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# ***Ball Valves***



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## Introduction

*Quality* is our commitment, while competitive price and timely delivery is our promise. *From* the beginning, the DHV name has become associated with quality in every step of our manufacturing process. For the past decades our customers worldwide have trusted us to provide them with consistent and reliable valve products in their most severe and critical service. *We* at DHV are proud of our ability to meet the stringent requirements of Refining, Gas/Oil, Pipeline, Petrochemical and Power Plant.

*DHV* Ball Valves are designed, manufactured and tested to the latest manufacturing specifications of the American & International Standards Organizations. We welcome your challenges and look forward to serving your critical project needs.

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# DHV Figure Numbers

## Ball Valves

### Type

- 1 = Floating Ball Split Body, Full Bore
  - 2 = Floating Ball Split Body, Reduced Bore
  - 3 = Trunnion Ball Two-Piece Body, Full Bore
  - 4 = Trunnion Ball Two-Piece Body, Reduced Bore
  - 5 = Trunnion Ball Three-Piece Body, Full Bore
  - 6 = Trunnion Ball Three-Piece Body, Reduced Bore
  - 7 = Floating Ball One-Piece Body, Reduced Bore
  - 8 = Small size Floating Ball valve. see\*
  - 9 = Top Entry Trunnion Ball Valves
  - 0 = Three Way Ball Valves
  - A = Metal-to-Metal Seat Ball Valves
  - B = Cryogenic Ball Valves
- C3 = Trunnion Ball Valve, Fully Welded, Two-Piece Body, Full Bore
  - C4 = Trunnion Ball Valve, Fully Welded, Two-Piece Body, Reduced Bore
  - C5 = Trunnion Ball Valve, Fully Welded, Three-Piece Body, Full Bore
  - C6 = Trunnion Ball Valve, Fully Welded, Three-Piece Body, Reduced Bore
  - D = Rising Stem Ball Valves, Full Bore
  - E = Rising Stem Ball Valves, Reduced Bore
  - X = Special

Note: \*For valve bore type note designated, For valve bore type not designated, add R for reduce bore, F for full bore. 8R is reduce bore small size ball valve, 8F is full bore small size ball valve.

### Body Material

- 0 = ASTM A216 WCB
- 1 = ASTM A105
- 2 = ASTM A352 LCB
- 3 = ASTM A350 LF2
- 4 = ASTM A351 CF8M
- 5 = ASTM A182 F316
- 6 = ASTM A351 CF8
- 7 = ASTM A182 F304
- 8 = ASTM A890 4A
- 9 = ASTM A182 F51
- A = ASTM A352 LCC
- B = Inconel
- C = Monel
- D = Super Duplex S.S.
- E = ASTM A240 UNS N08926
- F = ASTM A216 WCC
- X = Special

### Pressure Class

- 15 = Class 150
- 30 = Class 300
- 60 = Class 600
- 80 = Class 800
- 90 = Class 900
- 150 = Class 1500
- 250 = Class 2500
- 100=1000 WOG
- 200=2000 WOG
- 300=3000 WOG
- 500=5000 WOG
- 600=6000 WOG
- 1000=10000 WOG

### Code

- C = Cast Steel Gate, Globe, Check, Plug valve
- F = Forged Steel Gate, Globe, Check valves
- B = Ball Valves

8" Ball Valve, Trunnion Ball, Three-Piece Body, Full Bore, Class 600LB, A105 Body & Adapter Raised Face Flanged End, with A105+ENP Trim and Nylon+Viton / Graphite Seat and Seal, Gear Operated, Inconel 625 Overlay, Single Piston Seat.

# Example: 8"-B5601F13-GO-I-SPE

### End Connections

- F = Raised Face Flanged End
- R = Ring Type Joint Flanged End
- P = Plain Flat Face Flanged End
- B = Butt-welded End
- T = Threaded End
- S = Socked-Welded End
- X = Other Type End Connection
- G = Grayloc Hub End
- U = Pup Piece End

### Trim Material

- 1 = C.S. + ENP
- 2 = 304SS
- 3 = 316SS
- 4 = 13Cr / F6
- 5 = Duplex S.S.
- 6 = Monel
- 7 = Inconel
- 8 = B16
- 9 = B62
- A = S.S.+ Ni
- B = S.S.+ HCr
- C = Super Duplex S.S.
- D = S.S.+ T.C
- E = C.S.+ T.C
- F = C.S.+ Ni
- G = C.S.+ HCr
- H = C.S.+ CCC
- I = S.S.+ CCC
- X = Special

### Seat Material

- 1 = PTFE
- 2 = R-PTFE
- 3 = NYLON
- 4 = VITON
- 5 = DEVLON
- 6 = NBR
- 7 = PEEK (HT4)
- 8 = Ni
- 9 = STL
- A = HCr
- B = T.C
- M = NYLON-M
- X = Special

### Operator

- NONE = Lever or Handwheel Operator
- CO = Chain Wheel Operator
- GO = Gear Operator
- BS = Bare Stem
- EM = Electric Motor Operator
- PA = Pneumatic Actuator
- HA = Hydraulic Actuator
- PH = Pneumatic-Hydraulic Actuator

### Internal Coating

- None = No Coating
- P=Plasite 7159
- E = Enduro Bond
- I = Inconel 625 Overlay
- N = Inconel 825 Overlay
- D = Duplex SS Overlay

### DPE Seat

- None = Self Relieving Seat
- SPE = Single Piston Seat
- DIB-1 = DPE both Side
- DIB-2 = DPE One Side



# Floating Ball Valves

## Two-piece Body Ball Valves

### Design Features

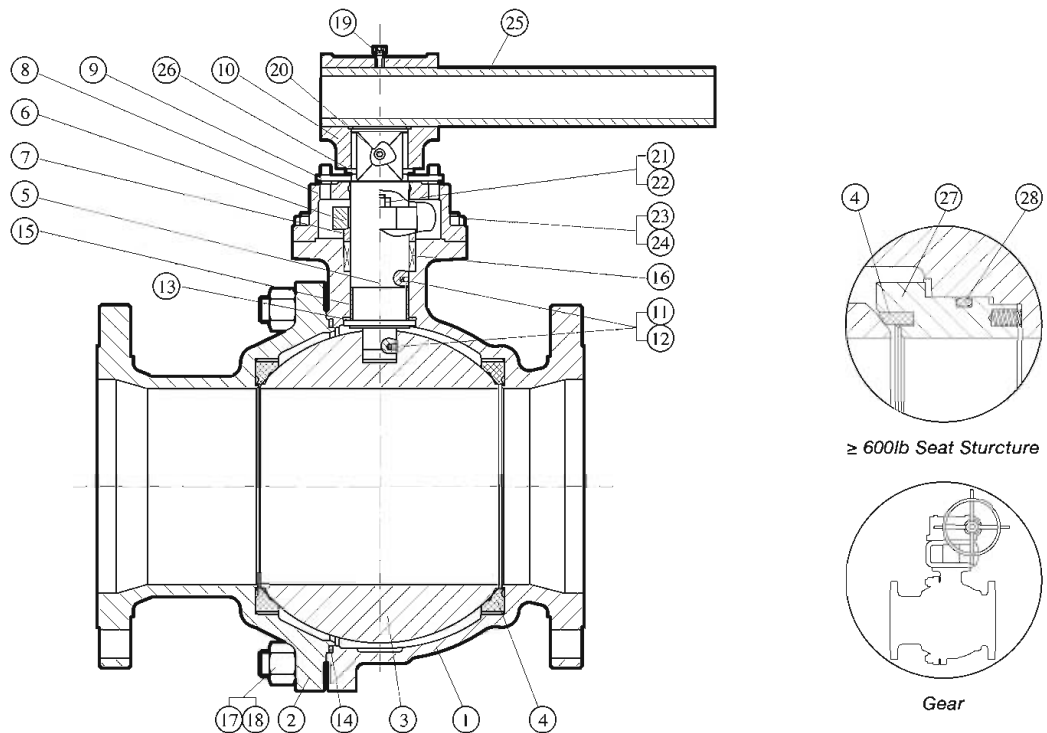
- Two-piece Body
- With Anti-static Device
- Blow-out proof stem, Low Emission
- 1/2"-6" Lever operation  
8"-12" Gear operation
- Duplex SS or Inconel available
- ISO Mounting PAD upon request

### Specifications

Basic Design: **ASME B16.34 BS 5351**  
**ISO 17292, API 608 upon request**

Face to Face: **ASME B16.10**  
 End Flange: **ASME B16.5**

Test and Inspection: **API 598**  
 Fire-safe Design / Test: **API 607**  
 Manufacturing to NACE latest version on request

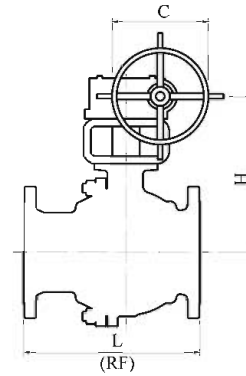
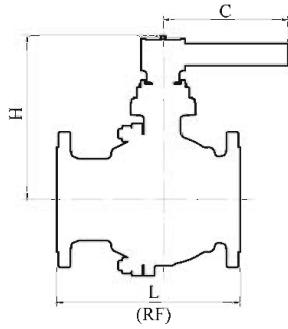


Material Specification				Material Specification				
No.	Description	Carbon Steel	Stainless Steel	No.	Description	Carbon Steel	Stainless Steel	
1	Body	A216 WCB A105	A352 LCC A350 LF2	A351 CF8M A182 F316	15	Stem Bearing	PTFE	
2	Body Cap	A216 WCB	A352 LCC	A351 CF8M	16	Stem Packing	PTFE / Graphite	
3	Ball	A182 F316		17	Stud	A193 B7	A320 L7 A193 B8M	
4	Seat	As Page 38 Seal Material		18	Nut	A194 2H	A194 7 A194 8M	
5	Stem	A276 316		19	Bolt	A193 B7	A320 L7 A193 B8M	
6	Gland Flange	A216 WCB	A352 LCC	A351 CF8M	20	Screw	A193 B7	A320 L7 A193 B8M
7	Gland	A276 410	A276 316		21	Stud	A193 B7	A320 L7 A193 B8M
8	Yoke	A216 WCB	A352 LCC	A351 CF8M	22	Nut	A194 2H	A194 7 A194 8M
9	Stop Plate	Carbon Steel		23	Stud	A193 B7	A320 L7 A193 B8M	
10	Handle Adapter	A216 WCB	A216 WCB+ENP		24	Nut	A194 2H	A194 7 A194 8M
11	Spring	Stainless Steel		25	Handle	Carbon Steel		
12	Ball	Stainless Steel		26	Snap Ring	Carbon Steel		
13	Thrust Washer	R-PTFE		27	Seat Retainer	A105	A350 LF2 A182 F316	
14	Body Gasket	Metal & Flexible Graphite		28	O-Ring	Rubber		



# Floating Ball Valves

## Two-piece Body Ball Valves



### 150LB

Description		Valve Size														
		1 1/2"	2x1 1/2"	2"	3x2"	3"	4x3"	4"	6x4"	6"	8x6"	8"	10x8"	10"	12x10"	12"
Flanged End L	in	6.50	7.00	7.00	8.00	8.00	9.00	9.00	10.50	15.50	11.50	18.00	13.00	21.00	14.00	24.00
	mm	165	178	178	203	203	229	229	267	394	292	457	330	533	356	610
Height H	in	6.10	6.10	6.42	6.42	8.15	8.15	9.37	9.37	13.07	13.07	16.54	16.54	17.72	17.72	21.26
	mm	155	155	163	163	207	207	238	238	332	332	420	420	450	450	540
Handle Length / Handwheel Dia C	in	11.81	11.81	11.81	11.81	15.75	15.75	23.62	23.62	29.53	29.53	23.62	23.62	23.62	23.62	23.62
	mm	300	300	300	300	400	400	600	600	750	750	600	600	600	600	600
Weight	Kg	8	9	10	13	20	27	31	62	75	94	189	192	210	328	358

### 300LB

Description		Valve Size												
		1 1/2"	2x1 1/2"	2"	3x2"	3"	4x3"	4"	6x4"	6"	8x6"	8"	10x8"	10"
Flanged End L	in	7.50	8.50	8.50	11.12	11.12	12.00	12.00	15.88	15.88	16.50	19.75	18.00	22.38
	mm	190	216	216	282	282	305	305	403	403	419	502	457	568
Height H	in	6.10	6.10	6.42	6.42	8.15	8.15	9.37	9.37	13.07	13.07	16.54	16.54	18.58
	mm	155	155	163	163	207	207	238	238	332	332	420	420	472
Handle Length / Handwheel Dia C	in	11.81	11.81	11.81	11.81	15.75	15.75	23.62	23.62	29.53	29.53	23.62	23.62	23.62
	mm	300	300	300	300	400	400	600	600	750	750	600	600	600
Weight	Kg	10	13	14	21	28	50	54	82	100	133	170	265	290

### 600LB

### 900LB

### 1500LB

Description		Valve Size										Valve Size				Valve Size				
		1/2"	3/4"	1"	1 1/2"	2x1 1/2"	2"	3x2"	3"	4x3"	4"	6x4"	1/2"	3/4"	1"	2x1 1/2"	1/2"	3/4"	1"	2x1 1/2"
Flanged End L	in	6.50	7.50	8.50	9.50	11.50	11.50	14.00	14.00	17.00	17.00	22.00	8.50	9.00	10.00	14.50	8.50	9.00	10.00	14.50
	mm	165	191	216	241	292	292	356	356	432	432	559	216	229	254	368	216	229	254	368
Height H	in	2.76	3.15	4.72	6.10	6.10	7.56	7.60	9.53	9.53	10.94	10.94	3.15	3.15	4.25	6.85	3.15	3.15	4.25	6.85
	mm	70	80	120	155	155	192	193	242	242	278	278	80	80	108	174	80	80	108	174
Handle Length / Handwheel Dia C	in	4.53	4.53	4.53	11.81	11.81	15.75	15.75	23.62	23.62	29.53	29.53	4.53	4.53	6.50	19.69	4.53	4.53	6.50	19.69
	mm	115	115	115	300	300	400	400	600	600	750	750	115	115	165	500	115	115	165	500
Weight	Kg	10	12	14	16	21	22	35	42	74	78	150	12	16	22	45	12	16	22	45





# Floating Ball Valves

## Small Size Ball Valves

### Design Features

- One-piece Body or Two-piece Body, Floating Ball
- Blow-out Proof Stem, Low Emission
- NPT Threaded, Socket Weld, Pup Ends
- Locking Device, on request

### Specifications

End to End: **DHV Standard**

Thread End: **ASME B1.20.1 NPT**

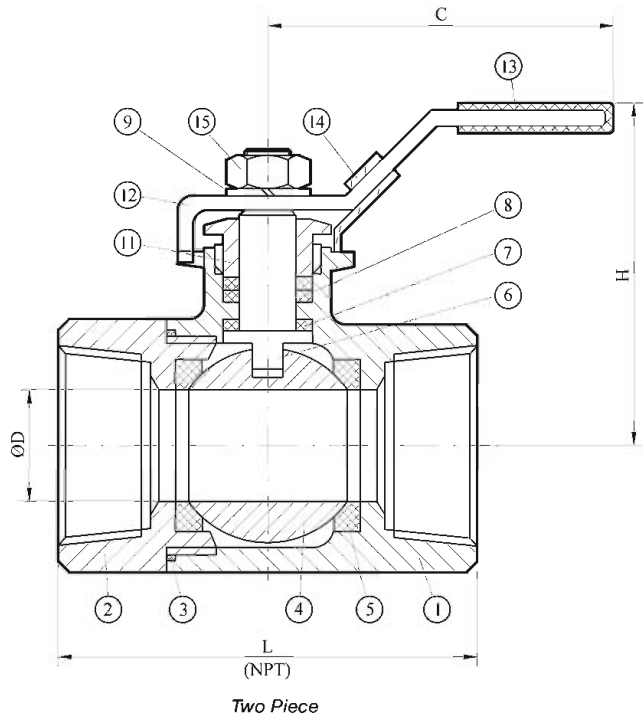
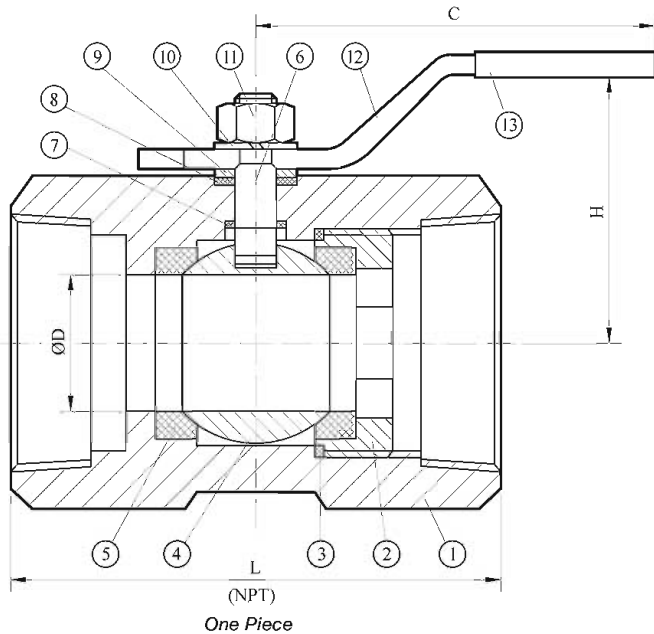
Socket Weld End: **ASME B16.11**

Test and Inspection: **API 598**

Manufacturing to NACE latest version on request

### Material Specification

No.	Description	Carbon Steel			Stainless Steel	
		Bar stock	A216 WCB	A352 LCC	Bar stock	A351 CF8M
1	Body	Bar stock	A216 WCB	A352 LCC	Bar stock	A351 CF8M
2	Cap	Bar stock	A105	A350 LF2	Bar stock	A182 F316
3	Body Gasket	Metal & Flexible Graphite				
4	Ball	A182 F316				
5	Seat	PTFE / Nylon				
6	Stem	A276 316				
7	Thrust Washer	PTFE				
8	Stem Packing	PTFE				
9	Washer	304SS			316SS	
10	Snap Ring	304SS			316SS	
11	Gland Nut	A194 2H	A194 7		A194 8M	
12	Handle	Carbon Steel				
13	Plastic Cover	Plastic				
14	Locking Device	Carbon Steel				
15	Nut	304SS				



One Piece Body / 2000WOG / 800LB									Two or Three Piece Body / 2000WOG / 800LB								
Description		Valve Size								Valve Size							
		1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Bore Size D	in	0.20	0.28	0.37	0.49	0.59	0.79	0.98	1.26	0.37	0.37	0.50	0.69	0.87	1.00	1.25	1.50
	mm	5	7	9.5	12.5	15	20	25	32	9.5	9.5	12.7	17.5	22.2	25.4	31.7	38.1
Thread End L	in	1.69	1.77	2.44	2.76	3.37	3.70	4.00	4.49	2.13	2.17	2.48	2.83	3.41	3.66	4.04	4.69
	mm	43	45	62	70	85.5	94	101.5	114	54	55	63	72	86.7	93	102.5	119
Height H	in	1.38	1.50	1.97	2.28	2.44	2.52	2.83	3.15	1.63	1.69	1.83	2.20	2.44	2.60	2.95	3.15
	mm	35	38	50	58	62	64	72	80	41.5	43	46.5	56	62	66	75	80
Handle Length C	in	2.87	2.87	4.53	4.53	5.08	5.08	5.91	5.91	4.33	4.33	4.33	5.94	5.94	6.69	7.40	7.40
	mm	73	73	115	115	129	129	150	150	110	110	110	151	151	170	188	188



# Floating Ball Valves

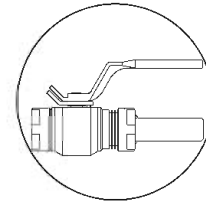
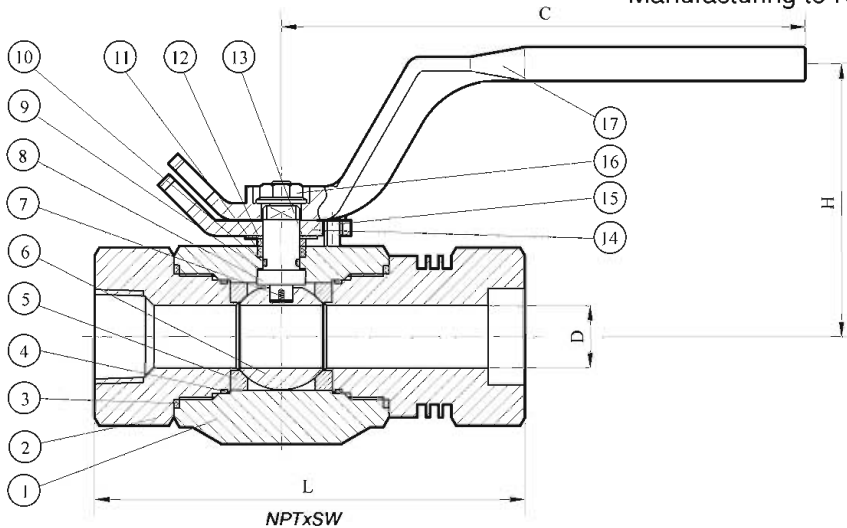
## Small Size Ball Valves

### Design Features

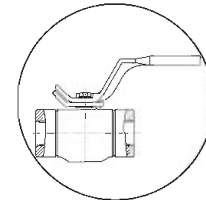
- Three-piece design, Full bore or Regular bore
- Blow-out Proof Stem, Low Emission
- Locking Device
- NPT Threaded, Socket Weld, Pup and Raised face Ends
- ISO mounting PAD upon request

### Specifications

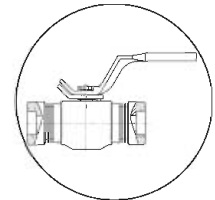
- Basic Design: **ISO 17292**  
 End to End: **DHV Standard**  
 Thread End: **ASME B1.20.1 NPT**  
 Socket Weld End: **ASME B16.11**  
 Test and Inspection: **API 598**  
 Fire-safe Design/Test: **API 607**  
 Manufacturing to NACE latest version on request



Pup Piece End



NPTxNPT



SWxSW

### Material Specification

No.	Description	Carbon Steel		Stainless Steel	
		A105	A350 LF2 Class 1	A182 F316	A182 F51
1	Body	A105	A350 LF2 Class 1	A182 F316	A182 F51
2	Body Cap	A105	A350 LF2 Class 1	A182 F316	A182 F51
3	Body Gasket	Metal & Flexible Graphite			
4	O-Ring	Viton / HNBR			
5	Seat	Delrin / Devlon / Peek			
6	Ball	A182 F316 / 17-4PH			A182 F51
7	Anti-Static Device	Stainless Steel			
8	Stem	17-4PH/Nitronic 50			A182 F51
9	Thrust Washer	Peek			
10	O-Ring	Viton / HNBR			
11	Stem Packing	Graphite			
12	Gland	A182 F316			A182 F51
13	Belleville Spring	Stainless Steel			
14	Gland Flange	A105	A350 LF2	A182 F316	A182 F51
15	Locking Screw	Stainless Steel			
16	Nut	A194 2H	A194 7	A194 8M	A194 8MLCuNa
17	Lever	Carbon Steel			

### 3000WOG

### 6000WOG

Description		Valve Size								Valve Size							
		3/4x1/2"	1x3/4"	2x1/2"	3 x 2"	1/2"	3/4"	1 1/2"	2"	3/4x1/2"	1x3/4"	2x1/2"	1/2"	3/4"	1-1/2"	2"	
Bore Size D	in	0.50	0.88	1.50	2.00	0.50	0.88	1.50	2.00	0.50	0.88	1.50	0.50	0.88	1.50	2.00	
	mm	13	22	38	51	13	22	38	51	13	22	38	13	22	38	51	
FNPTxSW L	in	5.56	5.50	7.40	11.38	4.44	5.50	7.40	9.50	5.56	6.00	7.90	4.69	5.50	7.40	9.50	
	mm	141	140	188	289	113	140	188	241	141	152	201	119	140	188	241	
Height H	in	3.29	4.40	5.62	6.96	3.29	4.40	5.62	6.96	3.29	4.40	5.62	3.29	4.40	5.62	6.96	
	mm	83	112	143	177	83	112	143	177	83	112	143	83	112	143	177	
Lever Length C	in	4.82	6.75	11.00	11.88	4.82	6.75	11.00	11.88	4.82	6.75	11.00	4.82	6.75	11.00	11.88	
	mm	122	172	279	302	122	172	279	302	122	172	279	122	172	279	302	



# Trunnion Mounted Ball Valves

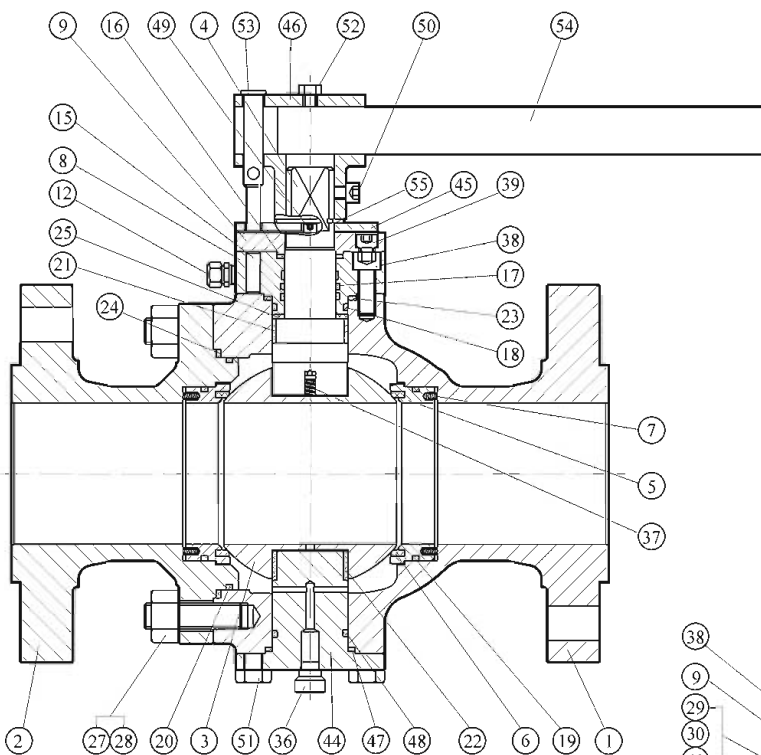
## Two-piece Cast Steel Body Ball Valves

### Design Features

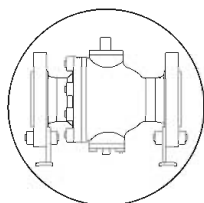
- Full bore / reduced bore, cast steel body
- Double Block and Bleed
- Anti-static device, Low Emission
- Carbon steel with Inconel or Duplex SS overlay upon request.
- ISO mounting PAD upon request
- Double Piston Effect seat upon request with options: DIB-1, DIB-2 with liquid porting available, Self-relieving X DPE

### Specifications

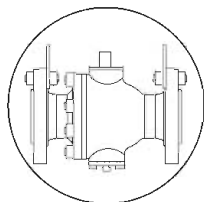
Basic Design: **API 6D**  
 Face to Face: **API 6D ASME B16.10**  
 End Flange: **ASME B16.5**  
 BW End: **ASME B16.25**  
 Test and Inspection: **API 6D**  
 Fire-safe Design/Test: **API 607 or API 6FA**  
 API 608 upon request  
 Manufacturing to NACE latest version on request  
 CSA Z245.15 latest version compliance is available



TYPE SE-1

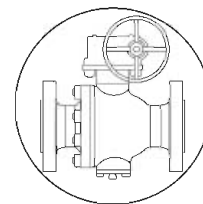


Support Leg



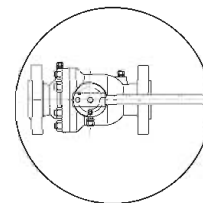
Lifting Lug  
≥ 8"

150LB	≥ 8"	150LB	≥ 8x6"
300LB	≥ 6"	300LB	≥ 8x6"
600LB	≥ 6"	600LB	≥ 8x6"
900LB	≥ 6"	900LB	≥ 8x6"
1500LB	≥ 4"	1500LB	≥ 4x3"
2500LB	≥ 4"	2500LB	≥ 4x3"



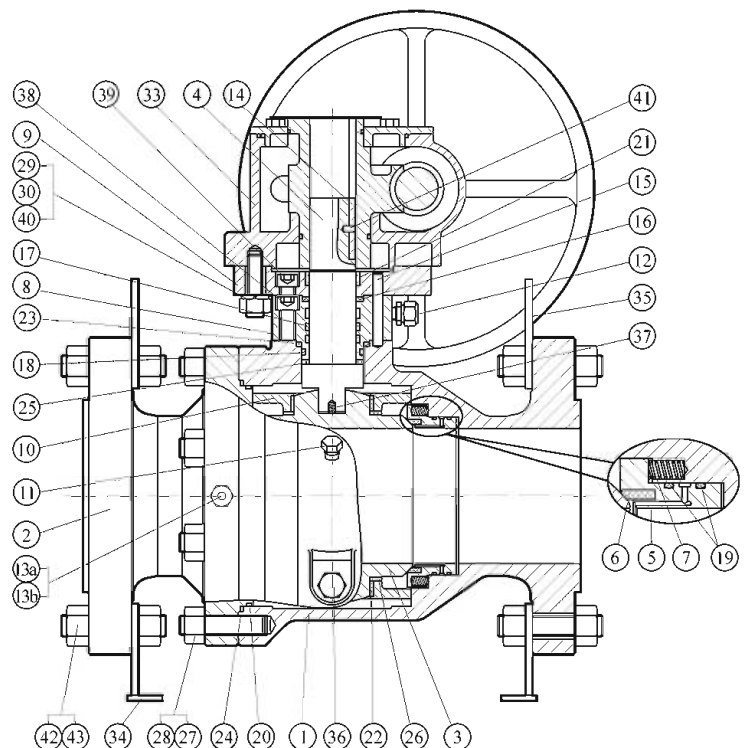
Gear

150LB	≥ 6"	150LB	≥ 8x6"
300LB	≥ 6"	300LB	≥ 8x6"
600LB	≥ 6"	600LB	≥ 8x6"
900LB	≥ 6"	900LB	≥ 8x6"
1500LB	≥ 3"	1500LB	≥ 4x3"
2500LB	≥ 2"	2500LB	≥ 3x2"



Seat Injection

150LB	≥ 6"
300LB	≥ 6"
600LB	≥ 6"
900LB	≥ 4"
1500LB	≥ 4"
2500LB	≥ 2"



TYPE SE-3

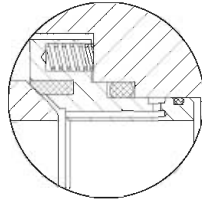




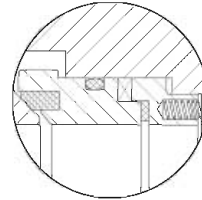
# Trunnion Mounted Ball Valves

## Two-piece Cast Steel Body Ball Valves

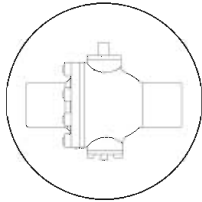
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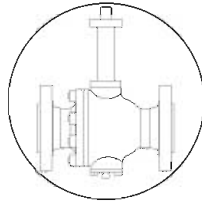
Double Piston Effect



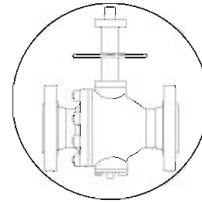
Fire Safe



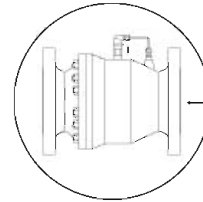
Pup Piece End



Extended Stem



Cryogenic Design



By-pass / Liquid port

### Material Specification

No.	Description	Carbon Steel		Stainless Steel	
		A216 WCB	A352 LCC	A351 CF8M	A890 4A
1	Body	A216 WCB	A352 LCC	A351 CF8M	A890 4A
2	End Cap	A216 WCB	A352 LCC	A351 CF8M	A890 4A
3	Ball	A105	A350 LF2	A182 F316	A182 F51
4	Stem	A105	A350 LF2	A276 316	A182 F51
5	Seat Retainer	A105	A350 LF2	A182 F316	A182 F51
6	Seat Insert	R-PTFE/Nylon/Devlon/PEEK			
7	Spring	Stainless Steel			
8	Gland	A105	A350 LF2	A276 316	A182 F51
9	Adapter Plate	A105	A350 LF2	A182 F316	A182 F51
10	Bearing Retainer	A105	A350 LF2	A182 F316	A182 F51
11	Vent Fitting	Assembly			
12	Sealant Injection Fitting	Assembly			
13a	Sealant Injection Fitting	Assembly			
13b	Check Valve	Assembly			
14	Key	Stainless Steel			
15	Pin	A193 B7			
16	Stem Sealing	Metal & Flexible Graphite			
17	O-Ring	As Page 38 Seal Material			
18	O-Ring	As Page 38 Seal Material			
19	O-Ring	As Page 38 Seal Material			
20	O-Ring	As Page 38 Seal Material			
21	Bearing	Metal Backed PTFE			
22	Bearing	Metal Backed PTFE			
23	Gasket	Metal & Flexible Graphite			
24	Gasket	Metal & Flexible Graphite			
25	Thrust Washer	R-PTFE/Metal Backed PTFE			
26	Thrust Washer	R-PTFE			

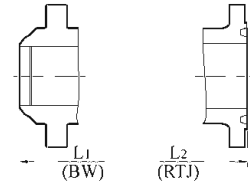
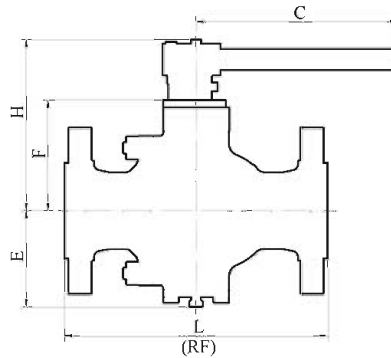
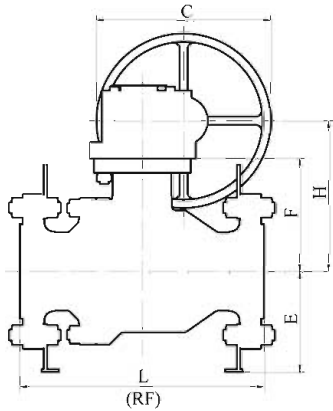
### Material Specification

No.	Description	Carbon Steel		Stainless Steel	
		A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
27	Stud	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
28	Nut	A194 2H	A194 7	A194 8M	A194 8MLCuNa
29	Stud	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
30	Nut	A194 2H	A194 7	A194 8M	A194 8MLCuNa
33	Gear Box	Carbon Steel			
34	Support Leg	Carbon Steel			
35	Lifting Lug	Carbon Steel			
36	Drain Fitting	Assembly			
37	Anti-Static Device	Stainless Steel			
38	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
39	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
40	Washer	Stainless Steel			
41	Pin	Stainless Steel			
42	Stud	A193 B7	A193 B7	A193 B7	A193 B7
43	Nut	A194 2H	A194 2H	A194 2H	A194 2H
44	Trunnion	A105	A350 LF2	A182 F316	A182 F51
45	Stop Plate	Carbon Steel			
46	Handle Adapter	Carbon Steel			
47	Gasket	Metal & Flexible Graphite			
48	O-ring	As Page 38 Seal Material			
49	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
50	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
51	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
52	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
53	Locking Pin	Carbon Steel			
54	Handle	Carbon Steel			
55	Snap Ring	Carbon Steel			



# Trunnion Mounted Ball Valves

## Full Bore-Two-piece Cast Steel Body Ball Valves



### 150LB

Description		Valve Size																	
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	40"	42"	48"
Flanged End L	in	7.00	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	42.00	51.00	54.00	60.00	69.00	70.50	78.50
	mm	178	203	229	394	457	533	610	686	762	864	914	1067	1295	1372	1524	1753	1790	1995
Weld End L <sub>1</sub>	in	8.50	11.14	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	55.00	60.00	68.00	77.00	82.00	94.00
	mm	216	283	305	457	521	559	635	762	838	914	991	1143	1397	1524	1727	1956	2083	2388
Height F	in	4.96	5.94	6.73	8.50	10.63	12.68	13.90	15.94	17.24	19.61	20.79	25.59	28.56	30.67	33.57	36.34	38.07	44.29
	mm	126	151	171	216	270	322	353	405	438	498	528	650	726	779	853	923	967	1125
Height H	in	7.40	8.62	9.41	11.02	13.07	15.47	17.13	19.09	20.47	22.83	24.02	30.91	35.71	37.80	40.71	44.21	45.94	52.17
	mm	188	219	239	280	332	393	435	485	520	580	610	785	907	960	1034	1123	1167	1325
Handle Length / Handwheel Dia C	in	15.75	15.75	15.75	19.69	19.69	19.69	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	39.37	39.37	39.37
	mm	400	400	400	500	500	500	500	500	700	700	700	700	700	700	700	1000	1000	1000
Height E	in	4.61	5.75	6.54	7.17	8.39	10.16	11.93	13.78	15.04	17.36	17.99	22.68	25.98	27.56	30.71	33.46	34.65	38.58
	mm	117	146	166	182	213	258	303	350	382	441	457	576	660	700	780	850	880	980
Weight	Kg	15	30	42	120	219	348	520	714	964	1262	1506	2610	3953	5155	6671	9521	10825	16602

### 300LB

Description		Valve Size																	
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	40"	42"	48"
Flanged End L	in	8.50	11.13	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	45.00	55.00	60.00	68.00	77.00	82.00	85.50
	mm	216	283	305	403	502	568	648	762	838	914	991	1143	1397	1524	1727	1956	2083	2170
Weld End L <sub>1</sub>	in	8.50	11.13	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	55.00	60.00	68.00	77.00	82.00	85.50
	mm	216	283	305	457	521	559	635	762	838	914	991	1143	1397	1524	1727	1956	2083	2170
Height F	in	5.12	5.83	6.81	8.50	10.98	12.68	13.90	16.14	17.64	19.61	20.98	25.59	28.94	30.80	33.58	36.34	38.07	44.29
	mm	130	148	173	216	279	322	353	410	448	498	533	650	735	782	853	923	967	1125
Height H	in	7.56	8.50	9.92	11.02	13.43	15.47	17.13	19.29	20.87	22.83	24.21	30.91	36.06	37.91	40.71	44.21	45.94	52.17
	mm	192	216	252	280	341	393	435	490	530	580	615	785	916	963	1034	1123	1167	1325
Handle Length / Handwheel Dia C	in	15.75	19.69	19.69	19.69	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	39.37	39.37	39.37
	mm	400	500	500	500	500	500	700	700	700	700	700	700	700	700	700	1000	1000	1000
Height E	in	4.76	5.94	6.65	7.76	8.78	11.14	11.81	13.15	14.33	17.44	18.07	23.39	28.31	29.33	32.68	33.46	34.65	38.58
	mm	121	151	169	197	223	283	300	334	364	443	459	594	719	745	830	850	880	980
Weight	Kg	20	36	57	171	263	450	682	967	1340	1654	1844	2914	4982	5997	7630	10414	12175	18189



# Trunnion Mounted Ball Valves

## Full Bore-Two-piece Cast Steel Body Ball Valves

### 600LB

Description		Valve Size																	
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	40"	42"	48"
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	65.00	70.00	82.00	81.90	85.60	95.87
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1651	1778	2083	2080	2175	2435
Weld End L1	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	65.00	70.00	82.00	85.43	85.63	95.87
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1651	1778	2083	2170	2175	2435
RTJ L2	in	11.63	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	55.38	65.50	70.63	82.63	85.43	85.63	95.87
	mm	295	359	435	562	664	791	841	892	994	1095	1200	1407	1664	1794	2099	2170	2175	2435
Height F	in	5.08	6.06	7.05	9.65	11.50	13.78	15.08	16.30	18.43	20.24	23.43	26.38	31.30	31.65	35.08	39.96	40.76	46.30
	mm	129	154	179	245	292	350	383	414	468	514	595	670	795	804	891	1015	1035	1176
Height H	in	7.80	9.17	10.63	12.09	14.29	16.93	18.31	19.53	21.65	25.55	29.33	32.28	38.43	38.78	42.95	-	-	-
	mm	198	233	270	307	363	430	465	496	550	649	745	820	976	985	1091	-	-	-
Handle Length / Handwheel Dia C	in	21.65	27.56	29.53	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	-	-	-
	mm	550	700	750	500	500	700	700	700	700	700	700	700	700	700	700	-	-	-
Height E	in	4.92	6.18	6.73	8.27	9.61	11.42	12.80	14.88	16.73	17.83	17.44	23.90	29.09	30.24	33.58	35.04	36.93	51.02
	mm	125	157	171	210	244	290	325	378	425	453	443	607	739	768	853	890	938	1296
Weight	Kg	30	53	90	218	347	594	812	1118	1535	2079	2772	3836	6785	7888	10771	13366	15569	23259

### 900LB

Description		Valve Size															
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	
Flanged End L	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00	74.00	80.00	90.00	
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549	1880	2032	2286	
Weld End L1	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00	74.00	80.00	90.00	
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549	1880	2032	2286	
RTJ L2	in	14.63	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.50	61.75	74.88	80.90	91.14	
	mm	371	384	460	613	740	841	968	1038	1140	1232	1334	1568	1902	2054	2315	
Height F	in	5.83	6.14	7.72	10.24	11.93	13.82	16.65	18.19	19.88	22.44	24.13	26.89	31.06	33.95	36.72	
	mm	148	156	196	260	303	351	423	462	505	570	613	683	789	862	933	
Height H	in	8.94	9.72	11.22	13.03	15.16	17.05	19.88	23.50	25.20	28.35	30.04	34.02	38.94	41.81	-	
	mm	227	247	285	331	385	433	505	597	640	720	763	864	989	1062	-	
Handle Length / Handwheel Dia C	in	27.56	29.53	29.53	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	39.37	-
	mm	700	750	750	500	700	700	700	700	700	700	700	700	700	700	1000	-
Height E	in	5.51	6.46	7.09	8.74	10.59	12.72	13.82	14.76	16.14	17.91	18.54	25.91	31.06	32.52	36.46	
	mm	140	164	180	222	269	323	351	375	410	455	471	658	789	826	926	
Weight	Kg	57	82	113	306	450	963	1449	1605	1838	2411	3924	5814	10414	10106	14544	

### 1500LB

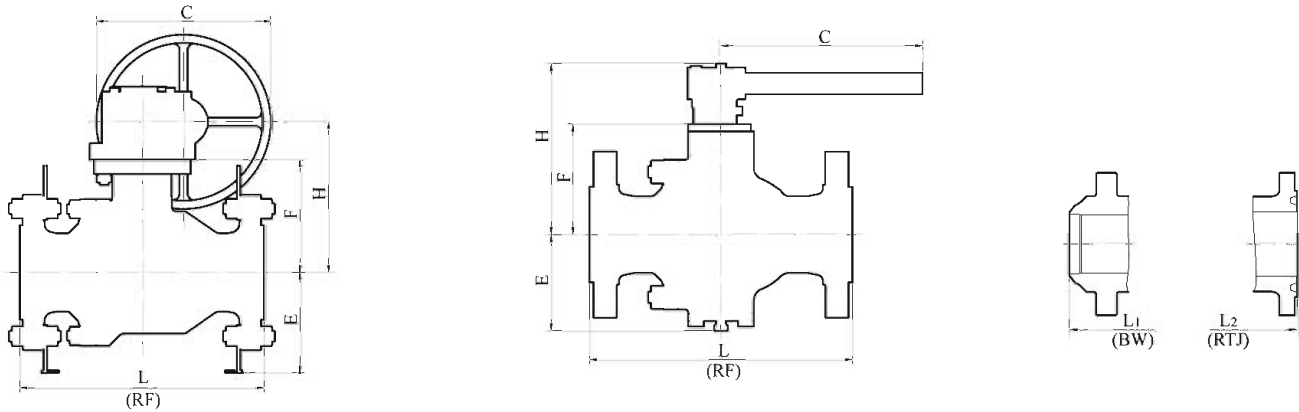
Description		Valve Size												2500LB						
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	2"	3"	4"	6"	8"	10"	12"
Flanged End L	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50	17.75	22.75	26.50	36.00	40.25	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943	451	578	673	914	1022	1270	1422
Weld End L1	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50	17.75	22.75	26.50	36.00	40.25	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943	451	578	673	914	1022	1270	1422
RTJ L2	in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	50.25	55.38	61.38	66.38	77.63	17.88	23.00	26.88	36.50	40.88	50.88	56.88
	mm	371	473	549	711	841	1000	1146	1276	1407	1559	1686	1972	454	584	683	927	1038	1292	1445
Height F	in	5.83	6.69	9.80	10.75	13.78	15.55	19.69	20.31	21.73	23.31	24.84	28.82	6.85	9.96	9.96	12.36	14.57	17.80	21.73
	mm	148	170	249	273	350	395	500	516	552	592	631	732	174	253	253	314	370	452	552
Height H	in	8.94	10.71	12.24	13.98	16.42	18.78	25.00	26.22	27.64	29.21	31.97	36.69	10.75	13.19	13.19	14.72	17.80	23.11	27.64
	mm	227	272	311	355	417	477	635	666	702	742	812	932	273	335	335	374	452	587	702
Handle Length / Handwheel Dia C	in	27.56	29.53	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	29.53	19.69	19.69	27.56	27.56	27.56	27.56
	mm	700	750	500	700	700	700	700	700	700	700	700	700	750	500	500	700	700	700	700
Height E	in	5.51	6.85	9.53	10.87	15.51	15.20	19.17	16.89	18.50	20.39	21.06	28.43	5.94	6.38	10.43	12.60	16.85	16.93	20.94
	mm	140	174	242	276	394	386	487	429	470	518	535	722	151	162	265	320	428	430	532
Weight	Kg	57	85	158	384	656	1200	1800	2280	3256	4956	7260	9139	70	150	304	616	1086	1680	2568





# Trunnion Mounted Ball Valves

## Reduced Bore-Two-piece Cast Steel Body Ball Valves



### 150LB

Description		Valve Size														
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	30x24"	36x30"
Flanged End L	in	7.00	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	36.00	42.00	51.00	60.00
	mm	178	203	229	394	457	533	610	686	762	864	914	914	1067	1295	1524
Weld End L1	in	8.50	11.13	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	39.00	45.00	55.00	68.00
	mm	216	283	305	457	521	559	635	762	838	914	991	991	1143	1397	1727
Height F	in	4.25	4.96	5.94	6.73	8.50	10.63	12.68	12.68	13.90	15.94	17.24	19.61	20.79	25.59	28.56
	mm	108	126	151	171	216	270	322	322	353	405	438	498	528	650	726
Height H	in	6.57	7.40	8.62	9.41	11.02	13.07	15.47	15.47	17.13	19.09	20.47	22.83	24.02	30.91	35.71
	mm	167	188	219	239	280	332	393	393	435	485	520	580	610	785	907
Handle Length / Handwheel Dia C	in	11.81	15.75	15.75	15.75	19.69	19.69	19.69	19.69	19.69	19.69	27.56	27.56	27.56	27.56	27.56
	mm	300	400	400	400	500	500	500	500	500	500	700	700	700	700	700
Height E	in	3.94	4.61	5.75	6.54	8.39	10.16	11.93	13.78	15.04	17.36	17.99	17.99	22.68	25.98	30.71
	mm	100	117	146	166	213	258	303	350	382	441	457	457	576	660	780
Weight	Kg	15.5	21	40	67	170	222	336	414	548	684	945	1071	1786	2637	5050

### 300LB

Description		Valve Size														
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	30x24"	36x30"
Flanged End L	in	8.50	11.13	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	39.00	45.00	55.00	68.00
	mm	216	283	305	403	502	568	648	762	838	914	991	991	1143	1397	1727
Weld End L1	in	8.50	11.13	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	39.00	45.00	55.00	68.00
	mm	216	283	305	457	521	559	635	762	838	914	991	991	1143	1397	1727
Height F	in	4.57	5.12	5.83	6.81	8.50	10.98	12.68	12.68	13.90	16.14	17.64	19.61	20.98	25.59	28.94
	mm	116	130	148	173	216	279	322	322	353	410	448	498	533	650	735
Height H	in	7.09	7.56	8.50	9.92	11.02	13.43	15.47	15.47	17.13	19.29	20.87	22.83	24.21	30.91	36.06
	mm	180	192	216	252	280	341	393	393	435	490	530	580	615	785	916
Handle Length / Handwheel Dia C	in	15.75	15.75	19.69	19.69	19.69	19.69	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56
	mm	400	400	500	500	500	500	500	500	700	700	700	700	700	700	700
Height E	in	4.17	4.76	5.98	6.65	8.78	11.14	11.81	13.15	14.33	17.44	18.07	18.07	23.39	28.31	32.68
	mm	106	121	152	169	223	283	300	334	364	443	459	459	594	719	830
Weight	Kg	21	27	50	96	185	350	424	514	694	930	1350	1441	2129	3163	6546





# Trunnion Mounted Ball Valves

## Reduced Bore-Two-piece Cast Steel Body Ball Valves

### 600LB

Description		Valve Size														
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	30x24"	36x30"
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	47.00	55.00	65.00	82.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1194	1397	1651	2083
Weld End L1	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	47.00	55.00	65.00	82.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1194	1397	1651	2083
RTJ L2	in	11.63	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	47.25	55.38	65.50	82.63
	mm	295	359	435	562	664	791	841	892	994	1095	1200	1200	1407	1664	2099
Height F	in	4.57	5.08	6.06	7.05	9.65	11.50	13.78	13.78	15.08	16.30	18.43	20.24	23.43	26.38	31.30
	mm	116	129	154	179	245	292	350	350	383	414	468	514	595	670	795
Height H	in	7.09	7.80	9.17	10.63	12.09	14.29	16.93	16.93	18.31	19.53	21.65	25.55	29.33	32.28	38.43
	mm	180	198	233	270	307	363	430	430	465	496	550	649	745	820	976
Handle Length / Handwheel Dia C	in	15.75	21.65	27.56	29.53	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56
	mm	400	550	700	750	500	500	700	700	700	700	700	700	700	700	700
Height E	in	4.17	4.92	6.18	6.73	9.61	11.42	12.80	14.88	16.73	17.83	17.44	17.44	23.90	29.09	33.58
	mm	106	125	157	171	244	290	325	378	425	453	443	443	607	739	853
Weight	Kg	36	40	75	120	350	460	700	730	1270	1450	1668	1900	2598	4615	8301

### 900LB

Description		Valve Size														
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	30x24"	36x30"
Flanged End L	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	52.00	61.00	74.00	90.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1321	1549	1880	2286
Weld End L1	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	52.00	61.00	74.00	90.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1321	1549	1880	2286
RTJ L2	in	14.63	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.50	52.50	61.75	74.88	91.14
	mm	371	384	460	613	740	841	968	1038	1140	1232	1334	1334	1568	1902	2315
Height F	in	5.12	5.83	6.14	7.72	10.24	11.93	13.82	13.82	16.65	18.19	19.88	22.44	24.13	26.89	31.06
	mm	130	148	156	196	260	303	351	351	423	462	505	570	613	683	789
Height H	in	7.95	8.94	9.72	10.43	13.03	15.16	17.05	17.05	19.88	23.50	25.20	28.35	30.04	34.02	38.94
	mm	202	227	247	265	331	385	433	433	505	597	640	720	763	864	989
Handle Length / Handwheel Dia C	in	19.69	27.56	29.53	29.53	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56
	mm	500	700	750	750	500	700	700	700	700	700	700	700	700	700	700
Height E	in	5.12	5.51	6.46	7.09	10.59	12.72	13.82	14.76	16.14	17.91	18.54	18.54	25.91	31.06	36.46
	mm	130	140	164	180	269	323	351	375	410	455	471	471	658	789	926
Weight	Kg	55	70	104	186	396	572	975	992	1635	1885	2312	2850	4320	6960	12280

### 1500LB

Description		Valve Size																			
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"							
Flanged End L	in	14.50	18.50	21.50	27.76	32.76	39.00	44.50	49.50	54.50	60.50	65.50	65.50	76.50	17.75	22.75	26.50	36.00	40.24	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1664	1943	451	578	673	914	1022	1270	1422
Weld End L1	in	14.50	18.50	21.50	27.76	32.76	39.00	44.50	49.50	54.50	60.50	65.50	65.50	76.50	17.75	22.76	26.50	36.00	40.24	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1664	1943	451	578	673	914	1022	1270	1422
RTJ L2	in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	50.25	55.38	61.38	66.38	66.38	77.63	17.88	23.00	26.88	36.50	40.87	50.88	56.88
	mm	371	473	549	711	841	1000	1146	1276	1407	1559	1686	1686	1972	454	584	683	927	1038	1292	1445
Height F	in	5.12	5.83	6.69	9.80	10.75	13.78	15.55	15.55	19.69	20.31	21.73	23.31	24.84	5.83	6.85	9.96	9.96	12.36	14.57	17.80
	mm	130	148	170	249	273	350	395	395	500	516	552	592	631	148	174	253	253	314	370	452
Height H	in	7.95	8.94	10.71	12.24	13.98	16.42	18.78	18.78	25.00	26.22	27.64	29.21	31.97	9.06	10.75	13.19	13.19	14.72	17.80	23.11
	mm	202	227	272	311	355	417	477	477	635	666	702	742	812	230	273	335	335	374	452	587
Handle Length / Handwheel Dia C	in	19.69	27.56	29.53	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	29.53	19.69	19.69	27.56	27.56	27.56
	mm	500	700	750	500	700	700	700	700	700	700	700	700	700	700	750	500	500	700	700	700
Height E	in	5.12	5.51	9.53	10.87	15.51	15.20	19.17	16.89	18.50	20.39	21.06	21.06	28.43	5.63	5.94	10.43	12.60	16.85	16.93	20.94
	mm	130	140	242	276	394	386	487	429	470	518	535	535	722	143	151	265	320	428	430	532
Weight	Kg	55	82	122	260	580	818	1532	1716	2650	3110	4108	6000	8700	87	124	211	408	872	1330	2044

### 2500LB

Description		Valve Size																			
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"												
Flanged End L	in	14.50	18.50	21.50	27.76	32.76	39.00	44.50	49.50	54.50	60.50	65.50	65.50	76.50	17.75	22.75	26.50	36.00	40.24	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1664	1943	451	578	673	914	1022	1270	1422
Weld End L1	in	14.50	18.50	21.50	27.76	32.76	39.00	44.50	49.50	54.50	60.50	65.50	65.50	76.50	17.75	22.76	26.50	36.00	40.24	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1664	1943	451	578	673	914	1022	1270	1422
RTJ L2	in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	50.25	55.38	61.38	66.38	66.38	77.63	17.88	23.00	26.88	36.50	40.87	50.88	56.88
	mm	371	473	549	711	841	1000	1146	1276	1407	1559	1686	1686	1972	454	584	683	927	1038	1292	1445
Height F	in	5.12	5.83	6.69	9.80	10.75	13.78	15.55	15.55	19.69	20.31	21.73	23.31	24.84	5.83	6.85	9.96	9.96	12.36	14.57	17.80
	mm	130	148	170	249	273	350	395	395	500	516	552	592	631	148	174	253	253	314	370	452
Height H	in	7.95	8.94	10.71	12.24	13.98	16.42	18.78	18.78	25.00	26.22	27.64	29.21	31.97	9.06	10.75	13.19	13.19	14.72	17.80	23.11
	mm	202	227	272	311	355	417	477	477	635	666	702	742	812	230	273	335	335	374	452	587
Handle Length / Handwheel Dia C	in	19.69	27.56	29.53	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	29.53	19.69	19.69	27.56	27.56	27.56
	mm	500	700	750	500	700	700	700	700	700	700	700	700	700	700	750	500	500	700	700	700
Height E	in	5.12	5.51	9.53	10.87	15.51	15.20	19.17	16.89	18.50	20.39	21.06	21.06	28.43	5.63	5.94	10.43	12.60	16.85	16.93	20.94
	mm	130	140	242	276	394	386	487	429	470	518	535	535	722	143	151	265	320	428	430	532
Weight	Kg	55	82	122	260	580	818	1532	1716	2650	3110	4108	6000	8700	87	124	211	408	872	1330	2044

\* Grayloc Hub Ends available as per order request.



# Trunnion Mounted Ball Valves

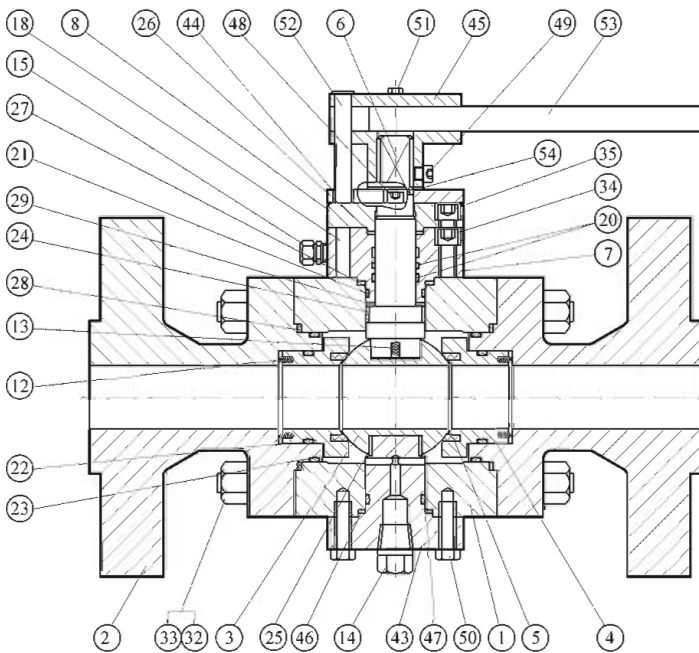
## Three-piece Forged Steel Body Ball Valves

### Design Features

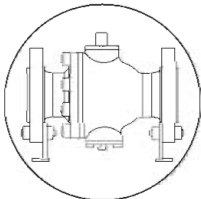
- Full bore / reduced bore, forged steel body
- Double Block and Bleed
- Anti-static device, Low Emission
- Carbon steel with Inconel or Duplex SS overlay upon request
- ISO mounting PAD upon request
- Double Piston Effect seat upon request with options: DIB-1, DIB-2 with liquid porting available, Self-relieving X DPE

### Specifications

- Basic Design: **API 6D**
- Face to Face: **API 6D ASME B16.10**
- End Flange: **ASME B16.5**
- BW End: **ASME B16.25**
- Test and Inspection: **API 6D**
- Fire-safe Design/ Test: **API 607 or API 6FA**
- API 608 upon request
- Manufacturing to NACE latest version on request
- CSA Z245.15 latest version compliance is available

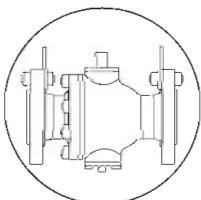


TYPE SE-1

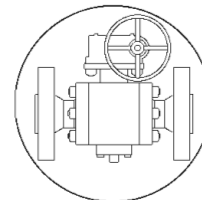


Support Leg

150LB	≥ 6"	150LB	≥ 8x6"
300LB	≥ 6"	300LB	≥ 8x6"
600LB	≥ 6"	600LB	≥ 8x6"
900LB	≥ 6"	900LB	≥ 8x6"
1500LB	≥ 4"	1500LB	≥ 6x4"
2500LB	≥ 4"	2500LB	≥ 6x4"

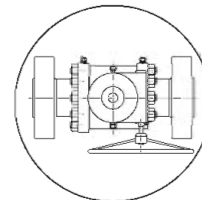


Lifting Lug  
≥ 8"



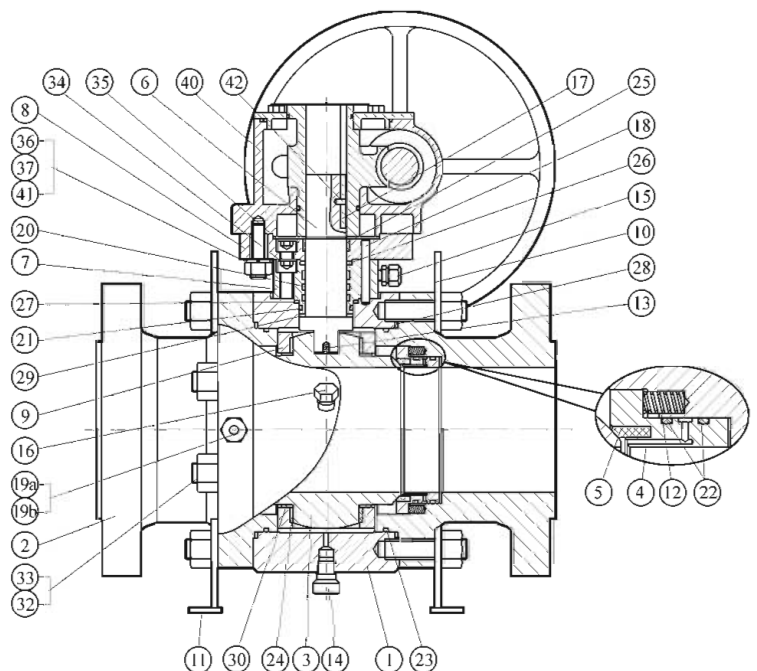
Gear

150LB	≥ 6"	150LB	≥ 8x6"
300LB	≥ 6"	300LB	≥ 8x6"
600LB	≥ 6"	600LB	≥ 8x6"
900LB	≥ 6"	900LB	≥ 8x6"
1500LB	≥ 3"	1500LB	≥ 4x3"
2500LB	≥ 2"	2500LB	≥ 3x2"



Seat Injection

150LB	≥ 6"
300LB	≥ 6"
600LB	≥ 6"
900LB	≥ 4"
1500LB	≥ 4"
2500LB	≥ 2"



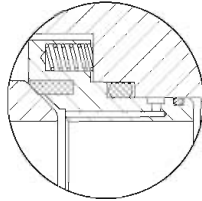
TYPE SE-3



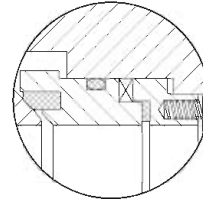
# Trunnion Mounted Ball Valves

## Three-piece Forged Steel Body Ball Valves

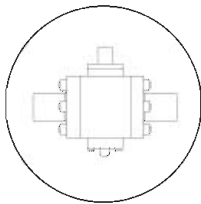
Option



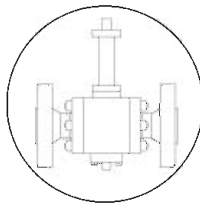
Double Piston Effect



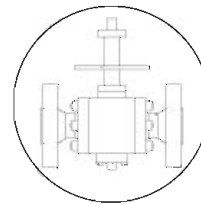
Fire Safe



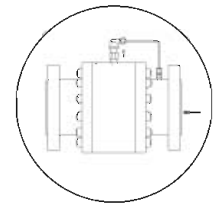
Pup Piece End



Extended Stem



Cryogenic Design



By-pass / Liquid port

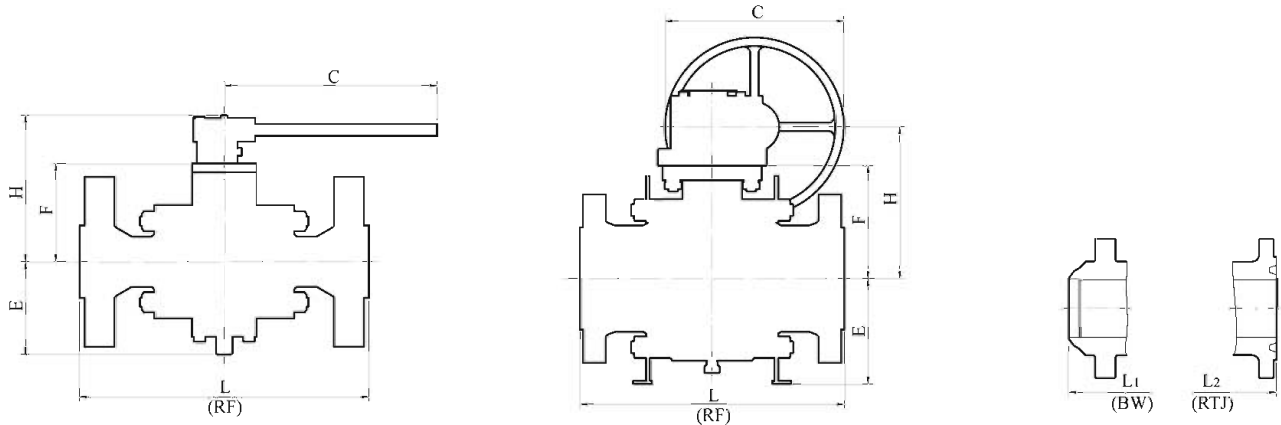
Material Specification						Material Specification					
No.	Description	Carbon Steel		Stainless Steel		No.	Description	Carbon Steel		Stainless Steel	
1	Body	A105	A350 LF2	A182 F316	A182 F51	26	Stem Sealing	Metal & Flexible Graphite			
2	End Cap	A105	A350 LF2	A182 F316	A182 F51	27	Gasket	Metal & Flexible Graphite			
3	Ball	A105	A350 LF2	A182 F316	A182 F51	28	Gasket	Metal & Flexible Graphite			
4	Seat Retainer	A105	A350 LF2	A182 F316	A182 F51	29	Thrust Washer	R-PTFE / Metal Backed PTFE			
5	Seat Insert	R-PTFE/Nylon/Devlon/PEEK				30	Thrust Washer	R-PTFE			
6	Stem	A105	A350 LF2	A182 F316	A182 F51	32	Stud	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
7	Gland	A105	A350 LF2	A182 F316	A182 F51	33	Nut	A194 2H	A194 7	A194 8M	A194 8MLCuNa
8	Adapter Plate	A105	A350 LF2	A182 F316	A182 F51	34	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
9	Bearing Retainer	A105	A350 LF2	A182 F316	A182 F51	35	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
10	Lifting Lug	Carbon Steel				36	Stud	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
11	Support Leg	Carbon Steel				37	Nut	A194 2H	A194 7	A194 8M	A194 8MLCuNa
12	Spring	Stainless Steel				40	Gear Box	Carbon Steel			
13	Anti-Static Device	Stainless Steel				41	Washer	Stainless Steel			
14	Drain Fitting	Assembly				42	Pin	Stainless Steel			
15	Sealant Injection Fitting	Assembly				43	Trunnion	A105	A350 LF2	A182 F316	A182 F51
16	Vent Fitting	Assembly				44	Stop Plate	Carbon Steel			
17	Key	Stainless Steel				45	Handle Adapter	Carbon Steel			
18	Pin	A193 B7				46	Gasket	Metal & Flexible Graphite			
19a	Sealant Injection Fitting	Assembly				47	O-ring	As Page 38 Seal Material			
19b	Check Valve	Assembly				48	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
20	O-Ring	As Page 38 Seal Material				49	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
21	O-Ring	As Page 38 Seal Material				50	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
22	O-Ring	As Page 38 Seal Material				51	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
23	O-Ring	As Page 38 Seal Material				52	Locking Pin	Carbon Steel			
24	Bearing	Metal Backed PTFE				53	Handle	Carbon Steel			
25	Bearing	Metal Backed PTFE				54	Snap Ring	Carbon Steel			





# Trunnion Mounted Ball Valves

## Three-piece Forged Steel Body Ball Valves



### 150LB

Description		Valve Size																	
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	40"	42"	48"
Flanged End L	in	7.00	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	42.00	51.00	54.00	60.00	69.00	70.50	78.50
	mm	178	203	229	394	457	533	610	686	762	864	914	1067	1295	1372	1524	1753	1790	1995
Weld End L <sub>1</sub>	in	8.50	11.13	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	55.00	60.00	68.00	77.00	82.00	94.00
	mm	216	283	305	457	521	559	635	762	838	914	991	1143	1397	1524	1727	1956	2083	2388
Height F	in	4.65	5.39	6.18	8.11	9.92	12.09	13.50	15.51	17.17	18.86	20.51	24.57	30.83	32.87	34.25	36.34	38.07	44.29
	mm	118	137	157	206	252	307	343	394	436	479	521	624	783	835	870	923	967	1125
Height H	in	7.13	8.11	8.86	10.63	12.44	14.88	16.73	18.66	20.39	21.46	23.74	29.88	37.95	40.00	41.38	44.21	45.94	52.17
	mm	181	206	225	270	316	378	425	474	518	545	603	759	964	1016	1051	1123	1167	1325
Handle Length / Handwheel Dia C	in	15.75	15.75	15.75	19.69	19.69	19.69	27.56	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	39.37	39.37	39.37
	mm	400	400	400	500	500	500	700	500	700	700	700	700	700	700	700	1000	1000	1000
Height E	in	3.58	4.65	5.35	9.09	10.39	13.90	15.43	17.09	18.62	20.08	25.39	32.87	38.39	39.37	41.85	43.50	46.61	47.99
	mm	91	118	136	231	264	353	392	434	473	510	645	835	975	1000	1063	1105	1184	1219
Weight	Kg	17	31	62	122	253	454	705	760	1017	1596	1832	3148	5102	6890	9890	12434	14137	20850

### 300LB

Description		Valve Size																	
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	40"	42"	48"
Flanged End L	in	8.50	11.13	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	45.00	55.00	60.00	68.00	77.00	82.00	85.50
	mm	216	283	305	403	502	568	648	762	838	914	991	1143	1397	1524	1727	1956	2083	2170
Weld End L <sub>1</sub>	in	8.50	11.14	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00	55.00	60.00	68.00	77.00	82.00	85.50
	mm	216	283	305	457	521	559	635	762	838	914	991	1143	1397	1524	1727	1956	2083	2170
Height F	in	4.84	5.51	6.38	8.11	10.20	12.24	13.70	15.59	17.09	19.13	20.51	24.80	30.83	32.87	33.58	36.34	38.07	44.29
	mm	123	140	162	206	259	311	348	396	434	486	521	630	783	835	853	923	967	1125
Height H	in	7.13	8.66	9.49	10.63	12.64	15.04	16.93	18.74	20.31	22.32	23.74	30.12	37.91	40.00	40.71	44.21	45.94	52.17
	mm	181	220	241	270	321	382	430	476	516	567	603	765	963	1016	1034	1123	1167	1325
Handle Length / Handwheel Dia C	in	15.75	19.69	19.69	19.69	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	39.37	39.37	39.37
	mm	400	500	500	500	500	500	700	700	700	700	700	700	700	700	700	1000	1000	1000
Height E	in	4.53	5.12	5.98	9.09	10.39	14.02	15.91	17.09	18.66	20.00	21.50	33.23	38.78	39.37	41.85	43.50	46.61	47.99
	mm	115	130	152	231	264	356	404	434	474	508	546	844	985	1000	1063	1105	1184	1219
Weight	Kg	27	46	69	149	289	494	751	1036	1465	1813	2176	3430	7550	7678	10179	13637	15944	22060





# Trunnion Mounted Ball Valves

## Three-piece Forged Steel Body Ball Valves

### 600LB

Description		Valve Size																	
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	40"	42"	48"
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	65.00	70.00	82.00	81.90	85.60	95.88
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1651	1778	2083	2080	2175	2435
Weld End L1	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	65.00	70.00	82.00	85.43	85.63	95.88
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1651	1778	2083	2170	2175	2435
RTJ L2	in	11.63	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	55.38	65.50	70.63	82.63	85.43	85.63	95.88
	mm	295	359	435	562	664	791	841	892	994	1095	1200	1407	1664	1794	2099	2170	2175	2435
Height F	in	4.72	5.67	6.65	9.21	10.91	13.11	14.57	15.63	17.91	20.79	22.76	26.38	31.30	33.23	35.08	39.96	40.76	46.30
	mm	120	144	169	234	277	333	370	397	455	528	578	670	795	844	891	1015	1035	1176
Height H	in	7.40	8.78	10.55	11.65	13.70	16.26	17.80	18.86	21.14	26.10	28.66	32.28	38.43	40.35	42.95	-	-	-
	mm	188	223	268	296	348	413	452	479	537	663	728	820	976	1025	1091	-	-	-
Handle Length / Handwheel Dia C	in	19.69	27.56	29.53	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	-	-	-
	mm	500	700	750	500	500	700	700	700	700	700	700	700	700	700	700	-	-	-
Height E	in	4.53	5.28	6.34	9.41	11.02	14.53	16.46	17.56	19.13	21.14	22.60	33.98	38.90	40.94	43.27	45.79	48.94	51.02
	mm	115	134	161	239	280	369	418	446	486	537	574	863	988	1040	1099	1163	1243	1296
Weight	Kg	31	57	117	266	423	732	1011	1311	1718	2610	3338	5545	7675	9842	12853	17418	21142	29252

### 900LB

Description		Valve Size															
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	
Flanged End L	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00	74.00	80.00	90.00	
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549	1880	2032	2286	
Weld End L1	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00	74.00	80.00	90.00	
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549	1880	2032	2286	
RTJ L2	in	14.63	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.50	61.75	74.88	80.90	91.13	
	mm	371	384	460	613	740	841	968	1038	1140	1232	1334	1568	1902	2054	2315	
Height F	in	5.28	5.91	7.20	9.65	11.34	13.11	15.91	17.76	19.45	21.73	23.46	26.89	31.81	33.95	36.72	
	mm	134	150	183	245	288	333	404	451	494	552	596	683	808	862	933	
Height H	in	8.43	9.41	11.22	12.44	14.57	16.30	19.13	23.07	24.76	27.64	29.37	34.02	38.94	41.81	-	
	mm	214	239	285	316	370	414	486	586	629	702	746	864	989	1062	-	
Handle Length / Handwheel Dia C	in	27.56	29.53	29.53	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	39.37	-
	mm	700	750	750	500	700	700	700	700	700	700	700	700	700	700	1000	-
Height E	in	4.92	5.59	6.73	10.08	11.46	15.47	17.40	18.27	20.04	21.61	31.42	34.61	39.29	41.39	45.95	
	mm	125	142	171	256	291	393	442	464	509	549	798	879	998	1051	1167	
Weight	Kg	59	84	122	337	566	907	1391	1644	2128	2850	4142	6679	9230	10820	15842	

### 1500LB

### 2500LB

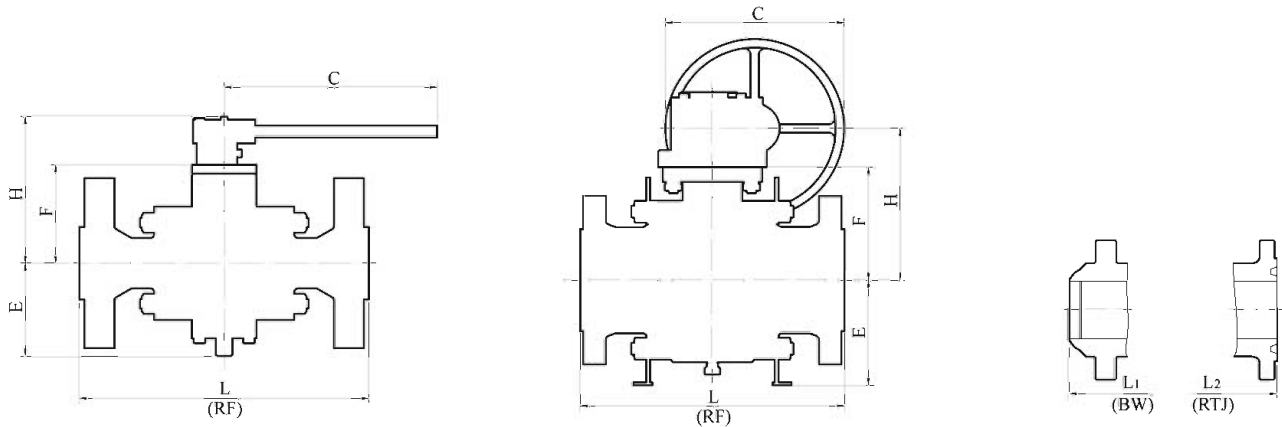
Description		Valve Size												Valve Size						
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	2"	3"	4"	6"	8"	10"	12"
Flanged End L	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50	17.75	22.75	26.50	36.00	40.25	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943	451	578	673	914	1022	1270	1422
Weld End L1	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50	17.75	22.75	26.50	36.00	40.25	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943	451	578	673	914	1022	1270	1422
RTJ L2	in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	50.25	55.38	61.38	66.38	77.63	17.88	23.00	26.88	36.50	40.88	50.88	56.88
	mm	371	473	549	711	841	1000	1146	1276	1407	1559	1686	1972	454	584	683	927	1038	1292	1445
Height F	in	5.28	6.69	9.17	10.12	11.93	15.16	18.19	20.31	21.73	23.31	24.84	28.82	6.50	9.96	9.96	12.36	14.57	17.80	21.73
	mm	134	170	233	257	303	385	462	516	552	592	631	732	165	253	253	314	370	452	552
Height H	in	8.43	10.71	11.61	13.35	15.16	18.39	23.50	25.79	27.64	29.21	31.97	36.69	10.00	10.98	13.19	14.72	17.80	23.11	27.64
	mm	214	272	295	339	385	467	597	655	702	742	812	932	254	279	335	374	452	587	702
Handle Length / Handwheel Dia C	in	27.56	29.53	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	29.53	19.69	19.69	27.56	27.56	27.56	27.56
	mm	700	750	500	700	700	700	700	700	700	700	700	700	750	500	500	700	700	700	700
Height E	in	4.92	6.06	8.19	10.28	12.60	16.46	18.58	19.96	21.77	23.50	33.07	39.37	5.87	6.81	9.80	12.01	14.45	18.98	20.67
	mm	125	154	208	261	320	418	472	507	553	597	840	1000	149	173	249	305	367	482	525
Weight	Kg	59	111	225	471	819	1328	1902	2990	4047	6080	8835	13823	83	204	387	789	1363	2109	3183

\* Grayloc Hub Ends available as per order request.



# Trunnion Mounted Ball Valves

## Three-piece Forged Steel Body Ball Valves



### 150LB

Description	Valve Size															
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	30x24"	36x30"
Flanged End L	in	7.00	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	36.00	42.00	51.00	60.00
	mm	178	203	229	394	457	533	610	686	762	864	914	914	1067	1295	1524
Weld End L1	in	8.50	11.14	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	39.00	45.00	55.00	68.00
	mm	216	283	305	457	521	559	635	762	838	914	991	991	1143	1397	1727
Height F	in	4.25	4.65	5.39	6.18	8.11	9.92	12.09	12.09	13.50	15.51	17.17	18.86	20.51	24.57	30.83
	mm	108	118	137	157	206	252	307	307	343	394	436	479	521	624	783
Height H	in	6.57	7.13	8.11	8.86	10.63	12.44	14.88	14.88	16.73	18.66	20.39	21.46	23.74	29.88	37.95
	mm	167	181	206	225	270	316	378	378	425	474	518	545	603	759	964
Handle Length / Handwheel Dia C	in	11.81	15.75	15.75	15.75	19.69	19.69	19.69	19.69	27.56	19.69	27.56	27.56	27.56	27.56	27.56
	mm	300	400	400	400	500	500	500	500	700	500	700	700	700	700	700
Height E	in	3.94	3.58	4.65	5.35	9.09	10.39	13.90	13.90	15.43	17.09	18.62	20.08	25.39	32.87	38.39
	mm	100	91	118	136	231	264	353	353	392	434	473	510	645	835	975
Weight	Kg	20	25	39	65	190	307	501	558	769	905	1198	1710	2079	3259	6128

### 300LB

Description	Valve Size															
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	30x24"	36x30"
Flanged End L	in	8.50	11.13	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	39.00	45.00	55.00	68.00
	mm	216	283	305	403	502	568	648	762	838	914	991	991	1143	1397	1727
Weld End L1	in	8.50	11.13	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	39.00	45.00	55.00	68.00
	mm	216	283	305	457	521	559	635	762	838	914	991	991	1143	1397	1727
Height F	in	4.57	4.84	5.51	6.38	8.11	10.20	12.24	12.24	13.70	15.59	17.09	19.13	20.51	24.80	30.83
	mm	116	123	140	162	206	259	311	311	348	396	434	486	521	630	783
Height H	in	7.09	7.13	8.66	9.49	10.63	12.64	15.04	15.04	16.93	18.74	20.31	22.32	23.74	33.23	37.91
	mm	180	181	220	241	270	321	382	382	430	476	516	567	603	844	963
Handle Length / Handwheel Dia C	in	15.75	15.75	19.69	19.69	19.69	19.69	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56
	mm	400	400	500	500	500	500	500	500	700	700	700	700	700	700	700
Height E	in	4.17	4.53	5.12	5.98	9.09	10.39	14.02	14.02	15.91	17.09	18.66	20.00	21.50	33.23	38.78
	mm	106	115	130	152	231	264	356	356	404	434	474	508	546	844	985
Weight	Kg	21	36	52	92	202	327	589	659	960	1347	1789	1865	2613	4399	7430



# Trunnion Mounted Ball Valves

## Three-piece Forged Steel Body Ball Valves

### 600LB

Description		Valve Size														
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	30x24"	36x30"
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	47.00	55.00	65.00	82.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1194	1397	1651	2083
Weld End L1	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	47.00	55.00	65.00	82.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1194	1397	1651	2083
RTJ L2	in	11.63	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	47.25	55.38	65.50	82.63
	mm	295	359	435	562	664	791	841	892	994	1095	1200	1200	1407	1664	2099
Height F	in	4.17	4.72	5.67	6.65	9.21	10.91	13.11	13.11	14.57	15.63	17.91	20.79	22.76	26.38	31.30
	mm	106	120	144	169	234	277	333	333	370	397	455	528	578	670	795
Height H	in	6.69	7.40	8.78	10.55	11.65	13.70	16.26	16.26	17.80	18.86	21.14	26.10	28.66	32.28	38.43
	mm	170	188	223	268	296	348	413	413	452	479	537	663	728	820	976
Handle Length / Handwheel Dia C	in	15.75	19.69	27.56	29.53	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56
	mm	400	500	700	750	500	500	700	700	700	700	700	700	700	700	700
Height E	in	3.78	4.53	5.28	6.34	9.41	11.02	14.53	14.53	16.46	17.56	19.13	21.14	22.60	33.98	38.90
	mm	96	115	134	161	239	280	369	369	418	446	486	537	574	863	988
Weight	Kg	30	46	79	161	318	527	856	912	1353	1583	1813	2925	3714	5815	10031

### 900LB

Description		Valve Size														
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	30x24"	36x30"
Flanged End L	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	52.00	61.00	74.00	90.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1321	1549	1880	2286
Weld End L1	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	52.00	61.00	74.00	90.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1321	1549	1880	2286
RTJ L2	in	14.63	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.50	52.50	61.75	74.88	91.14
	mm	371	384	460	613	740	841	968	1038	1140	1232	1334	1334	1568	1902	2315
Height F	in	4.61	5.28	5.91	7.20	9.65	11.34	13.07	13.07	15.91	17.76	19.45	21.73	23.46	26.89	31.30
	mm	117	134	150	183	245	288	332	332	404	451	494	552	596	683	795
Height H	in	7.44	8.43	9.41	11.22	12.44	14.57	16.30	16.30	19.13	23.07	24.76	27.64	29.37	34.02	39.29
	mm	189	214	239	285	316	370	414	414	486	586	629	702	746	864	998
Handle Length / Handwheel Dia C	in	19.69	27.56	29.53	29.53	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56
	mm	500	700	750	750	500	700	700	700	700	700	700	700	700	700	700
Height E	in	4.61	4.92	5.59	6.73	10.08	11.46	15.47	15.47	17.40	18.27	20.04	21.61	31.42	34.61	39.29
	mm	117	125	142	171	256	291	393	393	442	464	509	549	798	879	998
Weight	Kg	48	66	103	177	418	669	1071	1240	1617	1847	2617	3366	4310	6748	11638

### 1500LB

Description		Valve Size												Valve Size							
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"
Flanged End L	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	65.50	76.50	17.75	22.75	26.50	36.00	40.25	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1664	1943	451	578	673	914	1022	1270	1422
Weld End L1	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	65.50	76.50	17.75	22.75	26.50	36.00	40.25	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1664	1943	451	578	673	914	1022	1270	1422
RTJ L2	in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	50.25	55.38	61.38	66.38	66.38	77.64	17.88	23.00	26.88	36.50	40.88	50.88	56.88
	mm	371	473	549	711	841	1000	1146	1276	1407	1559	1686	1686	1972	454	584	683	927	1038	1292	1445
Height F	in	4.61	5.28	6.69	9.17	10.12	11.93	15.16	15.16	18.19	20.31	21.73	23.31	24.84	5.31	6.50	7.76	9.96	12.36	14.57	17.80
	mm	117	134	170	233	257	303	385	385	462	516	552	592	631	135	165	197	253	314	370	452
Height H	in	7.44	8.43	10.71	11.61	13.35	15.16	18.39	18.39	23.50	25.79	27.64	29.21	31.97	8.54	10.00	10.98	13.19	14.72	17.80	23.11
	mm	189	214	272	295	339	385	467	467	597	655	702	742	812	217	254	279	335	374	452	587
Handle Length / Handwheel Dia C	in	19.69	27.56	29.53	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	29.53	19.69	19.69	27.56	27.56	27.56
	mm	500	700	750	500	700	700	700	700	700	700	700	700	700	700	750	500	500	700	700	700
Height E	in	4.61	4.92	6.06	8.19	10.28	12.60	16.46	16.46	18.58	19.96	21.77	23.50	33.07	5.12	5.87	6.81	9.80	12.01	14.45	18.98
	mm	117	125	154	208	261	320	418	418	472	507	553	597	840	130	149	173	249	305	367	482
Weight	Kg	48	80	157	311	592	1056	1469	2145	2746	3970	5135	7500	9450	87	157	308	513	1027	1663	2624

\* Grayloc Hub Ends available as per order request.





# Trunnion Mounted Ball Valves

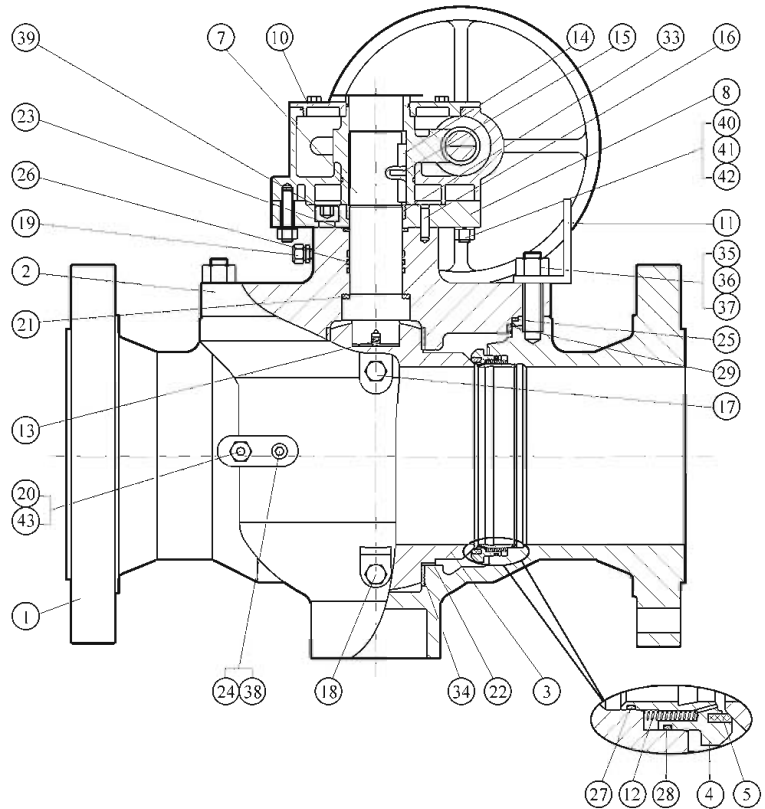
## One-piece Cast Steel Body Top Entry Ball Valves

### Design Features

- Full bore / reduced bore, cast steel body
- Double Block and Bleed
- Anti-static device, Low Emission
- ISO mounting PAD upon request
- Double Piston Effect seat upon request with options: DIB-1, DIB-2 or self-relieving X DPE. Liquid porting available.

### Specifications

- Basic Design: **API 6D**  
 Face to Face: **API 6D ASME B16.10**  
 End Flange: **ASME B16.5**  
 BW End: **ASME B16.25**  
 Test and Inspection: **API 6D**  
 Fire-safe Design/Test: **API 607 or API 6FA**  
 API 608 upon request  
 Manufacturing to NACE latest version on request



### Material Specification

No.	Description	Carbon Steel		Stainless Steel	
1	Body	A216 WCB	A352 LCC	A351 CF8M	A890 4A
2	Bonnet	A105	A350 LF2	A182 F316	A182 F51
3	Ball	A182 F316		A182 F51	
4	Seat Retainer	A182 F316		A182 F51	
5	Seat	R-PTFE / Nylon / Devlon / PEEK			
7	Stem	A276 316		A182 F51	
8	Adapter Plate	A105	A350 LF2	A182 F316	A182 F51
10	Gear Box	Carbon Steel			
11	Lifting Lug	Carbon Steel			
12	Spring	Stainless Steel			
13	Anti-Static	Stainless Steel			
14	Key	Stainless Steel			
15	Pin	Stainless Steel			
16	Pin	A193 B7			
17	Vent Fitting	Assembly			
18	Drain Fitting	Assembly			
19	Sealant Injection Fitting	Assembly			
20	Sealant Injection Fitting	Assembly			
21	Thurst Washer	R-PTFE / Metal Backed PTFE			

### Material Specification

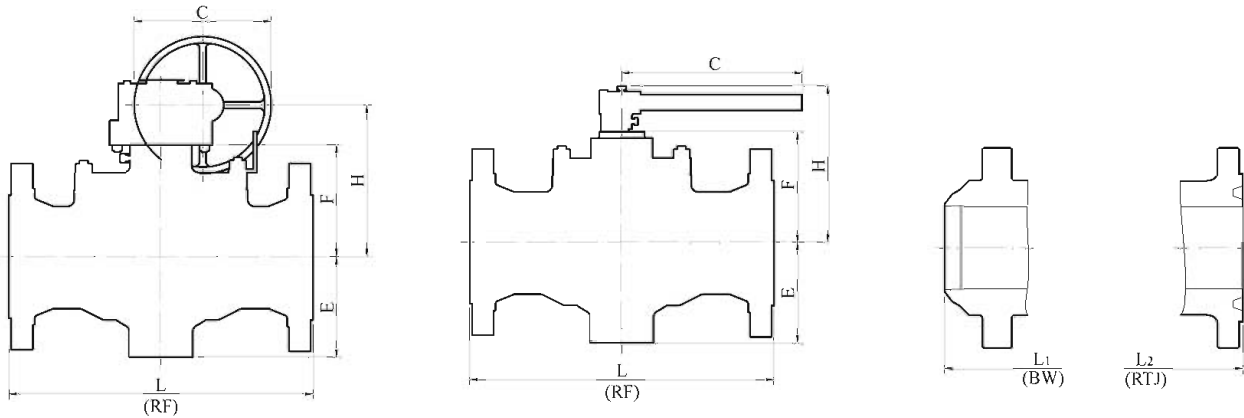
No.	Description	Carbon Steel		Stainless Steel	
22	Thurst Washer	R-PTFE			
23	Gasket	Metal & Flexible Graphite			
24	Gasket	Metal & Flexible Graphite			
25	Gasket	Metal & Flexible Graphite			
26	O-ring	As Page 37 Seal Material			
27	O-ring	As Page 37 Seal Material			
28	O-ring	As Page 37 Seal Material			
29	O-ring	As Page 37 Seal Material			
33	Stem Bearing	Metal Backed PTFE			
34	Ball Bearing	Metal Backed PTFE			
35	Stud	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
36	Stud	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
37	Nut	A194 2H	A194 7	A194 8M	A194 8MLCuNa
38	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
39	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
40	Stud	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
41	Nut	A194 2H	A194 7	A194 8M	A194 8MLCuNa
42	Washer	Stainless Steel			
43	Ball Check Valve	Assembly			





# Trunnion Mounted Ball Valves

One-piece Cast Steel Body Top Entry Ball Valves



## 150LB / 300LB

Description		Valve Size																	
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	40"	42"	48"
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	65.00	70.00	82.00	81.90	85.60	95.90
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1651	1778	2083	2080	2175	2435
Weld End L <sub>1</sub>	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	65.00	82.00	82.00	85.43	85.63	95.90
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1651	1778	2083	2170	2175	2435
Height F	in	5.31	5.71	7.17	10.31	12.05	13.31	14.33	17.02	17.99	18.81	20.94	22.81	29.92	31.64	34.97	37.85	40.02	44.51
	mm	135	145	182	262	306	338	364	432	457	478	532	580	760	804	888	961	1017	1131
Height H	in	7.76	8.39	10.16	12.83	14.49	16.10	17.56	20.16	21.22	22.05	24.17	28.15	37.05	38.78	42.09	45.71	47.91	52.40
	mm	197	213	258	326	368	409	446	512	539	560	614	715	941	985	1069	1161	1217	1331
Handle Length / Handwheel Dia C	in	15.75	19.69	19.69	19.69	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	39.37	39.37	39.37	
	mm	400	500	500	500	500	500	700	700	700	700	700	700	700	700	1000	1000	1000	
Height E	in	3.54	4.53	5.51	6.69	8.07	9.45	11.42	12.60	13.78	15.16	16.54	20.47	24.02	25.00	27.36	27.36	28.35	32.28
	mm	90	115	140	170	205	240	290	320	350	385	420	520	610	635	695	695	720	820
Weight	Kg	32	57	95	199	371	509	644	689	995	1367	1742	2887	5074	6383	8201	11518	13602	20353

## 600LB

Description		Valve Size																	
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	40"	42"	
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	65.00	70.00	82.00	81.90	85.60	
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1651	1778	2083	2080	2175	
Weld End L <sub>1</sub>	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00	65.00	70.00	82.00	85.43	85.63	
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397	1651	1778	2083	2170	2175	
RTJ L <sub>2</sub>	in	11.61	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	55.38	65.50	70.63	82.63	85.43	85.63	
	mm	295	359	435	562	664	791	841	892	994	1095	1200	1407	1664	1794	2099	2170	2175	
Height F	in	5.04	5.83	7.01	10.59	13.07	15.51	15.94	17.45	18.98	20.63	22.99	25.12	32.95	34.49	38.23	41.38	43.82	
	mm	128	148	178	269	332	394	405	443	482	524	584	638	837	876	971	1051	1113	
Height H	in	7.64	9.53	10.59	13.39	15.87	18.66	19.17	20.67	22.32	25.94	28.90	31.02	40.08	41.61	46.10	-	-	
	mm	194	242	269	340	403	474	487	525	567	659	734	788	1018	1057	1171	-	-	
Handle Length / Handwheel Dia C	in	19.69	27.56	29.53	19.69	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	-	-	
	mm	500	700	750	500	500	500	700	700	700	700	700	700	700	700	700	-	-	
Height E	in	3.74	4.53	5.91	7.48	8.66	10.63	11.42	12.99	14.37	15.75	17.32	20.87	24.61	25.98	28.35	28.35	30.12	
	mm	95	115	150	190	220	270	290	330	365	400	440	530	625	660	720	720	765	
Weight	Kg	37	60	99	203	375	513	648	693	1001	1371	1746	2892	5076	6393	8206	11525	13606	



# Trunnion Mounted Ball Valves

One-piece Cast Steel Body Top Entry Ball Valves

## 900LB

Description	Valve Size															
	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	30"	32"	36"	
Flanged End L	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00	74.00	80.00	90.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549	1880	2032	2286
Weld End L1	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00	74.00	80.00	90.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549	1880	2032	2286
RTJ L2	in	14.63	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.50	61.75	74.88	80.90	91.13
	mm	371	384	460	613	740	841	968	1038	1140	1232	1334	1568	1902	2054	2315
Height F	in	5.83	8.11	11.10	12.64	14.69	16.22	17.76	19.29	20.75	22.36	24.09	31.10	34.57	36.22	40.12
	mm	148	206	282	321	373	412	451	490	527	568	612	790	878	920	1019
Height H	in	8.86	11.69	13.46	15.43	17.91	19.45	20.98	24.61	26.06	28.27	30.00	38.23	42.44	44.09	-
	mm	225	297	342	392	455	494	533	625	662	718	762	971	1078	1120	-
Handle Length / Handwheel Dia C	in	27.56	29.53	29.53	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	39.37	-
	mm	700	750	750	500	700	700	700	700	700	700	700	700	700	1000	-
Height E	in	4.72	5.31	6.69	8.07	9.84	11.42	12.99	13.78	14.96	16.73	18.11	23.82	26.57	28.35	31.10
	mm	120	135	170	205	250	290	330	350	380	425	460	605	675	720	790
Weight	Kg	47	99	180	387	720	900	1170	1526	2304	3060	3960	6480	11588	14355	18540

## 1500LB

## 2500LB

Description	Valve Size												Valve Size							
	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	2"	3"	4"	6"	8"	10"	12"	
Flanged End L	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50	17.75	22.75	26.50	36.00	40.25	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943	451	578	673	914	1022	1270	1422
Weld End L1	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	76.50	17.75	22.75	26.50	36.00	40.25	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943	451	578	673	914	1022	1270	1422
RTJ L2	in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	50.25	55.38	61.38	66.38	77.63	17.88	23.00	26.88	36.50	40.88	50.88	56.88
	mm	371	473	549	711	841	1000	1146	1276	1407	1559	1686	1972	454	584	683	927	1038	1292	1445
Height F	in	5.83	9.57	11.93	13.43	15.83	17.72	23.15	24.49	25.12	26.34	28.94	32.36	8.43	9.65	12.32	14.13	16.85	20.00	23.39
	mm	148	243	303	341	402	450	588	622	638	669	735	822	214	245	313	359	428	508	594
Height H	in	8.86	13.58	14.37	16.65	18.94	20.94	28.46	30.39	31.02	32.24	36.06	39.49	12.32	12.87	15.16	16.50	20.08	25.31	29.29
	mm	225	345	365	423	481	532	723	772	788	819	916	1003	313	327	385	419	510	643	744
Handle Length / Handwheel Dia C	in	27.56	29.53	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	29.53	19.69	19.69	27.56	27.56	27.56	27.56
	mm	700	750	500	500	700	700	700	700	700	700	700	700	750	500	500	700	700	700	700
Height E	in	4.72	5.71	6.89	8.27	10.04	12.20	14.37	15.75	17.52	19.29	20.67	24.41	5.12	6.50	7.48	10.04	11.42	13.78	15.75
	mm	120	145	175	210	255	310	365	400	445	490	525	620	130	165	190	255	290	350	400
Weight	Kg	50	138	250	540	990	1294	1815	2351	3501	4590	6010	10530	108	221	423	843	1269	2340	3780

## 150LB / 300LB

Description	Valve Size															
	2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	30x24"	36x30"	
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	47.00	55.00	65.00	82.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1194	1397	1651	2083
Weld End L1	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	47.00	55.00	65.00	82.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1194	1397	1651	2083
Height F	in	4.06	5.31	5.71	7.17	10.31	12.05	13.31	13.31	14.33	17.01	17.99	18.82	20.94	22.83	29.92
	mm	103	135	145	182	262	306	338	338	364	432	457	478	532	580	760
Height H	in	6.57	7.76	8.39	10.16	12.83	14.49	16.10	16.10	17.56	20.16	21.22	22.05	24.17	28.15	37.05
	mm	167	197	213	258	326	368	409	409	446	512	539	560	614	715	941
Handle Length / Handwheel Dia C	in	15.75	15.75	19.69	19.69	19.69	19.69	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56
	mm	400	400	500	500	500	500	500	500	700	700	700	700	700	700	700
Height E	in	3.43	4.53	5.51	6.69	8.07	9.45	11.42	12.60	13.78	15.16	16.54	16.54	20.47	24.02	27.36
	mm	87	115	140	170	205	240	290	320	350	385	420	420	520	610	695
Weight	Kg	26	42	72	140	271	418	548	598	740	928	1235	1477	2089	3592	5990



# Trunnion Mounted Ball Valves

One-piece Cast Steel Body Top Entry Ball Valves

## 600LB

Description		Valve Size														
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	30x24"	36x30"
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	47.00	55.00	65.00	82.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1194	1397	1651	2083
Weld End L1	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	47.00	55.00	65.00	82.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1194	1397	1651	2083
RTJ L2	in	11.61	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	47.25	55.38	65.50	82.63
	mm	295	359	435	562	664	791	841	892	994	1095	1200	1200	1407	1664	2099
Height F	in	4.06	5.04	5.83	7.01	10.59	13.07	15.51	15.51	15.94	17.44	18.98	20.63	22.99	25.12	32.95
	mm	103	128	148	178	269	332	394	394	405	443	482	524	584	638	837
Height H	in	6.57	7.64	9.53	10.59	13.39	15.87	18.66	18.66	19.17	20.67	22.32	25.94	28.90	31.02	40.08
	mm	167	194	242	269	340	403	474	474	487	525	567	659	734	788	1018
Handle Length / Handwheel Dia C	in	15.75	19.69	27.56	29.53	19.69	19.69	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56
	mm	400	500	700	750	500	500	500	500	700	700	700	700	700	700	700
Height E	in	3.43	4.53	5.91	7.48	8.66	10.63	11.42	12.99	14.37	15.75	17.32	17.32	20.87	24.61	28.35
	mm	87	115	150	190	220	270	290	330	365	400	440	440	530	625	720
Weight	Kg	34	46	76	145	276	422	552	637	744	1053	1240	1480	3514	5815	10031

## 900LB

Description		Valve Size														
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	30x24"	36x30"
Flanged End L	in	14.49	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	52.00	61.00	74.00	90.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1321	1549	1880	2286
Weld End L1	in	14.49	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	52.00	61.00	74.00	90.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1321	1549	1880	2286
RTJ L2	in	14.61	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.50	52.50	61.75	74.88	91.13
	mm	371	384	460	613	740	841	968	1038	1140	1232	1334	1334	1568	1902	2315
Height F	in	4.65	5.83	8.11	11.10	12.64	14.69	16.22	16.22	17.76	19.29	20.75	22.36	24.09	31.10	34.57
	mm	118	148	206	282	321	373	412	412	451	490	527	568	612	790	878
Height H	in	8.98	8.86	11.69	13.46	15.43	17.91	19.45	19.45	20.98	24.61	26.06	28.27	30.00	38.23	42.44
	mm	228	225	297	342	392	455	494	494	533	625	662	718	762	971	1078
Handle Length / Handwheel Dia C	in	21.65	27.56	29.53	29.53	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56
	mm	550	700	750	750	500	700	700	700	700	700	700	700	700	700	700
Height E	in	4.37	5.31	6.69	8.07	9.84	11.42	12.99	13.78	14.96	16.73	18.11	18.11	23.82	26.57	31.10
	mm	111	135	170	205	250	290	330	350	380	425	460	460	605	675	790
Weight	Kg	50	70	133	270	526	769	983	1280	1568	2069	2826	3335	5400	8153	13595

## 1500LB

## 2500LB

Description		Valve Size												Valve Size							
		2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x10"	16x12"	18x14"	20x16"	20x18"	24x20"	2x1.5"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"
Flanged End L	in	14.49	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	65.50	76.50	17.76	22.75	26.50	36.00	40.25	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1664	1943	451	578	673	914	1022	1270	1422
Weld End L1	in	14.49	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	60.50	65.50	65.50	76.50	17.76	22.75	26.50	36.00	40.25	50.00	56.00
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1664	1943	451	578	673	914	1022	1270	1422
RTJ L2	in	14.61	18.63	21.63	28.00	33.13	39.38	45.13	50.25	55.38	61.38	66.38	66.38	77.63	17.87	23.00	26.88	36.50	40.88	50.88	56.88
	mm	371	473	549	711	841	1000	1146	1276	1407	1559	1686	1686	1972	454	584	683	927	1038	1292	1445
Height F	in	4.65	5.83	9.57	11.93	13.43	15.83	17.72	17.72	23.15	24.49	25.12	26.34	28.94	6.69	8.43	9.65	12.32	14.13	16.85	20.00
	mm	118	148	243	303	341	402	450	450	588	622	638	669	735	170	214	245	313	359	428	508
Height H	in	8.98	8.86	13.58	14.37	16.65	18.94	20.94	20.94	28.46	30.39	31.02	32.24	36.06	9.84	12.32	12.87	15.16	16.50	20.08	25.31
	mm	228	225	345	365	423	481	532	532	723	772	788	819	916	250	313	327	385	419	510	643
Handle Length / Handwheel Dia C	in	21.65	27.56	29.53	19.69	19.69	27.56	27.56	27.56	27.56	27.56	27.56	27.56	27.56	29.53	29.53	19.69	19.69	27.56	27.56	27.56
	mm	550	700	750	500	500	700	700	700	700	700	700	700	700	750	750	500	500	700	700	700
Height E	in	4.37	5.71	6.89	8.27	10.04	12.20	14.37	15.75	17.52	19.29	20.67	20.67	24.41	5.51	6.50	7.48	10.04	11.42	13.78	15.75
	mm	111	145	175	210	255	310	365	400	445	490	525	525	620	140	165	190	255	290	350	400
Weight	Kg	50	89	184	375	727	1085	1477	1996	2398	3132	4292	5035	7464	80	156	306	601	1003	1714	2907

\* Grayloc Hub Ends available as per order request.





# Metal Seated Ball Valves

## Metal Seated Floating Ball Valves

### Design Features

- Forged steel body, Steam Service
- Live Loaded Stem Packing
- HVOF Chrome Carbide Coated Ball & Seat
- Blow-out proof stem
- Spring Loaded Upstream Seat for Low Pressure Seal
- Reduced Bore Available
- ISO mounting PAD upon request
- Size up to 24" upon request
- Uni-Directional or Bi-Directional upon request
- Elastomerless design, suitable for high temp and abrasion applications
- Stem extensions are available

### Specifications

Basic Design: **ASME B16.34 API 6D**

Face to Face: **DHV Standard**

End Flange: **ASME B16.5**

BW End: **ASME B16.25**

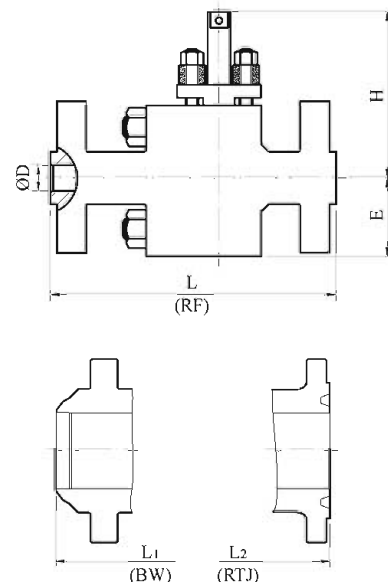
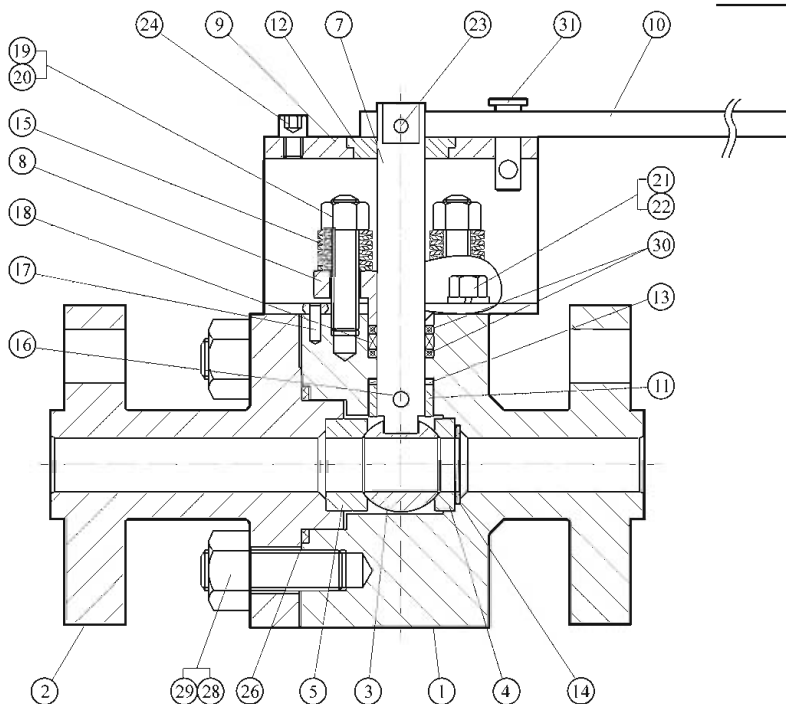
Fire safe design: **ISO 10497 or API 607**

Test and inspection: **API 598 or ANSI / FC1-70-2**

Manufacturing to NACE latest version on request

### Material Specification

No.	Description	Carbon Steel	Stainless Steel
1	Body	A105	A182 F316
2	End Connection	A105	A182 F316
3	Ball	410SS+Cr3C2	
4	Upstream Seat	410SS+Cr3C2	
5	Downstream Seat	410SS+Cr3C2	
7	Stem	A638 Gr660	
8	Gland	410SS	316SS
9	Yoke	Carbon Steel	Stainless Steel
10	Lever	Carbon Steel	
11	Antiblow-out Ring	410SS+N(QPQ)	
12	Bushing	Carbon Steel	Stainless Steel
13	Thrust Washer	410SS+N(QPQ)	
14	Spring	Inconel X-750	
15	Spring	17-4PH	
16	Pin	Inconel X-750	
17	Pin	A193 B7	
18	Packing	Graphite	
19	Bolt	A193 B8M	
20	Nut	A194 8M	
21	Bolt	A193 B7	A193 B8M
22	Washer	Steel	
23	Pin	A193 B7	
24	Screw	A193 B7	A193 B8M
26	Gasket	316SS+Graphite	
28	Bolt	A193 B7	A193 B8M
29	Nut	A194 2H	A194 8M
30	Packing	Graphite	
31	Pin	Carbon Steel	







# Metal Seated Ball Valves

## Metal Seated Floating Ball Valves

150LB										300LB											
Description		Valve Size										Valve Size									
		1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"		
Flanged End L	in	4.25	4.62	5.00	6.50	7.00	8.00	9.00	15.50	18.00	5.50	6.00	6.50	7.50	8.50	11.12	12.00	15.88	19.75		
	mm	108	117	127	165	178	203	229	394	457	140	152	165	191	216	282	305	403	502		
Height H	FB	in	3.85	4.20	6.83	7.35	8.40	9.80	11.55	16.10	21.00	3.85	4.20	6.83	7.35	8.40	9.80	11.55	16.10	21.00	
		mm	98	107	174	187	213	249	293	409	533	98	107	174	187	213	249	293	409	533	
	RB	in	-	-	4.05	6.83	7.35	8.40	9.80	11.55	16.10	-	-	4.05	6.83	7.35	8.40	9.80	11.55	16.10	
		mm	-	-	103	174	187	213	249	293	409	-	-	103	174	187	213	249	293	409	
Height E	FB	in	2.55	2.68	3.21	3.35	3.62	4.82	5.35	8.29	10.17	2.55	2.68	3.21	3.35	3.62	4.82	5.35	8.29	10.17	
		mm	65	68	82	85	92	122	136	211	258	65	68	82	85	92	122	136	211	258	
	RB	in	-	-	2.62	3.21	3.35	3.62	4.82	5.35	8.29	-	-	2.62	3.21	3.35	3.62	4.82	5.35	8.29	
		mm	-	-	66	82	85	92	122	136	211	-	-	66	82	85	92	122	136	211	

600LB										900LB											
Description		Valve Size										Valve Size									
		1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"		
Flanged End L	in	6.50	7.50	8.50	9.50	11.50	14.00	17.00	22.00	26.00	9.00	9.00	10.00	12.00	14.49	15	18	24	29		
	mm	165	191	216	241	292	356	432	559	660	229	229	254	305	368	381	457	610	737		
Height H	FB	in	3.85	4.20	4.20	7.35	8.40	9.80	11.55	16.10	22.23	6.65	6.65	9.59	10.50	11.55	9.80	11.55	16.10	21.00	
		mm	98	107	107	187	213	249	293	409	565	169	169	244	267	293	249	293	409	533	
	RB	in	-	-	4.06	4.20	7.35	8.40	9.80	11.55	16.10	-	-	5.12	9.59	10.50	11.55	9.80	11.55	16.10	
		mm	-	-	103	107	187	213	249	293	409	-	-	130	244	267	293	249	293	409	
Height E	FB	in	2.55	2.68	3.21	3.75	4.01	5.08	6.66	8.56	10.97	3.21	3.21	3.28	3.75	4.55	6.07	7.22	9.63	12.31	
		mm	65	68	82	95	102	129	169	217	279	82	82	83	95	116	154	183	245	313	
	RB	in	-	-	2.62	3.21	3.75	4.01	5.08	6.66	8.56	-	-	2.72	3.28	3.75	4.55	6.07	7.22	9.63	
		mm	-	-	66	82	95	102	129	169	217	-	-	69	83	95	116	154	183	245	

1500LB										2500LB											
Description		Valve Size										Valve Size									
		1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"		
Flanged End L	in	9.00	9.00	10.00	12.00	14.49	18.50	21.50	27.75	32.75	9.00	9.00	10.00	12.00	17.75	22.75	26.50	36.00	40.25		
	mm	229	229	254	305	368	470	546	705	832	229	229	254	305	451	578	673	914	1022		
Height H	FB	in	6.65	6.65	9.59	10.50	11.55	13.30	16.98	24.50	28.00	6.65	6.65	6.65	9.80	12.60	16.45	18.55	21.00	33.60	
		mm	169	169	244	267	293	338	431	622	711	169	169	169	249	320	418	471	533	853	
	RB	in	-	-	5.12	9.59	10.50	11.55	13.30	16.98	24.50	-	-	6.65	6.65	9.80	12.60	16.45	18.55	21.00	
		mm	-	-	130	244	267	293	338	431	622	-	-	169	169	249	320	418	471	533	
Height E	FB	in	3.21	3.21	3.28	3.75	4.55	5.89	7.76	10.70	13.38	3.21	3.21	3.21	4.82	6.42	9.10	8.03	11.77	13.91	
		mm	82	82	83	95	116	149	197	272	340	82	82	82	122	163	231	204	299	353	
	RB	in	-	-	3.21	3.28	3.75	4.55	5.89	7.76	10.70	-	-	3.21	3.21	4.82	6.42	9.10	8.03	11.77	
		mm	-	-	82	83	95	116	149	197	272	-	-	82	82	122	163	231	204	299	

\* Grayloc Hub Ends available as per order request.



# Metal Seated Ball Valves

## Metal Seated Trunnion Mounted Ball Valves

### Design Features

- Forged steel body
- High temperature service
- HVOF Chrome Carbide Coated Ball
- Double Block and Bleed
- Fully Welded or Pup Piece Available
- ISO mounting PAD upon request
- DPE seat or/and by pass upon request

### Specifications

Basic Design: **ASME B16.34 API 6D**

Face to Face: **API 6D**

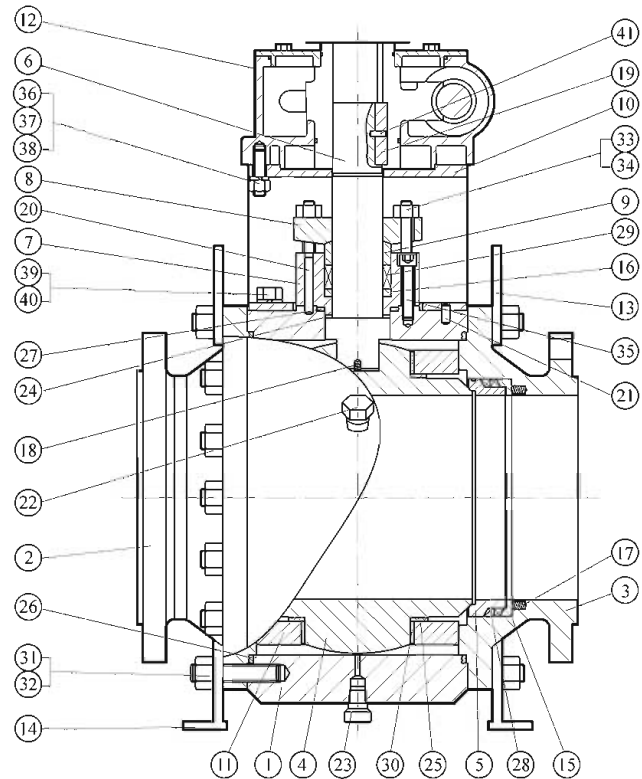
End Flange: **ASME B16.5**

BW End: **ASME B16.25**

Test and Inspection: **API 6D, or ISO 5208,  
API 598 upon request**

Fire safe design: **ISO 10497 or API 607**

Manufacturing to NACE latest version on request



### Material Specification

No.	Description	Carbon Steel	Stainless Steel	
1	Body	A105	A182 F316	A182 F51
2	Body Cap	A105	A182 F316	A182 F51
3	Body Cap	A105	A182 F316	A182 F51
4	Ball	A182 F6a+Cr3C2		A182 F51+Cr3C2
5	Seat	A182 F6a Hard Facing		A182 F51 Hard Facing
6	Stem	17-4PH		
7	Packing Adapter	A105	A182 F316	A182 F51
8	Gland Flange	A105	A182 F316	A182 F51
9	Gland	A182 F6a	A182 F316	A182 F51
10	Yoke	Carbon Steel		
11	Bearing Retainer	A105	A182 F316	A182 F51
12	Gear Box	Carbon Steel		
13	Lifting Lug	Carbon Steel		
14	Support Leg	Carbon Steel		
15	Packing Bushing	A182 F6a	A182 F316	A182 F51
16	Packing Ring	Copper		
17	Spring	Inconel X-750		
18	Anti-Static	Stainless Steel		
19	Key	Stainless Steel		
20	Pin	A193 B7		
21	Pin	A193 B7		

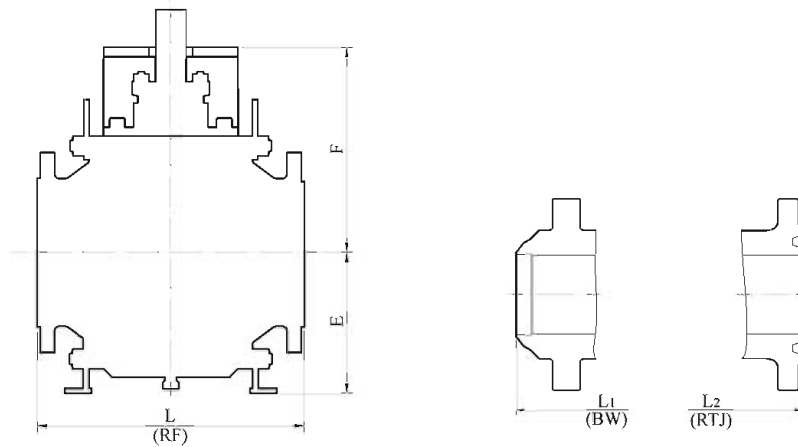
### Material Specification

No.	Description	Carbon Steel	Stainless Steel	
22	Vent Fitting	Assembly		
23	Drain Fitting	Assembly		
24	Thurst Washer	RPTFE / Lip seal / Metal gasket		
25	Thurst Washer	RPTFE / Lip seal / Metal gasket		
26	Gasket	Metal & Flexible Graphite		
27	Gasket	Metal & Flexible Graphite		
28	Packing	Graphite		
29	Packing	Graphite		
30	Ball Bearing	Metal Backed PTFE		
31	Stud	A193 B7	A193 B8M	A193 B8MLCuN
32	Nut	A194 2H	A194 8M	A194 8MLCuNa
33	Stud	A193 B7	A193 B8M	A193 B8MLCuN
34	Nut	A194 2H	A194 8M	A194 8MLCuNa
35	Bolt	A193 B7	A193 B8M	A193 B8MLCuN
36	Stud	A193 B7	A193 B8M	A193 B8MLCuN
37	Nut	A194 2H	A194 8M	A194 8MLCuNa
38	Washer	Stainless Steel		
39	Bolt	A193 B7	A193 B8M	A193 B8MLCuN
40	Washer	Stainless Steel		
41	Pin	Stainless Steel		



# Metal Seated Ball Valves

## Metal Seated Trunnion Mounted Ball Valves



### 150LB

Description		Valve Size											
		2	3	4	6	8	10	12	14	16	18	20	24
Flanged End L	in	7.00	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	42.00
	mm	178	203	229	394	457	533	610	686	762	864	914	1067
Weld End L <sub>1</sub>	in	8.50	11.13	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00
	mm	216	283	305	457	521	559	635	762	838	914	991	1143
Height F	in	4.65	5.39	6.18	12.65	17.32	18.90	21.07	21.73	26.78	29.42	32.00	38.32
	mm	118	137	157	321	440	480	535	552	680	747	813	973
Height E	in	3.58	4.65	5.35	9.09	11.02	13.98	15.43	17.13	18.62	20.08	25.39	32.87
	mm	91	118	136	231	280	355	392	435	473	510	645	835
Weight	Kg	17	32	63	124	258	463	719	775	1037	1628	1869	3211

### 300LB

Description		Valve Size											
		2	3	4	6	8	10	12	14	16	18	20	24
Flanged End L	in	8.50	11.13	12.00	15.88	19.75	22.38	25.50	30.00	33.00	36.00	39.00	45.00
	mm	216	283	305	403	502	568	648	762	838	914	991	1143
Weld End L <sub>1</sub>	in	8.50	11.13	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00
	mm	216	283	305	457	521	559	635	762	838	914	991	1143
Height F	in	4.84	5.51	6.38	12.65	17.72	19.13	21.37	22.13	27.17	29.85	32.00	38.69
	mm	123	140	162	321	450	486	543	562	690	758	813	983
Height E	in	4.84	5.48	6.40	9.73	11.02	14.09	17.02	18.28	19.97	21.40	23.00	35.55
	mm	123	139	163	247	280	358	432	464	507	544	584	903
Weight	Kg	28	47	70	152	295	504	766	1057	1494	1849	2220	3499

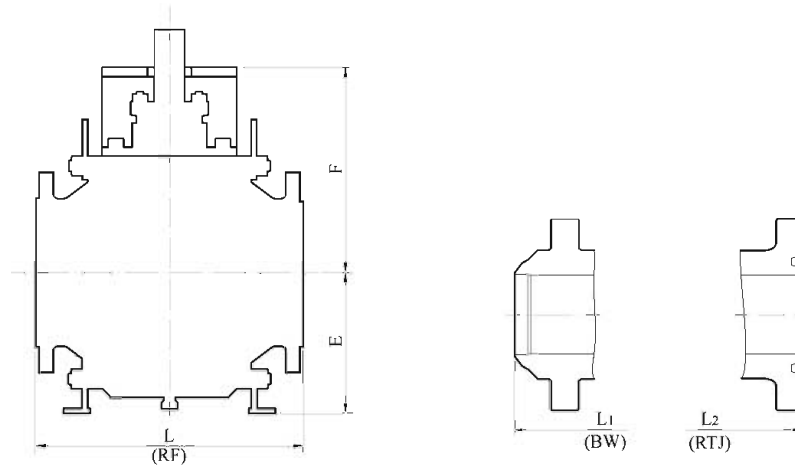
### 600LB

Description		Valve Size											
		2	3	4	6	8	10	12	14	16	18	20	24
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397
Weld End L <sub>1</sub>	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397
RTJ L <sub>2</sub>	in	11.63	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	55.38
	mm	295	359	435	562	664	791	841	892	994	1095	1200	1407
Height F	in	4.97	5.67	6.65	14.37	18.19	20.45	22.72	24.38	27.94	32.43	35.50	41.15
	mm	126	144	169	365	462	519	577	619	710	824	902	1045
Height E	in	4.84	5.64	6.78	10.07	12.47	15.54	17.61	18.79	20.47	22.62	24.18	36.35
	mm	123	143	172	256	317	395	447	477	520	575	614	923
Weight	Kg	32	58	119	271	431	747	1031	1337	1752	2662	3405	5656



# Metal Seated Ball Valves

## Metal Seated Trunnion Mounted Ball Valves



### 900LB

Description		Valve Size											
		2	3	4	6	8	10	12	14	16	18	20	24
Flanged End L	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
Weld End L1	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
RTJ L2	in	14.63	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.50	61.75
	mm	371	384	460	613	740	841	968	1038	1140	1232	1334	1568
Height F	in	5.28	5.91	7.20	15.05	18.46	20.45	24.81	27.70	30.34	33.90	36.60	41.95
	mm	134	150	183	382	469	519	630	704	771	861	930	1065
Height E	in	5.27	5.98	7.20	10.78	12.93	16.56	18.62	19.55	21.44	23.13	33.62	37.03
	mm	134	152	183	274	328	421	473	496	545	587	854	941
Weight	Kg	60	86	124	344	577	925	1419	1677	2171	2907	4225	6813

### 1500LB

Description		Valve Size											
		2	3	4	6	8	10	12	14	16	18	20	24
Flanged End L	in	14.50	18.50	21.50	27.76	32.76	39.00	44.50	49.50	54.50	60.50	65.50	76.50
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943
Weld End L1	in	14.50	18.50	21.50	27.76	32.76	39.00	44.50	49.50	54.50	60.50	65.50	76.50
	mm	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943
RTJ L2	in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	50.25	55.38	61.38	66.38	77.63
	mm	371	473	549	711	841	1000	1146	1276	1407	1559	1686	1972
Height F	in	5.28	6.69	14.31	15.78	18.61	23.65	28.37	31.69	33.90	36.36	38.75	44.96
	mm	134	170	363	401	473	601	721	805	861	924	984	1142
Height E	in	5.27	6.49	8.76	10.99	14.11	17.61	19.88	20.64	23.30	25.15	35.39	42.13
	mm	134	165	223	279	358	447	505	524	592	639	899	1070
Weight	Kg	60	113	230	480	835	1355	1940	3050	4128	6202	9012	14099

### 2500LB

Description		Valve Size						
		2	3	4	6	8	10	12
Flanged End L	in	17.76	22.76	26.50	35.98	40.24	50.00	55.98
	mm	451	578	673	914	1022	1270	1422
Weld End L1	in	17.76	22.76	26.50	35.98	40.24	50.00	55.98
	mm	451	578	673	914	1022	1270	1422
RTJ L2	in	17.87	22.99	26.89	36.50	40.87	50.87	56.89
	mm	454	584	683	927	1038	1292	1445
Height F	in	10.13	15.54	17.44	19.29	22.72	27.76	33.90
	mm	257	395	443	490	577	705	861
Height E	in	6.28	7.29	10.49	12.85	17.27	20.30	22.12
	mm	159	185	266	326	439	516	562
Weight	Kg	85	208	395	805	1390	2151	3247

\* Grayloc Hub Ends available as per order request.





# Three-way Ball Valves

## Design Features

- Top Entry
- Anti-static device
- Blow-out proof stem
- Switching or mixing application
- Size and Dimension upon request
- T port (bottom entry) is not avail

## Specifications

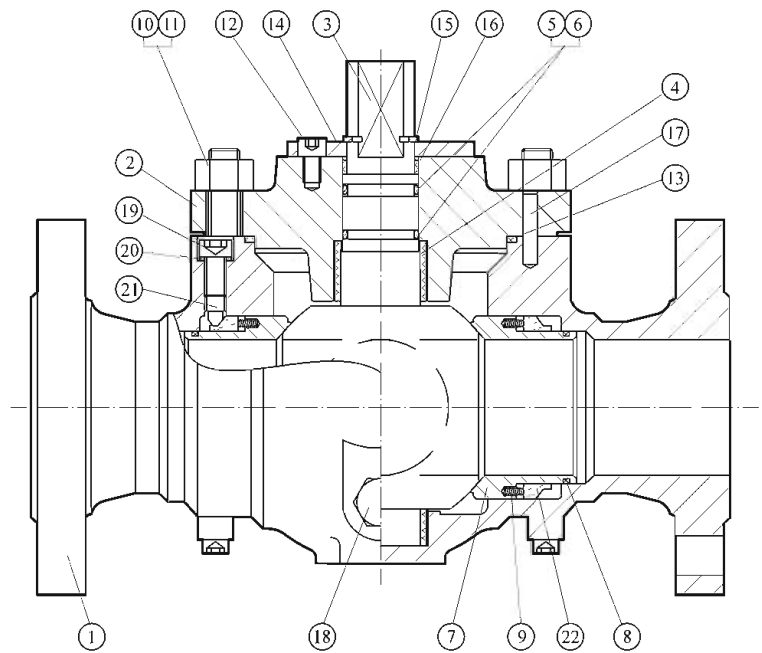
Basic Design: **ASME B16.34**

Face to Face: **DHV Standard**

End Flanged: **ASME B16.5**

Test and Inspection: **API 598**

Manufacturing to NACE latest version on request



## Material Specification

No.	Description	Carbon Steel		Stainless Steel	
1	Body	A216 WCB	A352 LCC	A351 CF8M	A890 4A
2	Bonnet	A216 WCB	A352 LCC	A351 CF8M	A890 4A
3	Ball/Stem	17-4 PH + Tungsten Carbide			
4	Stem Bearing	Metal Backed PTFE			
5	Stem Seal	As Page 38 Seal Material			
6	Stem Seal	As Page 38 Seal Material			
7	Seat	17-4 PH + Tungsten Carbide			
8	Seat O-ring	As Page 38 Seal Material			
9	Spring	Inconel X-750			
10	Stud	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
11	Nut	A194 2H	A194 7	A194 8M	A194 8MLCuNa
12	Stop-screw	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
13	Gasket	Metal & Flexible Graphite			
14	Stop Plate	Steel			
15	Snap Ring	Steel			
16	Stem Bearing	Metal Backed PTFE			
17	Pin	A193 B7			
18	Drain Plug	316SS			A182 F51
19	Retraction Port Screw	A276 410	A276 316		A182 F51
20	Gasket	Metal & Flexible Graphite			
21	Retraction Set Screw	Alloy Steel			
22	Load Ring	17-4 PH			



# Rising Stem Ball Valves

## Soft Seat

### Design Features

- One-Piece Cast Body
- Top Entry
- Rising Stem Type
- Downstream Seal
- Low Torque, Low Emission
- Long Service Life
- Actuation Available

### Specifications

Basic Design: **ASME B16.34**

Face to Face: **DHV Standard**  
**ASME B16.10**

End Flanged: **ASME B16.5**

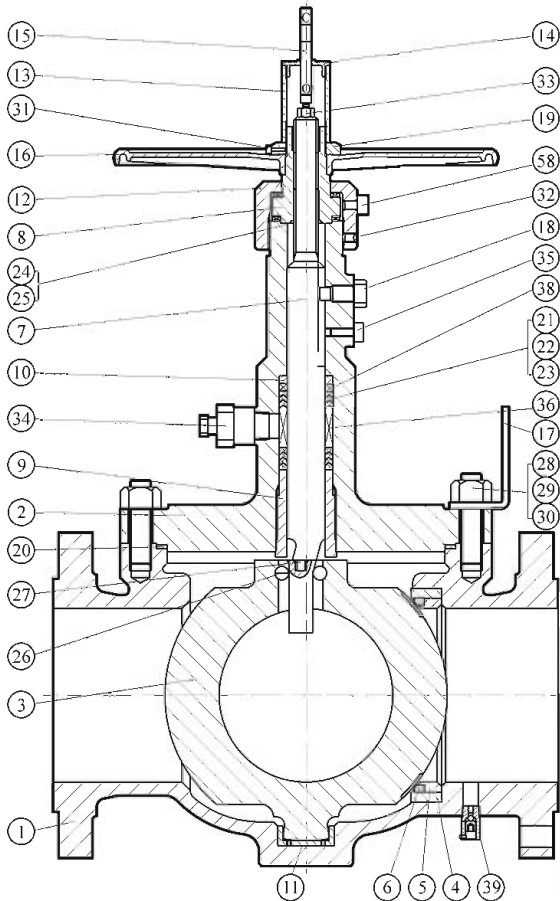
BW End: **ASME B16.25**

Test and Inspection: **API 598 or ISO 5208**

Fire safe design: **ISO 10497 or API 607**

Manufacturing to NACE latest

version on request



### Material Specification

No.	Description	Carbon Steel		Stainless Steel	
1	Body	A216 WCC	A352 LCC	A351 CF8M	A890 4A
2	Bonnet	A216 WCC	A352 LCC	A351 CF8M	A890 4A
3*	Core	A216 WCC	A352 LCC	A351 CF8M	A890 4A
4	Outside Seat	A105	A350 LF2	A182 F316	A182 F51
5	Inside Seat	A105	A350 LF2	A182 F316	A182 F51
6	Seat Insert	PTFE			
7	Stem	17-4PH			
8	Drive Nut	Cast Iron			
9	Bonnet Sleeve	Stainless Steel			
10	Packing Ring	Copper			
11	Trunnion Bushing	17-4PH			
12	Gland	A216 WCC	A352 LCC	A351 CF8M	A890 4A
13	Stem Protector	Carbon Steel			
14	Rod Seal	Plastic			
15	Indicator	Stainless Steel			
16	Handwheel	Carbon Steel			
17	Lifting Lug	Carbon Steel			
18	Stem Guide	17-4PH			
19	Hex Nut	Carbon Steel			
20	Gasket	Metal & Flexible Graphite			
21	Packing	PTFE			
22	Packing	PTFE			
23	Packing	PTFE			
24	Bearing Washer	Carbon Steel			
25	Thrust Washer	Carbon Steel			
26	Core Pin	17-4PH			
27	Support Pin	Stainless Steel			
28	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
29	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
30	Nut	A194 2H	A194 7	A194 8M	A194 8MLCuNa
31	Screw	Stainless Steel			
32	Screw	Stainless Steel			
33	Nut	A194 2H	A194 7	A194 8M	A194 8MLCuNa
34	Stem Packing Injection	Assembly			
35	Lower Lube Fitting	Stainless Steel			
36	Packing	PTFE			
38	Graphite	Flexible Graphite			
39	Drain Fitting	Assembly			
58	Lube Fitting	Stainless Steel			

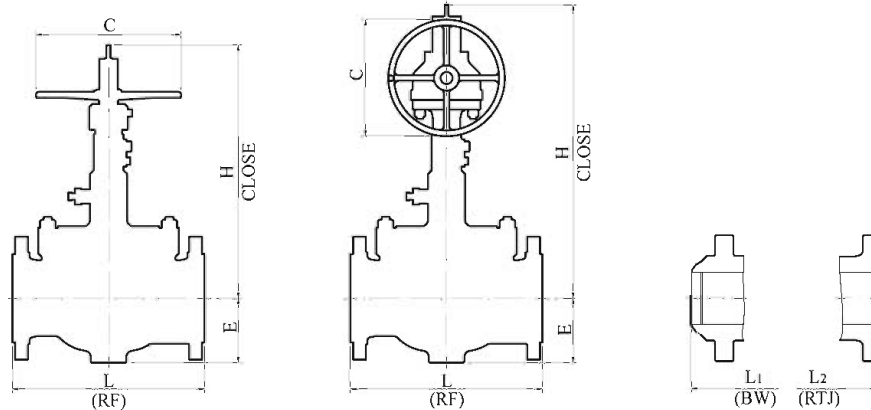
#### Note \*

Core Face	Trunnion Overlay
Nickel	-
Cobalt Alloy	Nickel Based CRA



# Rising Stem Ball Valves

Soft Seat



## 150LB 300LB

Description	Valve Size								Valve Size								
	2"	3"	4"	6"	8"	10"	12"	16"	2"	3"	4"	6"	8"	10"	12"	16"	
Flanged End L	in	7.00	8.00	12.00	15.88	18.00	26.50	30.00	35.50	8.50	11.13	12.00	15.88	19.75	26.50	30.00	35.50
	mm	178	203	305	403	457	673	762	902	216	283	305	403	502	673	762	902
Weld End L1	in	8.50	11.63	14.50	20.00	23.38	26.50	30.00	39.00	8.50	11.63	14.50	20.00	23.38	26.50	30.00	39.00
	mm	216	295	368	508	594	673	762	991	216	295	368	508	594	673	762	991
Height H	in	17.32	21.50	25.20	28.66	33.15	40.16	46.73	56.34	17.32	21.50	25.20	28.66	33.15	40.16	46.73	56.34
	mm	440	546	640	728	842	1020	1187	1431	440	546	640	728	842	1020	1187	1431
Handwheel Dia C	in	7.87	7.87	9.84	15.75	19.69	23.62	31.50	30.00	7.87	7.87	9.84	15.75	19.69	23.62	31.50	30.00
	mm	200	200	250	400	500	600	800	762	200	200	250	400	500	600	800	762
Height E	in	3.35	4.13	5.12	6.50	7.68	9.06	11.02	12.99	3.54	4.53	5.51	6.69	7.87	9.06	11.02	13.78
	mm	85	105	130	165	195	230	280	330	90	115	140	170	200	230	280	350
Weight	Kg	24	32	74	140	212	469	791	1530	29	41	82	155	237	494	833	1590

## 600LB 900LB

Description	Valve Size								Valve Size								
	2"	3"	4"	6"	8"	10"	12"	16"	2"	3"	4"	6"	8"	10"	12"	16"	
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	39.00	14.50	15.00	18.00	24.00	29.00	33.00	38.00	44.50
	mm	292	356	432	559	660	787	838	991	368	381	457	610	737	838	965	1130
Weld End L1	in	8.50	11.63	14.50	18.63	26.00	31.00	33.00	39.00	10.63	13.25	14.50	23.00	29.00	33.00	38.00	-
	mm	216	295	368	473	660	787	838	991	270	337	368	584	737	838	965	-
RTJ L2	in	11.63	14.13	17.13	22.13	26.13	31.13	33.13	39.13	14.63	15.13	18.13	24.13	29.13	33.13	38.13	44.88
	mm	295	359	435	562	664	791	841	994	371	384	460	613	740	841	968	1140
Height H	in	17.32	21.50	25.20	31.18	35.83	42.13	48.94	58.19	19.99	24.09	25.20	34.06	43.54	48.03	54.62	68.90
	mm	440	546	640	792	910	1070	1243	1478	508	612	640	865	1106	1220	1387	1750
Handwheel Dia C	in	7.87	9.84	15.75	19.69	19.69	24.02	27.56	30.00	9.84	13.78	17.72	19.69	24.02	24.02	24.02	35.98
	mm	200	250	400	500	500	610	700	762	250	350	450	500	610	610	610	914
Height E	in	3.74	4.53	5.91	7.48	8.66	10.63	11.22	14.37	4.72	5.31	6.69	8.07	9.84	11.42	12.99	14.96
	mm	95	115	150	190	220	270	285	365	120	135	170	205	250	290	330	380
Weight	Kg	36	58	106	230	416	715	1148	1633	56	73	121	375	599	896	1456	2788

## 1500LB 2500LB

Description	Valve Size							Valve Size					
	2"	3"	4"	6"	8"	10"	12"	2"	3"	4"	6"	8"	
Flanged End L	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	17.75	22.75	26.50	36.00	40.25
	mm	368	470	546	705	832	991	1130	451	578	673	914	1022
Weld End L1	in	10.63	13.25	21.50	27.75	-	-	-	-	-	-	-	-
	mm	270	337	546	705	-	-	-	-	-	-	-	-
RTJ L2	in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	17.88	23.00	26.88	36.50	40.88
	mm	371	473	549	711	841	1000	1146	454	584	683	927	1038
Height H	in	20.00	24.35	26.78	42.82	61.71	69.75	82.55	21.22	25.55	37.06	45.63	60.59
	mm	508	618	680	1088	1568	1772	2097	539	649	941	1159	1539
Handwheel Dia C	in	9.84	17.72	17.72	24.02	24.02	24.02	24.02	9.84	11.81	13.78	24.02	30.31
	mm	250	450	450	610	610	610	610	250	300	350	610	770
Height E	in	4.72	5.71	6.50	8.27	10.04	12.20	14.37	5.12	6.50	7.48	10.04	11.42
	mm	120	145	165	210	255	310	365	130	165	190	255	290
Weight	Kg	56	107	168	690	1185	1930	2714	90	168	333	841	1592

\* Grayloc Hub Ends available as per order request.





# Rising Stem Ball Valves

Soft Seat

150LB											300LB										
Description		Valve Size										Valve Size									
		3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x12"	16x12"	18x16"	20x16"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x12"	16x12"	18x16"	20x16"
Flanged End L	in	8.00	9.00	15.50	18.00	21.00	30.00	32.50	35.50	36.00	39.00	11.13	12.00	15.88	19.75	22.38	30.00	32.50	35.50	36.00	39.00
	mm	203	229	394	457	533	762	826	902	914	991	283	305	403	502	568	762	826	902	914	991
Weld End L1	in	8.50	11.63	18.63	18.63	23.50	30.00	22.25	-	-	-	8.50	11.63	18.63	18.63	23.50	30.00	-	-	-	-
	mm	216	295	473	473	597	762	565	-	-	-	216	295	473	473	597	762	-	-	-	-
Height H	in	17.32	21.50	25.20	28.66	33.15	40.16	46.73	46.73	56.34	56.34	17.32	21.50	25.20	28.66	33.15	40.16	46.73	46.73	56.34	56.34
	mm	440	546	640	728	842	1020	1187	1187	1431	1431	440	546	640	728	842	1020	1187	1187	1431	1431
Handwheel Dia C	in	7.87	7.87	9.84	15.75	19.69	23.62	31.50	31.50	30.00	30.00	7.87	7.87	9.84	15.75	19.69	23.62	31.50	31.50	30.00	30.00
	mm	200	200	250	400	500	600	800	800	762	762	200	200	250	400	500	600	800	800	762	762
Height E	in	3.35	4.13	5.12	6.50	7.68	9.06	11.02	11.02	12.99	12.99	3.54	4.53	5.51	6.69	7.87	9.06	11.02	11.02	13.78	13.78
	mm	85	105	130	165	195	230	280	280	330	330	90	115	140	170	200	230	280	280	350	350
Weight	Kg	32	45	100	177	263	649	957	1041	1619	1706	36	54	118	191	314	712	1048	1177	1728	1837

600LB											900LB										
Description		Valve Size										Valve Size									
		3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x12"	16x12"	18x16"	20x16"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x12"	16x12"	18x16"	20x16"
Flanged End L	in	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00
	mm	356	432	559	660	787	838	889	991	1092	1194	381	457	610	737	838	965	1029	1130	1219	1321
Weld End L1	in	8.50	11.63	18.63	18.63	31.00	33.00	-	-	-	-	10.62	13.25	18.63	23.00	29.00	-	-	-	-	-
	mm	216	295	473	473	787	838	-	-	-	-	270	337	473	584	737	-	-	-	-	-
RTJ L2	in	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.50
	mm	359	435	562	664	791	841	892	994	1095	1200	384	460	613	740	841	968	1038	1140	1232	1334
Height H	in	17.32	21.50	25.20	31.18	35.83	42.13	48.94	48.94	58.19	58.19	19.99	24.09	25.20	34.06	43.54	48.03	54.62	54.62	68.90	68.90
	mm	440	546	640	792	910	1070	1243	1243	1478	1478	508	612	640	865	1106	1220	1387	1387	1750	1750
Handwheel Dia C	in	7.87	9.84	15.75	19.69	19.69	24.02	27.56	27.56	30.00	30.00	9.84	13.78	17.72	19.69	24.02	24.02	24.02	24.02	35.98	35.98
	mm	200	250	400	500	500	610	700	700	762	762	250	350	450	500	610	610	610	610	914	914
Height E	in	3.74	4.53	5.91	7.48	8.66	10.63	11.22	11.22	14.37	14.37	4.72	5.31	6.69	8.07	9.84	11.42	12.99	12.99	14.96	14.96
	mm	95	115	150	190	220	270	285	285	365	365	120	135	170	205	250	290	330	330	380	380
Weight	Kg	50	82	168	295	508	921	1456	1547	1932	2053	64	91	223	454	727	1025	1683	1787	3284	3434

1500LB											2500LB				
Description		Valve Size									Valve Size				
		3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x12"	16x12"		3x2"	4x3"	6x4"	8x6"	10x8"
Flanged End L	in	18.50	21.50	27.75	32.75	39.00	44.50	49.50	-	-	22.75	26.50	36.00	40.25	-
	mm	470	546	705	832	991	1130	1257	-	-	578	673	914	1022	-
Weld End L1	in	10.63	13.25	18.63	32.75	39.00	-	-	-	-	-	-	-	-	-
	mm	270	337	473	832	991	-	-	-	-	-	-	-	-	-
RTJ L2	in	18.63	21.63	28.00	33.13	39.38	45.13	50.25	-	-	23.00	26.88	36.50	40.88	-
	mm	473	549	711	841	1000	1146	1276	-	-	584	683	927	1038	-
Height H	in	20.00	24.35	26.78	42.82	61.71	69.75	82.55	82.55	21.22	25.55	37.06	45.63	60.59	
	mm	508	618	680	1088	1568	1772	2097	2097	539	649	941	1159	1539	
Handwheel Dia C	in	9.84	17.72	17.72	24.02	24.02	24.02	24.02	24.02	9.84	11.81	13.78	24.02	30.31	
	mm	250	450	450	610	610	610	610	610	250	300	350	610	770	
Height E	in	4.72	5.71	6.50	8.27	10.04	12.20	14.37	14.37	5.12	6.50	7.48	10.04	11.42	
	mm	120	145	165	210	255	310	365	365	130	165	190	255	290	
Weight	Kg	86	127	277	930	1418	2313	3069	3259	109	236	426	1028	1742	

\* Grayloc Hub Ends available as per order request.





# Rising Stem Ball Valves

## Metal Seat

### Design Features

- One-Piece Cast Body
- Top entry, High Temperature service
- Rising Stem Type
- Downstream Seal
- Low Torque, Low Emission
- Long Service Life
- Actuation Available

### Specifications

Basic Design: **ASME B16.34**

Face to Face: **DHV Standard**  
**ASME B16.10**

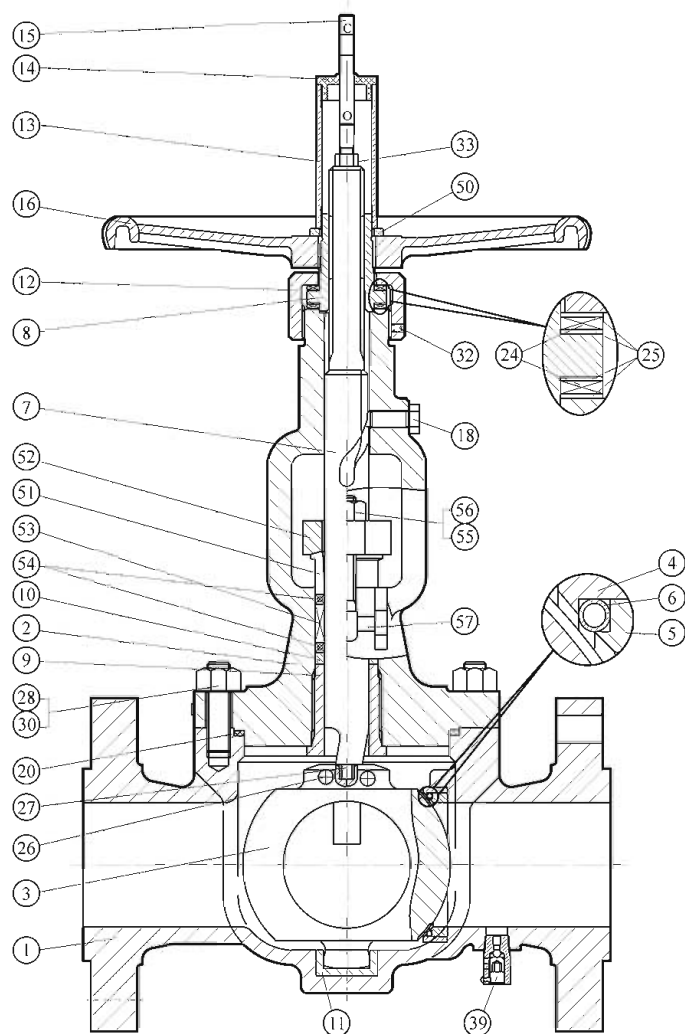
End Flanged: **ASME B16.5**

BW End: **ASME B16.25**

Test and Inspection: **API 598 or ISO 5208**

Fire safe design: **ISO 10497 or API 607**

Manufacturing to NACE latest version on request



### Material Specification

No.	Description	Carbon Steel	Stainless Steel
1	Body	A216 WCC	A351 CF8M
2	Bonnet	A216 WCC	A351 CF8M
3*	Core	A216 WCC	A351 CF8M
4	Outside Seat	A105	A182 F316
5	Inside Seat	A105	A182 F316
6	Seat Insert	316SS	
7	Stem	Alloy Steel	
8	Drive Nut	Cast Iron	
9	Bonnet Sleeve	Stainless Steel	
10	Packing Ring	Copper	
11	Trunnion Bushing	Alloy Steel	
12	Gland	A216 WCC	A351 CF8M
13	Stem Protector	Carbon Steel	
14	Rod Seal	Plastic	
15	Indicator	Stainless Steel	
16	Handwheel	Carbon Steel	
18	Stem Guide	Alloy Steel	
20	Gasket	Metal & Flexible Graphite	
24	Bearing Washer	Carbon Steel	
25	Thrust Washer	Carbon Steel	
26	Core Pin	Alloy Steel	
27	Support Pin	Stainless Steel	
28	Bolt	A193 B7	A193 B8M
30	Nut	A194 2H	A194 8M
32	Screw	Stainless Steel	
33	Nut	A194 2H	A194 8M
39	Drain Fitting	Assembly	
50	Washer	Stainless Steel	
51	Packing Gland	A105	A182 F316
52	Packing Gland Retainer	A216 WCC	A351 CF8M
53	Packing	Flexible Graphite	
54	Packing	Inconel Wire Braided Graphite	
55	Eyebolt	A193 B7	A193 B8M
56	Nut	A194 2H	A194 8M
57	Pin	Carbon Steel	Stainless Steel

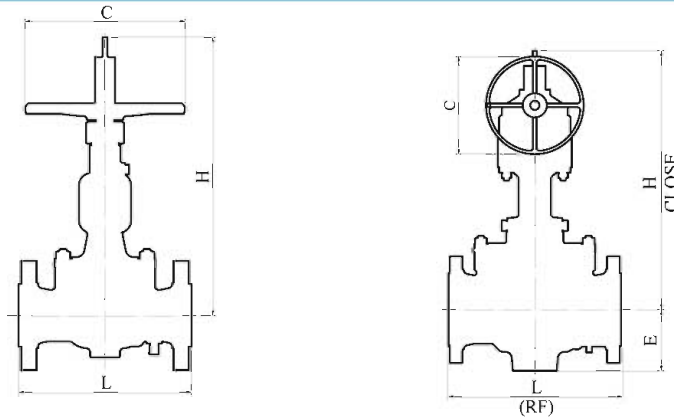
### Note \*

Core Face	Trunnion Overlay
Nickel	-
Cobalt Alloy	Nickel Based CRA



# Rising Stem Ball Valves

Metal Seat



150LB										300LB							
Description		Valve Size								Valve Size							
		2"	3"	4"	6"	8"	10"	12"	16"	2"	3"	4"	6"	8"	10"	12"	16"
Flanged End L	in	7.00	8.00	12.00	15.88	18.00	26.50	30.00	35.50	8.50	11.13	12.00	15.88	19.75	26.50	30.00	35.50
	mm	178	203	305	403	457	673	762	902	216	283	305	403	502	673	762	902
Weld End L1	in	8.50	11.63	14.50	20.00	23.38	26.50	30.00	39.00	8.50	11.63	14.50	20.00	23.38	26.50	30.00	39.00
	mm	216	295	368	508	594	673	762	991	216	295	368	508	594	673	762	991
Height H	in	19.06	23.03	26.69	30.12	33.62	44.17	49.37	61.26	19.06	23.03	26.69	30.94	33.86	44.09	49.37	61.26
	mm	484	585	678	765	854	1122	1254	1556	484	585	678	786	860	1120	1254	1556
Handwheel Dia C	in	7.87	7.87	9.84	15.75	19.69	23.62	31.50	30.00	7.87	7.87	9.84	15.75	19.69	23.62	31.50	30.00
	mm	200	200	250	400	500	600	800	762	200	200	250	400	500	600	800	762
Height E	in	3.35	4.13	5.12	6.50	7.68	9.06	11.02	12.99	3.54	4.53	5.51	6.69	7.87	9.06	11.02	13.78
	mm	85	105	130	165	195	230	280	330	90	115	140	170	200	230	280	350
Weight	Kg	24	32	74	140	212	469	791	1530	29	41	82	155	237	494	833	1590

600LB										900LB							
Description		Valve Size								Valve Size							
		2"	3"	4"	6"	8"	10"	12"	16"	2"	3"	4"	6"	8"	10"	12"	16"
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	39.00	14.50	15.00	18.00	24.00	29.00	33.00	38.00	44.50
	mm	292	356	432	559	660	787	838	991	368	381	457	610	737	838	965	1130
Weld End L1	in	8.50	11.63	14.50	18.63	26.00	31.00	33.00	39.00	10.63	13.25	14.50	23.00	29.00	33.00	38.00	-
	mm	216	295	368	473	660	787	838	991	270	337	368	584	737	838	965	-
RTJ L2	in	11.63	14.13	17.13	22.13	26.13	31.13	33.13	39.13	14.63	15.13	18.13	24.13	29.13	33.13	38.13	44.88
	mm	295	359	435	562	664	791	841	994	371	384	460	613	740	841	968	1140
Height H	in	19.37	23.03	26.69	32.87	40.00	48.03	58.54	64.17	21.73	24.88	28.54	36.57	44.57	48.82	55.43	69.76
	mm	492	585	678	835	1016	1220	1487	1630	552	632	725	929	1132	1240	1408	1772
Handwheel Dia C	in	7.87	9.84	15.75	19.69	19.69	24.02	27.56	30.00	9.84	13.78	17.72	19.69	24.02	24.02	24.02	35.98
	mm	200	250	400	500	500	610	700	762	250	350	450	500	610	610	610	914
Height E	in	3.74	4.53	5.91	7.48	8.66	10.63	11.22	14.37	4.72	5.31	6.69	8.07	9.84	11.42	12.99	14.96
	mm	95	115	150	190	220	270	285	365	120	135	170	205	250	290	330	380
Weight	Kg	36	58	106	230	416	715	1148	1633	56	73	121	375	599	896	1456	2788

1500LB										2500LB				
Description		Valve Size								Valve Size				
		2"	3"	4"	6"	8"	10"	12"	2"	3"	4"	6"	8"	
Flanged End L	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	17.75	22.75	26.50	36.00	40.25	
	mm	368	470	546	705	832	991	1130	451	578	673	914	1022	
Weld End L1	in	10.63	13.25	21.50	27.75	-	-	-	-	-	-	-	-	
	mm	270	337	546	705	-	-	-	-	-	-	-	-	
RTJ L2	in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	17.88	23.00	26.88	36.50	40.88	
	mm	371	473	549	711	841	1000	1146	454	584	683	927	1308	
Height H	in	20.79	25.12	30.31	44.17	63.19	70.87	83.82	22.05	26.38	31.81	47.95	68.58	
	mm	528	638	770	1122	1605	1800	2129	560	670	808	1218	1742	
Handwheel Dia C	in	9.84	17.72	17.72	24.02	24.02	24.02	24.02	9.84	11.81	13.78	24.02	30.31	
	mm	250	450	450	610	610	610	610	250	300	350	610	770	
Height E	in	4.72	5.71	6.50	8.27	10.04	12.20	14.37	5.12	6.50	7.48	10.04	11.42	
	mm	120	145	165	210	255	310	365	130	165	190	255	290	
Weight	Kg	56	107	168	690	1185	1930	2714	90	168	333	841	1592	

\* Grayloc Hub Ends available as per order request.



# Rising Stem Ball Valves

## Metal Seat

150LB												300LB									
Description		Valve Size										Valve Size									
		3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x12"	16x12"	18x16"	20x16"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x12"	16x12"	18x16"	20x16"
Flanged End L	in	8.00	9.00	15.50	18.00	21.00	30.00	32.50	35.50	36.00	39.00	11.13	12.00	15.88	19.75	22.38	30.00	32.50	35.50	36.00	39.00
	mm	203	229	394	457	533	762	826	902	914	991	283	305	403	502	568	762	826	902	914	991
Weld End L1	in	8.50	11.63	18.63	18.63	23.50	30.00	22.25	-	-	-	8.50	11.63	18.63	18.63	23.50	30.00	-	-	-	-
	mm	216	295	473	473	597	762	565	-	-	-	216	295	473	473	597	762	-	-	-	-
Height H	in	19.06	23.03	26.69	30.12	33.62	44.17	49.37	49.37	61.26	61.26	19.06	23.03	26.69	30.94	33.86	44.17	49.37	49.37	61.26	61.26
	mm	484	585	678	765	854	1122	1254	1254	1556	1556	484	585	678	786	860	1122	1254	1254	1556	1556
Handwheel Dia C	in	7.87	7.87	9.84	15.75	19.69	23.62	31.50	31.50	30.00	30.00	7.87	7.87	9.84	15.75	19.69	23.62	31.50	31.50	30.00	30.00
	mm	200	200	250	400	500	600	800	800	762	762	200	200	250	400	500	600	800	800	762	762
Height E	in	3.35	4.13	5.12	6.50	7.68	9.06	11.02	11.02	12.99	12.99	3.54	4.53	5.51	6.69	7.87	9.06	11.02	11.02	13.78	13.78
	mm	85	105	130	165	195	230	280	280	330	330	90	115	140	170	200	230	280	280	350	350
Weight	Kg	30	42	99	193	249	516	835	855	1686	1711	40	47	123	208	324	569	1016	1042	1864	1914

600LB												900LB									
Description		Valve Size										Valve Size									
		3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x12"	16x12"	18x16"	20x16"	3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x12"	16x12"	18x16"	20x16"
Flanged End L	in	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00
	mm	356	432	559	660	787	838	889	991	1092	1194	381	457	610	737	838	965	1029	1130	1219	1321
Weld End L1	in	8.50	11.63	18.63	18.63	31.00	33.00	-	-	-	-	10.62	13.25	18.63	23.00	29.00	-	-	-	-	-
	mm	216	295	473	473	787	838	-	-	-	-	270	337	473	584	737	-	-	-	-	-
RTJ L2	in	14.13	17.13	22.13	26.13	31.13	33.13	35.13	39.13	43.13	47.25	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.50
	mm	359	435	562	664	791	841	892	994	1095	1200	384	460	613	740	841	968	1038	1140	1232	1334
Height H	in	19.37	23.03	26.69	32.87	40.00	48.03	54.92	58.54	64.17	64.17	21.73	24.88	28.54	36.57	44.57	48.82	55.43	55.43	69.76	69.76
	mm	492	585	678	835	1016	1220	1395	1487	1630	1630	552	632	725	929	1132	1240	1408	1408	1772	1772
Handwheel Dia C	in	7.87	9.84	15.75	19.69	19.69	24.02	27.56	27.56	30.00	30.00	9.84	13.78	17.72	19.69	24.02	24.02	24.02	24.02	35.98	35.98
	mm	200	250	400	500	500	610	700	700	762	762	250	350	450	500	610	610	610	610	914	914
Height E	in	3.74	4.53	5.91	7.48	8.66	10.63	11.22	11.22	14.37	14.37	4.72	5.31	6.69	8.07	9.84	11.42	12.99	12.99	14.96	14.96
	mm	95	115	150	190	220	270	285	285	365	365	120	135	170	205	250	290	330	330	380	380
Weight	Kg	45	64	150	282	520	839	1464	1490	1688	1728	63	92	176	456	702	1060	1636	1682	3139	3277

1500LB												2500LB				
Description		Valve Size										Valve Size				
		3x2"	4x3"	6x4"	8x6"	10x8"	12x10"	14x12"	16x12"	3x2"	4x3"	6x4"	8x6"	10x8"		
Flanged End L	in	18.50	21.50	27.75	32.75	39.00	44.50	49.50	-	-	-	22.75	26.50	36.00	40.25	-
	mm	470	546	705	832	991	1130	1257	-	-	-	578	673	914	1022	-
Weld End L1	in	10.63	13.25	18.63	32.75	39.00	-	-	-	-	-	-	-	-	-	-
	mm	270	337	473	832	991	-	-	-	-	-	-	-	-	-	-
RTJ L2	in	18.63	21.63	28.00	33.13	39.38	45.13	50.25	-	-	-	23.00	26.88	36.50	40.88	-
	mm	473	549	711	841	1000	1146	1276	-	-	-	584	683	927	1038	-
Height H	in	20.79	25.12	30.31	44.17	63.19	70.87	83.82	83.82	-	-	22.05	26.38	31.81	47.95	68.58
	mm	528	638	770	1122	1605	1800	2129	2129	-	-	560	670	808	1218	1742
Handwheel Dia C	in	9.84	17.72	17.72	24.02	24.02	24.02	24.02	24.02	-	-	9.84	11.81	13.78	24.02	30.31
	mm	250	450	450	610	610	610	610	610	-	-	250	300	350	610	770
Height E	in	4.72	5.71	6.50	8.27	10.04	12.20	14.37	14.37	-	-	5.12	6.50	7.48	10.04	11.42
	mm	120	145	165	210	255	310	365	365	-	-	130	165	190	255	290
Weight	Kg	77	153	254	811	1422	2071	3358	3558	-	-	164	272	459	1079	1892

\* Grayloc Hub Ends available as per order request.





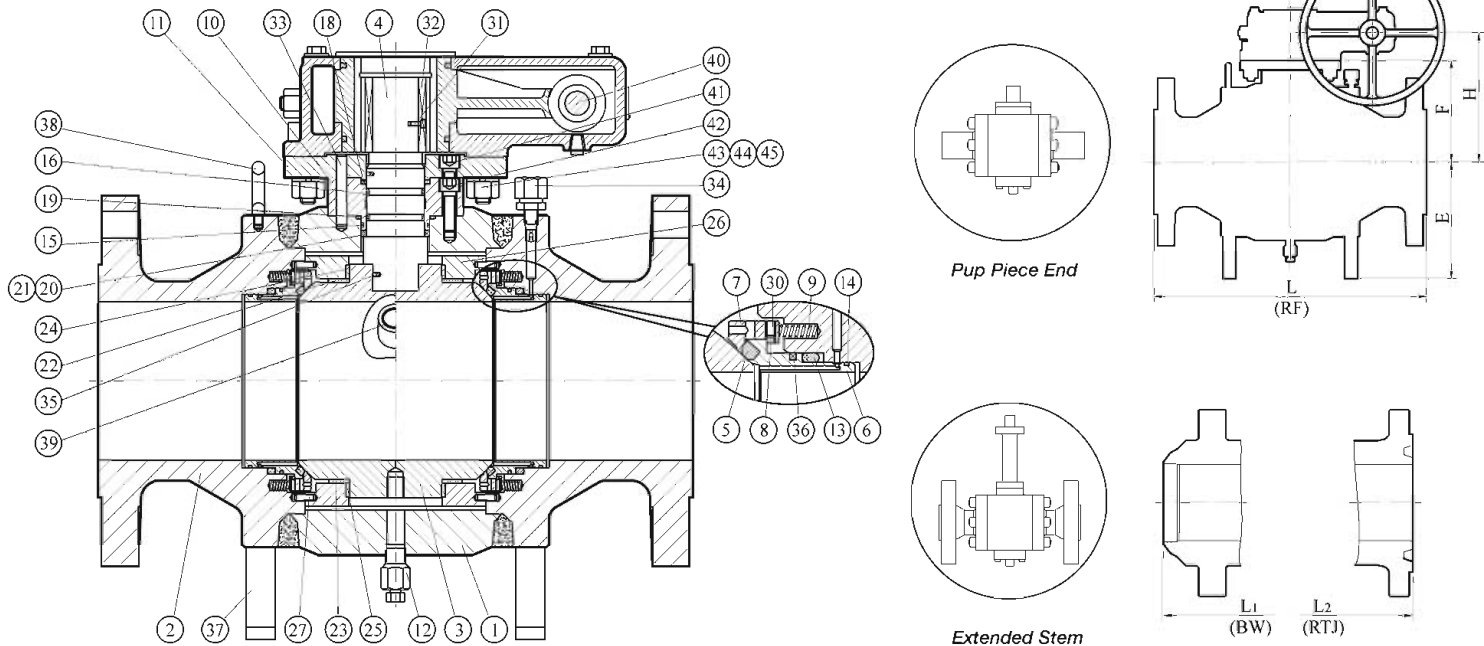
# Fully Welded Ball Valves

## Design Features

- Fully Welded Forged Body
- Double Block and Bleed
- Anti-static device, Low Emission
- ISO mounting PAD upon request
- DPE seat or/and by pass upon request

## Specifications

- Basic Design: **ASME B16.34 , API 6D**  
 End to End: **ASME B16.10 , API 6D**  
 BW End: **ASME B16.25**  
 Test and Inspection : **API 6D**  
 Fire-safe Design/Test: **API 607 or API 6FA**  
 Manufacturing to NACE latest version on request



### Material Specification

No.	Description	Carbon Steel		Stainless Steel	
1	Body	A105	A350 LF2	A182 F316	A182 F51
2	Body Cap	A105	A350 LF2	A182 F316	A182 F51
3	Ball With Trunnion	A105	A350 LF2	A182 F316	A182 F51
4	Stem	A105	A350 LF2	A182 F316	A182 F51
5	Seat	As Page 38 Seal Material			
6	Seat Retainer	A105	A350 LF2	A182 F316	A182 F51
7	Outer Ring	A105	A350 LF2	A182 F316	A182 F51
8	Seat Lock Ring	A276 304		A276 316	A182 F51
9	Spring	Inconel X-750			
10	Gland	A105	A350 LF2	A182 F316	A182 F51
11	Adapter Plate	A105	A350 LF2	A182 F316	A182 F51
12	Drain Plug	A105	A350 LF2	A182 F316	A182 F51
13	O-ring	As Page 38 Seal Material			
14	O-ring	As Page 38 Seal Material			
15	O-ring	As Page 38 Seal Material			
16	O-ring	As Page 38 Seal Material			
18	Packing	Graphite			
19	Gasket	Metal & Flexible Graphite			
20	Thrust Washer	A105	A350 LF2	A182 F316	A182 F51
21	Thrust Bearing	Metal Backed PTFE			
22	Upper Thrust Bearing	Metal Backed PTFE			

### Material Specification

No.	Description	Carbon Steel		Stainless Steel	
23	Lower Thrust Bearing	Metal Backed PTFE			
24	Stem Bearing	Metal Backed PTFE			
25	Stem Bearing	Metal Backed PTFE			
26	Trunnion Retainer	A105	A350 LF2	A182 F316	A182 F51
27	Bearing Retainer Pin	A105	A350 LF2	A182 F316	A182 F51
30	Screw	A276 304		A276 316	A182 F51
31	Head Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
32	Key	Steel			
33	Pin	A193 B7			
34	Sealant Fitting	Assembly			
35	Anti-Static Device	Stainless Steel			
36	Packing	Graphite			
37	Support Leg	Carbon Steel			
38	Lifting Lug	Carbon Steel			
39	Safety Valve	Assembly			
40	Gear	Assembly			
41	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
42	Bolt	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
43	Stud	A193 B7	A320 L7	A193 B8M	A193 B8MLCuN
44	Nut	A194 2H	A194 7	A194 8M	A194 8MLCuNa
45	Washer	Stainless Steel			





# Fully Welded Ball Valves

## 150LB

Description		Valve Size											
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Flanged End L	in	7.00	8.00	9.00	15.50	18.00	21.00	24.00	27.00	30.00	34.00	36.00	42.00
	mm	178	203	229	394	457	533	610	686	762	864	914	1067
Weld End L1	in	8.50	11.10	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00
	mm	216	283	305	457	521	559	635	762	838	914	991	1143
Height F	in	4.65	5.39	6.18	7.95	9.80	11.38	13.43	14.25	16.02	17.56	18.94	22.72
	mm	118	137	157	202	249	289	341	362	407	446	481	577
Height E	in	4.53	5.72	7.62	10.08	12.05	13.78	15.35	16.06	18.03	20.00	21.18	24.80
	mm	115	145	194	256	306	350	390	408	458	508	538	630

## 300LB

Description		Valve Size											
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Flanged End L	in	8.50	11.10	12.00	15.87	19.76	22.36	25.50	30.00	33.00	36.00	39.00	45.00
	mm	216	283	305	403	502	568	648	762	838	914	991	1143
Weld End L1	in	8.50	11.10	12.00	18.00	20.50	22.00	25.00	30.00	33.00	36.00	39.00	45.00
	mm	216	283	305	457	521	559	635	762	838	914	991	1143
Height F	in	4.65	5.39	6.18	7.95	9.80	11.38	13.43	14.25	16.02	17.56	18.94	22.72
	mm	118	137	157	202	249	289	341	362	407	446	481	577
Height E	in	4.53	5.72	7.62	10.08	12.05	13.78	15.35	16.06	18.03	20.00	21.18	24.80
	mm	115	145	194	256	306	350	390	408	458	508	538	630

## 600LB

Description		Valve Size											
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Flanged End L	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397
Weld End L1	in	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	mm	292	356	432	559	660	787	838	889	991	1092	1194	1397
RTJ L2	in	11.61	14.13	17.13	22.13	26.14	31.14	33.11	35.12	39.13	43.11	47.24	55.39
	mm	295	359	435	562	664	791	841	892	994	1095	1200	1407
Height F	in	5.20	6.04	7.69	9.15	10.54	12.08	13.84	14.43	16.02	17.72	19.33	23.50
	mm	132	153	195	233	268	307	352	366	407	450	491	597
Height E	in	4.67	6.10	8.03	10.24	12.15	14.67	16.58	17.15	19.53	20.48	23.44	27.15
	mm	119	155	204	260	309	373	421	436	496	520	595	690

## 900LB

Description		Valve Size											
		2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Flanged End L	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
Weld End L1	in	14.50	15.00	18.00	24.00	29.00	33.00	38.00	40.50	44.50	48.00	52.00	61.00
	mm	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
RTJ L2	in	14.63	15.13	18.13	24.13	29.13	33.13	38.13	40.88	44.88	48.50	52.50	61.75
	mm	371	384	460	613	740	841	968	1038	1140	1232	1334	1568
Height F	in	5.47	6.10	7.40	9.84	11.54	13.31	16.10	17.95	19.65	21.93	23.66	27.09
	mm	139	155	188	250	293	338	409	456	499	557	601	688
Height E	in	4.53	5.20	6.34	9.69	11.06	15.08	17.01	17.87	19.65	21.22	31.02	34.21
	mm	115	132	161	246	281	383	432	454	499	539	788	869

## 1500LB

Description		Valve Size										2500LB					
		2"	3"	4"	6"	8"	10"	12"	14"	16"	2"	3"	4"	6"	8"	10"	12"
Flanged End L	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	17.75	22.75	26.5	36	40.25	50	56
	mm	368	470	546	705	832	991	1130	1257	1384	451	578	673	914	1022	1270	1422
Weld End L1	in	14.50	18.50	21.50	27.75	32.75	39.00	44.50	49.50	54.50	17.75	22.75	26.5	36	40.25	50	56
	mm	368	470	546	705	832	991	1130	1257	1384	451	578	673	914	1022	1270	1422
RTJ L2	in	14.63	18.63	21.63	28.00	33.13	39.38	45.13	50.25	55.38	17.88	23	26.88	36.5	40.88	50.88	56.88
	mm	371	473	549	711	841	1000	1146	1276	1407	454	584	683	927	1038	1292	1445
Height F	in	5.47	6.89	9.37	10.31	12.13	15.35	18.39	20.51	21.93	6.69	10.16	10.16	12.56	14.76	17.99	21.93
	mm	139	175	238	262	308	390	467	521	557	170	258	258	319	375	457	557
Height E	in	4.53	5.67	7.80	9.88	12.20	16.06	18.19	19.57	21.38	5.47	6.42	9.41	11.61	14.06	18.58	20.28
	mm	115	144	198	251	310	408	462	497	543	139	163	239	295	357	472	515



# Design Torques for Ball Valves

Torque in FTLB .

As tested with liquid with zero safety factor at full differential pressure.

## Trunnion Ball Valve

Class / Working Pressure (psi)	1 1/2"FB	2"RP	2"FB	3"RP	3"FB	4"RP	4"FB	6"RP	6"FB	
150 / 285	26	26	48	48	88	88	140	140	280	
300 / 740	41	41	66	66	147	147	221	221	442	
600 / 1480	59	59	88	88	236	236	354	354	811	
900 / 2220	96	96	184	184	354	354	627	627	1216	
1500 / 3705	140	140	221	221	516	516	884	884	1990	
2500 / 6169	192	192	442	442	1179	1179	1474	1474	4128	
Class / Working Pressure (psi)	8"RP	8"FB	10"RP	10"FB	12"RP	12"FB	14"RP	14"FB	16"RP	
150 / 285	280	627	627	921	921	1327	1327	1769	1769	
300 / 740	442	884	884	1253	1253	1843	1843	2580	2580	
600 / 1480	811	1437	1437	2138	2138	3317	3317	4422	4422	
900 / 2220	1216	2211	2211	3685	3685	4791	4791	6707	6707	
1500 / 3705	1990	4275	4275	7223	7223	9214	9214	13267	13267	
2500 / 6169	4128	8845	8845	11056	11056	13267	13267	*	*	
Class / Working Pressure (psi)	16"FB	18"RP	18"FB	20"RP	20"FB	22"RP	22"FB	24"RP	24"FB	
150 / 285	2285	2285	3022	3022	3833	3833	4938	4938	6339	
300 / 740	3538	3538	4496	4496	6265	6265	7739	7739	9803	
600 / 1480	5897	5897	9140	9140	12457	12457	14005	14005	17690	
900 / 2220	9214	9214	14152	14152	18427	18427	23292	23292	27641	
1500 / 3705	16216	16216	23587	23587	28009	28009	35011	35011	43193	
2500 / 6169	*	*	*	*	*	*	*	*	*	
Class / Working Pressure (psi)	26"RP	26"FB	28"RP	28"FB	30"RP	30"FB	32"RB	32"FB	36"RB	36"FB
150 / 285	6339	7739	7739	9951	9951	11498	11498	12236	12236	12899
300 / 740	9803	11720	11720	14373	14373	16584	16584	18943	18943	22997
600 / 1480	17690	20270	20270	24692	24692	30957	30957	43119	43119	50490
900 / 2220	27641	31326	31326	35380	35380	43488	43488	*	*	*
1500 / 3705	43193	47910	47910	59335	59335	*	*	*	*	*

## Floating Ball Valve

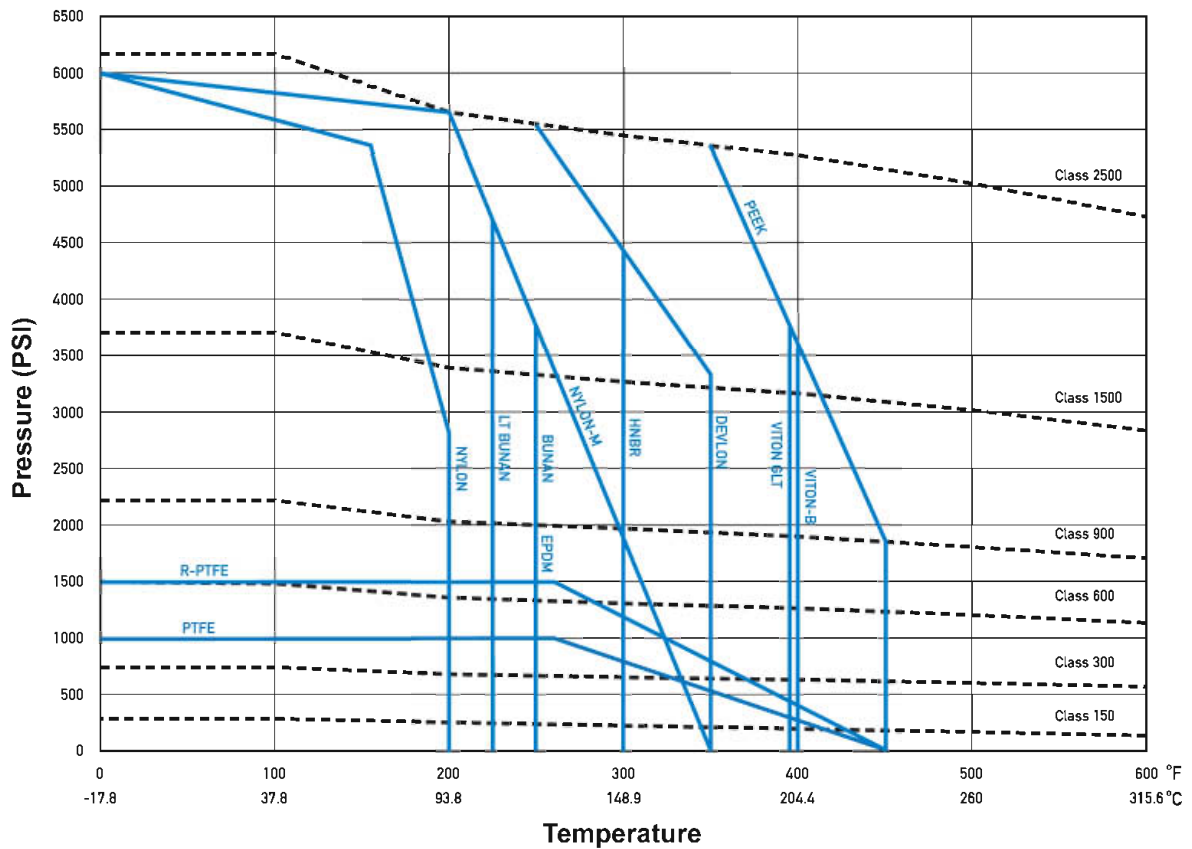
Class / Working Pressure (psi)	1/2"FB	3/4"FB	1"FB	1 1/2"FB	2"RB	2"FB	2 1/2"FB	3"RB	3"FB	4"RB
150 / 285	12	15	20	30	30	40	69	40	90	90
300 / 740	15	25	30	40	40	59	103	59	140	140
600 / 1480	36	45	55	70	70	110	150	110	265	265
Class / Working Pressure (psi)	4"FB	6"RB	6"FB	8"RB	8"FB	10"RB	10"FB	12"RB	12"FB	
150 / 285	180	180	500	500	1050	1050	1570	1570	2699	
300 / 740	243	243	713	1500	1500	2100	2100	*	*	
600 / 1480	350	350	1250	1250	*	*	*	*	*	

"Floating ball valve with R-PTFE or PTFE seat. Trunnion Ball valve, 2"-4" 150/300lb with RPTFE seat. Other sizes with Nylon M seat. Additional sizing information available upon request. " \*: consult factory for torque.



# Materials Pressure-Temperature Chart

## Pressure-Temperature Chart



Note: Viton -Trademark of DuPont Dow Elastomers. Devlon-Trademark of James Walker  
Aflas- Trademark of of Asahi Glass Company

### Low Temperature Limits

Body Material	°F	°C
WCB/WCC/A105	-20	-28.9
LCB/LCC/LF2	-50	-45.6
CF8M/F316	-320	-196
CF8/F304	-320	-196

Gasket Material	°F	°C
VITON B	-20	-28.9
VITON GLT	-50	-45.6
BUNA N	-15	-26
LT BUNA N	-65	-53.9
EPDM	-60	-51
AFLAS	+32	0
HNBR (ED Resistant)	-50	-45.6

Seat Material	°F	°C
R-PTFE	-100	-73.3
NYLON(PA12)	-20	-28.9
NYLON-M	-40	-40
PTFE	-200	-128.9
PEEK(HT4)	-50	-45.6
DEVLON	-50	-45.6
DELFIN	-30	-34.4

Gasket Material	°F	°C
316 Spiral Wound Graphite	-328	-200
316 Spiral Wound PTFE	-328	-200
Solid Graphite	-328	-200
Monel Spiral Wound PTFE	-328	-200

For additional seat and seal material, consult factory.





# Terms & Conditions

## 1. DEFINITIONS

(a) "The CONTRACT" - The General Conditions of Orders together with COMPANY'S quote and any exhibits, attachments and other documents incorporated by reference.

(b) "The PRODUCTS" - valves and related products and services as well as their packaging that form the subject-matter of the CONTRACT.

(c) "The COMPANY" - DHV Industries, Inc. or DHV Valve Company, Inc. or alternatively any affiliated company named in COMPANY'S quotation.

(d) "The CUSTOMER" - The individual, firm, partnership, company or other party with whom the Company contracts.

(e) "FORCE MAJEURE" - Any cause or circumstances (including but not limited to, act of God, fire, storm, flood, drought, earthquake, malicious damage, shortage of material, manufacturer's inability to provide the Product, embargo, riot, strike, look-out, trade dispute, civil disturbance, war, compliance with any law or government order, rule or direction or any other event or accident) beyond the reasonable and direct control of COMPANY.

## 2. SCOPE

(a) These General Conditions set out the standard terms on which the COMPANY supplies PRODUCTS to the CUSTOMER. Accordingly, these General Conditions apply to all quotations and sales unless otherwise agreed in writing.

(b) The legality, validity, and enforceability of other clauses in these General Conditions will not be affected if one of the clauses is, or becomes illegal, invalid, or unenforceable.

(c) We reserve the right to institute changes in material, design and specification without notice.

## 3. QUOTATIONS AND ORDERS

(a) Unless otherwise expressly stipulated, all of the COMPANY'S quotations and prices are subject to change without notice, and to availability. Prices are valid only for the duration indicated in the quotation and are subject to change without notice.

(b) Any written or oral purchase order received from the CUSTOMER by the COMPANY ("Order") shall be interpreted as a written acceptance of the COMPANY'S offer to sell, and shall be filled in accordance with the terms and conditions of the sale set forth herein. The terms and conditions of the Company's proposal (if at all any) shall prevail over any conflicting or different terms in CUSTOMER'S orders unless the CUSTOMER notifies the COMPANY in writing of its objections thereto within the earlier of the date of shipment of the Product or fifteen (15) days from receipt of COMPANY'S General Conditions. CUSTOMER'S standard terms of purchase will not be considered as a counter-offer to COMPANY'S terms and conditions of sale. The COMPANY will not be bound by conflicting purchasing conditions or reservations made by the CUSTOMER even if the COMPANY does not explicitly contradict the conditions or reservations.

(c) No order in pursuance of any quotation or otherwise shall be binding on the COMPANY unless and until such an order is accepted by the COMPANY. The COMPANY may reject any order in whole or part. A contract between the COMPANY and CUSTOMER is finalized once the COMPANY issues a telephonic, electronic, or written order confirmation to the CUSTOMER or ships the Product to the CUSTOMER. Except as otherwise specifically provided herein, the Order is the final and complete expression of the agreement between the parties, setting forth the entire agreement between the parties regarding this transaction and including all promises and representations both express and implied. Any matters not contained herein, or otherwise referenced or incorporated herein, are not part of the Order.

(d) Subject to the specific procedures for changes to the Order, none of the terms and conditions contained herein may be added to, modified, superseded, or otherwise altered except by a written instrument specifically referencing the affected provision of the Order signed by the President or Vice President of the COMPANY.

## 4. PRICES

(a) All prices shown are in U.S. dollars and are F.O.B. COMPANY'S shipping point, unless otherwise expressly agreed to by COMPANY.

(b) Prices exclude any duties, federal, state or local taxes or other government charges and delivery costs, which the CUSTOMER must pay unless the law specifically provides that the COMPANY must make such payment in which case the CUSTOMER shall reimburse the COMPANY for such payments as part of the purchase price. All prices include the COMPANY'S

standard packing, but not pallets or crating for export goods.

## 5. PAYMENTS AND LICENSES

(a) Payment must be made in the currency specified in COMPANY'S invoice.

(b) The CUSTOMER must pay the full invoice amount before the shipment from the date of the invoice unless otherwise agreed in writing. The COMPANY is entitled to charge interest on overdue payments at the greater of the following two rates: (a) 1.5% monthly or (b) 2% annually above the current monthly base rate of the COMPANY'S bank. In no event shall the interest rate be higher than the maximum rate permitted by applicable law.

(c) In addition to exercising its rights at common law or under statute, the COMPANY is entitled to terminate the CONTRACT by written notice to the CUSTOMER if the CUSTOMER is in material breach of its obligations under the CONTRACT or any other agreements with the COMPANY. The CUSTOMER is in material breach:

- If it fails to meet its liabilities when they fall due;
- If it seeks a composition with its creditors;
- If all or part of its property is subject to receivership; or
- If a petition for liquidation, winding-up or administration is filed in respect of the CUSTOMER.

(d) The CUSTOMER is not entitled to withhold, set off or deduct claims against the COMPANY from an amount that it owes the COMPANY under the CONTRACT or other agreement with the COMPANY.

(e) The COMPANY is obligated to deliver a PRODUCT only if the CUSTOMER has made due payment of all amounts that it owes to the COMPANY at the date of delivery under the CONTRACT or other agreement with the COMPANY. The COMPANY is entitled to suspend delivery of a PRODUCT if the CUSTOMER is in default without this affecting the COMPANY'S other rights under the CONTRACT or other agreement with the CUSTOMER. The COMPANY is not obligated to resume deliveries until the CUSTOMER has paid all overdue amounts, including all expenses and accrued interest.

(f) It is the CUSTOMER'S exclusive responsibility to obtain all licenses, exchange control documents and other consents needed for the import and use of the PRODUCTS as well as for payment of the PRODUCTS. The CUSTOMER will not be discharged from his obligations under these General Conditions because he fails to obtain a license or other consents.

## 6. DELIVERY AND FORCE MAJEURE

(a) While the COMPANY will endeavor to deliver the PRODUCTS by any date or within any period agreed upon, such dates and periods are estimates only given in good faith and the COMPANY will not be liable for any failure to deliver by such date or within such a period. Time for delivery shall not be of the essence of the CONTRACT.

(b) Should the COMPANY be delayed in or prevented from making the delivery of the PRODUCTS due to Force Majeure, the COMPANY may terminate the CONTRACT or suspend the Order without incurring any liability for any loss or damage arising there from, but without prejudice in any such case to rights accrued to the COMPANY for deliveries already made.

(c) Unless otherwise agreed to in writing by the COMPANY, the COMPANY shall deliver the PRODUCTS by the means most convenient to the COMPANY to the address or addresses specified by the CUSTOMER at the time of placing the Order or (in the event that the CUSTOMER fails so to specify an address) to an address at which the CUSTOMER resided or carries on business. The PRODUCTS are considered to be delivered when they are physically handed over to 1) the CUSTOMER, 2) the CUSTOMER'S agent or a person that the CUSTOMER has authorized to take delivery, or (3) the carrier, regardless of who pays shipping costs. The COMPANY shall be entitled to add to the contract price a reasonable charge for packaging, delivery and insurance. Off-loading will be at CUSTOMER'S expense.

(d) The CUSTOMER is obligated to pay all costs that the COMPANY incurs because of the CUSTOMER'S failure to take delivery either 1) on the date stated in the invoice or the COMPANY'S confirmation, or 2) when the PRODUCTS are ready, if the COMPANY has notified the CUSTOMER in writing of their readiness and the CUSTOMER has not taken delivery within seven days or any period to which the parties agree.

(e) If the COMPANY is responsible for delivery, the CUSTOMER must thoroughly inspect the PRODUCTS sent at the COMPANY'S risk. The CUSTOMER is to notify the COMPANY in writing immediately of loss, damage or shortage of PRODUCTS. If the CUSTOMER does not receive the PRODUCTS on the agreed date of delivery, it is to notify the COMPANY within 48 hours of the agreed date of delivery. The COMPANY disclaims all liability, and the CUSTOMER waives its rights of recovery, under this provision unless the CUSTOMER'S information is sufficient to



# Terms & Conditions

allow the COMPANY to make a valid claim against the carrier of the PRODUCTS for their loss or damage.

(f) If the CUSTOMER is responsible for delivery, the COMPANY will not be responsible for delays or failure to deliver by the carrier set up by the CUSTOMER or due to causes beyond the COMPANY control. Delivery of material to a common carrier shall be considered delivery to the Buyer. Claims for loss or any damage to material in transit shall be filed by the Buyer direct with the carrier. Claims for any shortage, corrections or deductions must be made in writing within 48 hours after receipt of goods.

## 7. PASSING OF RISK AND TITLE, CANCELLATION AND RETURNS

The COMPANY'S liability for the PRODUCTS passes from the COMPANY to the CUSTOMER on the earlier of the following two dates: 1) the date when the PRODUCTS are delivered to the CUSTOMER, the CUSTOMER'S agent, or a person that the CUSTOMER has authorized to accept delivery, or 2) the agreed date of delivery, if the CUSTOMER fails to take delivery as required.

(a) Under the CONTRACT.

(b) The COMPANY remains the owner of the PRODUCTS until it receives full payment for all PRODUCTS whether or not the PRODUCTS are delivered to the CUSTOMER. If the CUSTOMER sells the PRODUCTS to a third party before the COMPANY receives full payment, the proceeds of the sale shall first apply to pay all amounts due to the COMPANY. The COMPANY or its representative is entitled to recover or resell the PRODUCTS and to enter the CUSTOMER'S premises for that purpose, without this affecting its other rights; if the CUSTOMER has not paid the full purchase price or if insolvency proceedings are commenced against the CUSTOMER.

(c) Purchase Orders once placed by CUSTOMER and accepted by COMPANY can be cancelled only with COMPANY'S written consent and upon terms which will save COMPANY from loss. No PRODUCTS may be returned for credit or adjustment without written permission from COMPANY'S officer authorized to issue such permission.

(d) All sales are final. This means that the CUSTOMER is not entitled to credit for returned PRODUCTS whether or not the CUSTOMER has made a complaint or a claim. If the Company expressly agrees in writing that the COMPANY will credit the CUSTOMER for returned PRODUCTS, the CUSTOMER must return the PRODUCTS promptly, carriage-paid, and in the COMPANY'S opinion in good condition to receive the credit. If the COMPANY expressly agrees in writing that the CUSTOMER can return the PRODUCTS, cancel order or change order, the CUSTOMER will be charged for work performed, based on the following schedule. All freight for return or cancelled/changed goods shall be prepaid by CUSTOMER.

- Twenty Five (25%) percent of price on stock items.
- Fifty (50%) percent of price of stock items ordered in quantities which exceed normal inventory levels.
- Twenty Five (25%) percent of price prior to drawing submittal on made to order items.
- Forty (40%) percent on drawing approval, but prior to start of castings.
- Seventy (70%) percent during casting cycle, dependent on the state of completion.
- One Hundred (100%) percent on castings that are not standard materials used by COMPANY in daily sales; i.e. Stainless Steel, Duplex, Nickel, etc.
- Eighty (80%) during machining and assembly operations, this is dependent on the state of completion.
- One Hundred (100%) percent after final assembly and test.
- Special Product Orders: or non standard products are not subject to any schedule level of cancellation, except on such terms as COMPANY may specify on application only.

## 8. WARRANTY AND LIMITATIONS OF LIABILITY

(a) As to all PRODUCTS sold hereunder, the COMPANY expresses no warranties whatsoever but only assigns to CUSTOMER all transferable warranties and remedies granted by the manufacturer of such PRODUCTS to which COMPANY is entitled and CUSTOMER agrees to look solely to such manufacturers with regard to claims and remedies relating to such PRODUCTS. THE COMPANY SPECIFICALLY DISCLAIMS ALL WARRANTIES, EITHER EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND SATISFACTORY QUALITY. THE COMPANY MAKES NO WARRANTIES AND REPRESENTATIONS, AS TO QUALITY, CAPABILITIES, OPERATIONS, NONINFRINGEMENT OF INTELLECTUAL PROPERTY RIGHTS, PERFORMANCE AND SUITABILITY OF THE PRODUCTS.

(b) LIMITATION OF LIABILITY. CUSTOMER'S EXCLUSIVE REMEDY AGAINST COMPANY FOR DEFECTS IN THE PRODUCTS IS THE MANUFACTURER'S WARRANTY SET FORTH IN SECTION 8 (a). THE PARTIES AGREE THAT UNDER NO CIRCUMSTANCE SHALL THE

COMPANY HAVE ANY LIABILITY WHATSOEVER FOR ANY CLAIM ARISING FROM OR RELATING TO THE ORDERS OR THE PRODUCTS FOR AN AGGREGATE AMOUNT IN EXCESS OF THE INVOICED PRICE FOR THE PRODUCTS.

(c) The COMPANY shall not be liable for any damage resulting from delays, failure of the PRODUCTS, loss of profit or revenues, loss of time or loss of use, cost of capital, diminution of goodwill, or claims of CUSTOMER'S customers.

(d) IN NO CIRCUMSTANCES WILL THE COMPANY BE LIABLE FOR ANY CONSEQUENTIAL, SPECIAL, PUNITIVE OR INDIRECT LOSS OR DAMAGE WHATSOEVER.

(e) The COMPANY is not liable if the CUSTOMER'S use of the PRODUCTS infringes on a third party's patent rights.

(f) Any exclusions or limitations of liability in this CONTRACT in favor of the COMPANY are agreed to be extended for the benefit of all COMPANY'S and/or individuals within the COMPANY'S group of COMPANIES. The CUSTOMER agrees in the appointment of the COMPANY as its agent or trustee solely for the extension of the benefit of the exclusions and limitations of liability. All duties, liabilities and obligations that would otherwise result from this agency are expressly excluded.

(g) The COMPANY warrants the PRODUCTS provided to the original CUSTOMER, not any third party, for a period of one year after date of shipment, that PRODUCTS will be free from defects in materials and workmanship under proper and normal installation and use. Any claim for defect goods should be by written notice to the COMPANY immediately upon discovery. No warranty shall apply to PRODUCTS which has been modified or changed in design or function, misused, or improperly maintained. The COMPANY shall be able to inspect claimed defects at original CUSTOMER'S facility to determine its obligation. Without written authorization of COMPANY, any repair labor or material is not allowed. No PRODUCTS may be returned without written permission from COMPANY.

## 9. SPECIFICATION, INSTRUCTIONS AND/OR DESIGN

If PRODUCTS are modified to a specification, instruction or design supplied by CUSTOMER or any third party on behalf of CUSTOMER, then:

(a) The suitability and accuracy of that specification, instruction and/or design will be CUSTOMER'S responsibility.

(b) The CUSTOMER will indemnify COMPANY against any infringement or alleged infringement of any third party's intellectual property rights including but not limited to patent, design right, registered design, trademark, trade name or copyright and any loss, damage or expense which it may incur by reason of any such infringement or alleged infringement in any county, and

(c) The CUSTOMER will indemnify COMPANY against any loss, damage or expense in respect of any liability arising in any country by reasons of the PRODUCTS being made to such specification, instruction or design.

## 10. CHOICE OF LAW AND JURISDICTION

(a) The laws of the State of California, including the Uniform Commercial Code, shall govern this CONTRACT. Jurisdiction and venue shall be the Superior Court of Kern County, Bakersfield, California. However, the CUSTOMER expressly agrees that the COMPANY may take action in another jurisdiction to obtain security for the COMPANY'S claims under the CONTRACT.

(b) The CONTRACT constitutes the entire agreement between the COMPANY and the CUSTOMER concerning the supply of the PRODUCTS. The CUSTOMER agrees that he has no other rights of recourse to the COMPANY other than those expressly stated in these General Conditions. The General Conditions apply whether or not the CUSTOMER has a cause of action because the COMPANY or its representative has acted negligently.

## 11. ATTORNEY'S FEES

In the event of any litigation or arbitration or any quasi-judicial or administrative proceeding involving the parties hereto to enforce any provision of this Agreement, to enforce any remedy available upon default hereunder, or seeking a declaration of the rights of either party hereunder, the prevailing party shall be entitled to recover from the other such attorney's fees and costs as may be reasonably incurred, including the costs of reasonable investigation, preparation and professional or expert consultation incurred by reason of such litigation, arbitration or proceeding. Sums actually expended in the prosecution or defense of any litigation, arbitration or proceeding within the meaning of the foregoing sentence shall be prima facie evidence of reasonable attorneys' fees, costs and disbursements.

## Seeking a Great Name in Valve Technology

Please visit our DHV website: [www.dhvindustries.com](http://www.dhvindustries.com) or [www.dhvvalve.com](http://www.dhvvalve.com) for a copy of our API 6D monogram certificate. Customer and Project referrals are available upon request. For certified data and current specifications, please contact us or your local DHV agent. Information provided in this catalog is for general purposes only.

DHV reserves the right to discontinue the manufacture or change and modify our design and construction of any DHV product, in due course of our manufacturing procedure without incurring any obligation to accept for credit, to replace or furnish or install such changes or modifications on products previously or subsequently sold.



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