



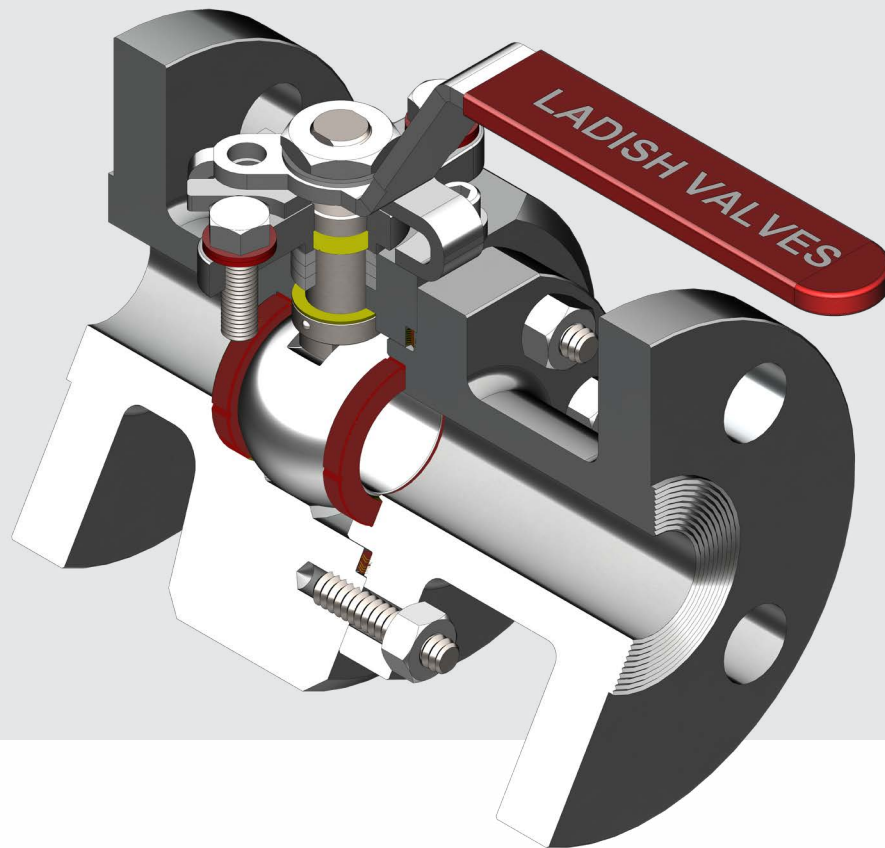
LADISH VALVES

CONTROLLED QUALITY • CORROSION RESISTANT

TO MARK PROGRESS

CATALOG 451

Bar Stock Ball Valve



📍 7603 Bluff Point Dr., Houston, TX 77086

☎ 281.880.8560

🖱 ladishvalves.com

✉ sales@ladishvalves.com



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LADISH MALT

LADISH MALT CO. MILWAUKEE, WIS.

THERE IS
NO SUBSTITUTE
FOR FINE

Malt

EXCLUSIVE DISTRIBUTION
LADISH CO.

1. HEAT CODE PROTECTION—Heat code protection is a feature of the Ladish Co. heat code protection system. It is a system of heat code protection which is designed to protect the heat code protection system from the heat code protection system. It is a system of heat code protection which is designed to protect the heat code protection system from the heat code protection system.
2. FUEL FLANGE THERMIST—Fuel flange thermistors are a type of thermistor which is designed to protect the fuel flange thermistor from the fuel flange thermistor. It is a type of thermistor which is designed to protect the fuel flange thermistor from the fuel flange thermistor.

SELECTED BY THE SON

LADISH

QUALITY

FLOUR

LADISH

CORROSION RESISTANT

VALVES

VALVES FOR
STEEL
STEEL
STEEL
STEEL
STEEL





TO MARK PROGRESS

LADISH VALVES

A Heritage Brand

Herman W. Ladish was born in Milwaukee, Wisconsin in 1880 and began his career in the bustling malting industry at the age of 16. Herman quickly established himself in the business, climbing the corporate ladder and assuming the role of superintendent at The American Malting Company. Ladish folklore has it that Herman's interest in metalworking was born from a problematic crankshaft that consistently halted production. Herman's search for an alternative manufacturing method led him to metal forging, and the birth of a metal working conglomerate of forgings, flanges, fittings and industrial valves was born.

Today, Ladish Valves is proud to have a history dating back to 1961 in Cynthiana, Kentucky. After experiencing a crippling flood of the Ohio River and several changes in ownership, Ladish Valves moved its headquarters to Houston in 2007.

With a foundation of more than 60 years of industrial valve production, Ladish Valves continues to be the industry benchmark for stainless steel and high nickel alloy industrial valves. The Ladish Valves trademark symbolizes a reputation that is emblematic of the highest quality standards, unmatched design and metalworking craftsmanship. Our history is important to us and we pay homage to it daily.

The Ladish Valves product line is specifically designed and manufactured to meet the stringent demands of the most corrosive service environments and high temperature applications. Our product is produced under rigorous metallurgical and manufacturing controls that assure a consistent, high degree of performance and dependability. The quality of the material we receive is critical to the quality of our product. With domestic source foundries and strictly monitored international vendors, Ladish Valves is relentless about the quality of materials sourced from its vendor community.

WHAT IT MEANS TO MARK PROGRESS

Ladish Valves is a responsive company that prides itself in being "local" with an exhaustive commitment to our customers and our product.

This means that no matter where you are, our team in Houston will provide a customized, clear response in a timely manner.

We pride ourselves in serving our customers and taking on the challenges of unconventional projects.

LADISH COMPLETE LINE OF PRODUCTS

Manufactured to the Ultimate in Quality Standards

GATE • GLOBE • CHECK
BALL • PRESSURE SEAL
BELLOW SEAL • CRYOGENIC

CAST • FORGED
BAR STOCK

THREADED ENDS
SOCKET ENDS
FLANGED ENDS
BUTTWELD ENDS
FLAT FACE ENDS

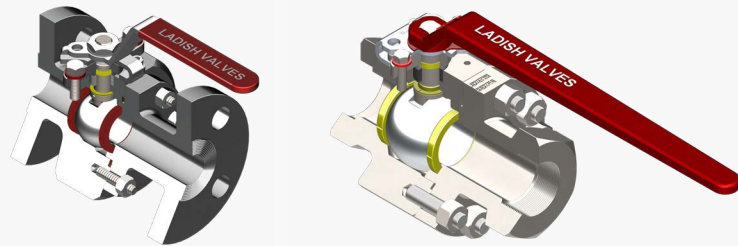
RISING HANDWHEEL
NON-RISING HANDWHEEL

SOLID WEDGE DISC
FLEX WEDGE DISC
SPLIT WEDGE DISC
PLUG DISC
TEFLON DISC

½"–36"
CL150 — CL2500

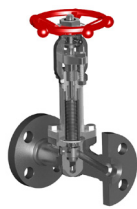
CARBON STEEL
STAINLESS STEEL
ALLOY 20 • DUPLEX
HIGH NICKEL ALLOY
TITANIUM • ZIRCONIUM

CATALOG 451 BAR STOCK BALL VALVE



CAST, TWO-PIECE
FULL/STANDARD BORE
PACKING STEM DESIGN

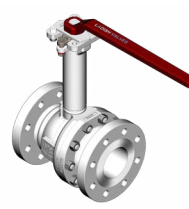
ALSO AVAILABLE



FORGED STEEL
CATALOG 221



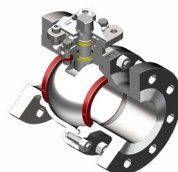
CAST STEEL
CATALOG 821



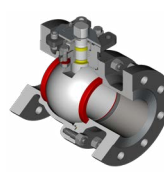
CRYOGENIC
CATALOG 321



HIGH PRESSURE
CATALOG 231



FLANGED FLOATING
BALL VALVES
CATALOG 421



PF SERIES
BALL VALVES
CATALOG 401



METAL & GRAPHITE
SEATED BALL VALVES
CATALOG 411

LADISH SERVICES WHY WE'RE DIFFERENT

One-stop Manufacturing, Controlled Quality.

Ladish Valves is a premier manufacturer of multi-turn and quarter-turn valves. Our valves are widely used in the chemical and petrochemical markets, spanning from upstream extraction through midstream transportation and downstream processing. Ladish has a long history of supplying products to these markets, in addition to the power and pulp & paper industries.

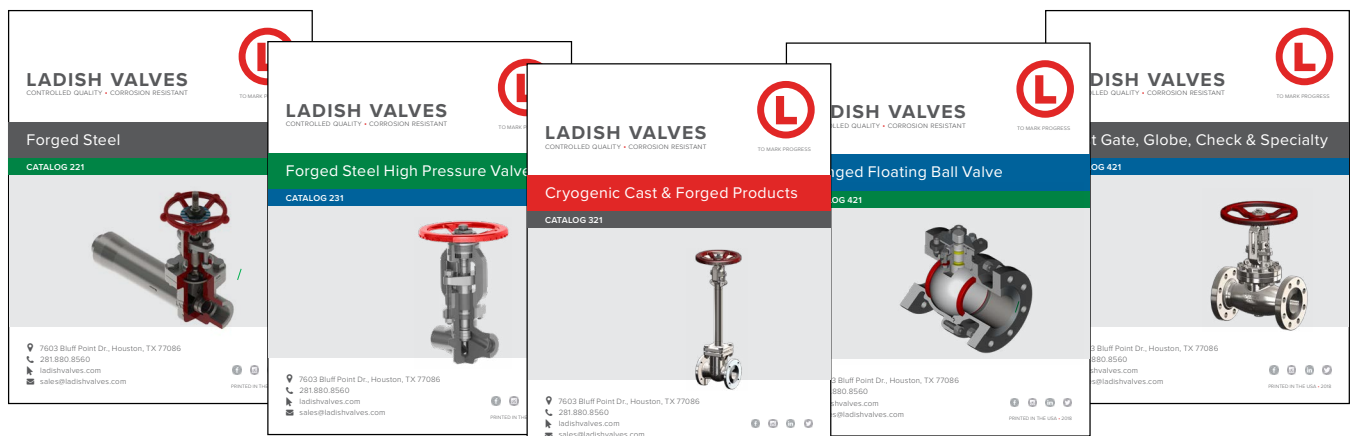
Ladish has a full complement of value-added services to address the many challenges that often delay projects. Our team specializes in quick turnaround deliveries—even on challenging orders—with the confidence of controlled quality through in-house design and manufacturing.

We're a Step Above the Competition. Here's Why.

Ladish is local. Our manufacturing facility is located in Houston, giving us the flexibility to design, machine, assemble, test, verify and expedite our customers' orders—setting us apart from everyone else. Our other differentiators include:

- One of the largest (stocked) stainless and exotic alloy inventories in the U.S.
- In-house machining: Cryo extensions, end connections, modifications, etc.
- Same-day deliveries available
- Custom valve solutions using Ladish engineering & design teams
- Fully compliant clean room (oxygen, chlorine, hydrogen peroxide and others)
- Extensive in-house NDE capabilities

Ladish Product Line Catalogs



CATALOG 221

CATALOG 231

CATALOG 321

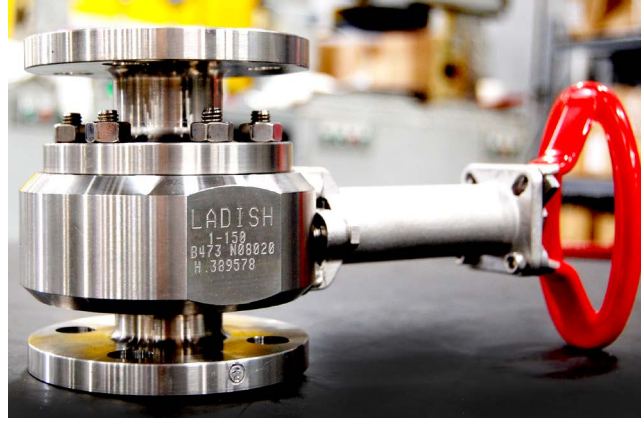
CATALOG 421

CATALOG 821

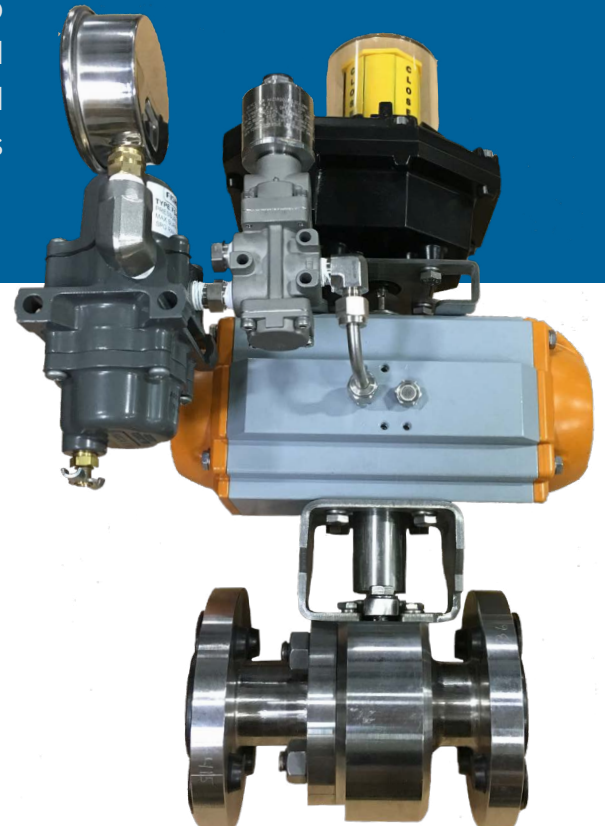
BAR STOCK FLOATING BALL VALVE

Oil & Gas, Petrochemical & Chemical Markets

Catalog 451 highlights the Ladish product offering for bar stock floating ball valves. With in-house engineering and a fully integrated machine shop right here in Houston, TX, Ladish can manufacture valves with short lead times to satisfy customer requirements.



Ladish has an extensive inventory of nickel alloy bar ready to machine for quick deliveries or for customers that require forged bar stock valves. Ladish has a long history of designing and manufacturing bar stock ball valves in special materials such as titanium, zirconium, hastelloy, alloy 20, nickel and inconel.



LADISH VALVES



Solution: Ladish

MISSION

Customer requires specialty valve with expedited delivery.

PROBLEM

Standard supplier cannot deliver valve required by the customer.

SOLUTION

Ladish has the design capabilities and machining and testing capacity to help get your customer the valve they need in the time required. We interact with our customers & end users to understand the application & to deliver quality valves with an on-time delivery.

LADISH STANDARD PRODUCT OFFERING FOR BAR STOCK FLOATING BALL VALVES

Don't see the design you are looking for?

Call us and let us develop a solution that helps meet the needs of your customer!

Product Range: Flanged Floating Ball Valves

CLASS	MODEL	SEAL	BODY	BORE	ENDS	1/2"	3/4"	1"	1 1/2"	2"	3"	4"
150	P1/P2	PACKING	2 PIECE BAR-STOCK	FULL AND STANDARD	RF							
300	P1/P2	PACKING	2 PIECE BAR-STOCK	FULL AND STANDARD	RF							
600	P1/P2	PACKING	2 PIECE BAR-STOCK	FULL AND STANDARD	RF							

= Long Pattern = Short Pattern = Long/Short Pattern

Product Range: Bar Stock Threaded Floating Ball Valves

CLASS	MODEL	SEAL	BODY	BORE	ENDS	1/2"	3/4"	1"	1 1/2"	2"
150	P1/P2	PACKING	2 PIECE BAR-STOCK	FULL AND STANDARD	THD/SWE/BWE					
300	P1/P2	PACKING	2 PIECE BAR-STOCK	FULL AND STANDARD	THD/SWE/BWE					
600	P1/P2	PACKING	2 PIECE BAR-STOCK	FULL AND STANDARD	THD/SWE/BWE					

= Long Pattern = Short Pattern = Long/Short Pattern

Ladish Bar Stock Ball Valve

EXAMPLE:

[illegible]

01	304	12	347	36	INCONEL 825	60	TITANIUM C2	J1	F11
05	316	30	MONEL 400	15	ALLOY 20	61	TITANIUM C3	J2	F22
06	316L	20	HASTELLOY C276	35	INCOLOY 825	62	TITANIUM C7	J5	F5
10	317	33	INCONEL 600	55	DUPLEX 2205	63	ZIRCONIUM GR. 702	J9	F9
11	317L	34	INCONEL 625	56	DUPLEX 2507			H0	A105

CONTROLLED QUALITY • CORROSION RESISTANT



SEAT	BOLTING & NUTS	MISC. OPTION	SIZE	DESIGN FIRE-SAFE NACE
R	02	A	30	N
C - Carbon Filled TFMC D - Delrin® E - TFMC-HT (HIGH TEMP) F - VIRGIN TFM M - HF Chrome Carbide (Ball / Seat) N - Nylon Devlon® P - PEEK® V - Vespel® R - Glass Filled PTFE T - Virgin PTFE K - Kel-F(PCTFE) G - Carbon Graphite U - HF HARD CHROME (BALL/ SEAT) W - HF TUNGSTEN CARBIDE (BALL/SEAT) X - HF CHROME CARBIDE (BALL/SEAT) Y - HF CHROME OXIDE (BALL/ SEAT) Z - HF NICKEL CHROME (BALL/ SEAT)	01 – B8CL1/8 02 – B8CL2/8 03 – B8MCL1/8M 04 – B8MCL2/8M 05 – B7/2H 06 – B7M/2HM 07 – ALLOY 20 08 – MONEL 400 09 – GR660 10 – L7/7 11 – INC 800 12 – HAST C 13 – B6/6 14 – B16/16 15 – K500 16 – A320 B8CL2/8 17 – B8CL2/8A 18 – B16/7 20 – L7M/7M	A – N/A B – Cleaned C – Cryogenic (Vented Ball) D – Cryogenic (Non-Vented Ball) E – Extended Handle H - Fugitive Emission Extended Bonnet Lantern Ring (Chlorine Clean) V – Unidirectional (Vented Ball) W – Chain Wheel Operated	05 – ½" 07 – ¾" 10 – 1" 15 – 1½" 20 – 2" 30 – 3" 40 – 4"	M – API 608 Fire Safe, NACE N – API 608 Fire Safe, Non-NACE P – API 608 Non-Fire Safe, NACE Q – API 608 Non-Fire Safe, Non- NACE

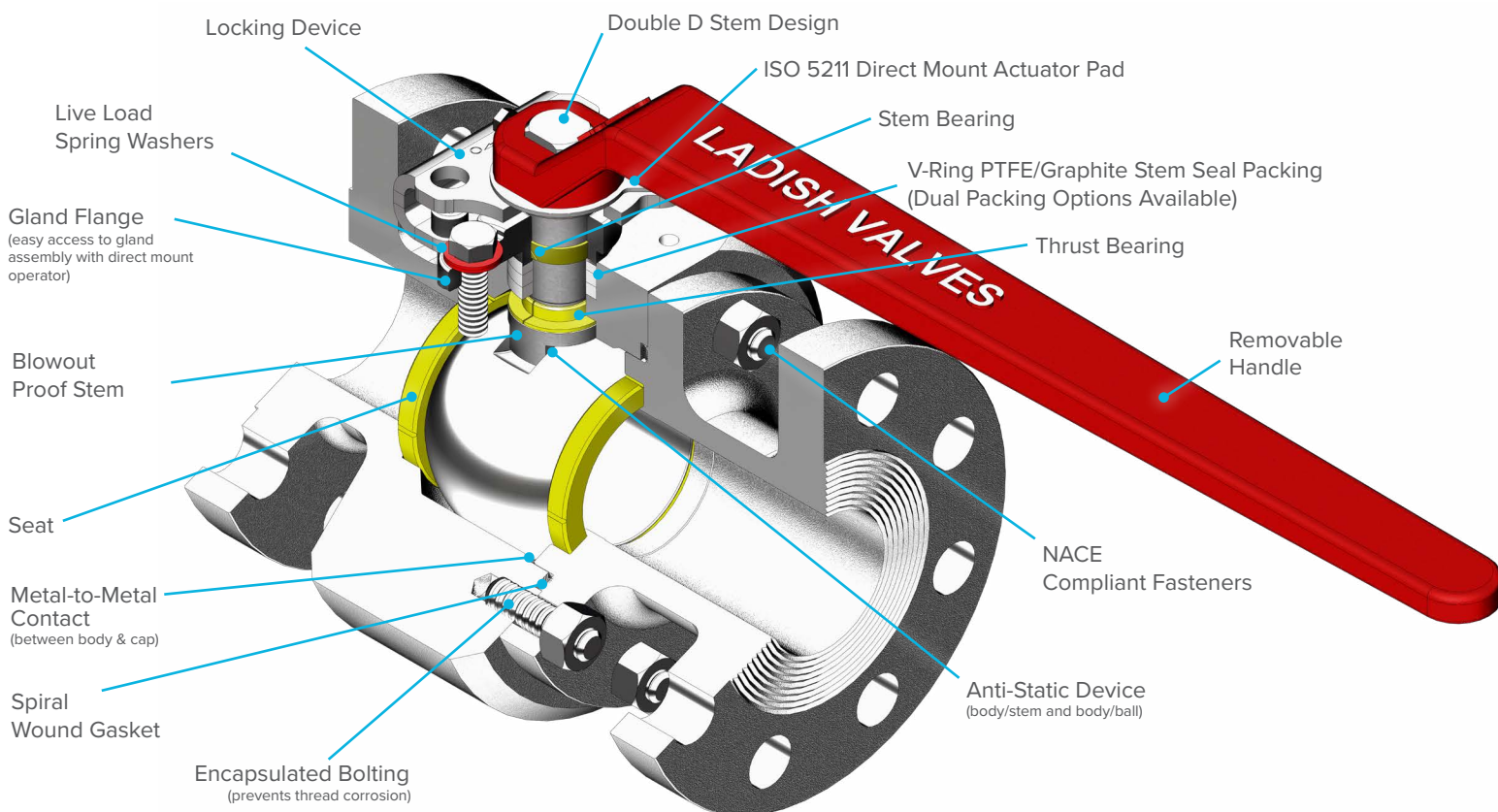
STANDARD FEATURES

Model P2 Full Bore & Model P1 Standard Bore, Two-Piece, Stem Packing API 608

Material of Construction: Bar-Stock

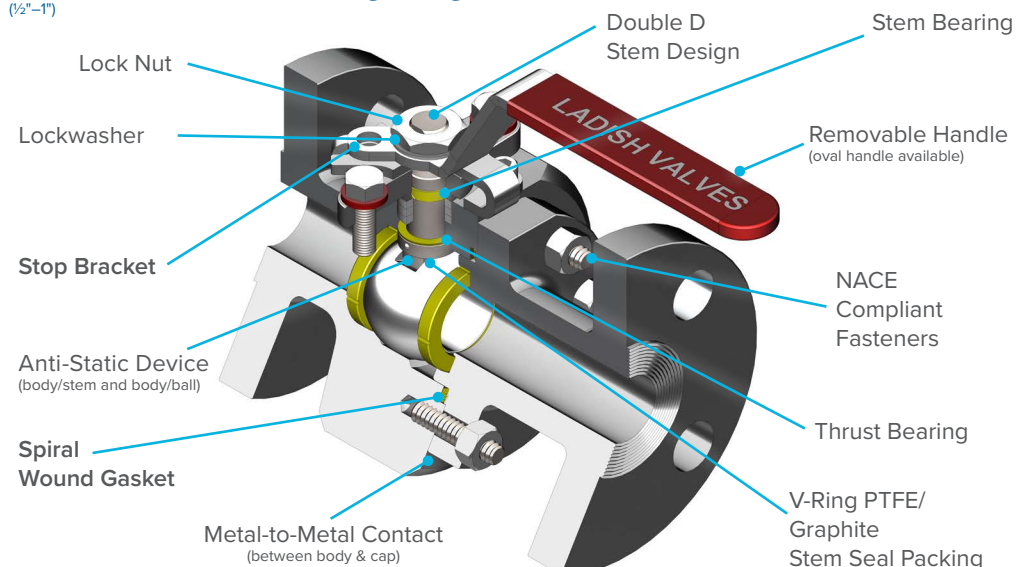
Model P1 & P2 Stem Packing Design

(1½"–4")



Model P1 & P2 Stem Packing Design

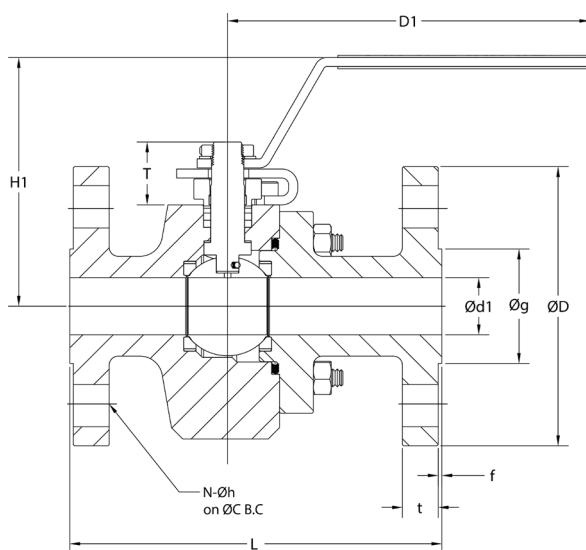
(½"–1")



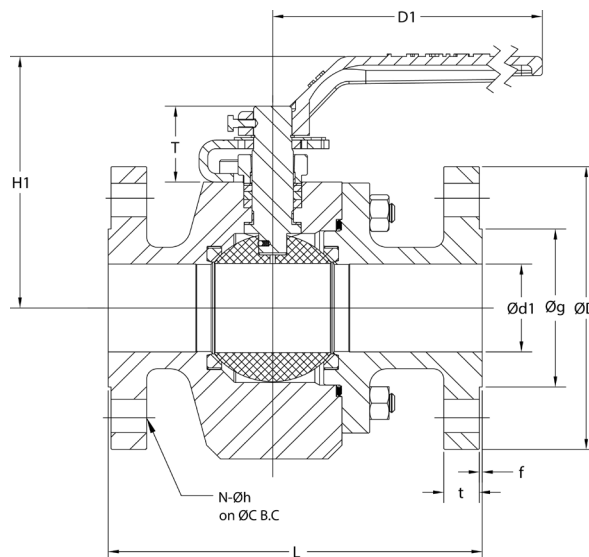
DIMENSIONAL DATA

Model P2 Full Bore, Two-Piece, Stem Packing API 608

Material of Construction: Bar-Stock



1/2"–1" Model P2 Full Bore, Two Piece
Pressure Classes 150, 300 & 600



1 1/2"–4" Model P2 Full Bore, Two Piece
Pressure Classes 150, 300 & 600

150	Model P2, Class 150, 1/2"–4"											Weight LBS
	Ød1	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
1/2"	0.50	4.25	4.97	3.42	3.54	2.38	1.38	0.31	0.06	4	0.63	6
3/4"	0.75	4.61	4.97	3.56	3.90	2.75	1.69	0.34	0.06	4	0.63	9
1"	1.00	5.00	6.32	4.39	4.25	3.12	2.00	0.38	0.06	4	0.63	13
1 1/2"	1.50	6.50	10.00	5.23	5.00	3.88	2.88	0.56	0.06	4	0.63	30
2"	2.00	7.01	16.54	6.13	6.06	4.75	3.62	0.62	0.06	4	0.75	40
3"	3.00	8.00	19.69	7.66	7.50	6.00	5.00	0.69	0.06	4	0.75	78
4"	4.00	9.02	19.69	8.76	9.00	7.50	6.19	0.88	0.06	8	0.75	133

300	Model P2, Class 300, 1/2"–4"											Weight LBS
	Ød1	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
1/2"	0.50	5.51	4.97	3.45	3.78	2.63	1.38	0.50	0.06	4	0.63	10
3/4"	0.75	5.98	4.97	3.56	4.65	3.25	1.69	0.56	0.06	4	0.75	16
1"	1.00	6.50	6.32	4.39	4.88	3.50	2.00	0.63	0.06	4	0.75	21
1 1/2"	1.50	7.48	10.00	5.01	6.12	4.50	2.88	0.81	0.06	4	0.88	38
2"	2.00	8.50	16.54	5.82	6.50	5.00	3.62	0.87	0.06	8	0.75	58
3"	3.00	11.13	19.69	7.66	8.25	6.62	5.00	1.06	0.06	8	0.88	112
4"	4.00	12.01	19.69	8.76	10.00	7.88	6.19	1.19	0.06	8	0.88	196

600	Model P2, Class 600, 1/2"–4"											Weight LBS
	Ød1	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
1/2"	0.50	6.50	4.97	3.42	3.78	2.63	1.38	0.62	0.25	4	0.63	11
3/4"	0.75	7.48	4.97	3.67	4.65	3.25	1.69	0.68	0.25	4	0.75	16
1"	1.00	8.50	6.32	4.39	4.88	3.50	2.00	0.69	0.25	4	0.75	25
1 1/2"	1.50	9.49	10.00	5.22	6.12	4.50	2.88	0.94	0.25	4	0.88	47
2"	2.00	11.49	16.54	5.82	6.50	5.00	3.62	1.06	0.25	8	0.75	65
3"	3.00	14.00	19.69	6.84	8.25	6.62	5.00	1.25	0.25	8	0.88	143
4"	4.00	17.01	59.06	11.16	10.75	8.50	6.19	1.50	0.25	8	1.00	282

*NOTE: Dimensions for P1 Standard Bore available upon request

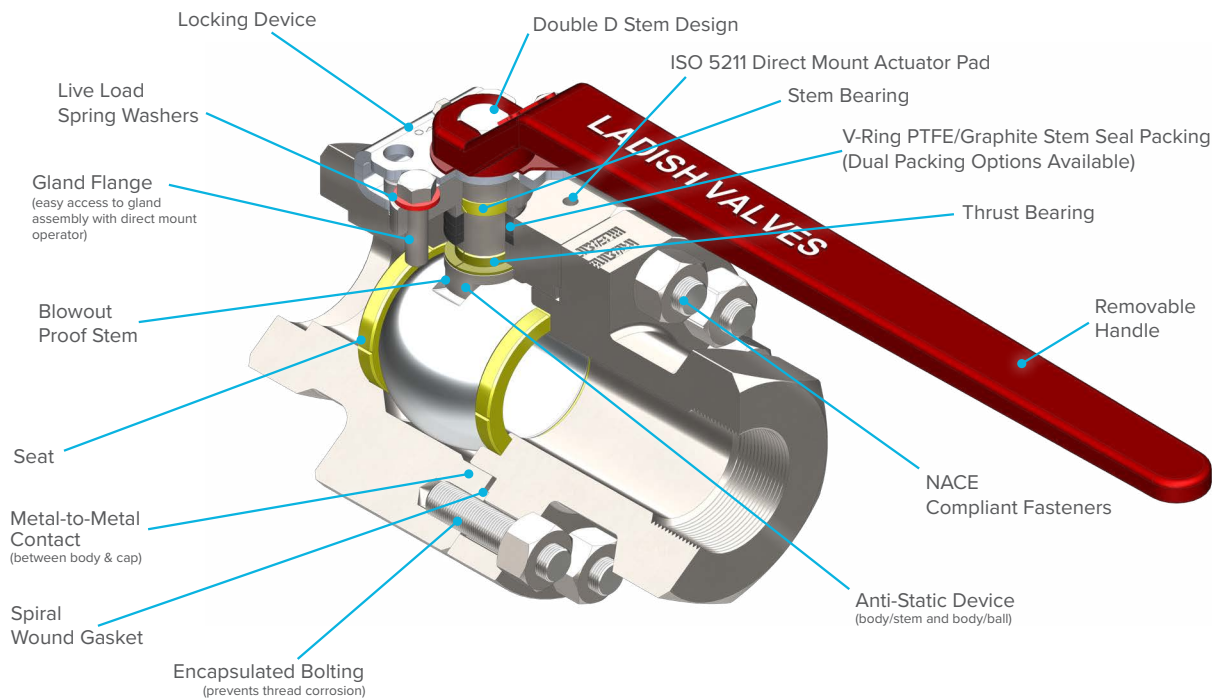
STANDARD FEATURES

Model P2 Full Bore & Model P1 Standard Bore, Two-Piece, Stem Packing API 608

Material of Construction: Bar-Stock

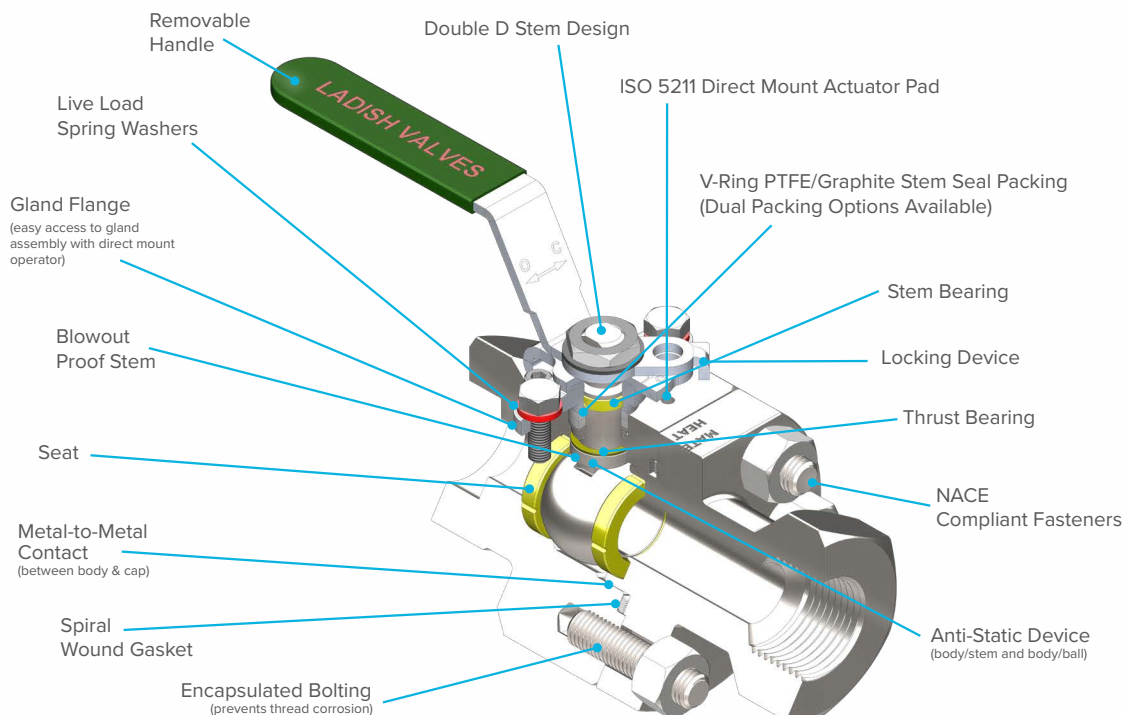
Model P1 & P2 Stem Packing Design

(1½"–2")



Model P1 & P2 Stem Packing Design

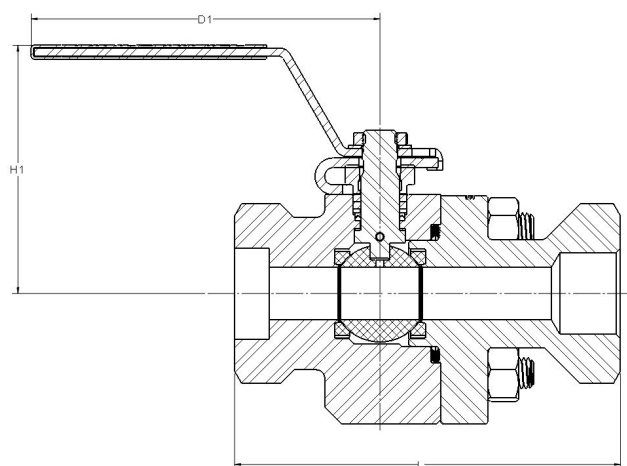
(½"–1")



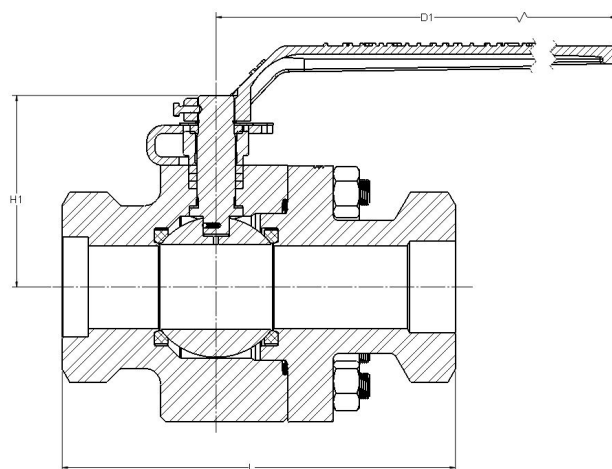
DIMENSIONAL DATA

Model P2 Full Bore, Two-Piece, Stem Packing API 608

Material of Construction: Bar-Stock



1/2"–1" Model P2 Full Bore, Two-Piece
Pressure Classes 150, 300 & 600



1 1/2"–2" Model P2 Full Bore, Two-Piece
Pressure Classes 150, 300 & 600

150	Model P2, Class 150			Weight LBS
	L	D1	H1	
1/2"	4.75	4.91	3.42	7
3/4"	5.5	4.97	3.53	8
1"	6.25	6.26	4.39	14
1 1/2"	8.25	10.00	5.01	34
2"	9.50	16.45	5.82	48

300	Model P2, Class 300			Weight LBS
	L	D1	H1	
1/2"	4.75	4.91	3.42	7
3/4"	5.5	4.97	3.53	8
1"	6.25	6.26	4.39	14
1 1/2"	8.25	10.00	5.01	34
2"	9.50	16.45	5.82	48

600	Model P2, Class 600 - 1000 WOG - 1500 WOG			Weight LBS
	L	D1	H1	
1/2"	4.75	4.91	3.42	7
3/4"	5.5	4.97	3.53	8
1"	6.25	6.26	4.39	14
1 1/2"	8.25	10.00	5.01	34
2"	9.50	16.45	5.82	48

*NOTE: Dimensions for P1 Standard Bore available upon request

IN-HOUSE ENGINEERING CAPABILITIES

All Ladish Flanged Floating Ball Valves are designed by Ladish engineers located in Houston. In addition to ball valve designs, Ladish builds and performs all required testing per API specifications. This includes seat capacity ratings, lifecycle testing and all fire testing as required by API 607.

ADVANCED ENGINEERING TOOLS

- 3D Solid Modeling
- Finite Analysis (FEA)
- Flow Simulation Analysis

RAPID PROTOTYPING OF NEW DESIGNS

- Compare design alternatives to meet customer demands and requirements

ACTIVE IN API AND MSS

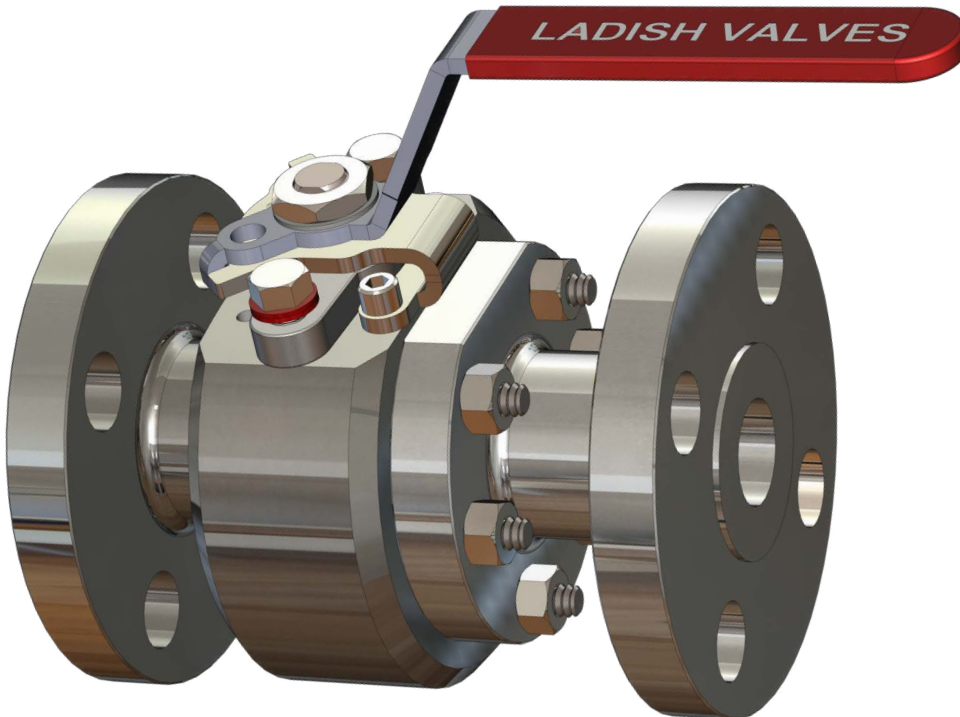
- Provides Ladish up-to-date access to the latest standard changes

CONTINUOUS INTERACTION WITH FOUNDRY VENDORS

- Communication enables quick execution of new pattern/tool changes
- Ensures the quality of the Ladish product from our foundry vendors
- Casting simulation software provides product verification and casting quality

SPECIALTY BALL VALVES

- Ladish ball valve design also offered in metal and graphite seats



NOTES

[illegible]

NOTES

[illegible]

LADISH VALVES

CONTROLLED QUALITY • CORROSION RESISTANT



TO MARK PROGRESS

 7603 Bluff Point Dr., Houston, TX 77086
 281.880.8560
 ladishvalves.com
 sales@ladishvalves.com

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