-WCB	ASTM A216-WCB
HANDWHEEL	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON	DUCTILE IRON
BONNET SEAL RING	ASTM A182-F304(4"&Smaller GRAPHITE)	ASTM A182-F316L(4"&Smaller GRAPHITE)	ASTM A182-F304(4"&Smaller GRAPHITE)	ASTM A182-F304(4"&Smaller GRAPHITE)	ASTM A182-F304(4"&Smaller GRAPHITE)
STEM	ASTM A182-F6a	ASTM A182-F316	ASTM A182-F6a	ASTM A182-F6a	ASTM A182-F6a
RETAINING NUT FOR STEM NUT	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL
GLAND	ASTM A276-420	ASTM A182-F316	ASTM A276-420	ASTM A276-420	ASTM A276-420
HANDWHEEL NUT	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL
DISC NUT	ASTM A276-420	ASTM A182-F316	ASTM A276-420	ASTM A276-420	ASTM A276-420
STEM WASHER	ASTM A276-430	N/A	ASTM A276-430	ASTM A276-430	ASTM A276-430
THRUST RING	CARBON STEEL	AITM A276-420	AISI 4140	AISI 4140	AISI 4140
PACKING	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE	GRAPHITE
CLIPPING RING	ASTM A216-WCB	ASTM A351-CF8	ASTM A217-WC6	ASTM A217-WC6	ASTM A276-420
YOKE STUD	ASTM A193-B7	ASTM A193-B8	ASTM A193-B16	ASTM A193-B16	ASTM A193-B16
YOKE NUT	ASTM A194-2H	ASTM A194-8	ASTM A194-4	ASTM A194-4	ASTM A194-4
GLAND EYE BOLT	ASTM A193-B7	ASTM A193-B8	ASTM A193-B16	ASTM A193-B16	ASTM A193-B16
GLAND NUT	ASTM A194-2H	ASTM A194-8	ASTM A194-4	ASTM A194-4	ASTM A194-4
BONNET NUT 1	CARBON STEEL	ASTM A276-420	AISI 4140	AISI 4140	AISI 4140
CLIPPING RINGBOLT	CARBON STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL
BONNET NUT 2	CARBON STEEL	ASTM A276-420	AISI 4140	AISI 4140	AISI 4140
ORIENTED BLOCK	CARBON STEEL	ASTM A276-420	CARBON STEEL	CARBON STEEL	CARBON STEEL
YOKE	ASTM A216-WCB	ASTM A351-CF8	ASTM A216-WCB& ASTM A217-WC6	ASTM A216-WCB& ASTM A217-WC6	ASTM A217-C12A
RIVET	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL	STAINLESS STEEL
NAME PLATE	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL

Class 600 Cast Carbon Steel Globe Valve

ASME B16.34,
Pressure Seal, OS&Y,
Rising Stem and Handwheel,
Swivel Disc

Figure NO.:

GL6R-PS,WCB/NO.5
GL6B-PS,WCB/NO.5
GL6J-PS,WCB/NO.5



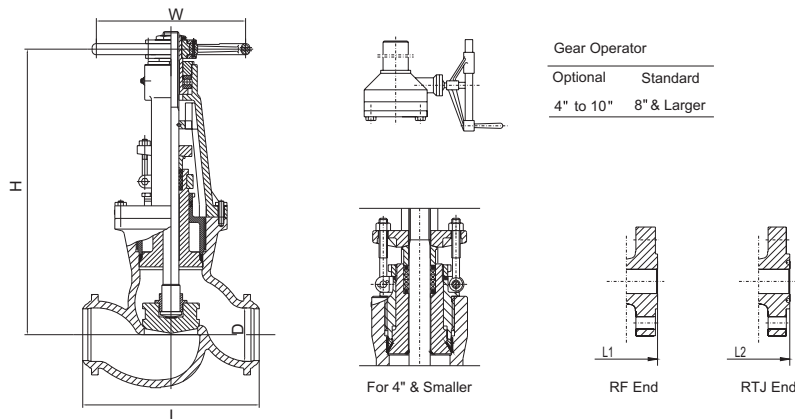
NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"
DN	mm	50	65	80	100	125	150	200	250	300	350	400
L-L1 (RF-BW)	in	11.5	13	14	17	20	22	26	31	33	35	39
	mm	292	330	356	432	508	559	660	787	838	889	991
L2 (RTJ)	in	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12	35.12	39.12
	mm	295	333	359	435	511	562	663	790	841	892	994
W	in	9.8	11.8	13.8	17.7	19.7	22	23.6	27.6	24	24	29.9
	mm	250	300	350	450	500	560	600	700	610	610	760
H	in	21.7	24.8	26.8	29.5	39.4	45.3	49.2	55.1	61	70.9	85
	mm	550	630	680	750	1000	1150	1250	1400	1550	1800	2160
WT(RF)	kg	45	55	85	135	190	305	620	1310	1900	2720	3150
WT(BW)	kg	35	45	60	95	150	230	540	1150	1720	2530	2900

Class 900 Cast Carbon Steel Globe Valve

ASME B16.34,
Pressure Seal, OS&Y,
Rising Stem and Handwheel,
Swivel Disc

Figure NO.:

GL9R-PS,WCB/NO.5
GL9B-PS,WCB/NO.5
GL9J-PS,WCB/NO.5



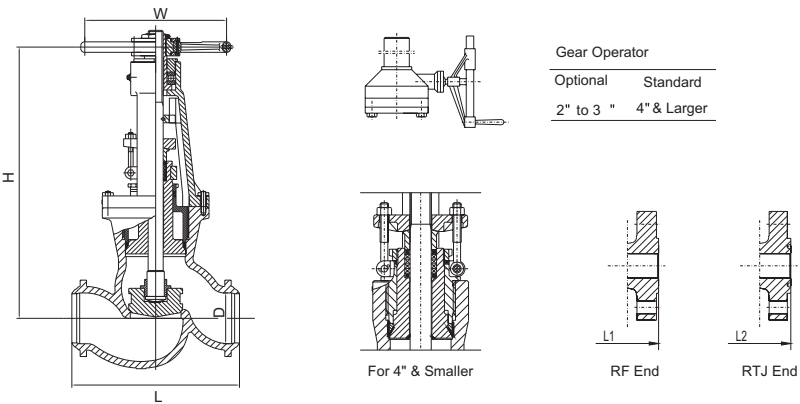
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"
DN	mm	50	65	80	100	150	200	250	300	350	400
L-L1 (RF-BW)	in	14.5	16.5	15	18	24	29	33	38	40.50	44.50
	mm	368	419	381	457	610	737	838	965	1029	1130
L2 (RTJ)	in	14.62	16.62	15.12	18.12	24.12	29.12	33.13	38.13	40.88	44.88
	mm	371	422	384	460	613	740	841	968	1038	1140
W	in	14	14	18	20	24	24	24	39.38	39.38	47.25
	mm	350	350	450	500	610	610	610	1000	1000	1200
H	in	24.4	25.2	28.4	33.5	48.2	53.1	61	68.88	78.75	91
	mm	619	641	721	850	1225	1350	1550	1750	2000	2310
WT(RF)	kg	84	110	116	179	441	1050	1720	2300	3350	4000
WT(BW)	kg	58	74	84	137	378	945	1520	2050	3050	3600

Class 1500 Cast Carbon Steel Globe Valve

ASME B16.34,
Pressure Seal, OS&Y,
Rising Stem and Handwheel,
Swivel Disc

Figure NO.:

GL15R-PS,WCB/NO.5
GL15B-PS,WCB/NO.5
GL15J-PS,WCB/NO.5



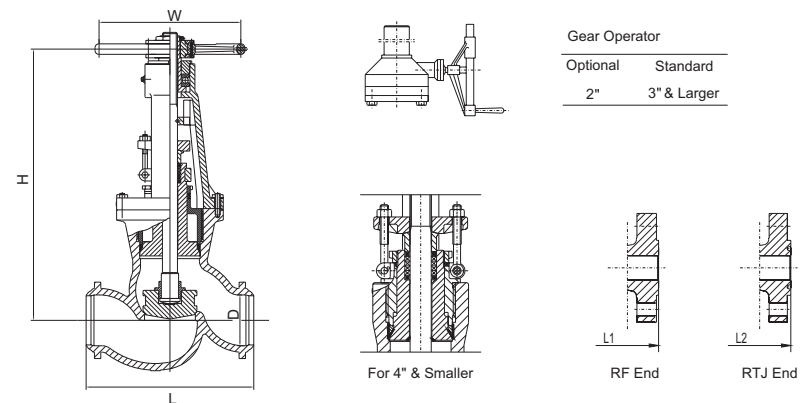
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"
DN	mm	50	65	80	100	150	200	250	300	350
L-L1 (RF-BW)	in	14.5	16.5	18.5	21.5	27.75	32.75	39	44.5	49.5
	mm	368	419	470	546	705	832	991	1130	1257
L2 (RTJ)	in	14.62	16.62	18.62	21.62	28	33.13	39.38	45.13	50.25
	mm	371	422	473	549	711	842	1000	1146	1276
W	in	14	14	20	22	24	24	39.38	39.38	47.25
	mm	350	350	500	560	610	610	1000	1000	1200
H	in	24.4	25.2	32.9	33.7	48.4	70.9	78.78	91	106
	mm	619	641	835	857	1230	1800	2000	2311	2692
WT(RF)	kg	84	116	143	236	918	1764	2680	3400	4300
WT(BW)	kg	58	62	128	168	781	1502	2280	2830	3600

Class 2500 Cast Carbon Steel Globe Valve

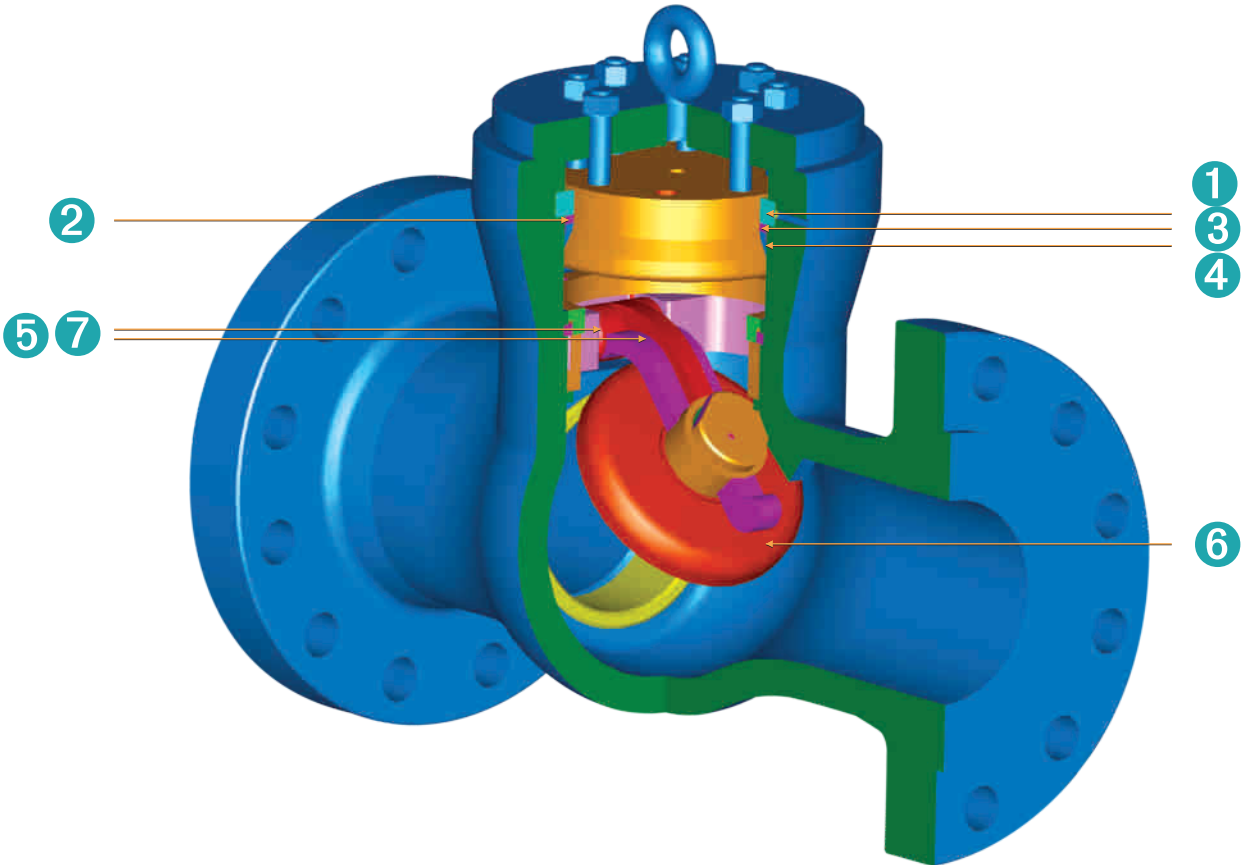
ASME B16.34,
Pressure Seal, OS&Y,
Rising Stem and Handwheel,
Swivel Disc

Figure NO.:

GL25R-PS,WCB/NO.5
GL25B-PS,WCB/NO.5
GL25J-PS,WCB/NO.5



NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"
DN	mm	50	65	80	100	150	200	250	300
L-L1 (RF-BW)	in	17.75	20	22.75	26.5	36	40.25	50	56
	mm	451	508	578	673	914	1022	1270	1422
L2 (RTJ)	in	17.88	20.25	23	26.88	36.5	40.88	50.88	56.88
	mm	454	511	584	683	927	1038	1292	1445
W	in	16	20	22	24	24	24	39.38	39.38
	mm	400	500	560	610	610	610	1000	1000
H	in	24.3	30.7	31.5	51.2	53.9	85	100	106
	mm	616	781	800	1300	1370	2160	2540	2692
WT(RF)	kg	105	163	221	525	1313	2520	3300	4200
WT(BW)	kg	74	116	147	368	973	2100	2500	3300



- 1 Separated rings absorb the thrust along the stem applied by the internal pressure.
- 2 Sealing rings are used to withstand pressure and prevent deformation of the gaskets.
- 3 Mild steel gasket seal to provide a large seal contact area for perfect sealing.
- 4 Stainless steel inlay to ensure soundness and corrosion-resistance in the critical body sealing zone for carbon and alloy steel valves.
- 5 Hinge pin design ensuring no pressure boundary intrusion.
- 6 Standard swing disc type to be used in horizontal position for liquid service applications or used in vertical position where liquid flow from bottom to top.
- 7 Hinge and hinge pin design to permit full movement of the disc.

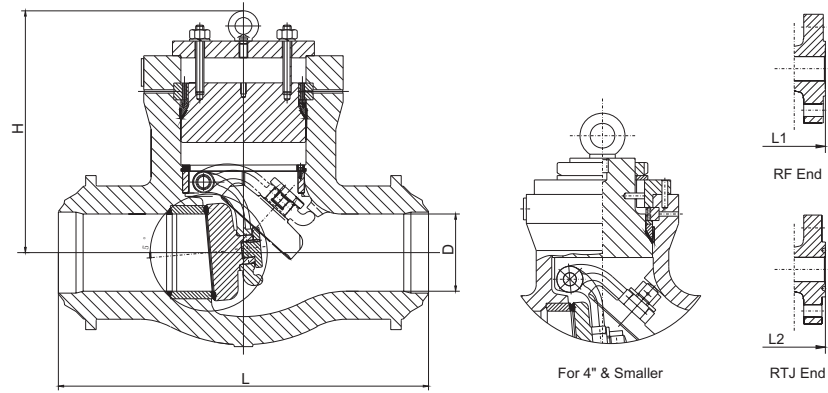
Part	Standard	Stainless Steel	High temperature Service		
			ASTM A217-WC6	ASTM A217-WC9	ASTM A217-C12A
BODY	ASTM A216-WCB	ASTM A351-CF8M	ASTM A217-WC6	ASTM A217-WC9	ASTM A217-C12A
COVER	ASTM A216-WCB(4"&Smaller ASTM A105)	ASTM A351-CF8M(4"&Smaller ASTM A182-F316)	ASTM A217-WC6(4"&Smaller ASTM A182-F11)	ASTM A217-WC9(4"&Smaller ASTM A182-F22)	ASTM A217-C12A(4"&Smaller ASTM A182-F91)
DISC	ASTM A217-CA15 &ASTM A216-WCB/ER410	ASTM A351-CF8M/STL.OVERLAY	ASTM A217-CA15 &ASTM A217-WC6/ER410	ASTM A217-CA15 &ASTM A217-WC9/ER410	ASTM A217-CA15
HINGE	ASTM A105	ASTM A351-CF8M	ASTM A217-WC6	ASTM A217-WC9	ASTM A217-C12A
HINGE PIN	ASTM A182-F6a	ASTM A276-316	ASTM A182-F6a	ASTM A182-F6a	ASTM A182-F6a
DISC NUT	ASTM A276-420	ASTM A276-316	ASTM A276-420	ASTM A276-420	ASTM A276-420
BONNET SEAL RING	ASTM A182-F304(4"&Smaller GRAPHITE)	ASTM A182-F316L(4"&Smaller GRAPHITE)	ASTM A182-F304(4"&Smaller GRAPHITE)	ASTM A182-F304(4"&Smaller GRAPHITE)	ASTM A182-F304(4"&Smaller GRAPHITE)
HOOK SCREW	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL
COVER STUD	ASTM A193-B7	ASTM A193-B8	ASTM A193-B16	ASTM A193-B16	ASTM A193-B16
COVER NUT	ASTM A194-2H	ASTM A194-8	ASTM A194-4	ASTM A194-4	ASTM A194-4
SEAT RING	ASTM A105/STL.OVERLAY	ASTM A182-F316/STL.OVERLAY	ASTM A182-F11/STL.OVERLAY	ASTM A182-F22/STL.OVERLAY	ASTM A182-F6a/STL.OVERLAY
SEPARATE RING COVER	CARBON STEEL	ASTM A276-420	AISI 4140	AISI 4140	AISI 4140
THRUST RING COVER	CARBON STEEL	ASTM A276-420	AISI 4140	AISI 4140	AISI 4140
SUPPORTING COVER	ASTM A105	ASTM A276-420	AISI 4140	AISI 4140	AISI 4140
STOP RING	ASTM A276-420	ASTM A276-316	ASTM A276-420	ASTM A276-420	ASTM A276-420
YOKE	ASTM A216-WCB	ASTM A276-316	ASTM A216-WCB& ASTM A217-WC6	ASTM A216-WCB& ASTM A217-WC6	ASTM A217-C12A
SEPARATE RING FOR STOP RING	ASTM A276-420	ASTM A276-316	ASTM A276-420	ASTM A276-420	ASTM A276-420
SPLIT PIN	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL
STOP RING SCREW	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL
RIVET	CARBON STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL	STAINLESS STEEL
NAME PLATE	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL	STAINLESS STEEL

Class 600 Cast Carbon Steel Check Valve

ASME B16.34,
Pressure Seal Swing Disc Type

Figure NO.:

S6R-PS,WCB/NO.5
S6B-PS,WCB/NO.5
S6J-PS,WCB/NO.5



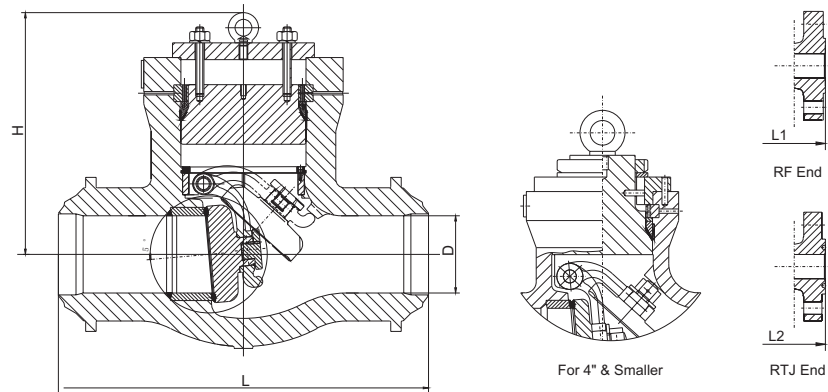
NPS	in	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"
DN	mm	50	65	80	100	125	150	200	250	300	350	400	450	500	600	650	700	750
L (RF-BW)	in	11.5	13	14	17	20	22	26	31	33	35	39	43	47	55	57	63	65
	mm	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397	1448	1600	1651
L2 (RTJ)	in	11.62	13.12	14.12	17.12	20.12	22.12	26.12	31.12	33.12	35.12	39.12	43.13	47.25	55.38	57.5	63.5	65.5
	mm	295	333	359	435	511	562	663	790	841	892	994	1095	1200	1407	1461	1613	1664
H	in	9.5	10.4	10.6	12.5	15.7	15.7	23.1	23.9	27.4	29.5	28.7	28.75	32.25	37.38	39.38	43.25	47.25
	mm	241	264	270	318	400	400	587	606	695	749	730	730	819	949	1000	1099	1200
WT(RF)	kg	27	35	45	85	135	190	350	500	670	880	1150	1480	1880	2600	3100	3500	4000
WT(BW)	kg	18	25	32	55	85	130	260	370	490	660	850	1100	1490	2040	2500	2800	3150

Class 900 Cast Carbon Steel Check Valve

ASME B16.34,
Pressure Seal Swing Disc Type

Figure NO.:

S9R-PS,WCB/NO.5
S9B-PS,WCB/NO.5
S9J-PS,WCB/NO.5



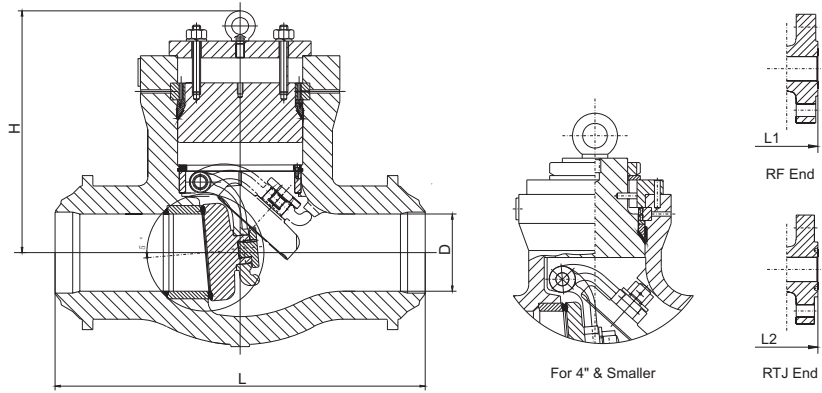
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	26"	28"	30"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	650	700	750
L (BW)	in	8.5	10	12	14	20	26	31	36	39	43	48	52	61	63	67	71
	mm	216	254	305	356	508	660	787	914	991	1092	1219	1321	1549	1600	1702	1803
L1 (RF)	in	14.5	16.5	15	18	24	29	33	38	40.5	44.5	48	52	61	65	69	73
	mm	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549	1651	1753	1854
L2 (RTJ)	in	14.6	16.1	15.1	18.1	24.1	29.1	33.1	38.1	40.9	44.9	48.5	52.5	61.75	65.88	69.88	73.88
	mm	371	422	384	460	613	740	841	968	1038	1140	1232	1333	1568	1673	1775	1876
H	in	9.5	10.4	10.6	12.5	15.7	23.1	23.9	27.4	29.5	28.7	33.50	34	37.75	39.38	45.25	55.13
	mm	241	264	270	318	400	587	606	695	749	730	851	864	959	1000	1149	1400
WT(RF)	kg	42	55	58	110	242	599	893	1365	1628	1733	2300	3000	4100	4600	5200	6000
WT(BW)	kg	21	32	34	68	168	462	725	1071	1281	1418	1850	2400	2900	3600	4000	4600

Class 1500 Cast Carbon Steel Check Valve

ASME B16.34,
Pressure Seal Swing Disc Type

Figure NO.:

S15R-PS,WCB/NO.5
S15B-PS,WCB/NO.5
S15J-PS,WCB/NO.5



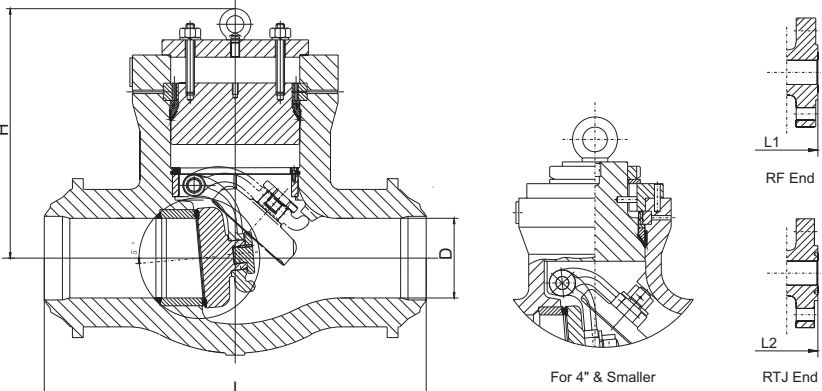
NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L (BW)	in	8.5	10	12	16	22	28	34	39	42	47	60.5	65.5	76.5
	mm	216	254	305	406	559	711	864	991	1067	1194	1537	1664	1943
L1 (RF)	in	14.5	16.5	18.5	21.5	27.8	32.8	39	44.5	49.5	54.4	60.5	65.5	76.5
	mm	368	419	470	546	705	832	991	1130	1257	1384	1537	1664	1943
L2 (RTJ)	in	14.6	16.6	18.6	21.6	28	33.1	39.4	45.1	50.3	55.4	61.38	66.38	77.63
	mm	371	422	473	549	711	842	1000	1146	1276	1407	1559	1686	1972
H	in	9.5	10.4	10.8	12.5	16.6	18.9	23.3	25.4	28	29.5	34.63	37.38	43.25
	mm	241	264	274	318	422	479	591	645	711	749	880	949	1099
WT(RF)	kg	42	58	105	147	360	641	1103	1628	2205	2730	3300	4200	6000
WT(BW)	kg	21	34	42	74	233	504	777	1155	1481	1680	2100	2600	3500

Class 2500 Cast Carbon Steel Check Valve

ASME B16.34,
Pressure Seal Swing Disc Type

Figure NO.:

S25R-PS,WCB/NO.5
S25B-PS,WCB/NO.5
S25J-PS,WCB/NO.5



NPS	in	2"	2-1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
DN	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L (BW)	in	11	13	14.5	18	24	30	36	41	44	49	55	61	68
	mm	279	330	368	457	610	762	914	1041	1118	1245	1397	1549	1727
L1 (RF)	in	17.8	20	22.8	26.5	36	40.3	50	56	-	-	-	-	-
	mm	451	508	578	673	914	1022	1270	1422	-	-	-	-	-
L2 (RTJ)	in	17.9	20.3	23	26.9	36.5	40.9	50.9	56.9	60.88	-	-	-	-
	mm	454	514	584	683	927	1038	1292	1445	1546	-	-	-	-
H	in	9.6	10.4	10.6	12.5	17.8	22	22.7	25.8	33.88	35.38	39.38	45.25	55.13
	mm	245	264	270	318	451	559	576	656	860	899	1000	1149	1400
WT(RF)	kg	89	124	163	299	588	1071	1676	2772	3350	-	-	-	-
WT(BW)	kg	53	74	89	142	285	598	783	1512	2450	3200	4050	5000	7200

Gate Valve

Class	Size	2"					2-1/2"					3"					4"					5"					6"				
150	Pressure Rating	0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa
	Number of Turns	14					18					20					22					27					33				
	Thrust (KN)	6.9	7.2	7.8	8.4	9.01	7.55	7.96	8.66	9.33	10.04	8.96	9.46	10.33	11.16	12.03	11.15	11.88	13.03	14.18	15.33	12.63	13.32	14.45	15.58	16.71	16.85	17.93	19.68	21.44	23.19
	Torque (N*M)	13.2	13.9	15	16.1	17.3	14.5	15.3	16.6	17.9	19.3	19.4	20.4	22.3	24.1	26	27.9	29.7	32.5	35.4	38.3	34.5	36.4	39.5	42.6	45.7	46.1	49	53	58.7	63.5
300	Pressure Rating	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa
	Number of Turns	14					18					20					22					28					33				
	Thrust (KN)	7.83	9.01	10.16	11.34	12.63	8.66	10.04	11.38	12.76	14.27	10.33	12.03	13.69	15.39	17.26	13.03	15.33	17.62	20.01	24.08	17.86	20.93	24.1	29.66	35.77	20.28	23.9	30.85	38.49	46.89
	Torque (N*M)	15	17.3	19.5	21.8	24.3	16.6	19.3	21.9	25.4	27.4	22.3	26	29.6	33.2	37.3	32.5	38.3	44	50	60.1	48.9	57.3	66	81.1	97.9	60.3	71.1	91.8	114.5	139.5
600	Pressure Rating	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa
	Number of Turns	14					18					17					23					22					26				
	Thrust (KN)	12.17	14.53	16.28	18.04	20.62	13.39	16.15	18.2	20.25	23.27	16.9	20.54	23.36	26.94	32.19	24.14	30.61	36.45	42.28	50.84	31.11	42.9	51.75	60.59	73.56	42.31	58.58	70.78	82.99	100.88
	Torque (N*M)	23.4	27.9	31.3	34.6	39.6	25.7	31	35	38.9	44.7	42.4	51.3	58.3	67.3	80.4	66.1	83.8	99.7	115.7	139.1	104.5	144.2	173.9	203.6	247.2	152.3	210.8	254	298.7	363.1
900	Pressure Rating	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa
	Number of Turns	13					13					18					23										26				
	Thrust (KN)	17.98	22.37	25.33	29.72	33.11	23.88	29.45	33.16	38.73	43	26.35	32.82	37.13	43.62	49.36	32.13	42.56	50.22	61.71	70.53						58.35	82.08	97.9	121.63	139.83
	Torque (N*M)	30.8	38.4	43.4	51	56.8	46.6	57.5	64.8	75.6	84	37.5	64.1	72.5	85.2	96.4	95.6	126.6	179.4	183.6	209.8						223.9	315	375.8	466.8	536.7
1500	Pressure Rating	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa
	Number of Turns	12					13					17					17										24				
	Thrust (KN)	21.12	28.47	35.79	43.13	51.18	28.35	37.63	46.91	56.19	66.43	32.39	43.71	55.73	68.75	83.07	39.27	56.23	74.97	93.71	114.32	66.38	103.94	141.5	179.06	220.38	66.38	103.94	141.5	179.06	220.38
	Torque (N*M)	52.7	71.1	89.4	107.7	127.8	77.6	103	128.3	153.7	181.8	96.4	130	165.8	204.5	247.1	132	189	251.9	314.9	384.2	270.6	423.7	576.9	730	898.4	270.6	423.7	576.9	730	898.4
2500	Pressure Rating	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa
	Number of Turns	10										14					14										20				
	Thrust (KN)	27.99	41.11	54.23	63.42	70.62	39.32	57.45	75.62	88.31	98.3	43.7	64.51	85.37	99.93	111.39	54.77	82.79	110.81	130.37	145.79						94.37	154.38	214.39	256.4	289.4
	Torque (N*M)	69.9	102.6	135.4	158.3	176.3	107.6	157.2	206.9	241.6	268.9	130	191.9	254	297.3	331.4	184.1	278.2	372.3	438.1	489.9						407.3	666.2	925.2	1106.5	1248.9

Class	Size	8"					10"					12"					14"					16"					18"				
150	Pressure Rating	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa
	Number of Turns	43					42					51					55					64					73				
	Thrust (KN)	21.07	22.6	24.94	27.28	33.07	26.34	28.22	31.2	37.53	47.06	33.9	36.07	39.99	52.57	66.12	30.01	33.56	38.17	53.79	69.6	43.34	46.5	55.17	75.9	96.62	49.54	52.81	67.13	93.54	119.95
	Torque (N*M)	62.7	67.2	74.2	81.2	98.4	88.5	94.8	104.9	126.1	158.1	122	129.8	143.9	189.2	238	119	128.8	146.5	206.5	267.3	176.7	189.6	224.9	309.4	393.9	213.8	227.9	289.7	403.7	517.6
300	Pressure Rating	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa
	Number of Turns	35					43					51					56					64					71				
	Thrust (KN)	26.17	34.53	47.33	60.12	74.2	34.47	50.59	69.91	89.24	110.5	40.72	67	94.23	121.47	151.43	45.93	77.7	109.69	141.67	176.86	55.93	97.54	139.15	180.77	226.54	72.55	124.35	176.16	227.97	284.96
	Torque (N*M)	87.9	116	159	202	249.3	124.1	182.1	251.6	321.2	397.7	156.3	257.1	361.7	466.2	581.2	187.2	316.8	447.2	577.6	721	241.4	420.9	600.5	780.1	977.6	330.4	566.3	802.2	1038.2	1297.7
600	Pressure Rating	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa
	Number of Turns	34					42					50					41					47					53				
	Thrust (KN)	57.43	83.19	102.51	121.83	150.16	75.3	113.58	142.28	170.98	213.08	106.71	160.57	200.97	241.37	300.61	124.56	187.65	234.98	282.3	351.71	151.59	232.71	293.55	354.39	443.62	164.34	252.3	318.27	384.24	480.99
	Torque (N*M)	220.4	319.3	393.4	467.6	576.3	325	490.1	614	737.9	919.5	486	731.3	915.2	1099.2	1369	652.3	990.3	1240	1489	1856	836.1	1283.6	1619.2	1954.7	2446.9	945.7	1451.8	1831.4	2211	2767.8
900	Pressure Rating	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa
	Number of Turns	34					31					36					41					47									
	Thrust (KN)	84.52	122.34	147.56	185.38	214.38	133.4	189.76	227.33	283.69	326.89	171.55	248.65	300.04	377.13	436.24	201.24	296.14	359.4	454.31	527.06	217.45	319.93	388.24	490.72	569.28	281.08	410.93	497.49	627.34	726.89
	Torque (N*M)	364.7	528	636.8	800	925.1	672.1	956.1	1145.4	1429.3	1647	905.3	1312.1	1583.3	1990.2	2302.1	1110	1633.4	1982.4	2505.8	2907.2	1251.3	1841	2234.1	2823.8	3275.9	2023.3	2958.1	3581.2	4515.9	5232.6
1500	Pressure Rating	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa
	Number of Turns	24					29					35										29									
	Thrust (KN)	106.18	166.3	226.41	286.53	352.66	143.64	232.84	322.04	411.24	509.36	176.01	293.4	410.8	528.19	657.32	219.25	362.67	506.29	649.91	807.89	232.91	390.36	547.86	705.33	878.56	322.17	525.33	728.48	931.63	1155.1
	Torque (N*M)	535	837.9	1140.8	1443.7	1776.9	826.5	1339.8	1853.1	2366.4	2931.1	1096.8	1828.3	2559.9	3291.4	4096.1	1576.9	2610.7	3644.5	4678.4	5815.6	1676.2	2810.2	3943.8	5077.4	6324.3	2780.6	4534	6287.4	8040.8	9969.5
2500	Pressure Rating	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa					
	Number of Turns	19					16					19																			
	Thrust (KN)	154.82	252.22	349.61	417.79	471.36	229.17	377.8	526.43	630.08	712.5	291.75	491.9	692.04	832.15	942.23	365.69	602.52	839.35	1005.13	1135.38	451.81	746.11	1041.04	1246.44	1408.3					
	Torque (N*M)	854	1391.2	1928.4	2304.4	2599.9	1594.9	2629.4	3663.8	4389.8	4958.7	2239.5	3775.9	5312.3	6387.7	7232.7	2981.7	4912.7	6843.7	8195.4	9257.5	4115.1	6795.6	9472.6	11352.6	12826.9					

Gate Valve

Class	Size	20"					22"					24"					26"					28"					30"				
150	Pressure Rating	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa
	Number of Turns	81										74					80					88					93				
	Thrust (KN)	61.08	65.64	86.24	118.99	151.74	69.52	74.36	101.53	141.33	181.13	55.56	61.49	95.29	142.93	190.57	80.76	87.06	123.44	172.19	220.95	75.55	81.59	126.26	182.9	239.55	95.07	101.64	158.13	223.24	288.35
	Torque (N*M)	278.2	298.9	392.7	541.9	691	350.3	374.7	511.6	712.1	912.6	293.2	324.5	502.8	754.2	1005.7	464.7	501	710.3	990.9	1271.4	434.4	469.5	726.5	1052.5	1378.5	592.4	633.4	985.4	1391.1	1796.9
300	Pressure Rating	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa
	Number of Turns	61										65					79					87					61				
	Thrust (KN)	86.21	150.48	214.75	279.02	349.7						107.31	188.7	270.09	351.48	441.01	124.45	220.98	317.51	414.04	520.22	140.25	252.59	364.93	477.26	600.83	50.52	60.62	70.72	80.82	91.94
	Torque (N*M)	434.3	758.2	1082	1405.8	1762						617.5	1085.9	1544.2	2022.6	2537.7	775.5	1377	1978.5	2580.1	3241.8	874	1574	2274	2974.1	3744.1	1423.1	2413.7	3404.2	4394.8	5484.4
600	Pressure Rating	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa
	Number of Turns	59										46										54					57				
	Thrust (KN)	195.85	303.16	383.64	464.11	582.15						253.88	408.17	523.88	639.59	809.31						385.79	595.75	753.21	910.68	1141.64	430.63	670.49	850.38	1030.27	1294.12
	Torque (N*M)	1220.4	1889.1	2390.6	2892.1	3627.7						1827.6	2938.2	3771.2	4604.1	5825.8						3329.7	5141.8	6500.9	7860	9853.4	3716.7	5786.9	7339.5	8892.2	4169.4
900	Pressure Rating	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa
	Number of Turns																					54					57				
	Thrust (KN)	332.68	491.07	596.66	755.05	876.48						467.56	690.11	838.47	1061.02	1231.64															
	Torque (N*M)	2553.7	3769.5	4580.1	5795.9	6728						3812.3	5626.9	6836.6	8651.1	10042.3															
1500	Pressure Rating	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa															
	Number of Turns																														
	Thrust (KN)	394.53	651.25	907.97	1164.7	1447.09						534.15	905.44	1276.72	1648	2056.41															
	Torque (N*M)	3593.4	5931.6	8269.9	10608.1	13180.1						5884.1	9974	14063.9	18153.8	22652.7															
2500	Pressure Rating																														
	Number of Turns																														
	Thrust (KN)																														
	Torque (N*M)																														

Class	Size	32"					34"					36"				
150	Pressure Rating	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa
	Number of Turns	97										72				
	Thrust (KN)	98.39	105.23	171.05	242.62	314.18	112.5	120.4	196.87	278.47	360.07	122.12	131.18	216.95	307.47	397.98
	Torque (N*M)	613.1	655.7	1065.9	1511.9	1957.8	782.9	838.2	1370.1	1938	2505.9	879.1	944.3	1561.7	2213.3	2864.9
300	Pressure Rating	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa
	Number of Turns															
	Thrust (KN)	184.35	330.54	476.73	622.92	783.72						236.98	420.26	603.54	786.82	988.44
	Torque (N*M)	1415.1	2537.3	3659.5	4781.6	6016						1932.2	3426.6	4921.1	6415.5	8059.3
600	Pressure Rating	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa
	Number of Turns						65					69				
	Thrust (KN)						540.59	846.3	1075.58	1304.86	1641.14					
	Torque (N*M)						4932.7	7708.1	9796.4	11884.7	14947.6					
900	Pressure Rating	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa
	Number of Turns						65					69				
	Thrust (KN)															
	Torque (N*M)															

Class	Size	40"					42"					48"					52"				
150	Pressure Rating	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa
	Number of Turns	79					82					101									
	Thrust (KN)	136.94	149.91	261.66	373.4	485.15	162.02	176.29	298.89	421.48	554.08	191.43	216.58	376.48	536.39	696.28	216.73	255.45	445.27	635.09	824.92
	Torque (N*M)	1051.2	1150.8	2008.5	2866.3	3724.1	1321	1437.4	2437	3436.6	4436.2	1652.2	1869.3	3249.3	4629.4	6009.5	1973.9	2326.6	4055.6	5784.5	7513.4

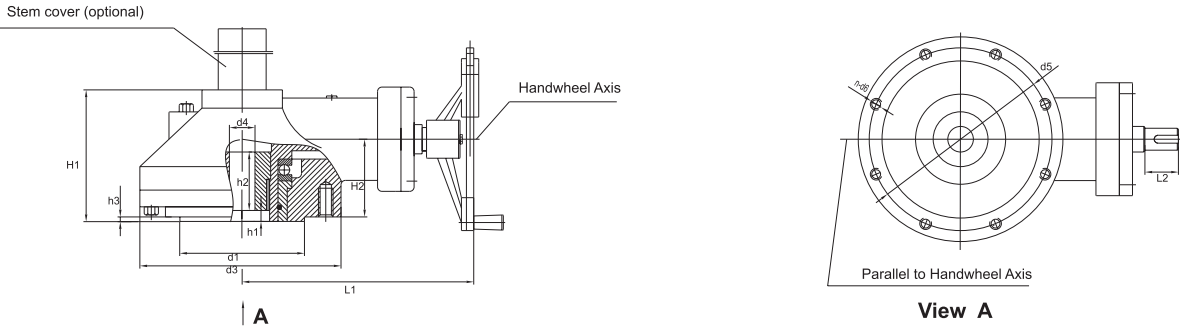
Note: 1. Torques in the tables are calculations at ambient temperature. Considerations of proper safety factors are needed for actuator selection, normally 1.25~1.5.
2. Where the actual pressure is lower than values in the tables, select the most approximate one from those exceeding actual pressure.

Globe Valve

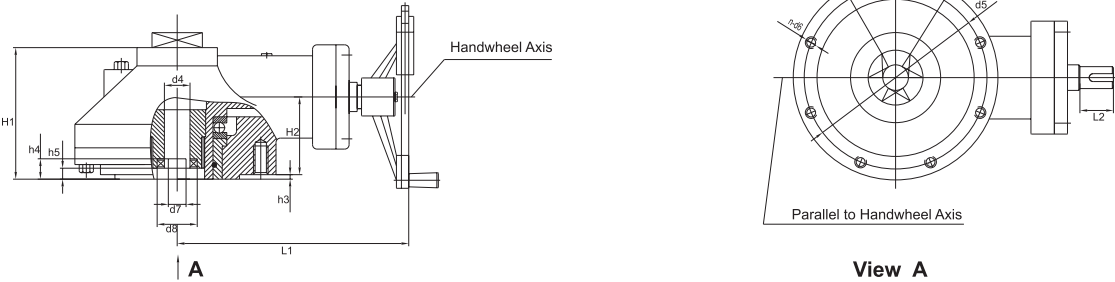
Class	Size	2"					2-1/2"					3"					4"					5"					6"				
150	Pressure Rating	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa
	Number of Turns	5					6					6					7					8					10				
	Thrust (KN)	1.74	2.97	5.055	7.125	9.195	3.36	5.25	8.385	11.52	14.655	2.145	4.905	9.495	14.1	18.75	3.3	7.695	15.015	22.335	29.655	5.31	12.735	25.095	37.455	49.815	7.275	17.625	34.86	52.11	69.36
	Torque (N*M)	2.3	3.9	6.6	9.3	12.1	4.9	7.7	12.3	16.9	21.5	3.6	8.3	16.2	24	31.8	6.7	15.5	30.3	45	59.8	10.7	25.7	50.6	75.5	100.4	14.7	35.5	70.3	105.1	139.9
300	Pressure Rating	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa
	Number of Turns	5					6					6					7					7					8				
	Thrust (KN)	5.055	9.195	13.335	17.49	22.05	8.385	14.655	20.94	27.21	34.11	9.495	18.705	27.9	37.095	47.22	15.015	29.655	44.31	58.95	75.06	25.17	49.89	74.61	99.33	126.51	34.95	69.435	103.935	138.435	176.37
	Torque (N*M)	6.6	12.1	17.5	22.9	28.9	12.3	21.5	30.8	40	50.1	16.2	31.8	47.4	63.1	80.3	30.3	59.8	89.3	118.9	151.3	61.4	121.8	182.1	242.5	308.8	96.4	191.6	286.7	381.9	486.6
600	Pressure Rating	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa
	Number of Turns	4					5					6					6					7					8				
	Thrust (KN)	12.735	21.03	27.24	33.465	42.585	19.2	31.755	41.16	50.58	64.38	27.975	46.365	60.165	73.965	94.2	44.385	73.665	95.64	117.6	149.82	74.61	124.05	161.13	198.195	252.585	104.685	173.67	225.42	277.155	353.04
	Torque (N*M)	21.7	35.8	46.3	56.9	72.4	38.7	64	83	102	129.8	56.4	93.5	121.3	149.1	189.9	108.3	179.8	233.5	287.1	365.7	205.8	342.2	444.5	546.8	696.8	321.8	534	693	852.1	1085.4
900	Pressure Rating	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa
	Number of Turns	4										4					6										6				
	Thrust (KN)	19.02	30.18	37.605	48.75	57.3						42.165	67.2	83.88	108.915	128.1	69.675	111.165	138.825	180.3	212.115						154.875	246.93	308.31	400.365	470.94
	Torque (N*M)	38.4	60.8	75.8	98.3	115.5						96.3	153.4	191.5	248.7	292.5	192.2	306.7	383	497.4	585.2						553.2	882	1101.2	1430	1682.2
1500	Pressure Rating	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa
	Number of Turns	5										4					6										6				
	Thrust (KN)	19.02	37.605	56.19	74.76	95.205	27.975	55.5	83.025	110.55	140.82	45.765	90.99	136.215	181.44	231.195	77.46	153.465	229.485	305.505	389.115						157.38	313.335	469.29	625.245	796.785
	Torque (N*M)	38.4	75.8	113.3	150.7	192	63.9	126.7	189.6	252.4	321.6	126.3	251	375.8	500.6	637.8	264.5	524	783.6	1043.2	1328.7						662	1318	1974	2630	3351.6
2500	Pressure Rating	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa	10MPa	20MPa	30MPa	37MPa	42.5MPa
	Number of Turns	4										5					4										6				
	Thrust (KN)	27.915	55.365	82.83	102.06	117.15	24.975	49.5	74.04	91.2	104.7	78.885	157.23	235.59	290.43	333.525	116.22	231	345.78	426.135	489.255						182.88	364.125	545.385	672.27	771.96
	Torque (N*M)	68.1	135.2	202.2	249.1	286	57	113	169	208.3	239.1	230.1	458.7	687.2	847.2	973	415.1	825.1	1235.1	1522.1	1747.6						864.2	1720.7	2577.2	3176.8	3647.9

Class	Size	8"					10"					12"					14"					16"					18"					20"				
150	Pressure Rating	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa	«0.2MPa	0.5MPa	1MPa	1.5MPa	2MPa
	Number of Turns	8					12					14					13					15														
	Thrust (KN)	12.24	30.045	59.715	89.385	119.055	18.675	46.02	91.605	137.19	182.76	27.12	66	130.8	195.6	260.4	32.04	78.315	155.43	232.545	309.675	42.345	104.07	207	309.795	412.665	55.065	135.855	270.51	405.18	539.835	68.295	168.93	336.66	504.39	672.135
	Torque (N*M)	27.9	68.6	136.3	204.1	271.8	51.5	127	252.7	378.5	504.2	83.4	202.9	402.1	601.3	800.6	109.4	267.4	530.7	794.1	1057.4	151.2	371.7	739.1	1106.6	1474	214.2	528.4	1052.2	1575.9	2099.7	287.3	710.6	1416.1	2121.7	2827.3
300	Pressure Rating	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa	1MPa	2MPa	3MPa	4MPa	5.1MPa										
	Number of Turns	8					9					11																								
	Thrust (KN)	60.54	119.88	179.22	238.56	303.825	92.355	183.51	274.68	365.835	466.11	130.8	260.4	389.985	519.585	662.145	155.43	309.675	463.905	618.135	787.8	212.34	422.67	632.985	843.315	1074.66	262.635	522.57	782.52	1042.47	1328.4					
	Torque (N*M)	186.1	368.6	551	733.4	934.1	329.9	655.5	981.1	1306.7	1664.9	508.7	1012.8	1516.9	2021	2575.5	654.1	1303.1	1952.2	2601.3	3315.1	1036.7	2063.6	3090.5	4117.4	5246.9	1449.1	2883.5	4317.8	5752.1	7329.8					
600	Pressure Rating	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa	3MPa	5MPa	6.5MPa	8MPa	10.2MPa										
	Number of Turns	6					12					14																								
	Thrust (KN)	179.22	297.9	386.91	475.92	606.465	268.125	446.085	579.54	713.01	908.76	380.61	633	822.285	1011.59	1289.22	405.315	673.74	875.055	1076.37	1371.63	633.36	1054.01	1369.49	1684.98	2147.69										
	Torque (N*M)	640.1	1064	1382	1699.9	2166.2	1127.9	1876.4	2437.8	2999.2	3822.6	1858.3	3090.5	4014.8	4939	6294.5	2236.4	3717.5	4828.4	5939.2	7568.4	3894.5	6481	8420.9	10360.8	13206										
900	Pressure Rating	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa	5MPa	8MPa	10MPa	13MPa	15.3MPa																				
	Number of Turns	7					7																													
	Thrust (KN)	268.935	429.57	536.67	697.305	820.47	421.89	673.575	841.35	1093.04	1286	511.11	815.835	1018.98	1323.72	1557.35																				
	Torque (N*M)	1131.2	1807	2257.4	2933.2	3451.2	2059.8	3288.6	4107.8	5336.6	6278.7	2495.4	3983.2	4975.1	6462.9	7603.6																				
1500	Pressure Rating	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa	5MPa	10MPa	15MPa	20MPa	25.5MPa																				
	Number of Turns	5																																		
	Thrust (KN)	234.57	466.695	548.835	930.975	1186.34						461.16	918.015	1374.89	1831.74	2334.29																				
	Torque (N*M)	1145.2	2278.6	3412	4545.4	5792.1						2982.6	5937.4	8892.2	11847	15097.2																				
2500	Pressure Rating	10MPa	20MPa	30MPa	37MPa	42.5MPa																														
	Number of Turns	5																																		
	Thrust (KN)	</																																		

SZ Series for Gate & Globe Valves



SZ-Y Series for Globe Valves



1.Main Material:

Name of parts	Housing	Bevel gear	Output shaft	Stem nut
Material	ASTM A216-WCB	AISI 1045 & 5140	AISI 1045	ASTM A439-D2
Material	ASTM A352-LCB	AISI 1045 & 5140	AISI 1045	ASTM A439-D2

2.Technical Parameters:

Item	Type								
	SZ000	SZ00	SZ0	SZ1	SZ2	SZX3	SZX4	SZX5	SZXX6
Allowable torque(N.m)	200	400	750	1500	3000	6000(9000)	10000(15000)	22100	32000
Allowable thrust(KN)	40	100	150	200	350	840	1400	2400	2745
Reduction ratio	4:1	3:1	3:1	4.1:1	6:1	58:1(86:1)	86:1(104:1)	104:1(128:1)	125:1
Allowable stem diameter(mm)	25	42	55	62	75	115	125	125	150
Handwheel diameter(mm)	305	305	305	460	610	810	1000	1200	1200

Note: "X" in SZX3,SZX4,SZX5 and SZX6 indicates that a planetary gear reduction drive is used .
The allowable torque and the ratio parammeter in the brackets will be selected by the manufacturer.

3.Flange Type and Dimensions (mm)

Code Type	L1	L2	H1	H2	d1	d2	d3	d4(max)	d5	n-d6	d7	d8	h1	h2	h3	h4	h5	Flange type
SZ000	200	45	100	59	70(f8)		146	25	102	4-M10	40	51	1	42	3	8	4	F10
SZ00	210	60	122	76	100(f8)		178	42	140	4-M16	50	64.5	1	60	4	10	5	F14
SZ0	232	60	135	84	130(f8)		210	55	165	4-M20	63	79	1	70	5	15	5	F16
SZ1	283	60	160	95	200(f8)		289	62	254	8-M16	70	89	1	75	5	15	5	F25
SZ2	370	60	220	140	230(f8)		346	75	298	8-M20	95	119	15	110	5	18	5	F30
SZX3	610	60	330	328	260(f8)	428	510	115	356	8-M30	128	166	30	168	5	18	5	F35
SZX4	668	110	360	410	300(f8)	475	620	125	406	8-M36	138	188	35	180	8	25	5	F40
SZX5	668	110	360	410	370	544	690	125	483	12-M36	150	210	35	180	8	32	5	F48
SZXX6	1020	60	500	282	470	686	810	150	603	20-M36	178	240	40	230	8	40	5	F60

With the enhancement of people ecological awareness since 1960's, especially under the background of nowadays quick economic globalization, protecting environment is becoming common understanding in present global development, whether developed or developing countries, and had led to born associated law and regulation in different fields, including modern process industries.

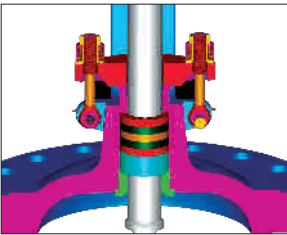
Industrial valves are one of main pollution sources in modern process industries because of fugitive emission. To minimize the risk of process media leaked through valves to human health, safety and environment, Rhinoflex developed low emission technology for all series valves, which featured the essential function of controlling effectively the fugitive emission leakage of various media from valves in virtue of emission defense material using and special structure design, and these valves are measured and tested in accordance with ISO 15848 or Shell SPE 77/312.



Design Features

Low Emission Packing

Rhinoflex actively works with reputable and industry leading sealing solution companies to create low emission solutions that can cover valves from cryogenic to extreme high temperature in variety of endurance range down to 10ppm without usage of bellow seal.



Stuffing box and stem finish

All surface finish for Rhinoflex valve's stem and stuffing boxes are tightly controlled to achieve optimized surface finish for the designated sealing solution.

Fugitive Emission Valve Test

Rhinoflex full series low emission gate, globe and check valves hln addition to type testing, Rhinoflex offers production testing capabilities to ISO 15848-2, Shell MESC 77/312 or other customized testing standards. The table below presents typical test parameters.

Test Standard	ISO 15848	Acceptable Level	
		Stem Seal Leakage Rate	ISO 15848 class B 1.78x10 ⁻⁷ Pa.m ³ /s (Per mm Stem diameter)
Test Medium	97% Helium		
Test Pressure	Valve body pressure equals to the one specified in ASME B16.34 at selected temperature	Mechanical Cycles	100
Test Equipment	Helium Spectrometer	Temperature	-196 ~ 450 °C

Optional live-loaded eye bolt

Live-loaded eye bolt is optional on customer request. The special structure can maintain a permanent packing stress in virtue of a set of belleville spring, and extend the low emission service life. Rhinoflex standard Belleville springs are protected by a weatherproof cap to keep them from environmental contamination so as to ensure a long and continual stable work life.

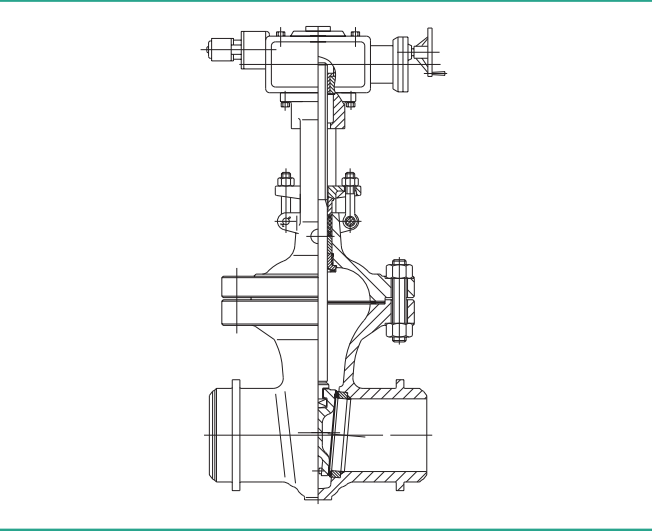
For servicing H₂S-containing environments in oil and gas production, Rhinoflex offers NACE valve made of the component metal materials specially heat-treated and hardness-controlled in compliance with NACE standard MR0175, so as to resist all

mechanisms of cracking that can be caused by H₂S, including sulfide stress cracking (SSC, stress corrosion cracking (SCC, and other hydrogen-induced cracking. Below table show typical Nace material configuration for Rhinoflex cast steel gate valves:

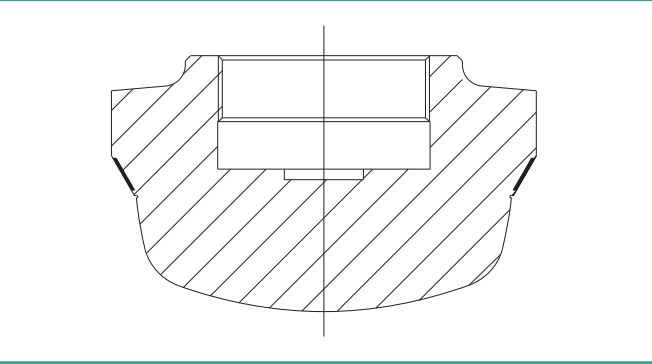
NACE Valves Compared to API 600 Valves

Valve Parts	ASTM Specification	API 600 Valves	NACE Valves
Body/Bonnet	A216 Gr. WCB	≤ 22HRC	≤ 22HRC
Wedge	A216 Gr. WCB or A217 CA15	Quenching + High Temperature Tempering 25~30HRC	Quenching + Double Tempering ≤ 22HRC
Seat Ring	A105 + Stellite 6 Overlayed	Stress Relieving Tempering Overlay hardness ≥ 38HRC	Stress Relieving Tempering Overlay hardness ≥ 38HRC
Stem	A182 F6a	Quenching + High Temperature Tempering 17~22HRC	Quenching + Double Tempering ≤ 22HRC
Gland	ANSI 420	Quenching + High Temperature Tempering 31~35HRC	Quenching + Double Tempering ≤ 22HRC
Backseat Bushing	ANSI 420	Quenching + High Temperature Tempering 31~35HRC	Quenching + Double Tempering ≤ 22HRC
Body/Bonnet Studs		ASTM A193 Grade B7	ASTM A193 Grade B7M
Body/Bonnet Nuts		ASTM A194 Grade 2H	ASTM A194 Grade 2HM

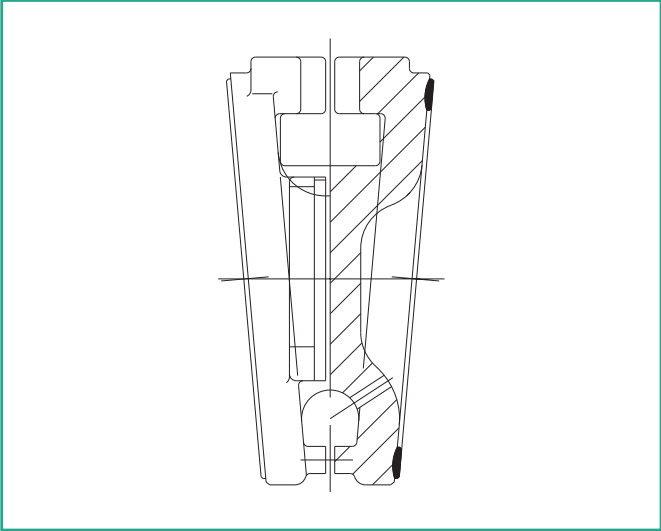
Special Design Feature



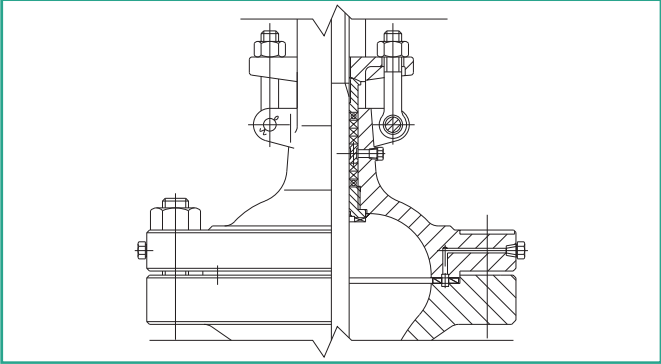
All gate and globe valves can be equipped with electric , Pneumatic or hydraulic actuator, per customer's specification.



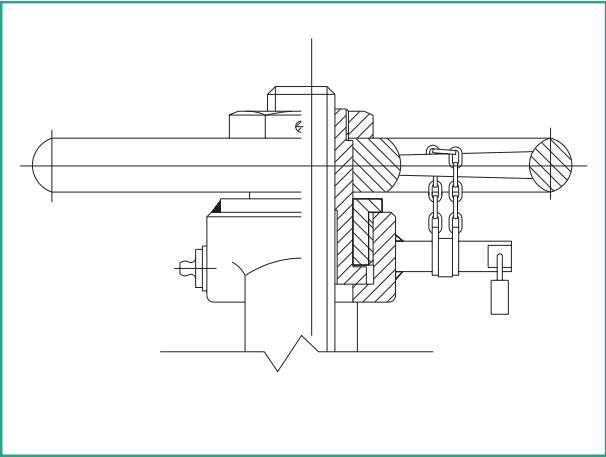
Parabola disc



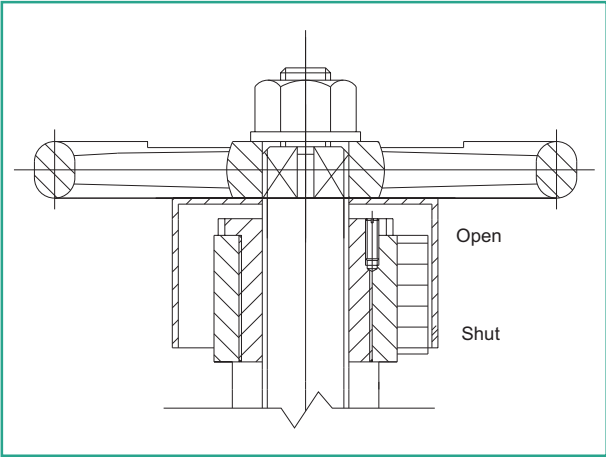
Pressure relief hole



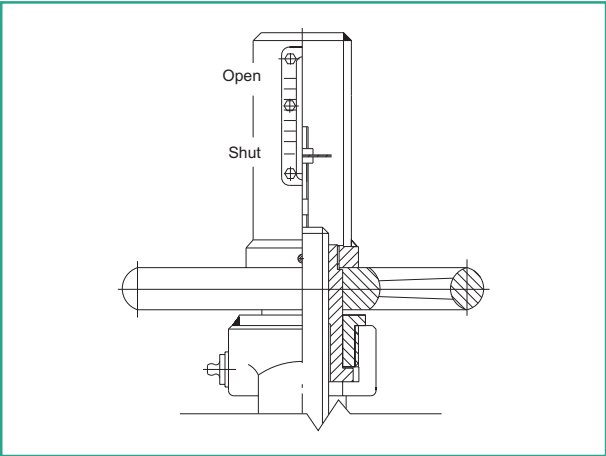
Packing and gasket design for emergent sealing



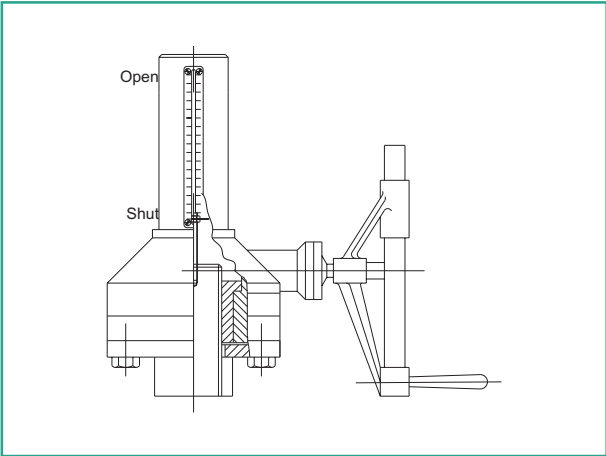
Locking device on the handwheel



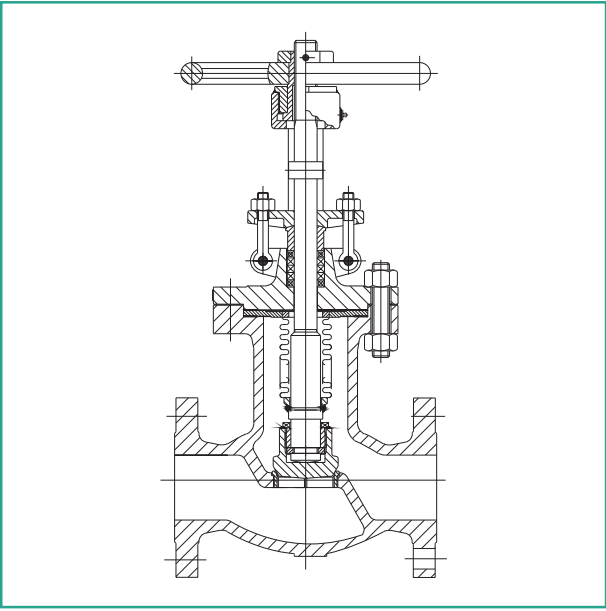
Position indicator on globe valves



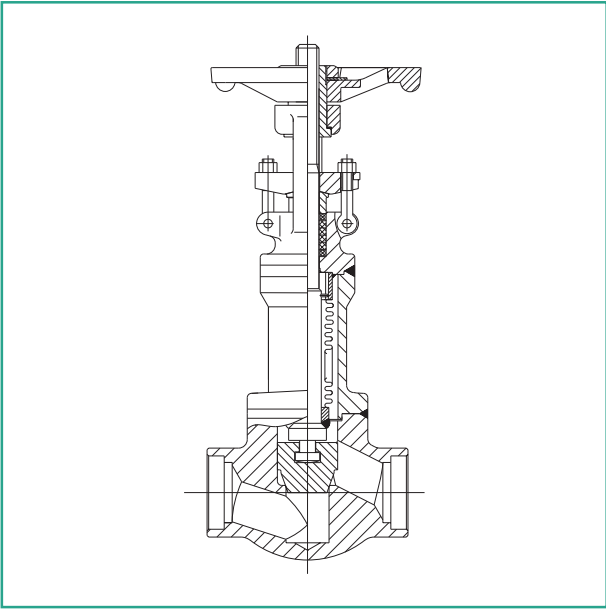
Position indicator on gate valves



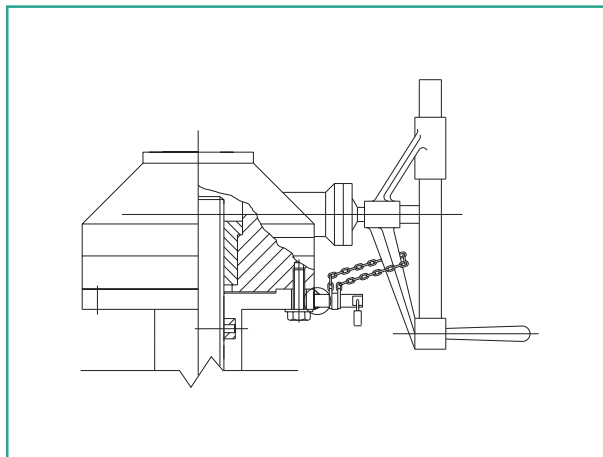
Position indicator on gear box



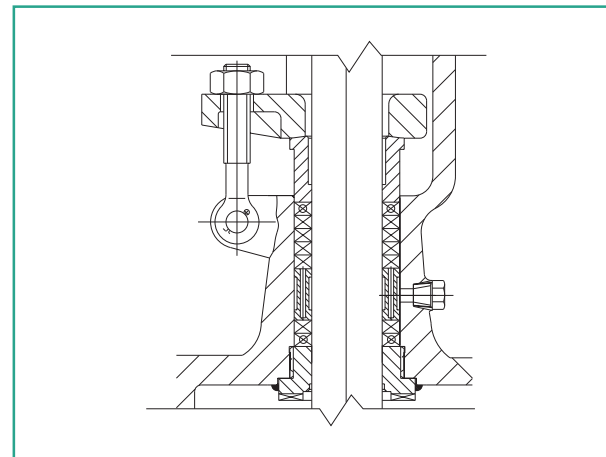
Casting steel bellows sealed valves



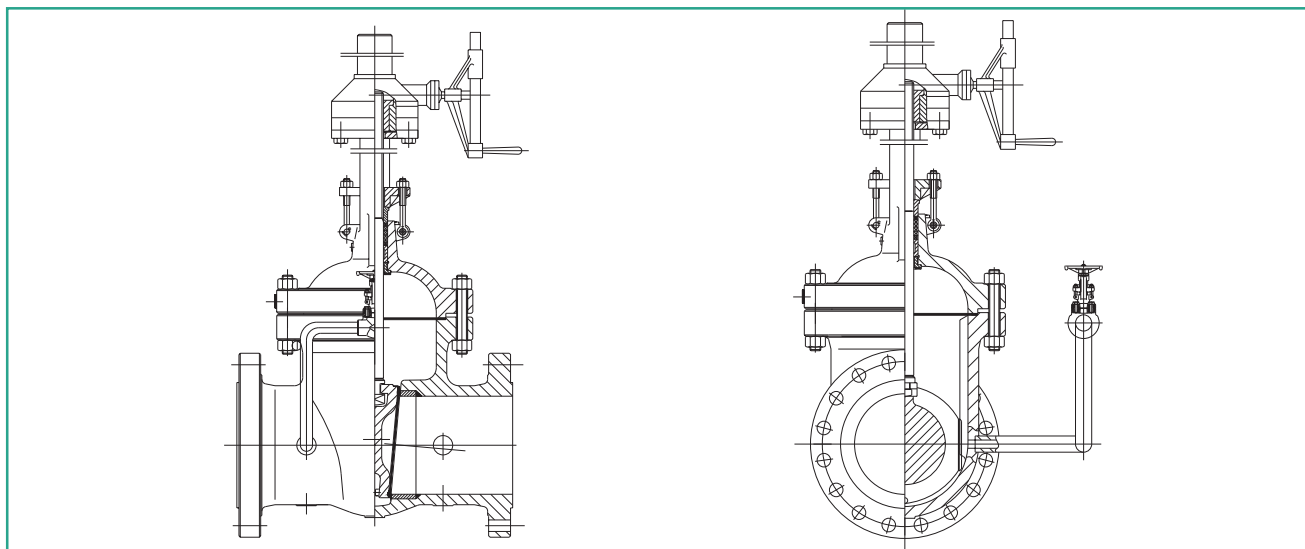
Forging steel bellows sealed valves



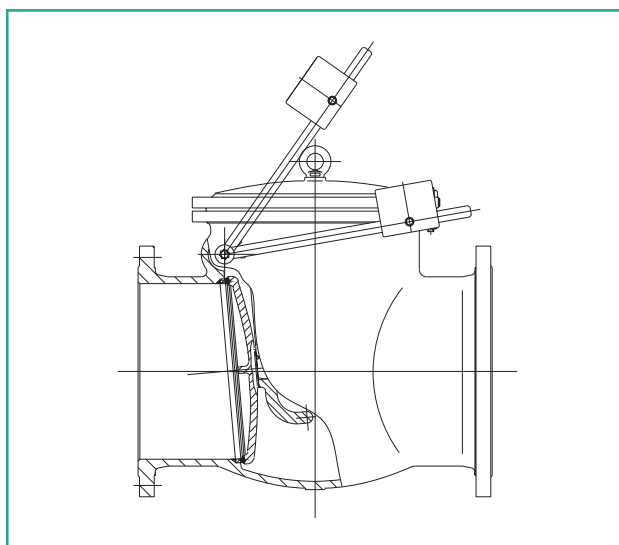
Locking device on the gear box



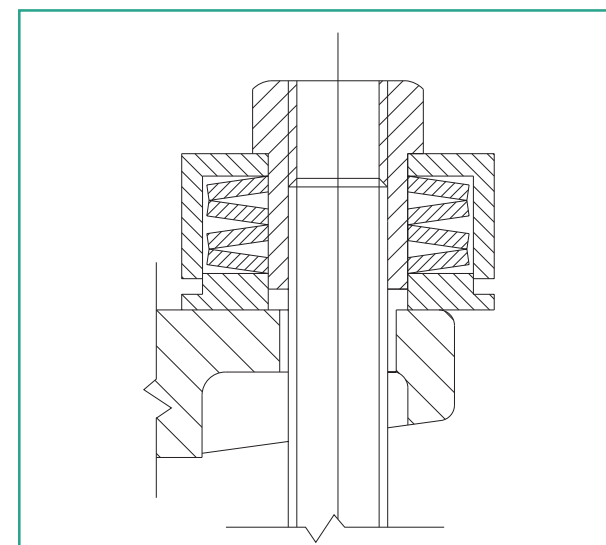
The lantern on the gate and globe valves



Special by-pass application



Check valves with damping box and equilibrium hammers



Live-loaded eye bolt

Seller will replace without charge or refund the purchase price of products provided by Seller which prove to be defective in material or workmanship, provided in each case that the product is properly installed and is used in the service for which Seller recommends it and that written claim, specifying the alleged defect, is presented to the Seller within 18 months from the date of shipment or 12 months after installation, whichever occurs first. Seller shall in no event bear any labor, equipment, engineering or other costs incurred in connection with repair or replacement. The warranty stated in this paragraph is in lieu of all other warranties, either expressed or implied. With respect to warranties, this paragraph states Buyer's exclusive remedy and seller's exclusive liability.