

# GUIDE VALVE LIMITED



## GVS<sup>®</sup> Trunnion Mounted Soft Seated Ball Valves Series B2 & GB2



FUGITIVE EMISSION CERTIFIED

[www.gvs-vci.com](http://www.gvs-vci.com)

Guide Valve Limited, established in 1980 with its headquarters in Ontario, Canada, specializes in the manufacturing of valves.

We are the manufacturer of the trademark brands such as, GVS®, VCI®, Lowe & GVS®-Malema. Our products are based on the most advanced technologies and are used in all sectors from petrochemical refining, process to transportation and distribution of the end product.

GVS® valves are designed, manufactured & tested according to API 6D, API 6A, and CSA Z245.15 and are available to API 608. Our standard product design of Series B2 & GB2 are the trunnion mounted, bolted body forged type ball valves of Double Piston Effect (DIB) with our unique Protector / Scraper double soft seated seal feature. This double seat feature was developed to assure a superior seat to ball soft shut-off performance and longevity of in-service life.



### CANADA



API 6D: 6D-1342

API 6A: 6A-2204

API Spec Q1: Q1-4181

ISO 9001:2015: 0052985-01



### CHINA



API 6D: 6D-1822

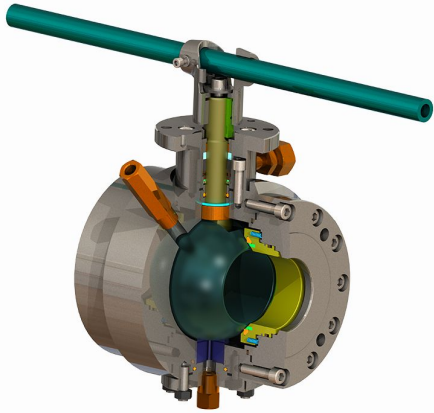
API 6A: 6A-2250

API Spec Q1: Q1-3641

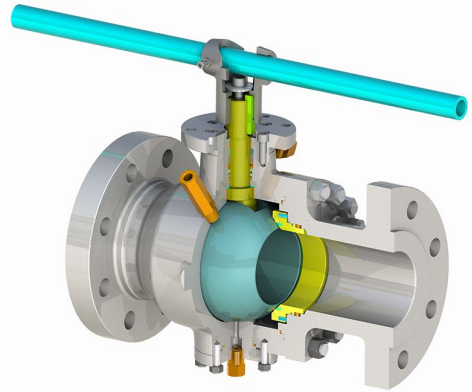
ISO 9001: 2015: ISO - 3983



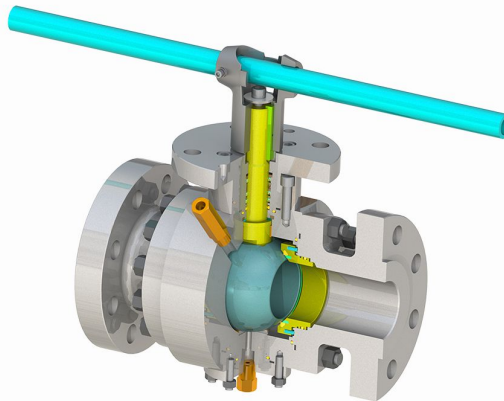
### USA



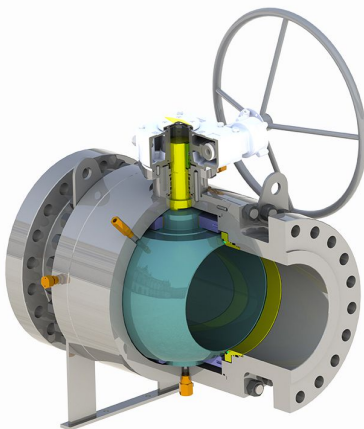
**Model B2**  
**Sizes: 2" - 4"**  
**ANSI Class 150#**



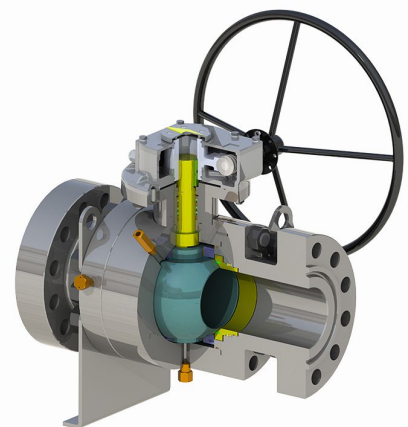
**Model B2**  
**Sizes: 2" - 4"**  
**ANSI Class 300 - 600#**



**Model B2**  
**Sizes: 2" - 4"**  
**ANSI Class 900 - 1500#**

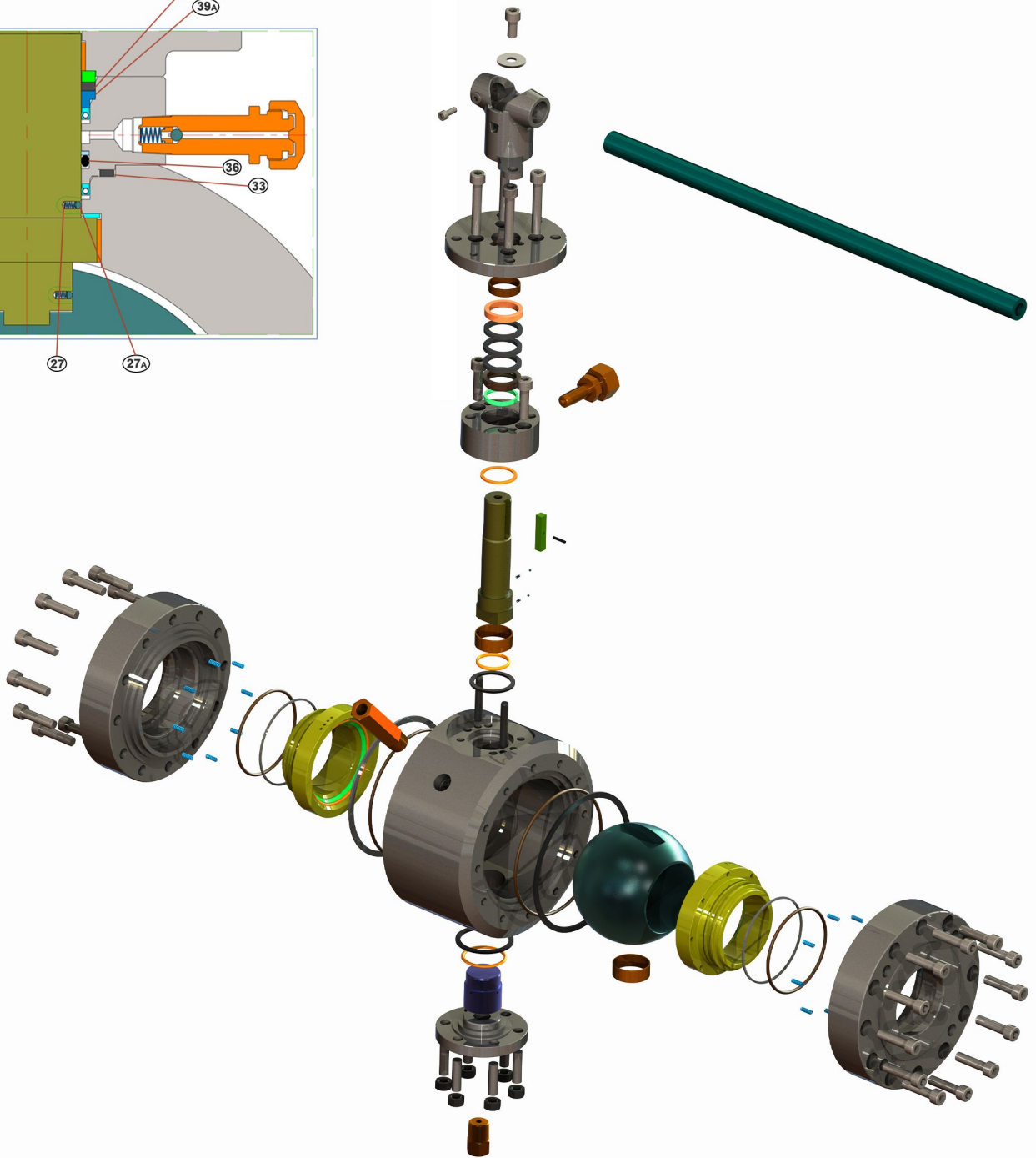
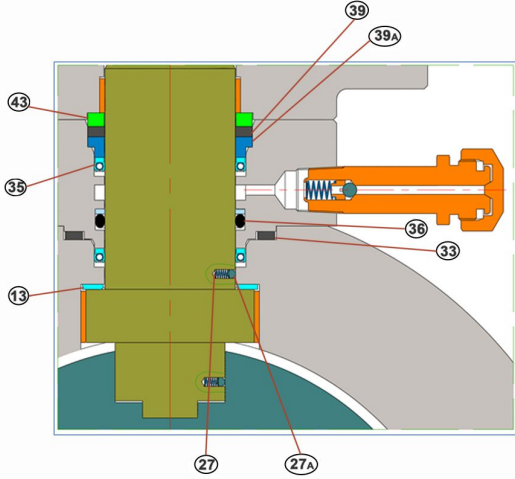


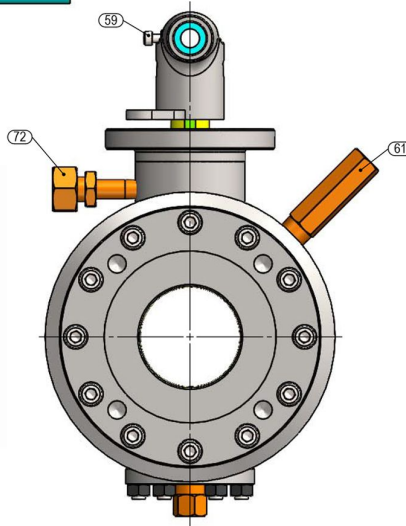
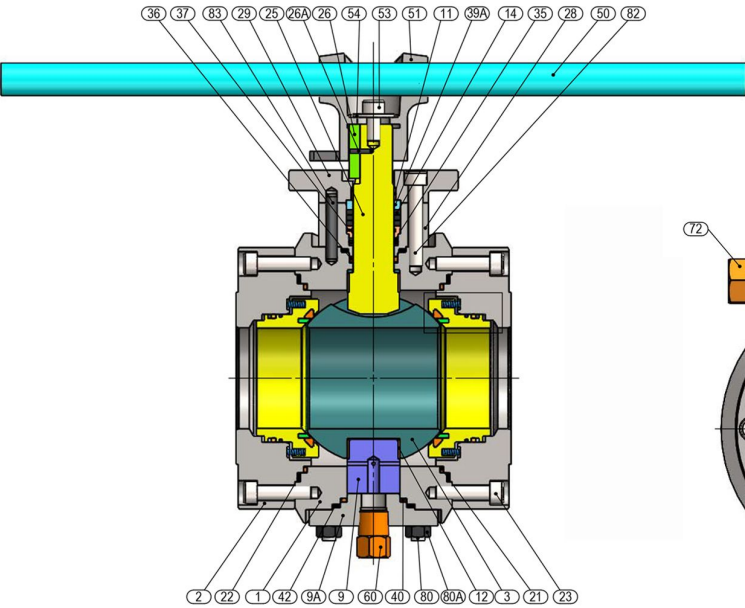
**Model GB2**  
**Sizes: 6" - 36"**  
**ANSI Class 150 - 900#**



**Model GB2**  
**Sizes: 2" - 12" ANSI Class 1500 - 2500#**  
**Sizes: 6" - 24" ANSI Class 1500 - 2500#**

STEM SEAL SUB-ASSEMBLY DETAIL

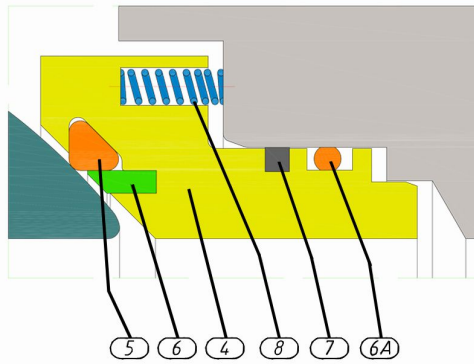
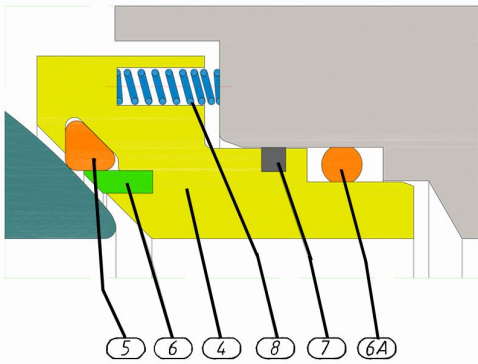




Position	Part Description
1	Body
2	End adapter
3	Ball
4	Seat ring
5	Seat Delta Elastomeric
6	Seat resin
6A	Seat main o-ring
7	Seat fire-safe seal
8	Seat springs
9	Lower trunnion
9A	Cover plate
10	Stem lower sleeve bearing
11	Stem upper sleeve bearing
12	Trunnion sleeve bearing
13	Stem thrust washer
21	End adapter o-ring
22	Body fire-safe seal
23	Body/end adapter capscrew
25	Stem
26	Stem key
26A	Pin
27	Stem antistatic spring
27A	Stem antistatic piston
28	Lower stem flange
28	Upper stem flange
31	Stem flange o-ring
33	Stem flange metallic fire-safe seal
35	Stem lip seal
36	Stem o-ring
37	Lantern ring
38	Stem lip seal back-up ring
39	Stem top fire-safe seal
39A	Spacer ring
40	Lower trunnion o-ring
42	Lower trunnion fire-safe seal
43	Metallic ring
50	Lever tube
51	Lever knuckle ( locking type )
53	Lever knuckle - stem capscrew
54	Lever knuckle - stem washer
59	Lever knuckle - lever capscrew
60	Drain valve
61	Safety relief valve
72	Stem grease fitting
80	Lower trunnion stud
80A	Lower trunnion nut
81	Lower stem flange capscrew
82	Upper stem flange capscrew
83	Lower stem flange dowel pin

**DOUBLE PISTON EFFECT**

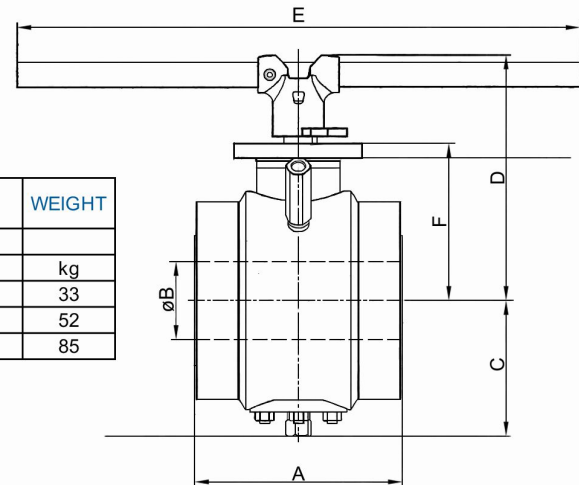
**SELF RELIEVING**



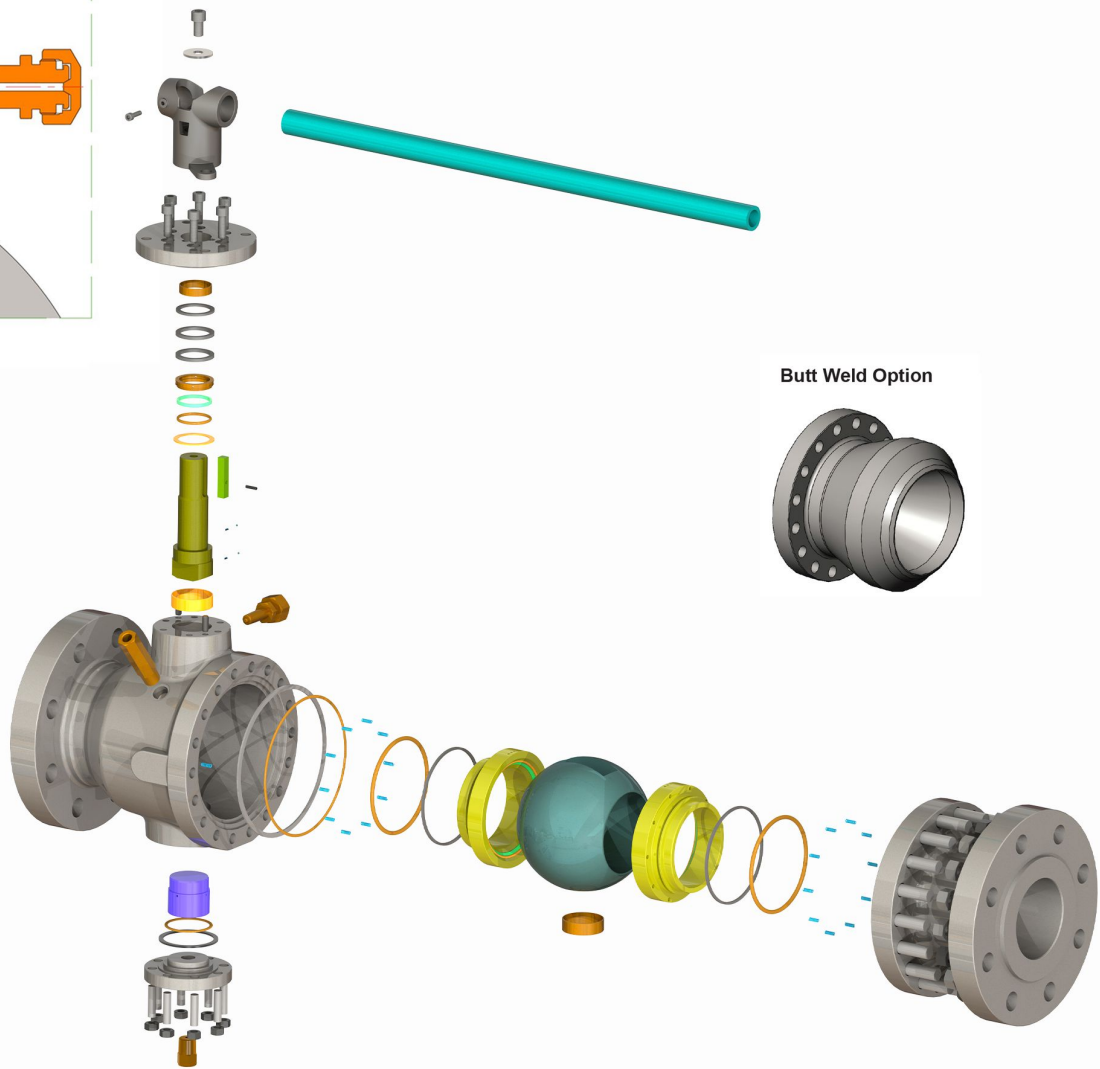
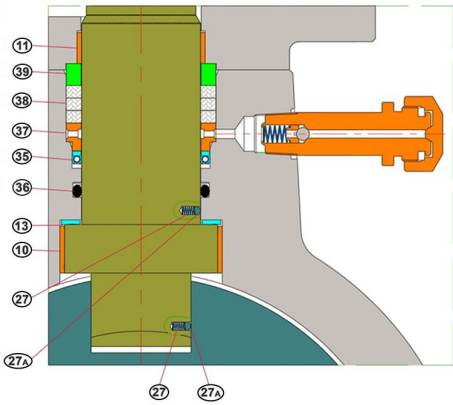
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**ANSI 150**

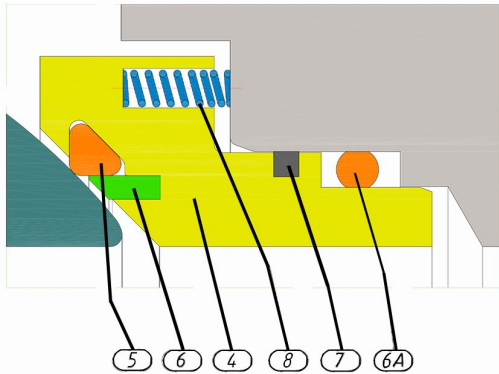
VALVE SIZE	BORE SIZE	BORE SIZE			VALVE SIZE				WEIGHT
		RF	RTJ	BW	C	D	E	F	
NPS	B	A			C	D	E	F	kg
inch	mm	mm	mm	mm	mm	mm	mm	mm	
2"	49.2	178	191	216	114	196	450	129	33
3"	74.6	203	216	283	133	240	550	154	52
4"	101.6	229	241	305	159	291	700	179	85



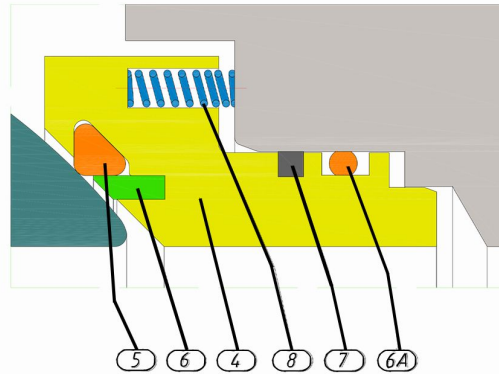
STEM SEAL SUB-ASSEMBLY DETAIL

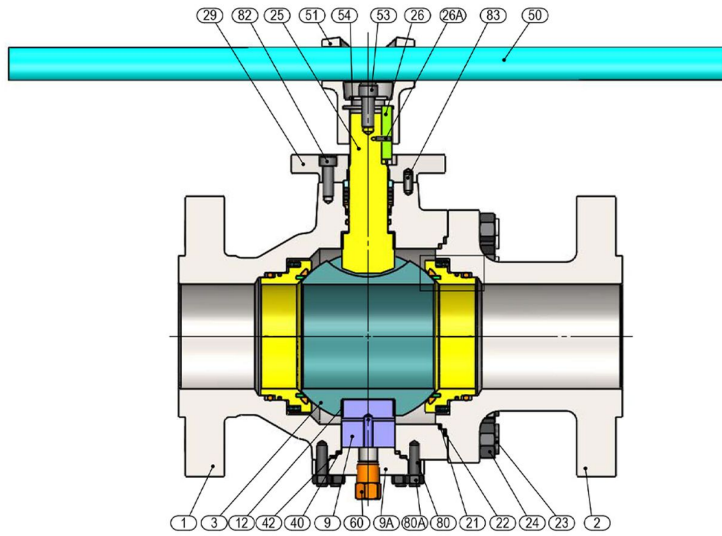


DOUBLE PISTON EFFECT



SELF RELIEVING





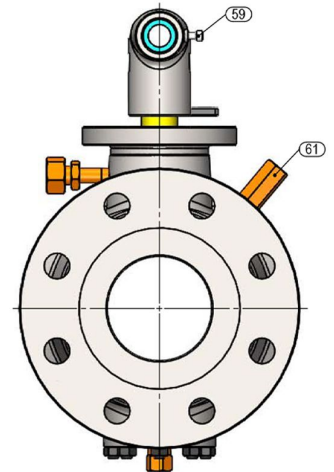
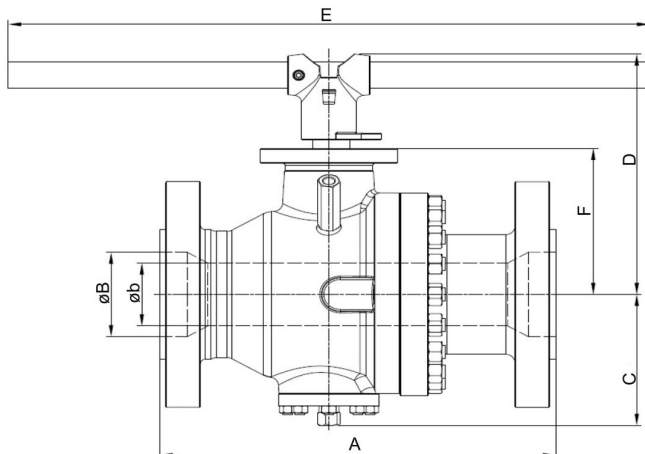
Postion	Part Description
1	Body
2	End adapter
3	Ball
4	Seat ring
5	Seat Delta Elastomeric
6	Seat resin
6A	Seat main o-ring
7	Seat fire-safe seal
8	Seat springs
9	Lower trunnion
9A	Cover plate
10	Stem lower sleeve bearing
11	Stem upper sleeve bearing
12	Trunnion sleeve bearing
13	Stem thrust washer
21	End adapter o-ring
22	Body metallic fire-safe seal
23	Body/end adapter stud
24	Body/end adapter nut
25	Stem
26	Stem key
26A	Pin
27	Stem antistatic spring
27A	Stem antistatic ball
29	Upper stem flange
35	Stem lip seal
36	Stem o-ring
37	Lantern ring
38	Stem packing
39	Gland ring
40	Lower trunnion o-ring
42	Lower trunnion fire-safe seal
50	Lever tube
51	Lever knuckle ( locking type )
53	Lever knuckle - stem capscrew
54	Lever knuckle - stem washer
59	Lever knuckle - lever capscrew
60	Drain valve
61	Safety relief valve
72	Stem grease fitting
80	Lower trunnion stud
80A	Lower trunnion nut
82	Upper stem flange capscrew
83	Upper stem flange dowel pin

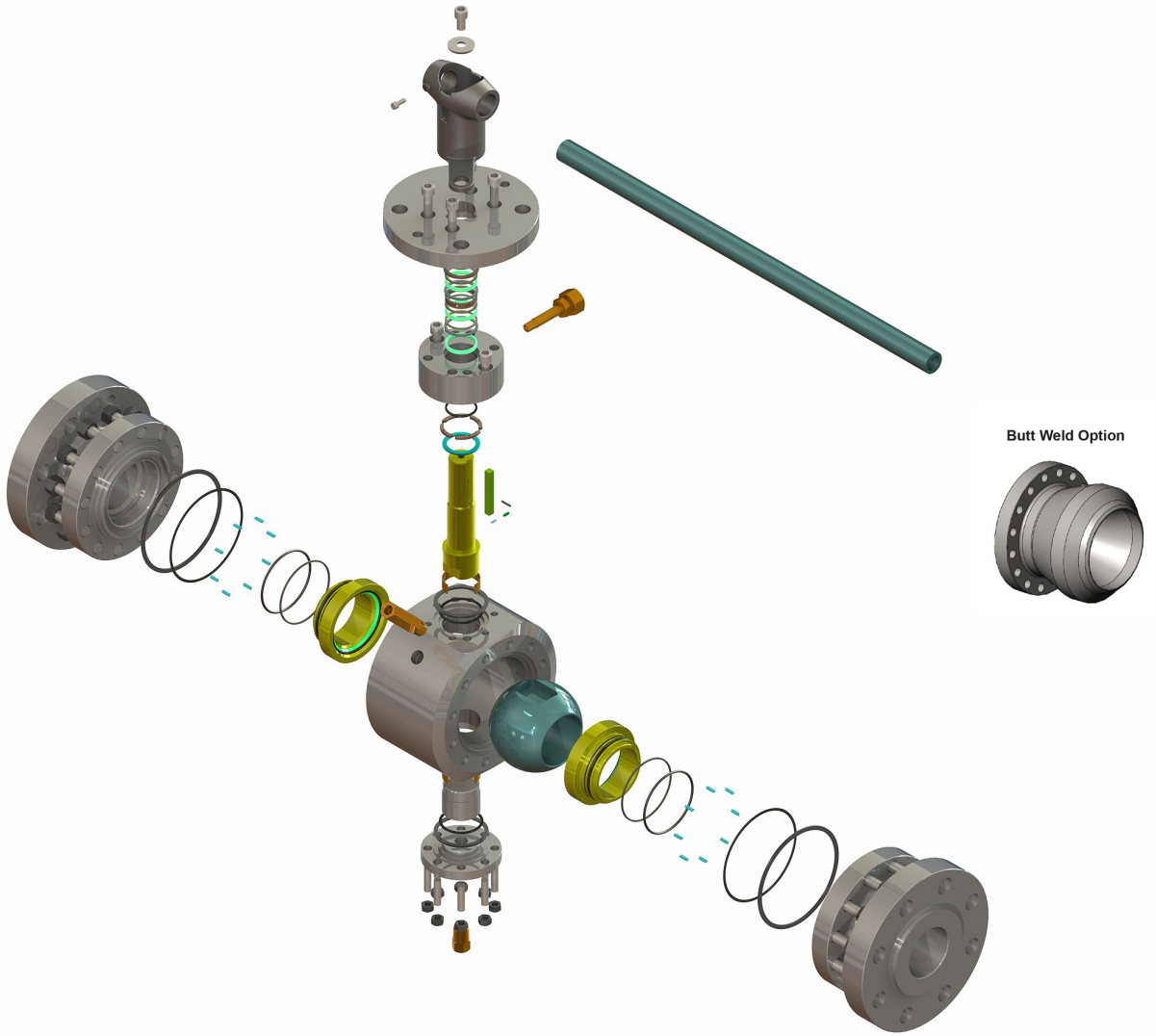
### ANSI 300

VALVE SIZE	BORE SIZE								WEIGHT
		RF	RTJ	BW	C	D	E	F	
NPS	B(xb)	A			C	D	E	F	RF
inch	mm	mm	mm	mm	mm	mm	mm	mm	kg
2"	49.2	216	232	216	114	196	450	126	28
3"x2"	76.2x49.2	283	298	283	114	196	450	126	40
3"	74.6	283	298	283	133	237	550	152	51
4"x3"	101.6x74.6	305	321	305	133	237	550	152	81
4"	101.6	305	321	305	159	291	700	177	85
6"x4**	151.6x101.6	403	419	457	159	291	700	177	130

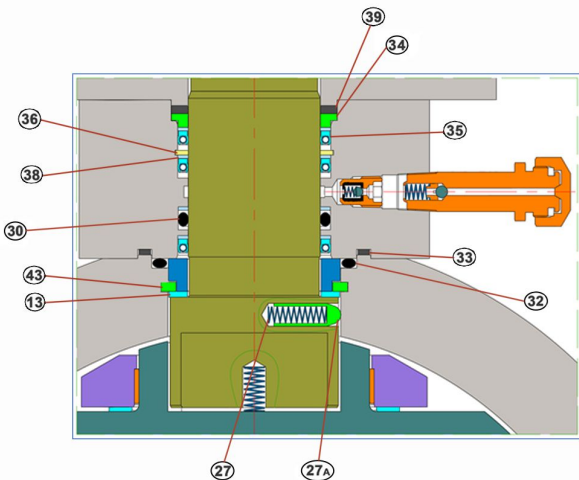
### ANSI 600

VALVE SIZE	BORE SIZE								WEIGHT
		RF	RTJ	BW	C	D	E	F	
NPS	B(xb)	A			C	D	E	F	RF
inch	mm	mm	mm	mm	mm	mm	mm	mm	kg
2"	49.2	292	295	292	114	196	450	126	34
3"x2"	74.6x49.2	356	359	356	114	196	450	126	55
3"	74.6	356	359	356	133	237	550	152	58
4"x3"	101.6x74.6	432	435	432	133	237	550	152	91
4"	101.6	432	435	432	159	291	700	177	104
6"x4**	151.6x101.6	559	562	559	159	291	700	177	175

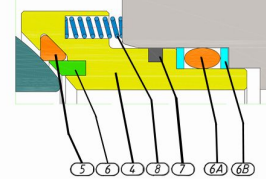




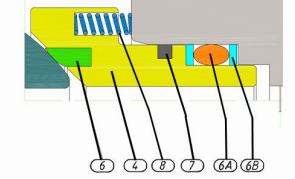
STEM SEAL SUB-ASSEMBLY DETAIL



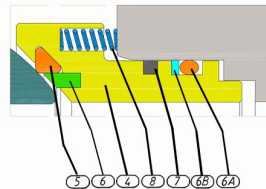
ANSI 900: DOUBLE PISTON EFFECT



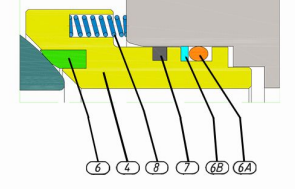
ANSI 1500: DOUBLE PISTON EFFECT



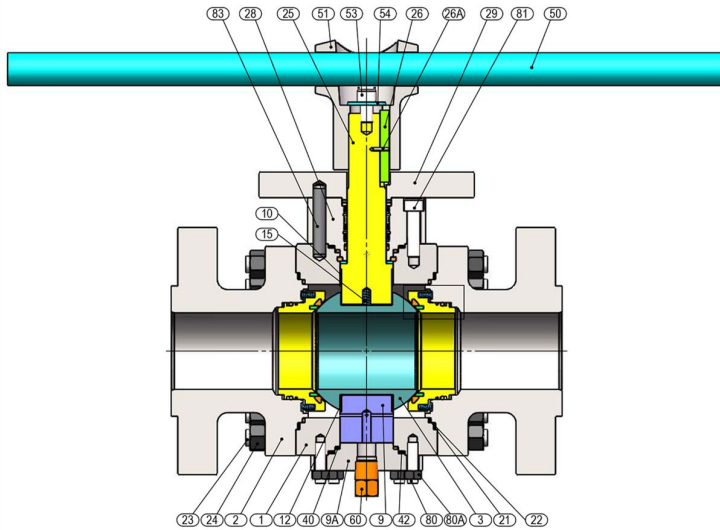
ANSI 900: SELF RELIEVING



ANSI 1500: SELF RELIEVING







Postion	Part Description
1	Body
2	End adapter
3	Ball
4	Seat ring
5	Seat Delta Elastomeric
6	Seat resin
6A	Seat main o-ring
6B	Seat back-up ring
7	Seat fire-safe seal
8	Seat springs
9	Lower trunnion
9A	Cover plate
10	Stem lower sleeve bearing
12	Trunnion sleeve bearing
13	Stem thrust washer
15	Ball antistatic spring
21	End adapter o-ring
22	Body fire-safe seal
23	Body/end adapter studs
24	Body/end adapter nuts
25	Stem
26	Stem key
26A	Pin
27	Stem antistatic spring
27A	Stem antistatic piston
28	Lower stem flange
29	Upper stem flange
30	Stem o-ring
31	Stem flange o-ring
32	Bonnet to body o-ring
33	Stem flange metallic fire-safe seal
34	Spacer ring
35	Stem lip seal
35B	Stem lower back-up ring
36	Stem back-up ring
37	Lantern ring
38	Stem lip seal back-up ring
39	Stem top fire-safe seal
040	Lower trunnion o-ring
42	Lower trunnion fire-safe seal
43	Stem anti-blowout split ring
50	Lever tube
51	Lever knuckle ( locking type )
53	Lever knuckle - stem capscrew
54	Lever knuckle - stem washer
59	Lever knuckle - lever capscrew
60	Drain valve
61	Safety relief valve
72	Stem grease fitting
80	Lower trunnion stud
80A	Lower trunnion nut
81	Lower stem flange capscrew
82	Upper stem flange capscrew
83	Lower stem flange dowel pin

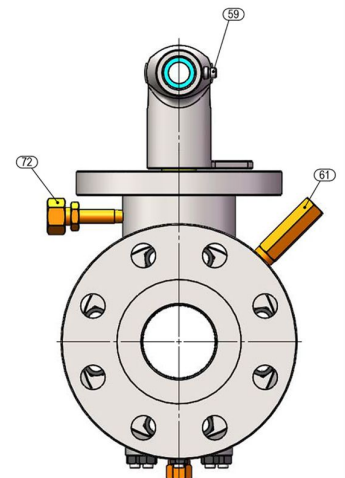
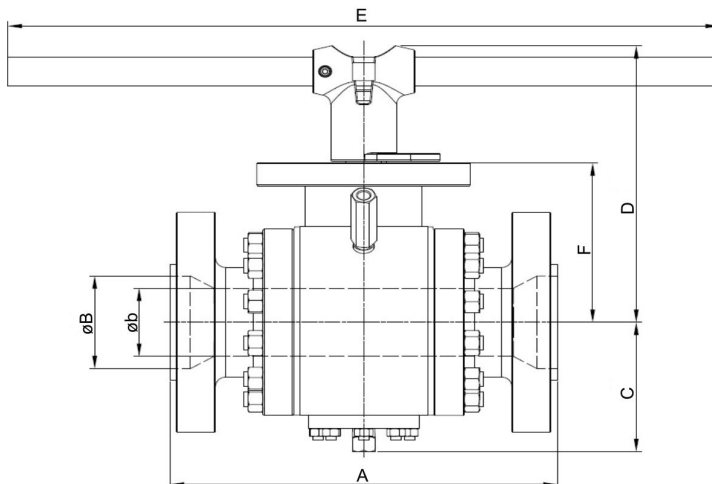
### ANSI 900

VALVE SIZE	BORE SIZE	RF			C				WEIGHT
		RF	RTJ	BW	C	D	E	F	
NPS	B(xb)	A			C	D	E	F	RF
inch	mm	mm	mm	mm	mm	mm	mm	mm	kg
2"	49.2	368	371	368	121	235	500	139	67
3"x2"	74.6x49.2	381	384	381	121	235	500	139	80
3"	74.6	381	384	381	142	303	700	175	102
4"x3"	101.6x74.6	457	460	457	142	303	700	175	140
4"	101.6	457	460	457	187	356	960	214	220
6"x4**	151.6x101.6	610	613	610	190	356	960	214	264

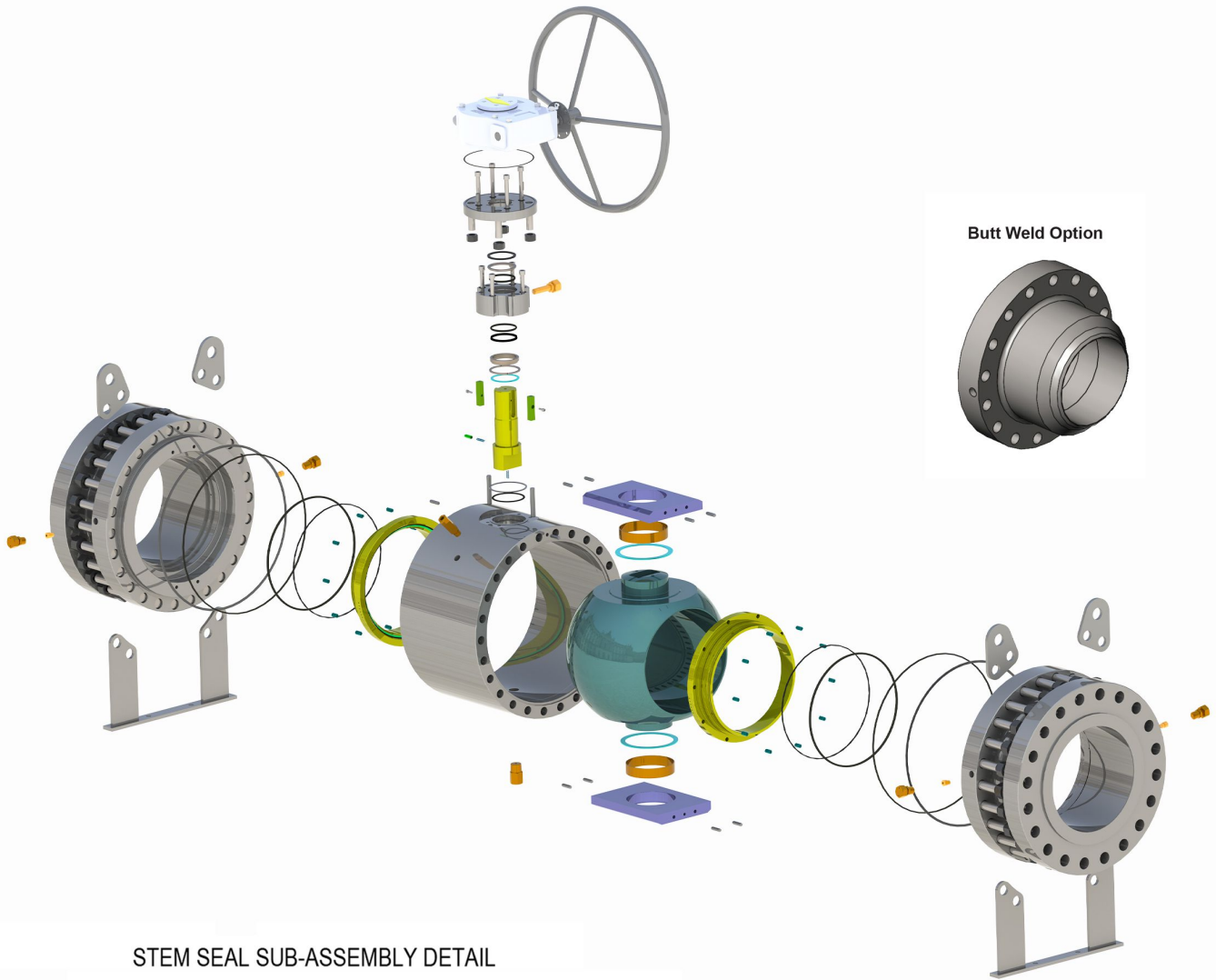
### ANSI 1500

VALVE SIZE	BORE SIZE	RF			C				WEIGHT
		RF	RTJ	BW	C	D	E	F	
NPS	B(xb)	A			C	D	E	F	RF
inch	mm	mm	mm	mm	mm	mm	mm	mm	kg
2"	49.2	368	371	368	121	235	500	139	67
3"x2"	74.6x49.2	470	473	470	132.5	235	500	139	80
3"	74.6	470	473	470	142	303	700	175	108
4"x3"	101.6x74.6	546	549	546	142	303	700	175	146
4"	101.6	546	549	546	187	256	400*	214	225
6"x4"	146.1x101.6	705	711	705	187	256	400*	214	270

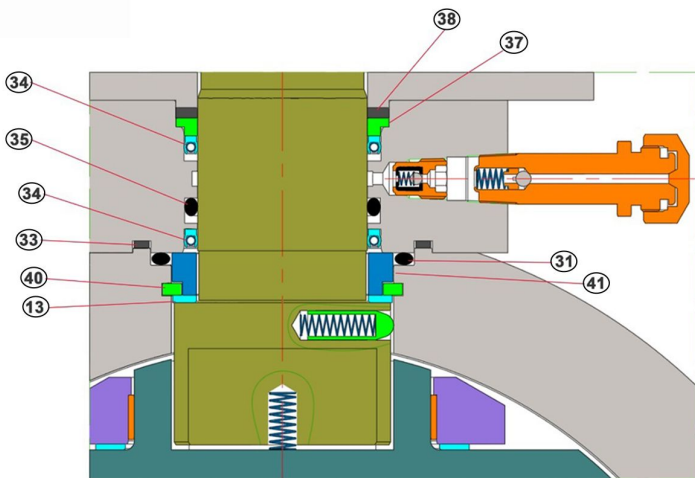
\* Gear operated. Handwheel diameter.



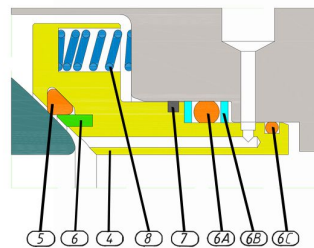
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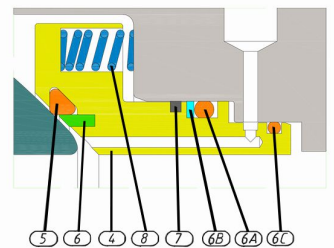
**STEM SEAL SUB-ASSEMBLY DETAIL**



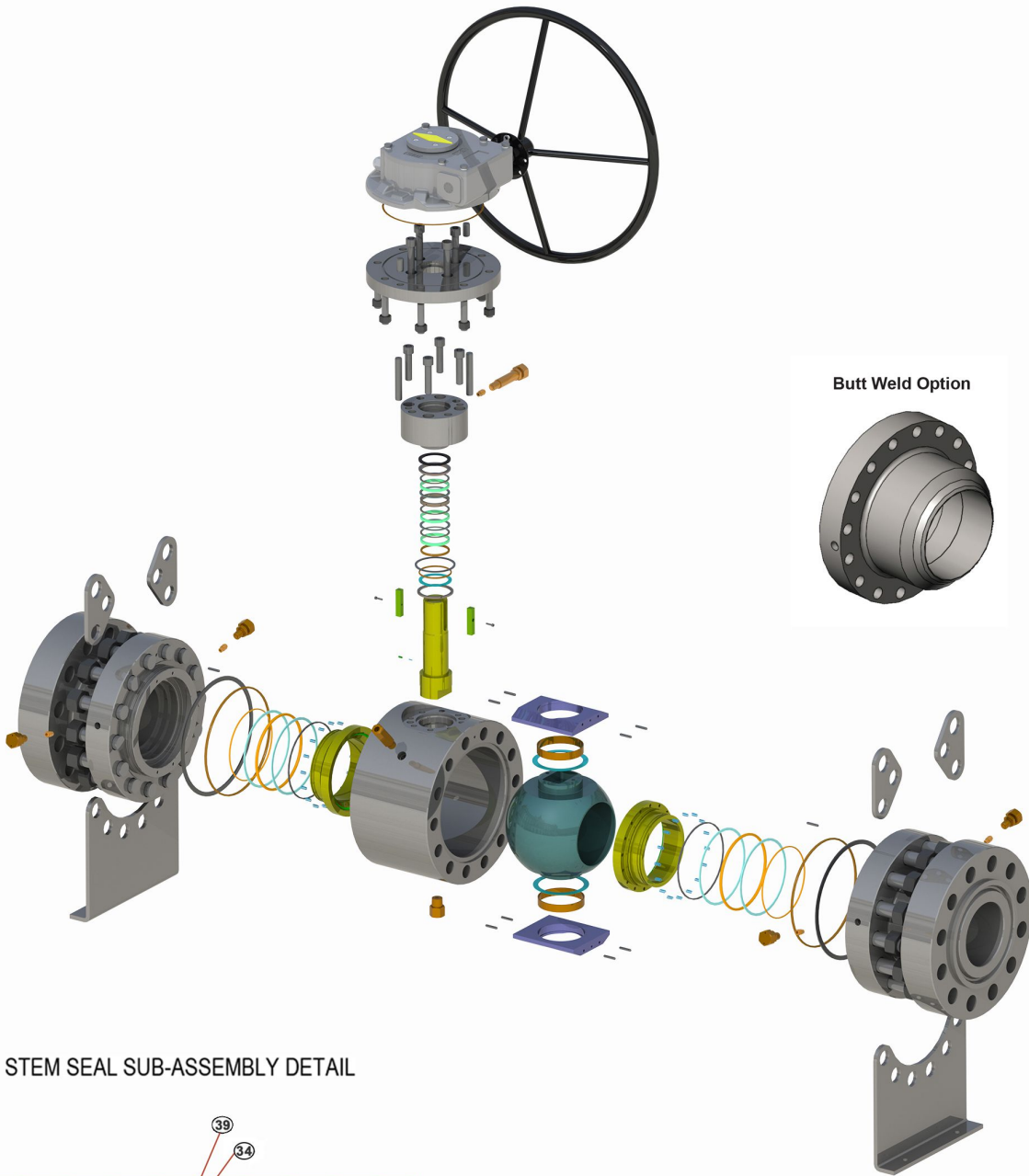
**DOUBLE PISTON EFFECT**



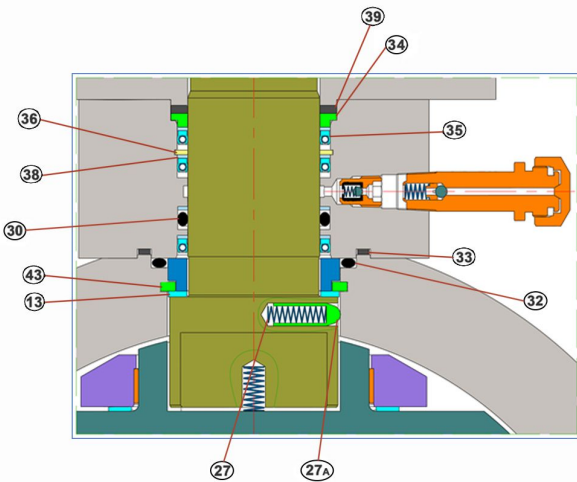
**SELF RELIEVING**



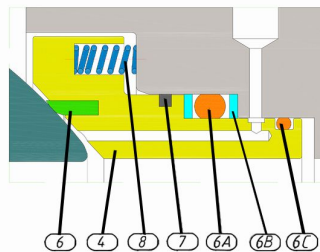




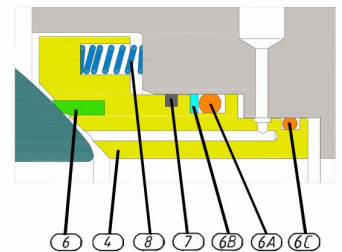
STEM SEAL SUB-ASSEMBLY DETAIL

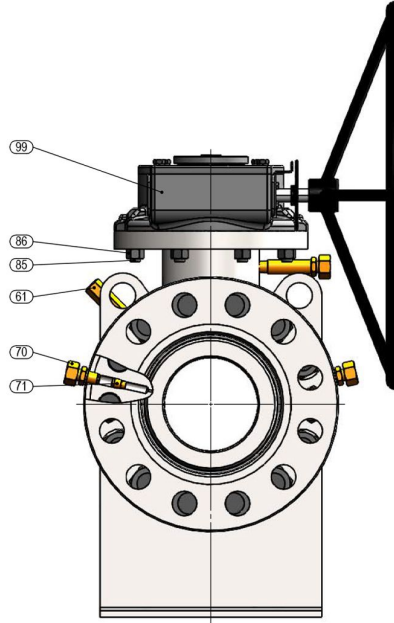
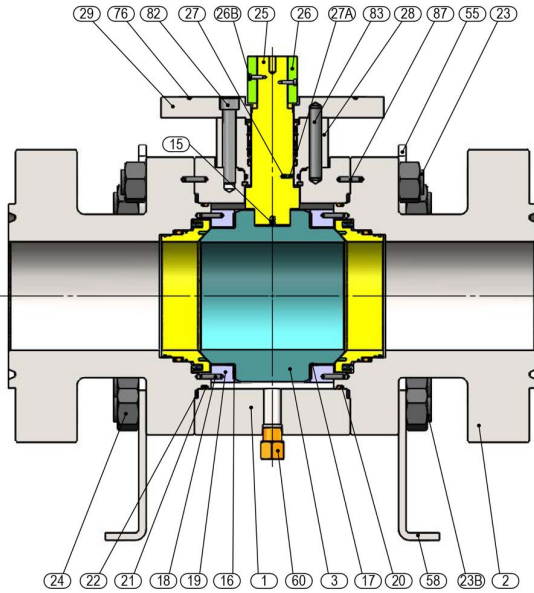


DOUBLE PISTON EFFECT



SELF RELIEVING





Position	Part Description
1	Body
2	End adapter
3	Ball
4	Seat ring
6	Seat resin
6A	Seat main o-ring
6B	Seat back-up ring
6C	Seat grease o-ring
7	Seat fire-safe seal
8	Seat springs
13	Stem thrust washer
15	Ball antistatic spring
16	Trunnion sleeve bearing
17	Ball thrust washer
18	Trunnion support pin
19	Trunnion support
20	End adapter back-up ring
21	End adapter o-ring
22	Body metallic fire-safe seal
23	Body/end adapter studs
24	Body/end adapter nuts
25	Stem
26	Stem key
26B	Stem key capscrew
27	Stem antistatic spring
27A	Stem antistatic piston
28	Lower stem flange
29	Upper stem flange
30	Stem o-ring
31	Stem flange o-ring
32	Bonnet to body o-ring
33	Stem flange metallic fire-safe seal
34	Spacer ring
35	Stem lip seal
35B	Stem lower back-up ring
36	Stem back-up ring
37	Lantern ring
38	Stem lip seal back-up ring
39	Stem top fire-safe seal
43	Stem anti-blowout split ring
55	Lifting lugs
58	Valve support legs
60	Drain valve
61	Safety relief valve
70	Seat grease fitting
71	Seat inner check valve
72	Stem grease fitting
73	Stem inner check valve
76	Weather seal
81	Lower stem flange capscrew
82	Upper stem flange capscrew
83	Lower stem flange dowel pin
84	Stem flange/gearbox dowel pin
85	Stem flange/gearbox studs
86	Stem flange/gearbox nuts
87	Body/End adapter dowel pin
99	Gearbox with handwheel(lockable)

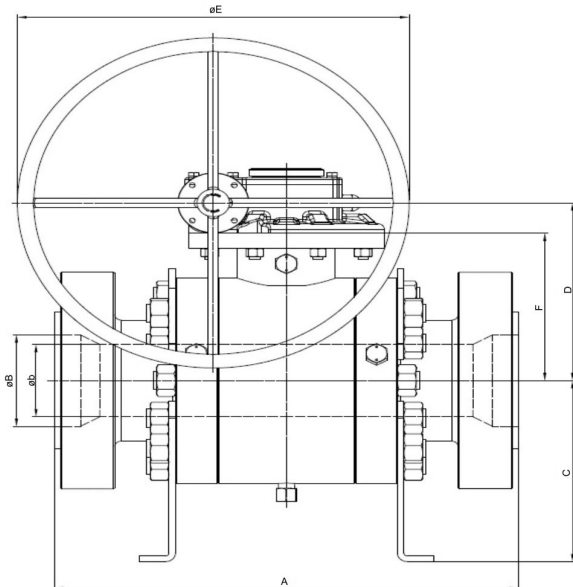
Items 81, 84 are not shown  
Items 55, 58, 70, 71, 73 are not applicable to 2"-4" class 2500

### ANSI 1500

VALVE SIZE	BORE SIZE								WEIGHT
		RF	RTJ	BW					
NPS	B(xb)	A			C	D	E	F	RF
inch	mm	mm	mm	mm	mm	mm	mm	mm	kg
6"	146	705	711	705	299	316	600	264	488
8"x6"	194x146	832	841	832	299	316	600	264	586
8"	194	832	841	832	380	361	700	306	776
10"x8"	241x194	991	1000	991	380	361	700	306	931
10"	241	991	1000	991	490	469	700	400	1404
12"x10"	289x241	1130	1146	1130	490	469	700	400	1684
12"	289	1130	1146	1130	535	510	700	455	1871
14"x10"	317x241	1257	1276	1257	490	469	700	400	1825
14"	317	1257	1276	1257	600	550	700	510	2421
16"x12"	361x289	1384	1407	1384	535	510	700	455	2432
16"	361	1384	1407	1384	645	626	700	565	2971
18"	408	1537	1559	/	710	668	700	590	4184
20"x16"	456x361	1664	1686	/	645	626	700	565	3862
20"	456	1664	1686	/	755	718	700	635	5397
24x20"	548x456	/	1972	/	755	718	700	635	6879

### ANSI 2500

VALVE SIZE	BORE SIZE								WEIGHT
		RF	RTJ	BW					
NPS	B(xb)	A			C	D	E	F	RTJ
inch	mm	mm	mm	mm	mm	mm	mm	mm	kg
2"	44	451	454	451	123	292	700*	162	101
3"x2"	64x44	578	584	578	123	292	700*	162	130
3"	64	578	584	578	164	232	400	190	230
4"x3"	89x64	673	683	673	178	232	400	190	299
4"	89	673	683	673	189	263	500	215	375
6"x4"	132.4x89	914	927	914	197.5	263	500	215	487
6"	132.4	914	927	914	380	395	600	290	733
8"x6"	181x132.4	1022	1038	1022	380	395	600	290	879
8"	181	1022	1038	1022	435	480	700	425	1164
10"x8"	225x181	1270	1292	1270	435	480	700	425	1397
10"	225	1270	1292	1270	510	560	700	490	2106
12"x10"	267x225	1422	1455	1422	510	560	700	490	2527
12"	267	1422	1455	1422	600	650	700	590	2806



**FEATURES**

- Bolted body type
- Full and reduced bore
- All forged steel components
- Firesafe certified, anti-static devices
- Trunnion mounted, double block and bleed
- Anti-blow out stem design per API 608
- Double piston effect, self-relieving seats, or combination of the two seat designs
- Bubble tight seat seals
- Emergency stem and seat sealing
- NACE MR0175 SOUR
- Interchangeable seats with no machining requirements.
- Tested to 80 PSI for seat-to-ball shut-off.

**Fugitive Emission Certified to:**

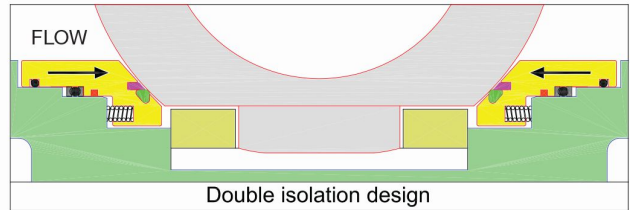
- API STANDARD 641
- ISO 15848-1: ENDURANCE CLASS CO3
- TIGHTNESS CLASS AM
- ISO 15848-1: ENDURANCE CLASS CO2
- TIGHTNESS CLASS CH

**Firesafe Certified to:**

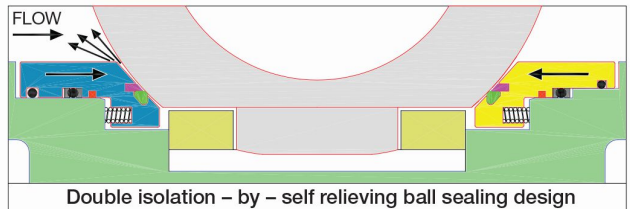
- API STANDARD 607
- API STANDARD 6FA
- B.S. 6755 PART 2
- ISO 10497 : 2010



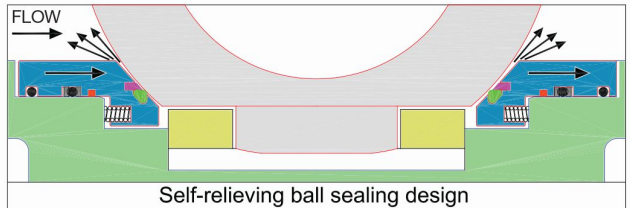
**Optional Valve Seat Sealing Designs**



**DIB-1**



**DIB-2**

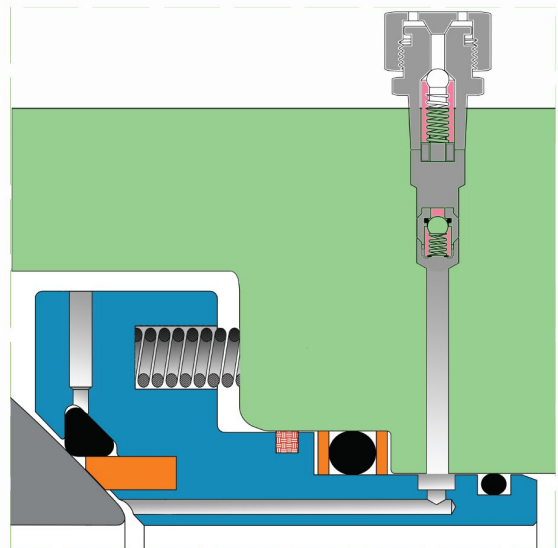


**EMERGENCY SEAT SEALING**

As an excess of impurities in fluids may have a harmful effect on seat ring seals, GVS® valves are equipped for emergency restoration of sealing.

This consists of special holes and grooves in the seat rings and valve body through which sealants are injected.

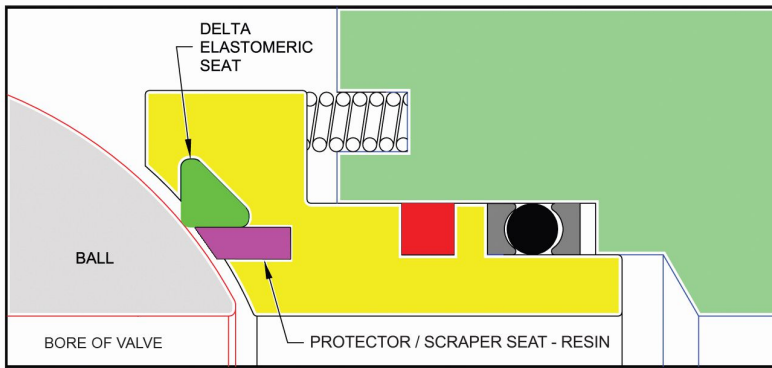
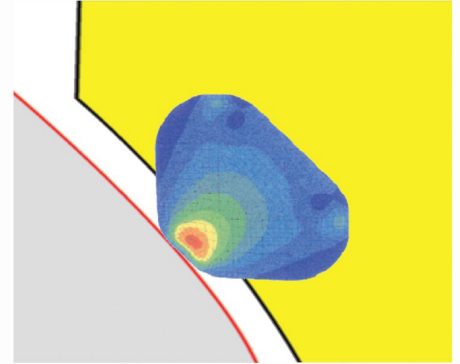
Each body injection port is equipped with an inner check valve and a grease button head fitting.



### DELTA SEAT SEAL

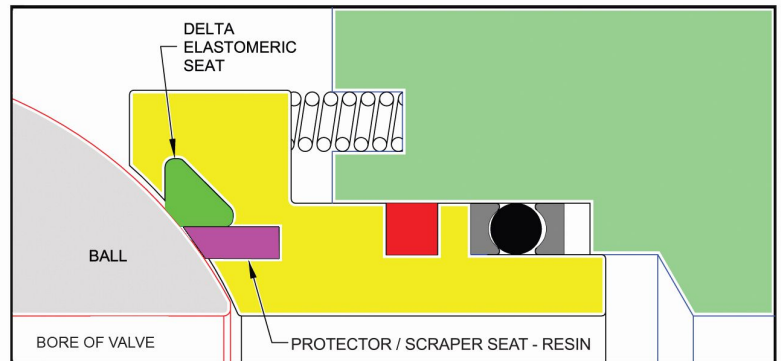
This seat insert is shaped like a triangle “Delta” with rounded corners, which is housed by means of a metal seat. This unique geometry offers several advantages:

Due to the high elasticity of the seat insert, it may ensure sealing even on partly damaged ball surfaces.



At low pressure, the resin seat is more of a “Protector” for it does not touch the ball’s outer surface. This is why we state that the insert seat is a protector. The “Delta” elastomeric shaped seat is always in full contact to the ball at low & high pressure, providing a seat to ball shut-off at all times.

At higher pressure, the complete seat assembly is being pushed against the ball, and the insert resin seat “Protector” eventually does come in contact to the ball’s outer surface. At this elevated pressure, the protector acts as a seat seal in addition of being a protector and also acting as a scraper thus wiping off any debris that may be against the ball’s outer surface.



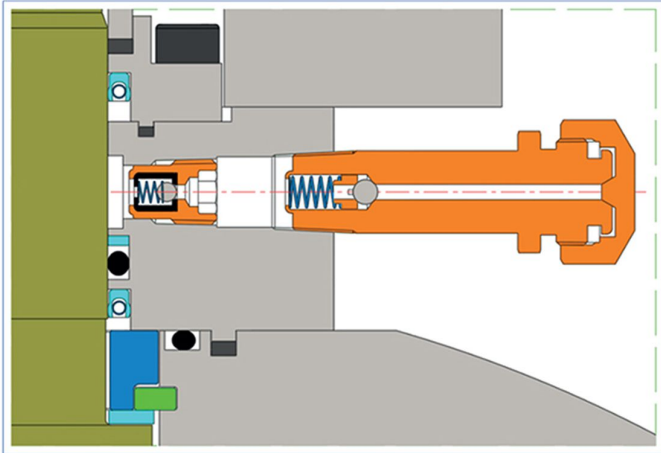
### ANTI-EXPLOSIVE DECOMPRESSION SEAL (AED)

All of the elastic compounds present a permeability to gases at different levels. The pressured gas penetrates below the o-ring surface forming air pockets in the intermolecular spaces. The quantity of gas absorbed depends on the type of compound and of the gas in contact with it, from the temperature and the exercised pressure.

The instance described previous can be the cause of damage to the o-ring, if it is followed by an abrupt reduction in pressure and the consequent dilation of the ring, the gas included in the compound has an explosive behavior. The explosion of the air pockets contained in the compound causes the laceration of the o-ring surfaces.

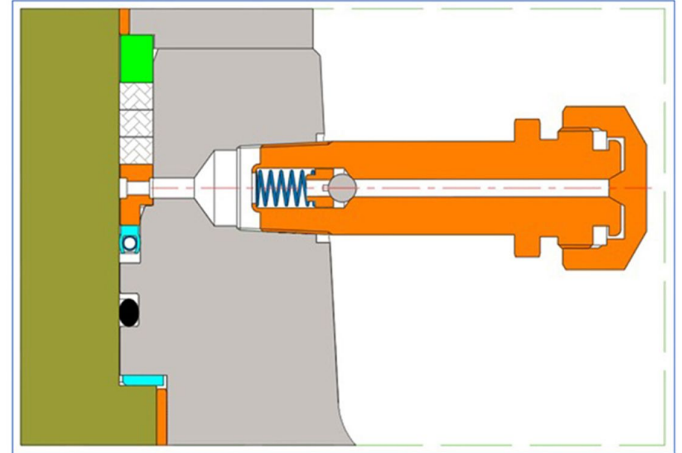
All o-rings in our GVS Series B2 & GB2 are of AED type and possess an Anti-Explosive Decompression Feature that prevents the above from occurring.

**ISO 15848-1  
ENDURANCE CLASS CO3 TIGHTNESS CLASS AM**



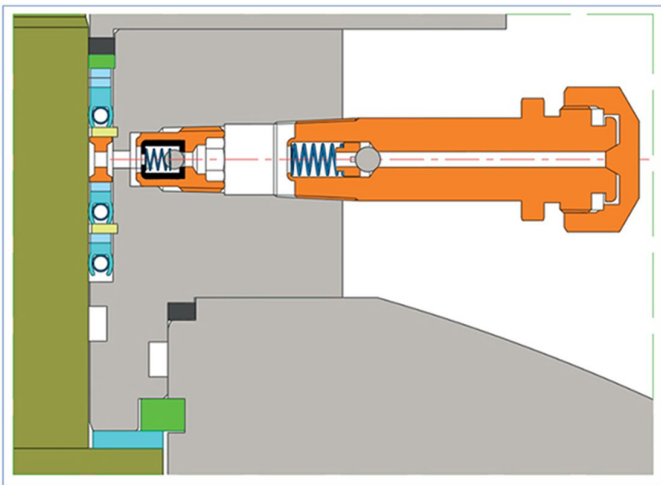
**+ 200°C**

**CERTIFICATION IN PROCESS**



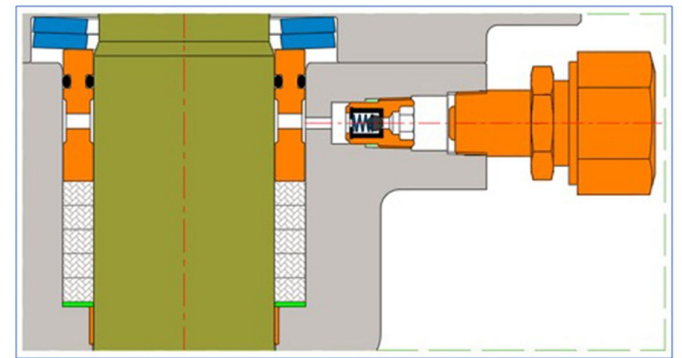
**+ 240°C**

**API STANDARD 641**



**+ 240°C**

**API STANDARD 641  
ISO 15848-1  
ENDURANCE CLASS CO2 TIGHTNESS CLASS CH**



**+ 350°C**

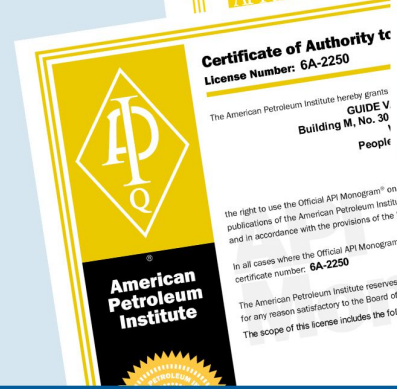




API 6D: 6D-1342  
 API 6A: 6A-2204  
 API Spec Q1: Q1-4181  
 ISO 9001 :2015: 0052985-01



API 6D: 6D-1822  
 API 6A: 6A-2250  
 API Spec Q1: Q1-3641  
 ISO 9001 :2015: ISO-3983



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