



# Soft Seated Ball Valves

Material & Engineering Specifics





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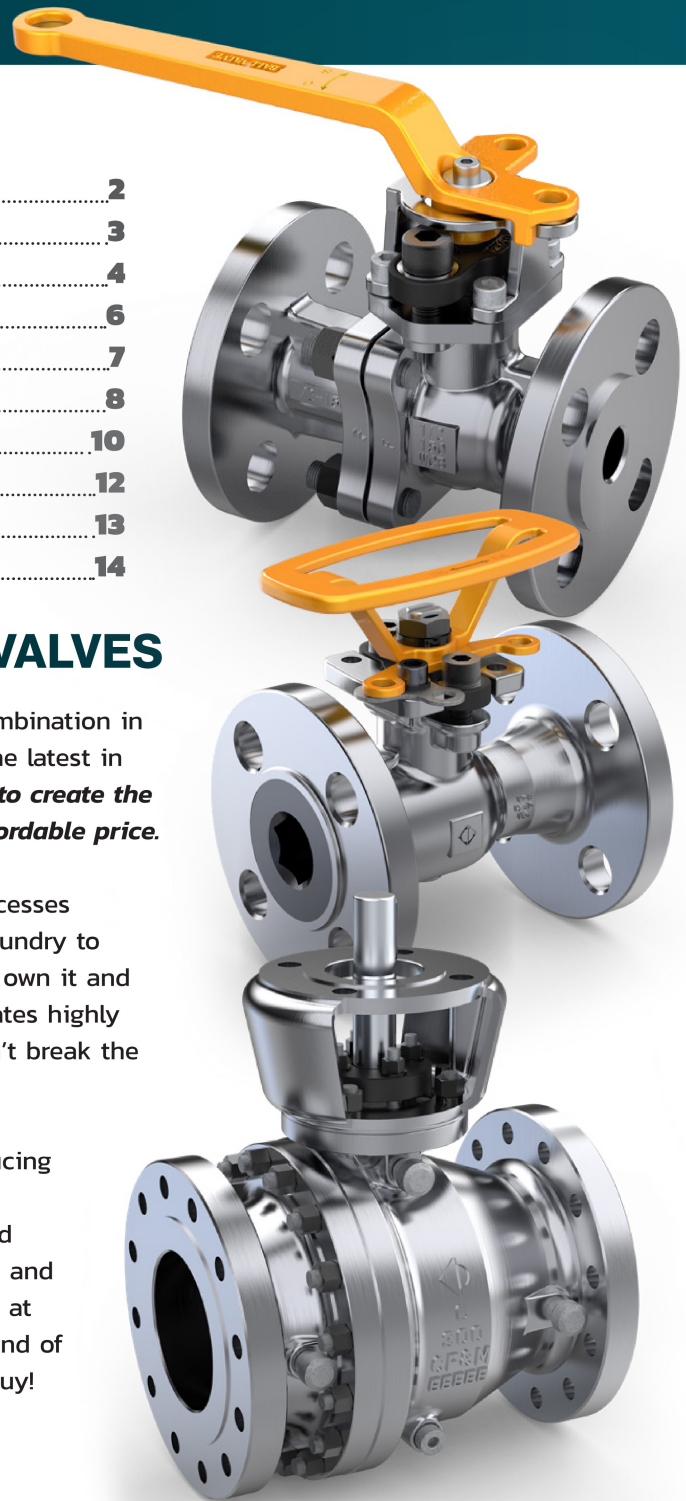
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## CHAODA'S SOFT SEATED BALL VALVES

*The Chaoda Group* is proud to be able to offer a unique combination in the Soft Seated Ball Valve industry – field proven designs, the latest in processing technology, and high efficiency manufacturing – **to create the highest quality Soft Seated Ball Valve at an extremely affordable price.**

We are a fully integrated manufacturer owning all of the processes required to produce these valves. From the design to the foundry to the machining and processing to the assembly and test, we own it and control it. This streamlined, tightly controlled system generates highly consistent product tailored to your needs at a cost that won't break the budget.

Since 1984, The Chaoda Group has been committed to producing high quality valves for industry at a competitive price. Consistency in ownership has kept this strategy on track and maintained a philosophy of ongoing investment in Research and Development as well as manufacturing efficiencies all aimed at staying ahead of the competition. The result is ultimate blend of high quality Soft Seated Ball Valves that you can afford to buy!



## INDUSTRIES WE SERVE





# SPECIFICATIONS

We are committed to product safety and quality.

We conform to the following standards, as applicable:

API	AMERICAN PETROLEUM INSTITUTE
SPEC. 6D	Specification for Pipeline Valves
STD. 6FA	Fire Test for Valves
STD. 607	Fire Test for Quarter-turn Valves and Valves Equipped with Nonmetallic Seats
STD. 608	Metal Ball Valves - Flanged, Threaded, and Welding Ends
STD. 598	Valve Inspection and Testing
SPEC. Q1	QMS Requirements for Manufacturing Organizations for the Petroleum and Natural Gas Industry

ANSI / ASME	AMERICAN NATIONAL STANDARD INSTITUTE / AMERICAN SOCIETY OF MECHANICAL ENGINEERS
B1.20.1	Pipe threads, general purpose
B16.5	Pipe flanges & flange fittings
B16.10	Face-to-Face & End-to-End dimensions of Valves
B16.34	Valves - Flanged, Threaded, and Welding End
B31.3	Process Piping

NACE	NATIONAL ASSOCIATION OF CORROSION ENGINEERS
MR0175	Materials for use in H <sub>2</sub> S containing environments in oil & gas production
MR0103	Metallic materials resistant to sulfide stress cracking in corrosive petroleum refining environments

CSA	CANADIAN STANDARDS ASSOCIATION
Z245.12	Steel Flanges
Z245.15	Steel Valves
Z662	Oil and Gas Pipeline Systems

CRN	PROVINCE	CRN	PROVINCE	CRN	PROVINCE
OC16847.2	Alberta	OC16847.20	Newfoundland	CSA OC16847.26	Quebec
Exempt	British Columbia	OC16847.2T	Northwest Territories	OC16847.2Y	Yukon
OC16847.24	Manitoba	OC16847.28	Nova Scotia	CSA OC16847.26	Saskatchewan
OC16847.2N	Nunavut	OC18995.5	Ontario		
OC16847.27	New Brunswick	OC16847.29	Prince Edward Island		

## SOME MATERIAL OPTIONS

Chaoda offers our Soft Seated Ball Valves in a variety of material options ensuring optimal performance in virtually any operating environment.

PART NAME	BILL OF MATERIALS
Body/End Connection	Forged or Cast Carbon Steels; Stainless Steels; Duplex, Chrome, and Nickel Alloys
Ball	A182 F6a; 316 SS; Duplex Alloys; Inconel™ and other Nickel Alloys
Body Seal	S/S and Graphite, PTFE and Graphite
Seal	PTFE, RPTFE, DEVLON, PEEK
Trunnion Seat Springs	17-4 PH SS; Inconel™ X750
Stem	A182 F6a; 316 SS; 17-4 PH SS; XM-19; Inconel™ 718
Stem Packing	Graphite, PTFE

Other material options available. Please consult factory.



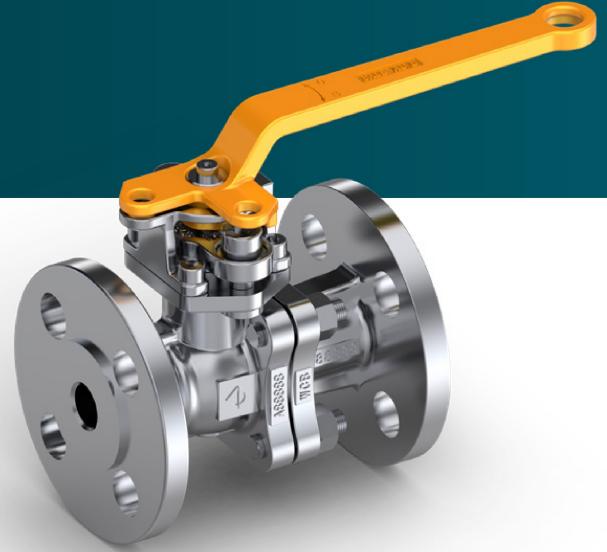
# FLOATING SOFT SEATED BALL VALVE

## A Powerhouse For Any Industry

*Employing the latest in processing technology and manufacturing automation, Chaoda offers high quality Soft Seated ball valves for all industrial service conditions.*

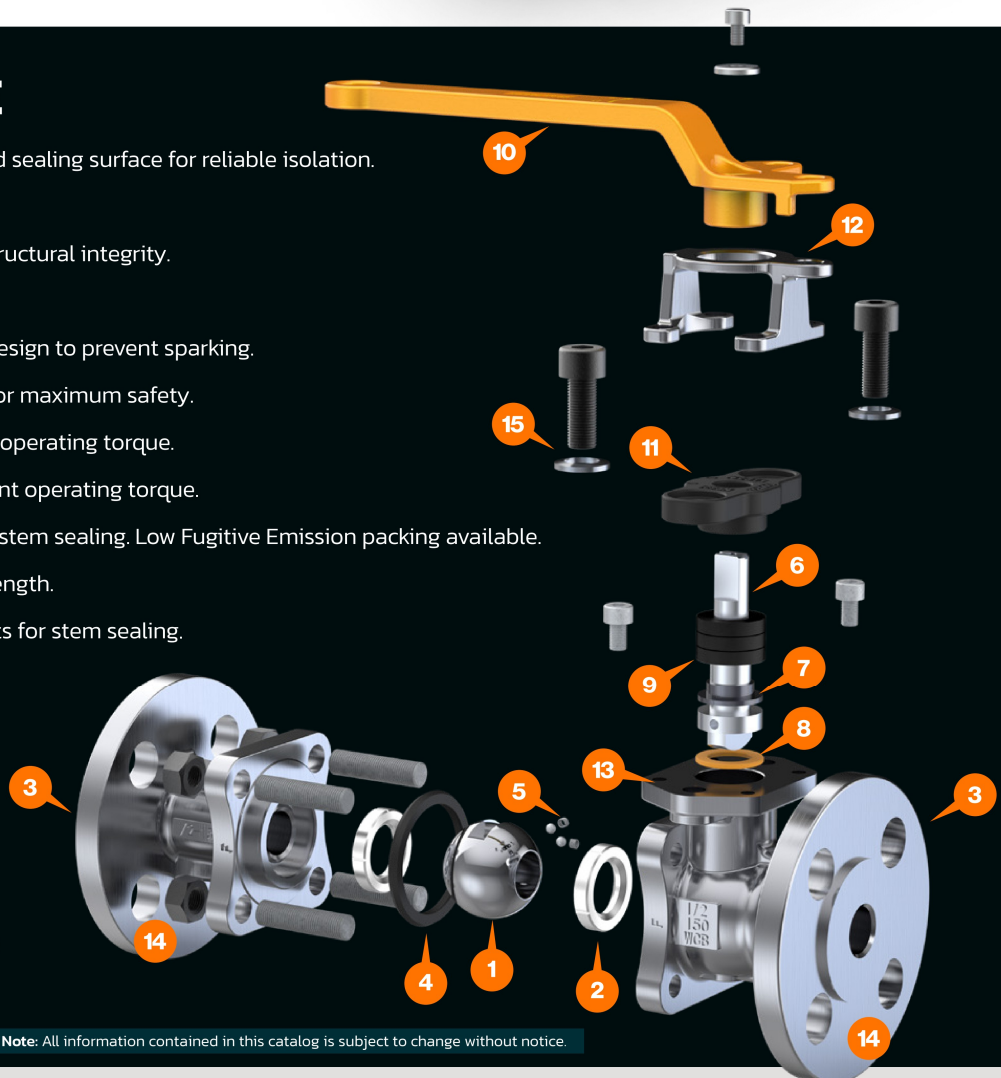
Chaoda offers a broad range of soft seat materials designed for optimal performance in many applications. Whether it is our standard permeation resistant modified copolymer seat material or some other application specific material, our flawless execution in machining and assembly make Chaoda valves the most dependable sealing Soft Seated ball valve available – at an affordable price!

**Let Chaoda be your ball valve of choice, today and every day!**



## TAKE A LOOK INSIDE

1. **Precision Machined Ball** - Maximized sealing surface for reliable isolation.
2. **Soft Seat Rings** - For a perfect seal.
3. **Two-Piece Body Design** - Provides structural integrity.
4. **Body Seal** - For a leak-tight joint.
5. **Dual Grounding Device** - Antistatic design to prevent sparking.
6. **Blowout Proof Stem** - High strength for maximum safety.
7. **Stem Guide** - Helps ensure consistent operating torque.
8. **Stem Bushing** - Helps ensure consistent operating torque.
9. **Stem Packing** - Provides for excellent stem sealing. Low Fugitive Emission packing available.
10. **Cast Steel Handle** - For maximum strength.
11. **Packing Gland** - Provides adjustments for stem sealing.
12. **Locking Device** - For security when needed.
13. **ISO Mounting Dimensions** - Standardized to fit most actuation mounting.
14. **End Connections** - Flanges shown, other designs available.
15. **Live-loaded Gland With Belleville Spring** - Provides long service life with very low maintenance.



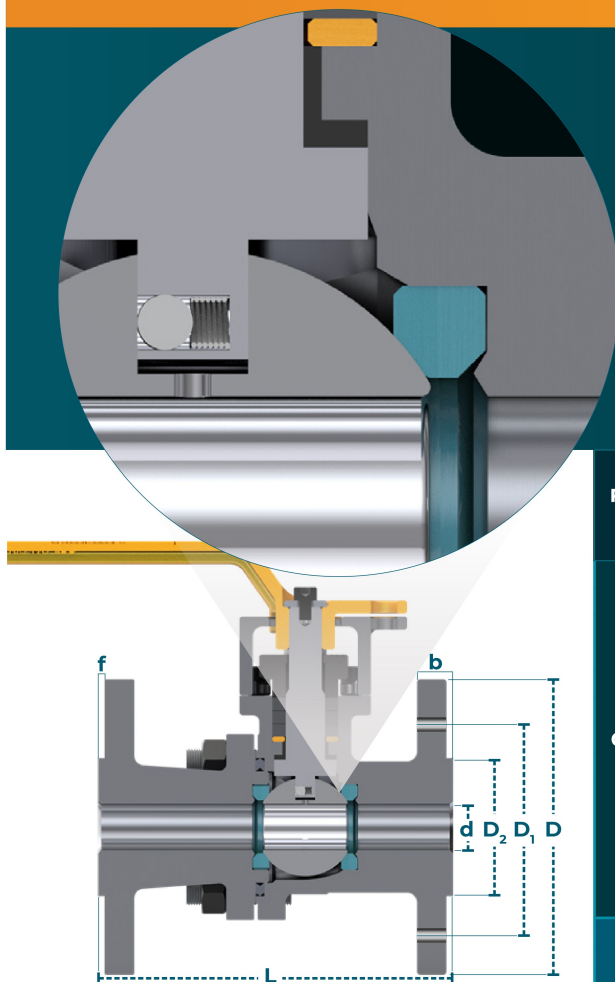
Note: All information contained in this catalog is subject to change without notice.



# FLOATING SOFT SEATED BALL VALVE

A unique technique has been employed for the ball grinding, which makes the ball surface reach a perfect roundness. This makes the ball and seat seal exceed the standard requirements.

*Each valve is factory acceptance tested per API 598. Partial sizes shown. Other sizes and classes available as standard.*



**ASME B16.10 Face to Face | API 608 | API 607 | NACE | Cryogenic Options Available**

SIZE		TORQUE VALUE (IN.LB)		
		CL150	CL300	CL600
DN	NPS			
15	½	62	89	150
20	¾	89	133	212
25	1	124	177	310
32	1¼	159	266	443
40	1½	221	354	602
50	2	354	531	885
65	2½	487	752	1239
80	3	708	1062	1859
100	4	1062	1593	3098
125	5	1770	2655	-
150	6	3363	5133	-
200	8	5487	8408	-

PRESSURE CLASS	SIZE		DIMENSIONS (IN)								WEIGHT (LB)	
			L		d	D	D <sub>1</sub>	D <sub>2</sub>	b	f		
	DN	NPS	RF	RTJ							LEVER	GEAR
CLASS 150	15	½	4.25	4.69	0.55	3.50	2.38	1.38	0.45	0.06	7	-
	20	¾	4.61	5.12	0.75	3.86	2.76	1.69	0.45	0.06	9	-
	25	1	5.00	5.51	0.98	4.25	3.13	2.01	0.45	0.06	11	-
	32	1¼	5.51	6.02	1.26	4.61	3.50	2.52	0.51	0.06	15	-
	40	1½	6.50	7.01	1.50	5.00	3.88	2.87	0.57	0.06	18	-
	50	2	7.01	7.52	2.01	5.98	4.74	3.62	0.63	0.06	26	-
	65	2½	7.48	7.99	2.52	7.36	5.49	4.13	0.69	0.06	40	-
	80	3	7.99	8.50	2.99	7.48	6.00	5.00	0.77	0.06	53	-
	100	4	9.02	9.53	4.02	9.02	7.50	6.18	0.94	0.06	84	117
	125	5	14.02	14.53	5.00	10.00	8.50	7.32	0.94	0.06	132	174
	150	6	15.51	16.02	5.98	10.98	9.51	8.50	1.00	0.06	181	225
CLASS 300	200	8	17.99	18.50	7.99	13.50	11.75	10.63	1.14	0.06	320	408
	250	10	20.98	21.50	10.00	15.98	14.25	12.76	1.22	0.06	-	617
	15	½	5.51	5.94	0.55	3.74	2.62	1.38	0.57	0.06	7	-
	20	¾	5.98	6.50	0.75	4.61	3.25	1.69	0.63	0.06	11	-
	25	1	6.50	7.01	0.98	4.88	3.50	2.01	0.69	0.06	13	-
	32	1¼	7.01	7.52	1.26	5.24	3.88	2.52	0.77	0.06	18	-
	40	1½	7.48	7.99	1.50	6.14	4.51	2.87	0.83	0.06	24	-
	50	2	8.50	9.13	2.01	6.50	5.00	3.62	0.89	0.06	35	-
	65	2½	9.49	10.12	2.52	7.48	5.87	4.13	1.00	0.06	53	-
	80	3	11.14	11.77	2.99	8.27	6.63	5.00	1.14	0.06	75	115
	100	4	12.01	12.64	4.02	10.00	7.87	6.18	1.26	0.06	123	168
CLASS 600	125	5	15.00	15.63	5.00	10.98	9.25	7.32	1.38	0.06	190	273
	150	6	15.87	16.50	5.98	12.52	10.63	8.50	1.46	0.06	276	359
	200	8	19.76	20.39	7.99	15.00	12.99	10.63	1.63	0.06	489	589
	15	½	6.50	6.46	0.55	3.74	2.62	1.38	0.57	0.25	11	-
	20	¾	7.48	7.48	0.75	4.65	3.25	1.69	0.63	0.25	15	-
	25	1	8.50	8.50	0.98	4.88	3.50	2.01	0.69	0.25	20	-
	32	1¼	9.02	9.02	1.26	5.24	3.88	2.52	0.83	0.25	29	-
	40	1½	9.49	9.49	1.50	6.14	4.51	2.87	0.89	0.25	37	-
	50	2	11.50	11.61	2.01	6.50	5.00	3.62	1.00	0.25	55	-
	65	2½	12.99	13.11	2.52	7.48	5.87	4.13	1.14	0.25	93	-
	80	3	14.02	14.13	2.99	8.27	6.61	5.00	1.26	0.25	123	168
CLASS 900	100	4	17.01	17.13	4.02	10.75	8.50	6.18	1.52	0.25	187	271
	15	½	8.50	8.50	0.55	4.76	3.25	1.38	0.89	0.25	20	-
	20	¾	9.02	9.02	0.79	5.12	3.50	1.69	1.00	0.25	29	-
	25	1	10.00	10.00	0.98	5.87	4.00	2.01	1.14	0.25	35	-
	32	1¼	10.98	10.98	1.26	6.26	4.37	2.52	1.14	0.25	53	-
	40	1½	12.01	12.01	1.50	7.01	4.87	2.87	1.26	0.25	68	-
	50	2	14.49	14.61	1.97	8.50	6.15	3.62	1.52	0.25	99	-
	15	½	8.50	8.50	0.55	4.76	3.25	1.38	0.89	0.25	22	-
	20	¾	9.02	9.02	0.79	5.12	3.50	1.69	1.00	0.25	31	-
	25	1	10.00	10.00	0.98	5.87	4.00	2.01	1.14	0.25	37	-
	32	1¼	10.98	10.98	1.26	6.26	4.37	2.52	1.14	0.25	55	-
CLASS 1500	40	1½	12.01	12.01	1.50	7.01	4.87	2.87	1.26	0.25	73	-
	50	2	14.49	14.61	1.97	8.50	6.15	3.62	1.52	0.25	106	-

*Partial sizes shown. Other sizes available as standard.*

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# UNIBODY SOFT SEATED BALL VALVE

## Advanced Leak Prevention

*The Chaoda USA unibody flanged end ball valves are constructed from castings & forgings that are machined to exact specifications. Unibody construction minimizes external leak paths and provides for sturdy containment. Built in accordance with API standard 608.*

Whether it is our standard, or some other application specific, seat material and configuration, our flawless execution in machining and assembly make Chaoda valves the most dependable Soft Seated ball valves available – at an affordable price!

**Let Chaoda be your ball valve of choice, today and every day!**



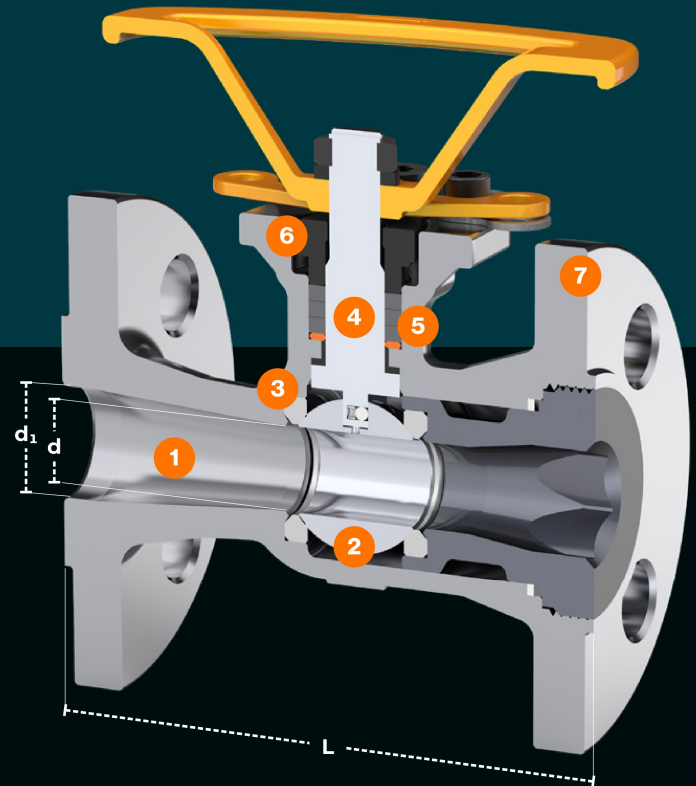
CLASS 150							
(IN)	3/4"	1"	1-1/2"	2"	3"	4"	6"
d	0.47	0.67	1.06	1.46	2.2	2.95	3.94
d <sub>1</sub>	0.75	0.98	1.5	2.01	2.99	4.02	5.98
L	4.61	5	6.5	7.01	7.99	9.02	10.51
Weight (lb)	7	9	13	18	33	64	119

CLASS 300							
(IN)	3/4"	1"	1-1/2"	2"	3"	4"	6"
d	0.47	0.67	1.06	1.46	2.2	2.95	3.94
d <sub>1</sub>	0.75	0.98	1.5	2.01	2.99	4.02	5.98
L	5.98	6.5	7.48	8.5	11.1	12.01	15.87
Weight (lb)	9	11	20	24	49	88	179

## TAKE A LOOK INSIDE

- Body** – Single piece body provides structural integrity.
- Precision Machined Ball** – Maximized sealing surface for reliable isolation.
- Soft Seat Rings** – For a perfect seal.
- Stem** – High strength for maximum safety.
- Stem Packing** – Provides for excellent stem sealing.
- Packing Gland and Follower** – Provides adjustments for stem sealing ability.
- End Connections** – Flanges shown, other designs available.



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# TRUNNION SOFT SEATED BALL VALVE

## For When Isolation Gets Tough

*In applications where operating torque matters, our trunnion ball valves are the answer. Thanks to the trunnion-supported ball, turning open and closed is a breeze.*

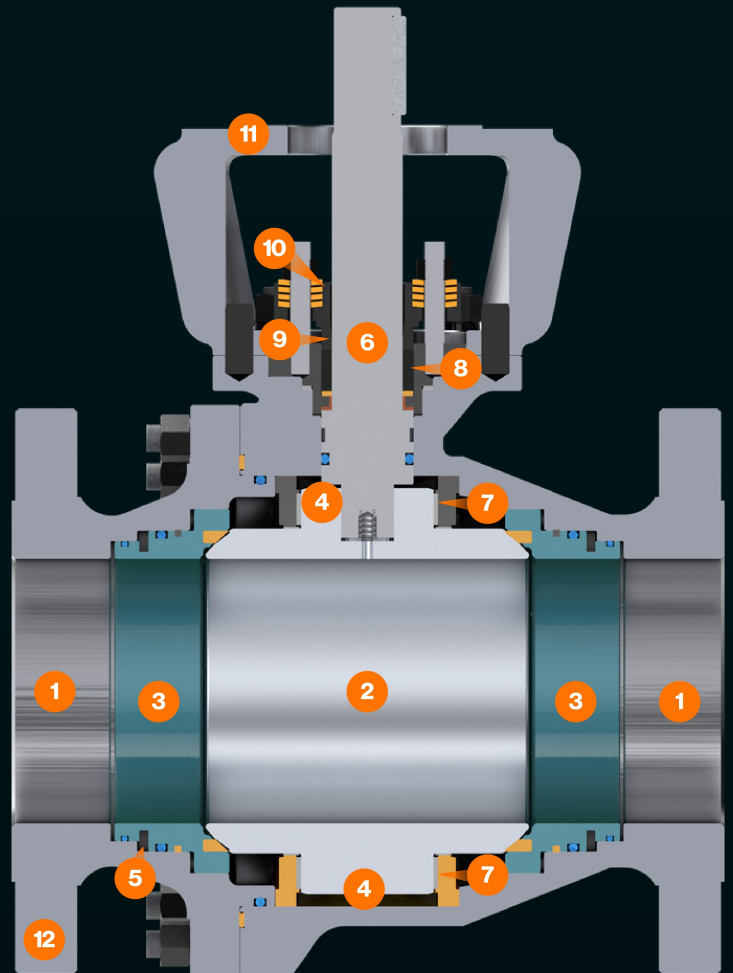
Whether it is temperature, pressure, or critical isolation driven, Chaoda offers a broad range of seat materials designed for optimal performance. Seat and Spring designs suitable for either Double Block and Bleed or Double Piston Effect help offer the right solution for a variety of isolation challenges. Whether it is our standard, or some other application specific, seat material and configuration, our flawless execution in machining and assembly make Chaoda valves the most dependable Soft Seated ball valves available – at an affordable price!



**Let Chaoda be your ball valve of choice, today and every day!**

## TAKE A LOOK INSIDE

1. **Body** - Provides structural integrity.
2. **Precision Machined Ball** - Maximized sealing surface for reliable isolation.
3. **Machined Seat Rings With Soft Insert** - For a perfect seal.
4. **Body and Trunnion Seal** - For ball support and pressure integrity.
5. **Seat Springs** - For consistent loading of ball to seat interface.
6. **Stem** - High strength for maximum safety.
7. **Trunnion Bushings** - Helps ensure consistent operating torque.
8. **Stem Packing** - Provides for excellent stem sealing. Low Fugitive Emission packing available.
9. **Packing Gland and Follower** - Provides adjustments for stem sealing ability.
10. **Live-loaded Gland with Belleville Spring** - Provides long service life with very low maintenance.
11. **ISO Mounting Dimensions** - Standardized to fit most actuation mounting.
12. **End Connections** - Flanges shown, other designs available.



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## DESIGN FEATURES

Our ball valves come with several features that allow for easier operation and maintenance.

### > API 607 Fire Safe Design

Chaoda Ball valves have been tested and successfully passed the rigorous fire-safe test.

### > Live Loaded Adjustable Packing Design

Provides a long service life with very low maintenance.

### > API 641 Low Fugitive Emission Packing

Optional: Provides significant Health, Safety and Environmental benefits.

### > ISO Mounting Flange

Standardized to fit most actuation mounting.

### > Antistatic Device\*

A stainless steel grounding plunger between the body/stem and stem/ ball permits electrical continuity.

\*2"-4" bore antistatic accomplished through trunnion bearing.

### > Lubricant/Emergency Seat Seal

Special sealants may be injected into fittings that are located on the adapter flanges to restore sealing integrity if seat sealing surface is damaged.

### > Emergency Sealant Injection System

The sealant injection system located on the body can be utilized in case of emergencies, o-ring damage, or if stem leakage occurs. A secondary check valve is installed under the sealant injection fitting to ensure the safety.

### > Double Sealed Envelope Connections

A combination of an o-ring and firesafe gasket ensures a positive seal.

### > Body/Adapter Seal Connection

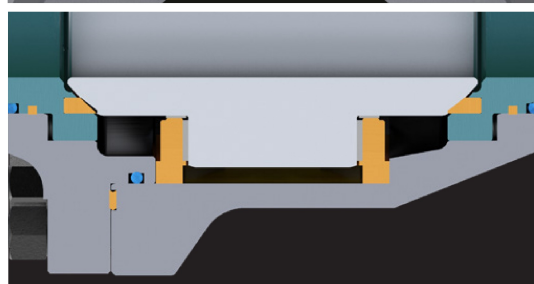
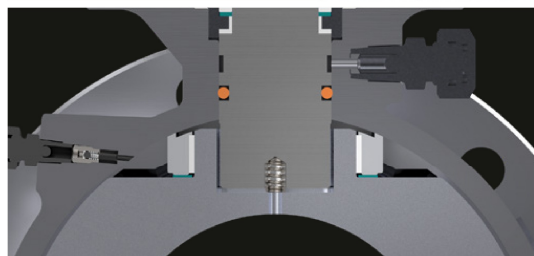
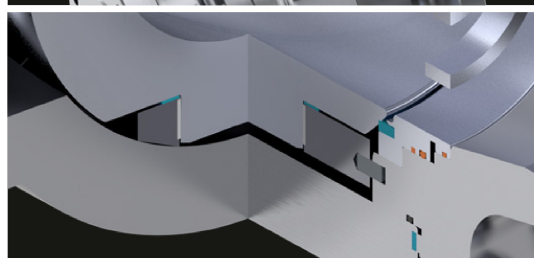
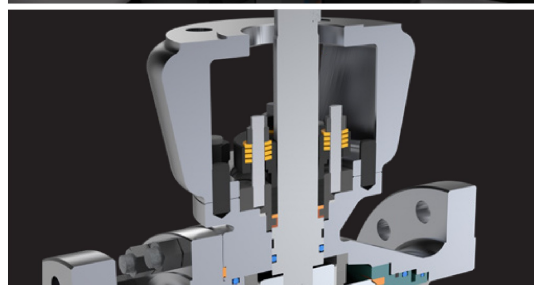
An o-ring on this connection ensures a positive seal.

### > Heavy Duty Bearings

Heavy duty bearings balance the pressure load on the ball by reducing friction between ball and seat resulting in smooth and easy operation of valve.

### > Internal Trunnion Plate Design

Reduce possible leakage path. For size 4" and above.



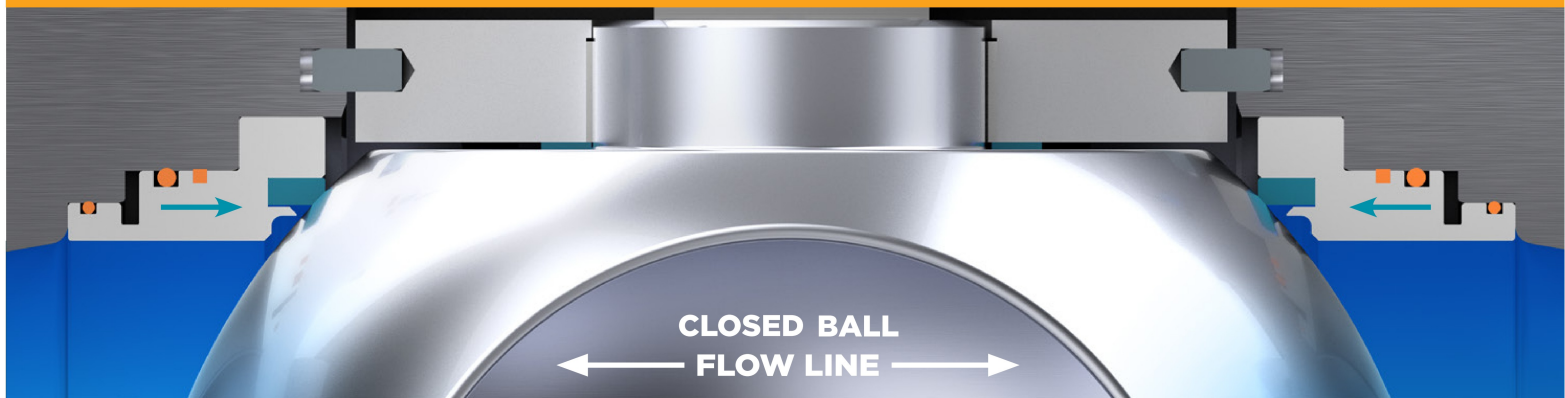


## TECHNICAL SEATING FEATURES

Chaoda's soft-seated trunnion ball valve is designed with the following standard features for cavity draining and pressure relief.

### Double Block and Bleed

The double block and bleed condition is available in all seat design configurations. When the ball is in the closed position the body cavity pressure may be drained down to 'zero' by opening the bleed valve and draining the fluid by removing the drain plug. Each seat works independently assuring tight shut off seal against ball on the upstream and downstream side.



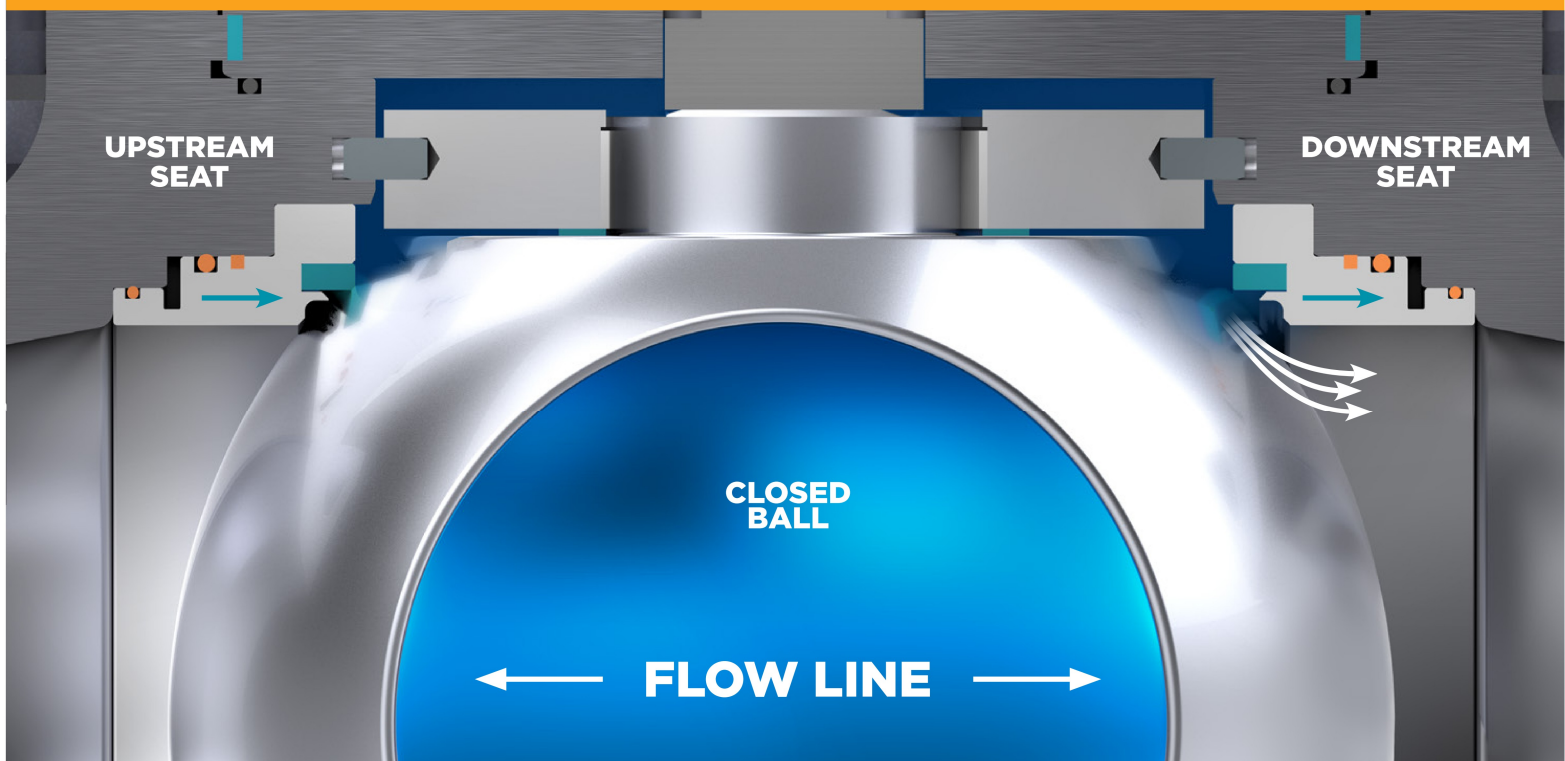
### Self Relieving Seat Design

#### Upstream Seat

The difference in the area is multiplied by the line pressure which forces the seat against the ball surface. Also the springs behind the seat adds the force to the seat which keeps the seat in contact with the ball surface which provides the tight seal.

#### Downstream Seat

When the body cavity pressure exceeds the spring pressure, automatic pressure relief will occur by relieving the body cavity pressure past the downstream seat. This eliminates the need for the body relief valve.



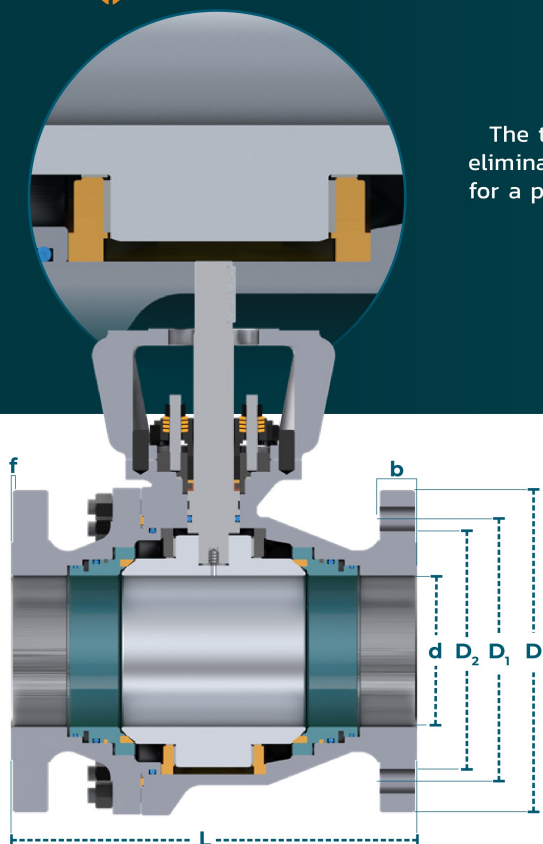


## TRUNNION MOUNTED

The trunnion support structure maintains the ball position in the center of the body, eliminating seating side loads due to pressure. The pivot point guides the ball with ease for a perfect seal. Trunnion support together with pressure assisted seats ensure reliable sealing with lower operating torques.

*Each valve is factory acceptance tested per API 598.*

*Partial sizes shown. Other sizes and classes available as standard.*



**ASME B16.10 Face to Face | API 16.5 Flange**  
**API 607 | API 608 | NACE**  
**Cryogenic Options Available**

PRESSURE CLASS	SIZE		DIMENSIONS (IN)								WEIGHT (LB)	
			L		d	D	D <sub>1</sub>	D <sub>2</sub>	b	f		
	DN	NPS										RF
CLASS 150	100	4	9.02	12.01	4.02	0.09	7.50	6.18	0.94	0.06	132	
	125	5	14.02	15.00	5.00	10.00	8.50	7.32	0.94	0.06	176	
	150	6	15.51	17.99	5.98	10.98	9.51	8.50	1.00	0.06	223	
	200	8	17.99	20.51	7.99	13.50	11.75	10.63	1.14	0.06	366	
	250	10	20.98	22.01	10.00	15.98	14.25	12.76	1.22	0.06	624	
	300	12	24.02	25.00	12.01	19.02	17.01	15.00	1.26	0.06	1021	
	350	14	27.01	30.00	13.27	20.98	18.74	16.26	1.38	0.06	1371	
	400	16	30.00	32.99	15.24	23.50	21.26	18.50	1.46	0.06	1984	
	450	18	34.02	35.98	17.24	25.00	22.76	20.98	1.57	0.06	2535	
	500	20	35.98	39.02	19.25	27.52	25.00	22.99	1.69	0.06	2998	
	600	24	42.01	45.00	23.27	32.01	29.51	27.24	1.89	0.06	5542	
	650	26	45.00	49.02	24.92	30.94	29.31	27.99	1.57	0.06	7055	
	700	28	49.02	52.99	26.93	32.95	31.32	30.00	1.69	0.06	8818	
	750	30	50.98	55.00	28.94	34.92	33.31	32.01	1.69	0.06	10582	
	800	32	54.02	60.00	30.67	37.05	35.43	34.02	1.73	0.06	12787	
	900	36	60.00	67.99	34.41	41.61	39.74	38.27	2.01	0.06	17637	
	1000	40	74.80	72.44	38.43	46.26	44.11	42.52	2.20	0.06	21605	
	1050	42	80.71	77.17	40.16	48.27	46.12	44.49	2.32	0.06	24251	
1200	48	85.83	82.68	45.91	54.80	52.56	50.75	2.56	0.06	30865		
CLASS 300	100	4	12.01	12.01	4.02	0.10	7.87	6.18	1.26	0.06	154	
	125	5	15.00	15.00	5.00	10.98	9.25	7.32	1.38	0.06	209	
	150	6	15.87	17.99	5.98	12.52	10.63	8.50	1.46	0.06	282	
	200	8	19.76	20.51	7.99	15.00	12.99	10.63	1.63	0.06	516	
	250	10	22.36	22.01	10.00	17.52	15.26	12.76	1.89	0.06	888	
	300	12	25.51	25.00	12.01	20.51	17.76	15.00	2.01	0.06	1327	
	350	14	30.00	30.00	13.27	22.99	20.26	16.26	2.13	0.06	1770	
	400	16	32.99	32.99	15.24	25.51	22.50	18.50	2.28	0.06	2806	
	450	18	35.98	35.98	17.24	27.99	24.74	20.98	2.40	0.06	3197	
	500	20	39.02	39.02	19.25	30.51	27.01	22.99	2.52	0.06	3748	
	600	24	45.00	45.00	23.27	35.98	32.01	27.24	2.76	0.06	6834	
	650	26	49.02	49.02	24.92	34.13	31.63	29.02	3.43	0.06	9921	
	700	28	52.99	52.99	26.93	36.26	33.74	30.98	3.43	0.06	13228	
	750	30	55.00	55.00	28.94	39.02	36.26	33.27	3.62	0.06	16535	
	800	32	60.00	60.00	30.67	41.50	38.50	35.51	4.02	0.06	19842	
	900	36	67.99	67.99	34.41	46.14	42.87	39.76	4.02	0.06	26455	
	CLASS 600	50	2	11.50	11.50	2.01	6.50	5.00	3.62	1.02	0.25	71
		65	2.5	12.99	12.99	2.52	7.48	5.87	4.13	1.14	0.25	104
80		3	14.02	14.02	2.99	8.27	6.61	5.00	1.26	0.25	150	
100		4	17.01	17.01	4.02	10.75	8.50	6.18	1.50	0.25	234	
125		5	20.00	20.00	5.00	12.99	10.49	7.32	1.77	0.25	375	
150		6	22.01	22.01	5.98	14.02	11.50	8.50	1.89	0.25	531	
200		8	25.98	25.98	7.99	16.50	13.74	10.63	2.20	0.25	979	
250		10	30.98	30.98	10.00	20.00	17.01	12.76	2.52	0.25	1473	
300		12	32.99	32.99	12.01	22.01	19.25	15.00	2.64	0.25	2315	
350		14	35.00	35.00	13.15	23.74	20.75	16.26	2.76	0.25	2903	
400		16	39.02	39.02	15.16	27.01	23.74	18.50	3.03	0.25	3968	
450		18	42.99	42.99	17.17	29.25	25.75	20.98	3.27	0.25	5291	
500		20	47.01	47.01	19.17	32.01	28.50	22.99	3.50	0.25	6614	
600		24	55.00	55.00	23.19	37.01	32.99	27.24	4.02	0.25	11905	

Note: All information contained in this catalog is subject to change without notice.



PRESSURE CLASS	SIZE		DIMENSIONS (IN)								WEIGHT (LB)
			L		d	D	D <sub>1</sub>	D <sub>2</sub>	b	f	
	DN	NPS	RF	BW							
CLASS 900	50	2	14.49	14.49	2.01	8.50	6.50	3.62	1.52	0.25	99
	65	2½	16.50	16.50	2.52	9.61	7.50	4.13	1.63	0.25	121
	80	3	15.00	15.00	2.99	9.49	7.50	5.00	1.52	0.25	207
	100	4	17.99	17.99	4.02	11.50	9.25	6.18	1.75	0.25	311
	125	5	22.01	22.01	5.00	13.74	11.00	7.32	2.01	0.25	507
	150	6	24.02	24.02	5.98	15.00	12.50	8.50	2.20	0.25	717
	200	8	29.02	29.02	7.99	18.50	15.50	10.63	2.50	0.25	1279
	250	10	32.99	32.99	10.00	21.46	18.50	12.76	2.76	0.25	1874
	300	12	37.99	37.99	12.01	24.02	21.00	15.00	3.13	0.25	2932
	350	14	40.51	40.51	12.68	25.20	22.00	16.26	3.39	0.25	3660
	400	16	44.49	44.49	14.69	27.76	24.25	18.50	3.50	0.25	5027
CLASS 1500	40	1.5	12.01	12.01	1.50	7.01	4.87	6.81	1.26	0.25	97
	50	2	14.49	14.49	2.01	8.50	6.50	3.62	1.52	0.25	148
	65	2.5	16.50	16.50	2.52	9.61	7.50	4.13	1.63	0.25	176
	80	3	18.50	18.50	2.99	10.51	8.00	5.00	1.89	0.25	287
	100	4	21.50	21.50	4.02	12.24	9.50	6.18	2.13	0.25	423
	125	5	26.50	26.50	4.92	14.76	11.50	7.32	2.89	0.25	739
	150	6	27.76	27.76	5.67	15.51	12.50	8.50	3.27	0.25	1047
	200	8	32.76	32.76	7.56	19.02	15.50	10.63	3.62	0.25	1808
	250	10	39.02	39.02	9.41	23.03	19.00	12.76	4.25	0.25	2910
	300	12	44.49	44.49	11.30	26.57	22.50	15.00	4.88	0.25	4519
CLASS 2500	40	1.5	15.12	15.12	1.50	7.99	5.75	2.87	1.75	0.25	159
	50	2	17.76	17.76	1.65	9.25	6.75	3.62	2.01	0.25	229
	65	2.5	20.00	20.00	2.05	10.51	7.75	4.13	2.26	0.25	309
	80	3	22.76	22.76	2.44	12.01	9.00	5.00	2.64	0.25	445
	100	4	26.50	26.50	3.43	14.02	10.75	6.18	3.01	0.25	672
	125	5	31.26	31.26	3.94	16.50	12.75	7.32	3.64	0.25	1168
	150	6	35.98	35.98	5.16	19.02	14.50	8.50	4.25	0.25	1676
	200	8	40.24	40.24	7.05	21.65	17.25	10.63	5.00	0.25	2646
	250	10	50.00	50.00	8.78	26.57	21.25	12.76	6.52	0.25	4586

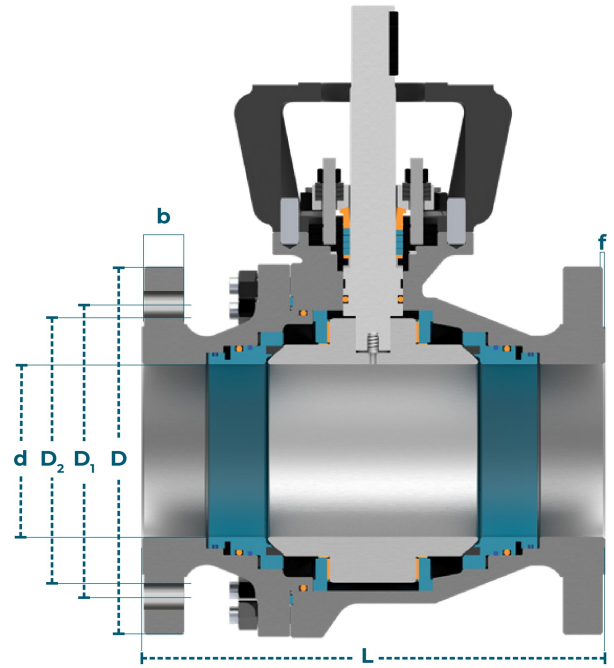
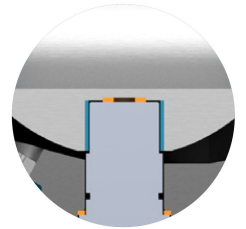
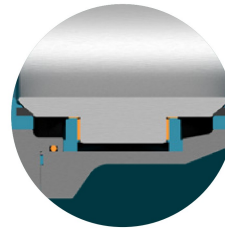


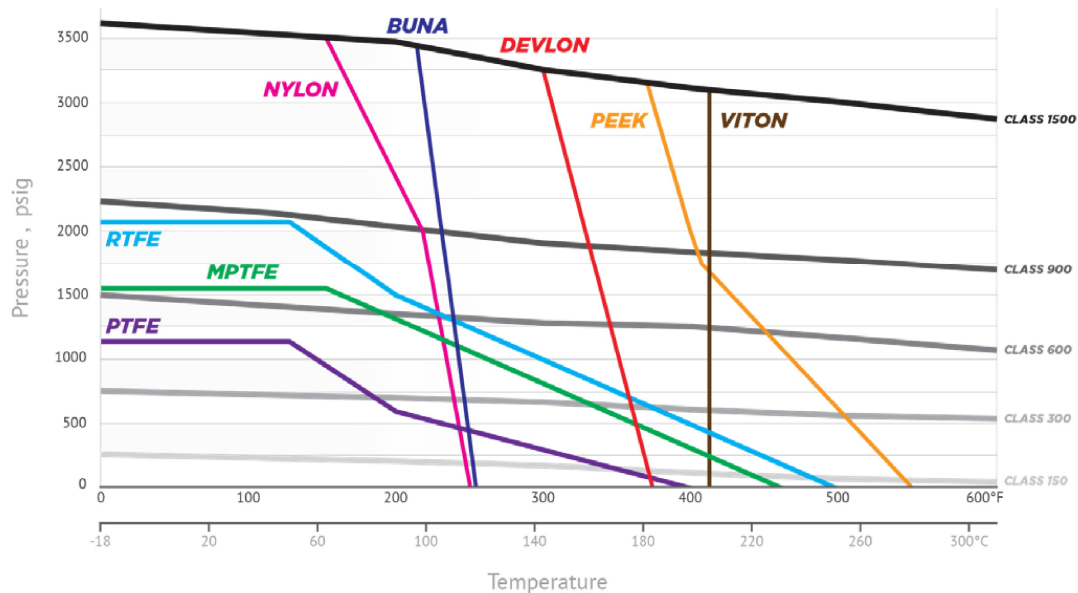
Plate Design

Post Design



All designs, materials and specifications are subject to change without notice. Dimensions shown are full port "long pattern" design. Internal Trunnion plate Design for size 4" and above.

## PRESSURE & TEMPERATURE RATINGS FOR FLOATING AND TRUNNION MOUNTED DESIGNS



Note: All information contained in this catalog is subject to change without notice.

# OUR SERVICES

## A wide array available

*When valves are used in critical applications with potentially hazardous media, it is very important that equipment go through proper cleaning to ensure it is safe to use in its intended service. Chaoda can offer you peace of mind, knowing that every valve is cleaned and thoroughly double checked following all required standards and specifications.*



### > Chlorine Cleaned

- Pamphlet 6 – Piping Systems for Dry Chlorine
- Chaoda internal specifications
- End user specifications

### > Oxygen Cleaned

- ASTM G93 --Standard Guide for Cleanliness Levels and Cleaning Methods for Materials and Equipment Used in Oxygen-Enriched Environments
- CGA G-4.1 Cleaning Equipment for Oxygen Service
- MSS SP-138-2009 Quality Standard for Oxygen Cleaning of Valves & Fittings
- Chaoda internal specifications
- End user specifications

### > Phosgene Cleaned

- Chaoda internal specifications
- End user specifications

### > Spare Parts Available

- O-ring
- Spiral Wound Gasket
- Packing-Graphite, PTFE, API 622 FE Packing
- Seat-PTFE, RPTFE, Nylon, PEEK, Devlon, Delrin





# OTHER LITERATURE

## Interested in more products?

*Chaoda offers a wide variety of valves, soft-seated ball valves included. Please ask our sales staff for any of the below brochures and catalogs if you are interested in learning more about any of our other products.*



*Chaoda manufactures a wide range of products, including a full line of API 6D Trunnion Ball Valves. Consistency in ownership has kept Chaoda on track and maintained a philosophy of ongoing investment in Research and Development, as well as manufacturing efficiencies all aimed at staying ahead of the competition. For more information, please see our API 6D Trunnion Ball Valve catalog.*



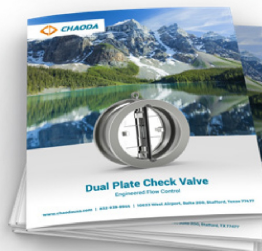
*For a safe, efficient and reliable pigging operation, Chaoda offers our uniquely designed pigging ball valve. We manufacture 3" through 20" class 150 through 1500. For more information, please reference our pig valve catalog.*



*Chaoda offers an instrument ball valve with various end connections and materials. Please see the instrument ball valve catalog for more information.*



*Chaoda offers a unique combination in the Metal Seated Ball Valve industry – field proven designs, the latest in processing technology, and high efficiency manufacturing – to create the highest quality Metal Seated Ball Valve at an extremely affordable price. For more information, please reference our metal seated ball valve catalog.*



*Chaoda offers a full line of API 594 dual plate check valves. For more information, please see our dual plate check valve catalog.*



*Chaoda is proud to be able to offer a an industry-leading gate, globe and check valve product line. With modern designs, exotic alloy capabilities and the latest in fugitive emissions technology, we are able to manufacture a high quality gate, globe and check valve. For more information, please reference our GGC valve catalog.*



## PRESSURE CLASS

**1** = ASME Class 150  
**3** = ASME Class 300  
**6** = ASME Class 600  
**9** = ASME Class 900  
**15** = ASME Class 1500  
**25** = ASME Class 2500

## BODY / BONNET CONFIGURATION

**CR** = Cryogenic Bonnet  
**SP** = Short Pattern (ASME B16.10)  
**L2** = L-Port, 2-Seat Design  
**T2** = T-Port, 2-Seat Design  
**L4** = L-Port, 4-Seat Design  
**T4** = T-Port, 4-Seat Design

## VALVE SIZE

NPS 2 - NPS 48

## BODY MATERIAL

See Below

NPS 2

1

BF2

CR

FP

RF

CF8M

A

**BF2** = BF2 Series 2 Piece Body Floating Ball Valve, Soft-Seated  
**BFU** = BFU Series Unibody Floating Ball Valve, Soft-Seated  
**BFW** = BFW Series Split Body Multiport Floating Ball Valve, Soft-Seated  
**BT2** = BT2 Series 2 Piece Trunnion Ball Valve, Soft-Seated, Packing Design  
**BT3** = BT3 Series 3 Piece Trunnion Ball Valve, Soft-Seated, Packing Design

**FP** = Full Port  
**RP** = Reduced Port

## PORT SIZE

**RF** = Raised Face  
**RFA** = Raised Face Series A  
**RFB** = Raised Face Series B  
**RTJ** = Ring Type Joint  
**RTA** = RTJ Series A  
**RTB** = RTJ Series B  
**BW###** = Buttweld (advise schedule)

## END CONNECTION

## VALVE TYPE

# HOW TO ORDER BALL VALVES

**NPS 2 1-BF2-CR-FP-RF-CF8M-2-50-PC-T-N-L-VB-C250**

**Example:** NPS 2 BF2 Series 2pc Floater, CL 150, Cryogenic, Full Port, RF, CF8M Body, 316SS Trim, XM-19 Stem, PCTFE Seats, PTFE Lip Seals, NACE, LO, Vented Ball, Cryo Extension 250mm, Design: API608, Test: API598

This unique Valve Figure Number system is arranged to cover the basic valve design features. When ordering, please include this basic Figure Number and add any additional design requirements and features in a complete valve description. Valve designs, materials, trims and other features are not limited to those listed below.

(CDUSA Ordering Rev. 13, Oct., 2025)

A

## BODY MATERIAL

**WCB** = A216 Gr. WCB  
**WCC** = A216 Gr. WCC  
**LCB** = A352 Gr. LCB  
**LCC** = A352 Gr. LCC  
**WC6** = A217 Gr. WC6  
**WC9** = A217 Gr. WC9  
**C5** = A217 Gr. C5  
**C12** = A217 Gr. C12  
**C12A** = A217 Gr. C12A  
**CF8** = A351 Gr. CF8  
**CF3** = A351 Gr. CF3  
**CF10** = A351 Gr. CF10  
**CF10M** = A351 Gr. CF10M  
**CG8M** = A351 Gr. CG8M  
**CG3M** = A351 Gr. CG3M  
**CF8C** = A351 Gr. CF8C  
**CK3MCUN** = A351 Gr. CK3MCuN  
**CD4MCUN** = A995 Gr. CD4MCuN - 1B  
**CE8MN** = A995 Gr. CE8MN - 2A



## TRIM MATERIAL

## ORDER GUIDE

**00** = Trim same nominal chemistry as body material  
**CE3** = Carbon Steel + 3mil ENP Trim  
**LE3** = Low Temp Carbon Steel + 3mil ENP Trim  
**2** = 316SS Trim  
**1** = 304SS Trim  
**63** = 17-4PH Trim  
**51** = Duplex Trim  
**40** = 410SS Trim  
**A20** = Alloy 20 Trim  
**MON** = Monel Trim  
**71** = Inconel 718 Trim  
**27** = Hastelloy C-276 Trim  
**X** = Special Trim

## SEATING MATERIAL

**R** = TFM  
**GP** = Glass-Filled PTFE  
**CR** = Carbon-Filled TFM  
**N** = Nylon  
**DV** = Devlon® V-API  
**PE** = PEEK  
**CG** = Carbon Graphite  
**PC** = PCTFE (Kel-F®)  
**PA** = PFA

## CONFIGURATION

**VB** = Vented Ball  
**JB** = Jacketed Valve, Bolt-On  
**JW** = Jacketed Valve, Weld-On

**2**

**50**

**PC**

**T**

**N**

**L**

**VB**

**C250**

**B**

**41** = 4140+ENP Stem  
**40** = 410SS Stem  
**63** = 17-4PH Stem  
**31** = S31803 Duplex Stem  
**50** = XM-19 Stem  
**51** = F51 Duplex Stem  
**66** = A286 Gr. 660 Stem  
**71** = Inconel 718 Stem  
**K5** = Monel K-500 Stem  
**27** = Hastelloy C-276 Stem  
**\*** = Omit if Not Required

## STEM MATERIAL

**G** = Graphite Packing & Gasket  
**P** = PTFE Packing & Gasket  
**T** = PTFE Lip Seals  
**X** = Special Stem Seal

## PRIMARY STEM & BODY SEALS

**N** = NACE MR0103 & MR0175 Compliant  
**N3** = NACE MR0103 Compliant  
**N5** = NACE MR0175 Compliant  
**\*** = Omit if Not Required

## NACE

**L** = Lever (Lockable)  
**G** = Gear  
**OH** = Oval Handle  
**BS** = Bare Stem  
**A** = Actuator

## OPERATOR

**B**

## EXTENSIONS

**E####** = Operator Insulation Extension (advise extension length in mm)  
**C####** = Non-Cold Box Cryogenic Extension (advise extension length in mm)  
**B####** = Cold Box Cryogenic Extension (advise extension length in mm)

**CD3MN** = A995 Gr. CD3MN - 4A  
**CE3MN** = A995 Gr. CE3MN - 5A  
**CD3MWCUN** = A995 Gr. CD3MWCUN - 6A  
**CN7M** = A351 Gr. CN7M - Alloy 20  
**CN3MCU** = A990 Gr. CM3MCu - Modified Alloy 20  
**CZ100** = A494 Gr. CZ100 - Nickel 200  
**M351** = A494 Gr. M351 - Monel  
**CY40** = A494 Gr. CY40 Cl. 1 - Inconel 600  
**CT15C** = A351 Gr. CT15C Cl. 1 - Incoloy 800  
**CW6MC** = A494 Gr. CW6MC - Inconel 625  
**CU5MCUC** = A494 Gr. CU5MCu - Incoloy 825  
**N12MV** = A494 Gr. N-12MV - Hastelloy B  
**CW12MW** = A494 Gr. CW-12MW - Hastelloy C-276  
**A105** = A105N  
**LF2** = A350 Gr. LF2 Cl. 1  
**F11** = A182 Gr. F11 Cl. 2  
**F22** = A182 Gr. F22 Cl. 3  
**F5** = A182 Gr. F5a  
**F9** = A182 Gr. F9

**F91** = A182 Gr. F91 Type 1  
**F304** = A182 Gr. F304  
**F304L** = A182 Gr. F304L  
**F304H** = A182 Gr. F304H  
**F304/L** = A182 Gr. F304/F304L  
**F316** = A182 Gr. F316  
**F316L** = A182 Gr. F316L  
**F316H** = A182 Gr. F316H  
**F316/L** = A182 Gr. F316/F316L  
**F317** = A182 Gr. F317  
**F317L** = A182 Gr. F317L  
**F317/L** = A182 Gr. F317/F317L  
**F321** = A182 Gr. F321  
**F321H** = A182 Gr. F321H  
**F347** = A182 Gr. F347  
**F347H** = A182 Gr. F347H  
**F44** = A182 Gr. F44  
**F51** = A182 Gr. F51  
**F53** = A182 Gr. F53

**F55** = A182 Gr. F55  
**F60** = A182 Gr. F60  
**N08020** = B462 Gr. N08020 Alloy 20  
**N02200** = B564 Gr. N02200 Nickel 200  
**N04400** = B564 Gr. N04400 Monel  
**N06600** = B564 Gr. N06600 Inconel 600  
**N08800** = B462 Gr. N08800 Incoloy 800  
**N06022** = B564 Gr. N06022 Hastelloy C-22  
**N06625** = B564 Gr. N06625 Inconel 625  
**N08825** = B462 Gr. N08825 Incoloy 825  
**N10665** = B564 Gr. N10665 Hastelloy B-2  
**N10276** = B564 Gr. N10276 Hastelloy C-276  
**N08810** = B564 Gr. N08810 Incoloy 800H



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