

LADISH VALVES

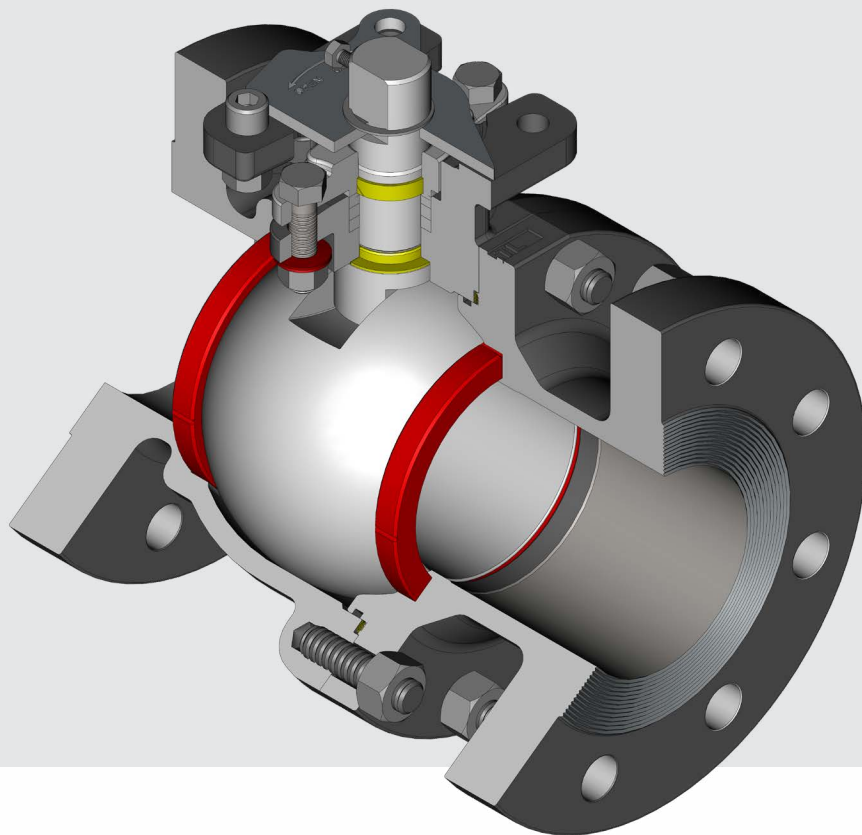
CONTROLLED QUALITY • CORROSION RESISTANT



TO MARK PROGRESS

API 608 Process Ball Valves

Catalog 401 PF SERIES



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LADISH MALT

LADISH MALT CO.
MILWAUKEE, WIS.

THERE IS
NO SUBSTITUTE
FOR FINE

Malt

EXCLUSIVE
LADISH CO.

1. HEAT CODE PROTECTION—Heat code protection is a feature of the Ladish Malt Co. which makes available certified malted barley for the production of specific grades of malt. The heat code protection is a feature of the Ladish Malt Co. which makes available certified malted barley for the production of specific grades of malt.
2. FUEL FLANGE THERMISTORS—Fuel flange thermistors are a feature of the Ladish Malt Co. which makes available certified malted barley for the production of specific grades of malt.

QUALITY

LADISH

FLOUR

LADISH

CORROSION RESISTANT

VALVES

VALVES
LOVE
ONE
EVE
STELLON
TANUM
LUNUM



ONE REEL
FIVE CT



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

A WIDE RANGE OF VALVE TYPES, SIZES, RATINGS & MATERIALS

Processes

CAST • FORGED
BAR STOCK

End Types

THREADED ENDS
SOCKET ENDS
FLANGED ENDS
BUTTWELD ENDS
FLAT FACE ENDS

Handwheel Options

RISING HANDWHEEL
NON-RISING HANDWHEEL

Disc Options

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

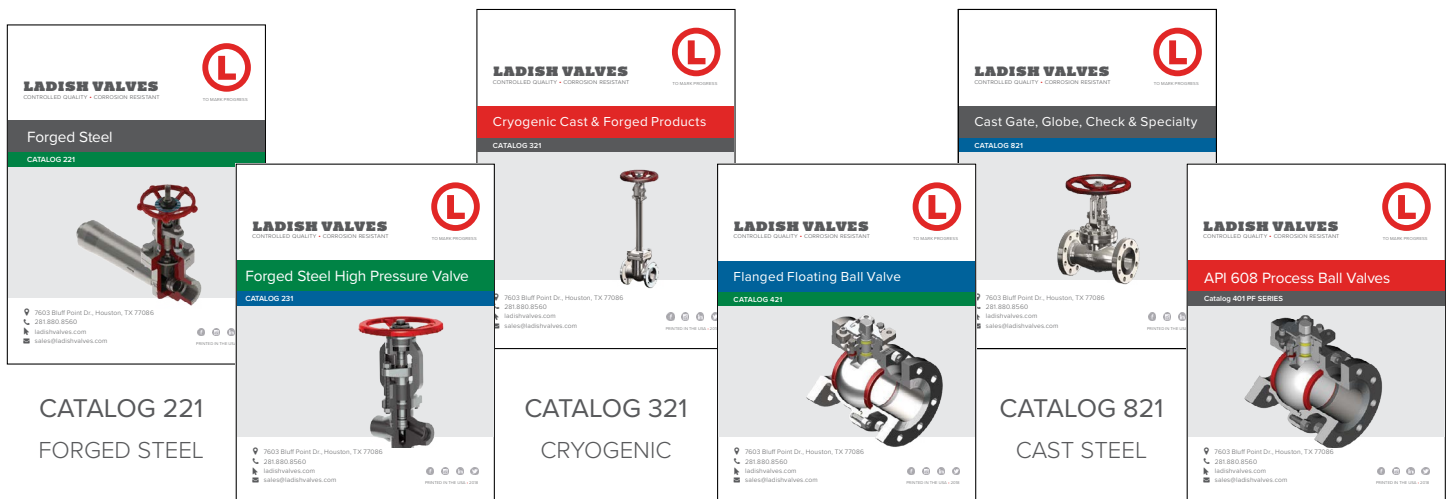
Size and Class Options

½"—36"
CL150—CL2500

Materials

CARBON STEEL
STAINLESS STEEL
ALLOY 20 • DUPLEX
HIGH NICKEL ALLOY
TITANIUM • ZIRCONIUM
CHROME
LOW TEMP

Ladish Product Line Catalogs



CATALOG 231
HIGH PRESSURE

CATALOG 421
FLOATING BALL VALVE

CATALOG 401 PF
PROCESS BALL VALVES



TO MARK PROGRESS

LADISH VALVES

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 VALVES

After moving from Cynthiana, Kentucky to Houston in 2007, the company has focused on manufacturing ball valves for the process, mid-stream and oil & gas markets. With more than 60 years of industrial valve production, Ladish Valves continues to set the standard for stainless steel, high nickel and exotic alloy valves.

Product Range: API 608 Design

CLASS	MODEL	PACKING	BODY	BORE	ENDS	1/2"	3/4"	1"	1 1/2"	2"	3"	4"	6"	8"	10"	12"	14"
150	P8	Graphite/PTFE	2 PIECE	FULL	RF												
	P7	Graphite/PTFE	2 PIECE	STANDARD	RF	—	—	—	—					—	—	—	—
	P9	Graphite/PTFE	UNI-BODY	STANDARD	RF												—
300	P8	Graphite/PTFE	2 PIECE	FULL	RF												
	P7	Graphite/PTFE	2 PIECE	STANDARD	RF	—	—	—	—					—	—	—	—
	P9	Graphite/PTFE	UNI-BODY	STANDARD	RF												—
600	P8	Graphite/PTFE	2 PIECE	FULL	RF									—	—	—	—
	P7	PACKING	2 PIECE	STANDARD	RF	—	—	—	—						—	—	—

 = Long Pattern  = Short Pattern  = Long/Short Pattern



API 607 Fire Test (certifications available upon

ITEM	INDUSTRY STANDARD
PRESSURE - TEMPERATURE RATINGS ¹	ASME B16.34
FACE-TO-FACE DIMENSIONS	ASME B16.10
END FLANGE DIMENSIONS	ASME B16.5
PRESSURE TEST	API 598/API 6D
FIRESAFE TEST	API 607
DESIGN STANDARD	API 608, API 6D, ASME B16.34
ACTUATOR MOUNT	ISO 5211
CASTING QUALITY	MSS SP55, ASME B16.34 ²
QUALITY MANAGEMENT	API Q1, ISO 9001, CE-PED

¹For seat materials, see Ladish Valves pressure-temperature ratings on page 18.

² ASME B16.34 used for evaluating NDT examinations of castings.

DESIGN FEATURES

Ladish Valves PF Series is our High Quality Floating Ball Valve line with all of the technical features needed for the most demanding Industrial Applications. Designed for Safety, Low Emissions, Long Service Life, and ease of Maintenance, this series is available in Split-Body Full and Reduced Port styles as well as One-Piece (Unibody) reduced port construction. Available in Exotic Alloys as well as more common materials, the PF Series should be your go-to choice for Critical and Toxic Services in applications for the Chemical, Petrochemical, Refining, Upstream and Midstream Oil and Gas Industries and more.

TECHNICAL SUMMARY

- Size range: 0.5"–14"
- Pressure ratings: ASME/ANSI Class 150, 300 & 600
- Operation: oval or lever operator, gear, pneumatic and electric actuation
- Available certifications: ANSI/ASME B16.34, B16.10, API 607, API 608, API 641, ISO 15848-1

APPLICATIONS

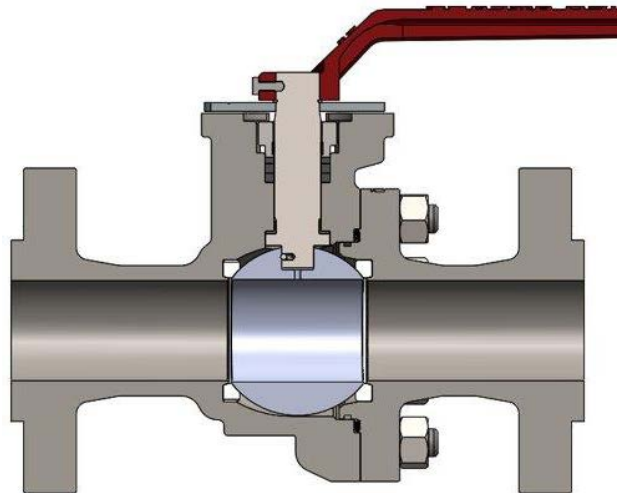
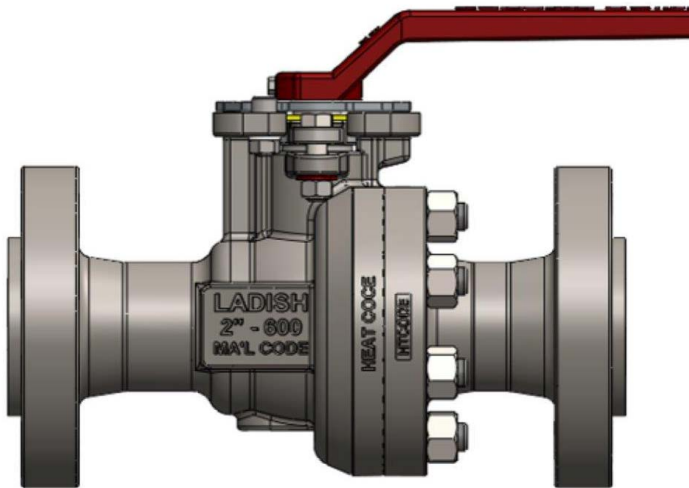
- Specialty chemical
- Petrochemical and refining
- Mid-stream oil and gas
- Oil and gas production – produced fluids and waste water
- Power production
- Mining and mineral processing



Finished Parts CF8M (316 Stainless Steel) Inventory

KEY FEATURES

- Seating: engineered TFM and reinforced TFM advanced polymer technology seat material that provides positive sealing. Glass and carbon fiber reinforced TFM and well as graphite and metal seating is available.
- Low Emissions: API 622 certified graphite-based packing for fire safe designs. “chevron-style” PTFE stem seal as well as dual packing configurations are available.
- Integral ISO mounting pad for ease of automation without bracket or separate coupler
- Internal and external RPTFE stem bearings to prevent “side loads” that can cause leakage in the field.
- Live-loaded stem packing. Fully adjustable even with actuation installed
- Blowout-proof stem
- Fully captured spiral-wound graphite filled body gasket on split body designs
- Meets ASME B16.5, B16.10 and B16.34 and API 608, and also meets API 607 when requested.
- NACE MR-0175 and MR-0103 material standard. full certification available.
- Locking oval handle or lever operator standard
- Dual body seal standard in one-piece design and optional in split-body
- Full and standard port available
- Testing to API 598
- All ball valves assembled and tested in Houston
- Meets all requirements of API 608.



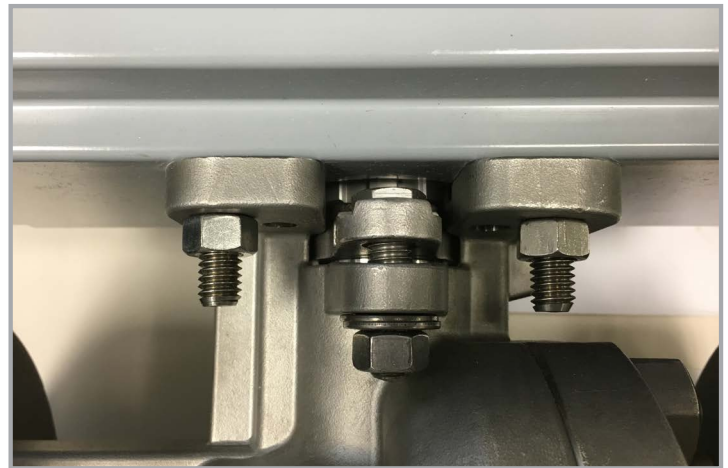
DESIGN BENEFITS

- Long service life
- Tight shut-off for process reliability
- Ease of automation when required
- Low consistent torque requirements
- Low emission to meet current government regulations
- Flexibility to meet individual process requirements



DIRECT ACTUATOR MOUNTING CAPABILITIES

The Ladish ball valve design eliminates the need for a bracket and coupler when mounting an actuator, thus reducing cost while supporting any space constraints. The ISO 5211 actuator mounting pad is integral to the valve body and still allows operator to inspect packing and make adjustments as required.



LIVE LOAD

All stem seals come “live loaded” with the addition of spring washers above the gland flange nut for improved sealing performance and quick adjustment without removal of operator.

OPTIONS

Materials: body and trim material of nickel alloys, Hastelloy™, Incoloy™, Inconel, Titanium, Zirconium, as well as carbon and multiple grades of stainless steel.

- Specialty trim: as all Ladish valves are assembled and tested in our facilities in the USA, we can supply specialty valve trim per customer requirements
Common combinations include carbon steel with Monel trim, stainless steel with Hastelloy trim and Monel 400 Valves with Monel K-500 Stems.
- Extended stems for insulated service
- Cryogenic bonnets/extensions
- Low FE (fugitive emission) dual packing systems
- Metal and graphite seating
- Cavity fillers
- Specialty coatings and treatments to resist corrosion and erosion
- Cleaning for special services





TO MARK PROGRESS

LADISH VALVES

Fugitive Emissions

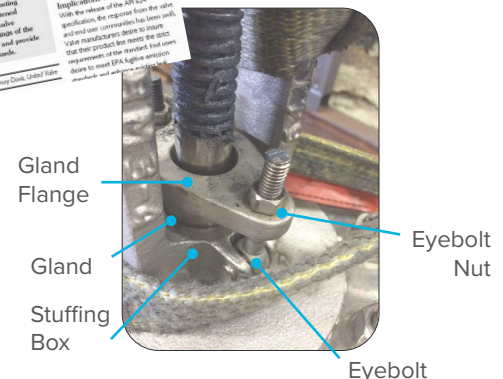
Since the introduction of the U.S. Clean Air Act in 1963, the U.S. Environmental Protection Agency (EPA) and individual states have set increasingly stringent consent decrees for fugitive emissions from industrial facilities. Many companies have implemented Leak Detection and Repair (LDAR) programs, and industry groups have focused efforts on helping member companies decrease valve emissions.

Ladish Valves was one of the first companies to help in assisting companies, by testing our valves to meet or exceed low fugitive emission in our valves. Ladish Valves has successfully tested our product, to the following industries standards.

- API 624
- API 641
- ISO-15848-1
- TA-LUFT

Low Fugitive Emission seals require that each element of the sealing system is precisely manufactured for straightness, surface finish and concentricity.

Ladish Valves utilizes an API-622 approved inter-braided graphite packing as standard, with machine surface stem finishes of better than 32 Ra and stuffing box wall finishes to 125 Ra ensuring maximum sealing effectiveness.

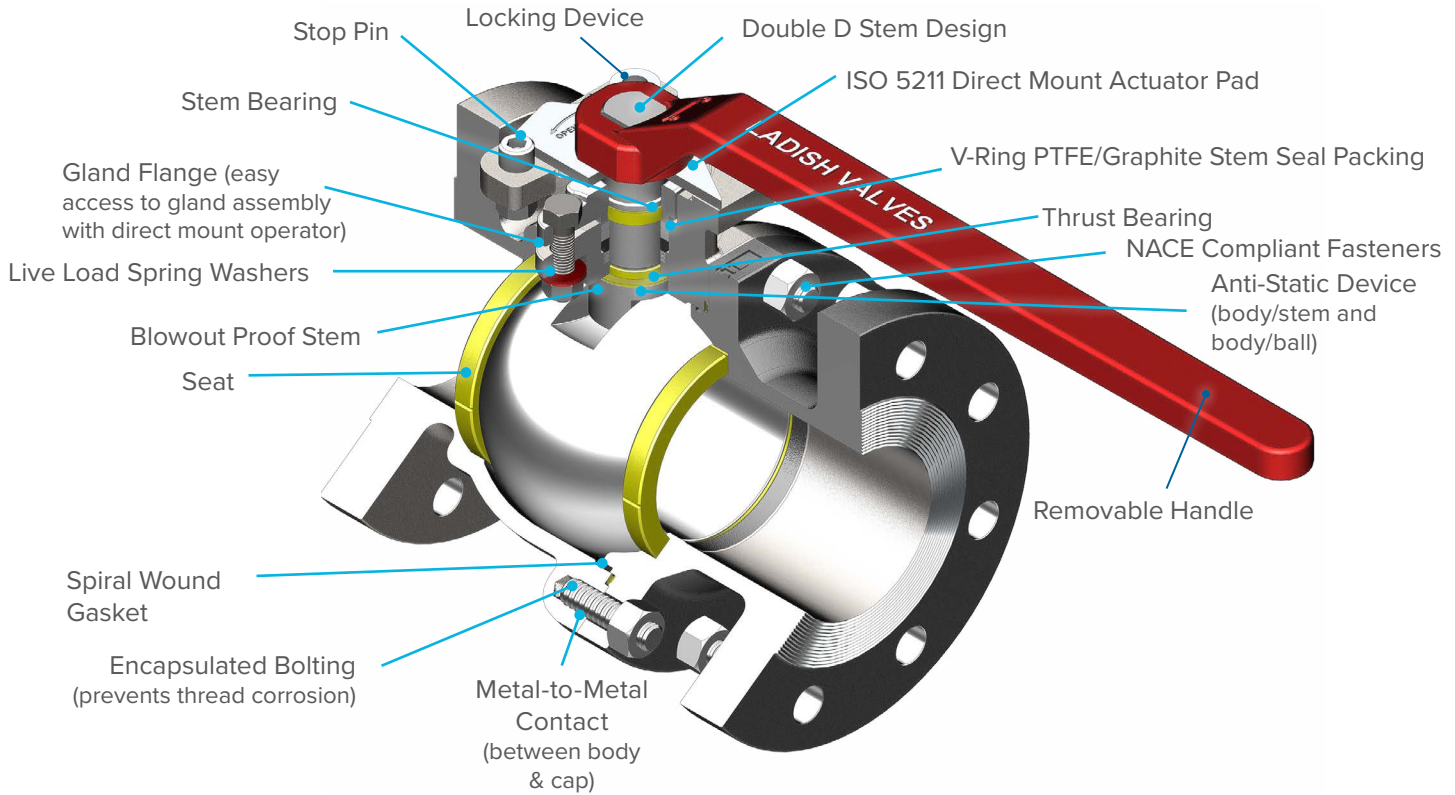


PF SERIES FEATURES

Model P7 Standard Bore, Model P8 Full Bore, Two-Piece Body, API 608 Design

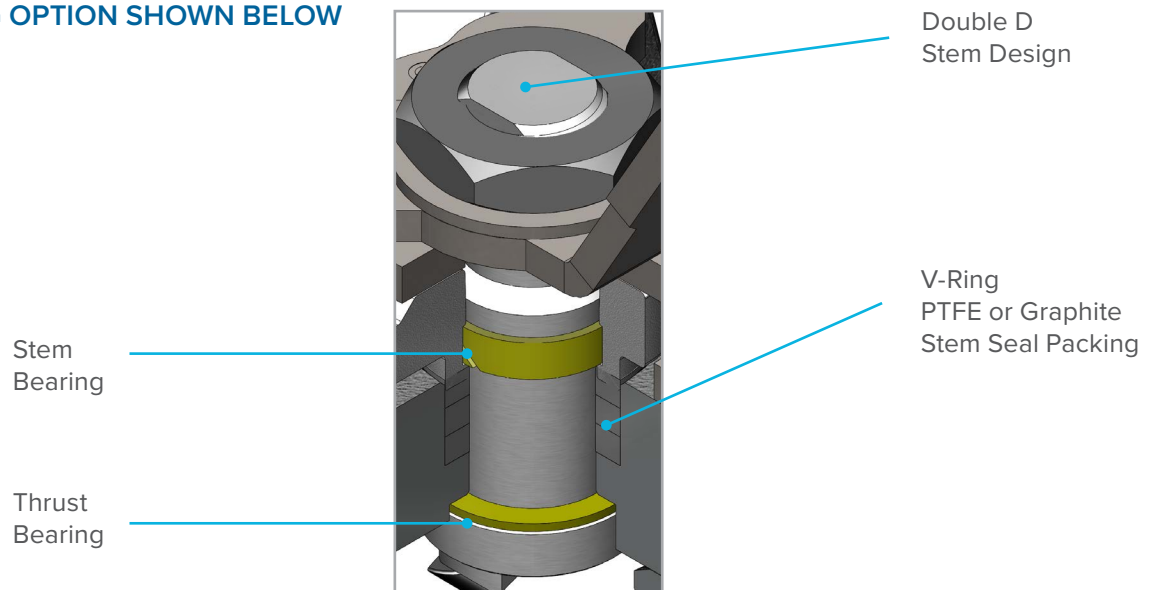
PF SERIES STEM PACKING DESIGN DUAL PACKING OPTION SHOWN BELOW

(1-1/2" – 14")



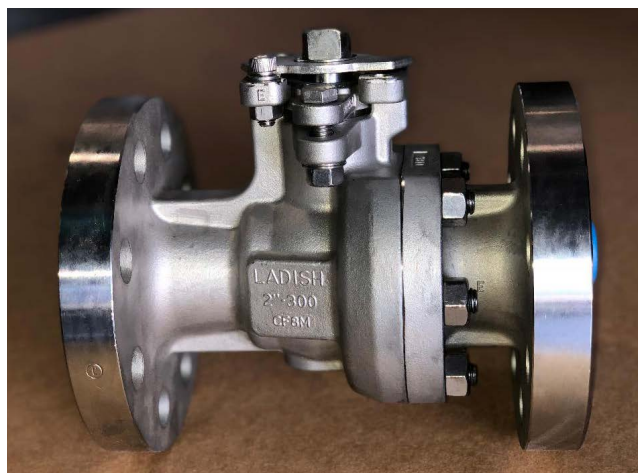
MODEL P8 STEM PACKING DESIGN SINGLE PACKING OPTION SHOWN BELOW

(1/2" – 1")

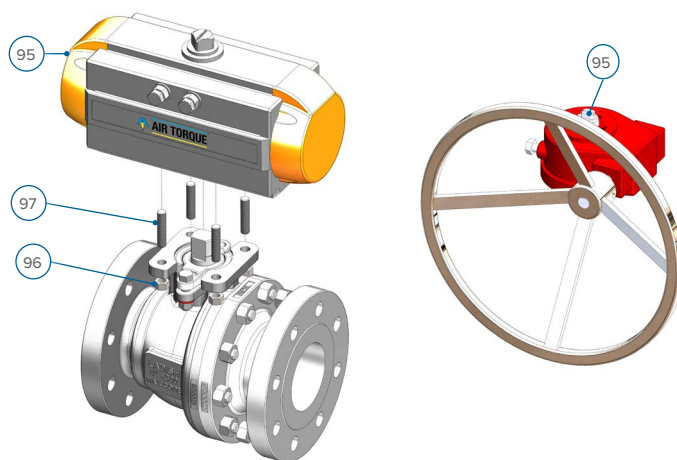
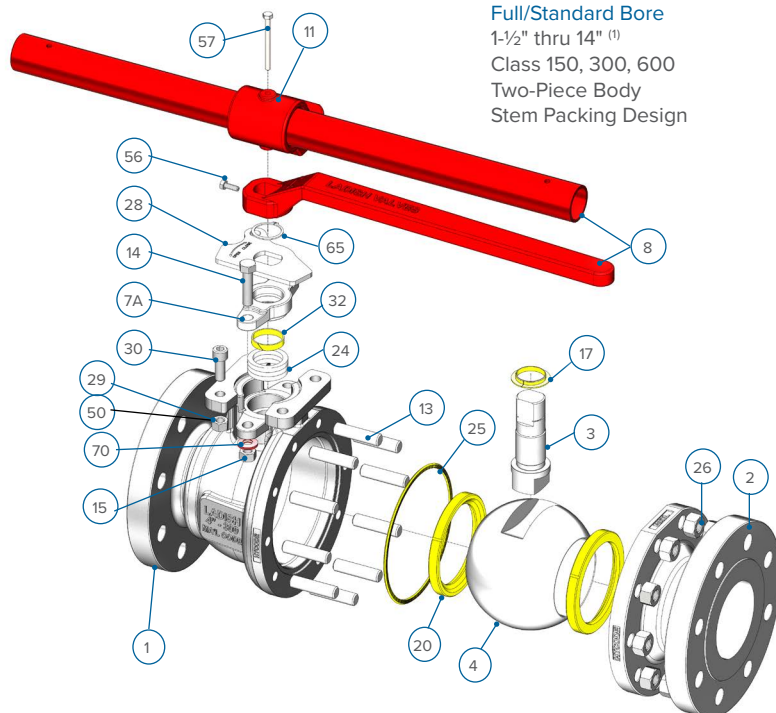


PARTS & MATERIALS:

P7 and P8 Designs



Model P8/P7
Full/Standard Bore
1-1/2" thru 14" ⁽¹⁾
Class 150, 300, 600
Two-Piece Body
Stem Packing Design



Item No.	Description	Material
1	Body	CF8M WCB
2	Cap	CF8M WCB
3	Stem	ASTM A176 316
4	Ball	ASTM A351 CF8M
7A	Gland Flange	ASTM A351 CF8M
8	Handle	ASTM A47
8A	Stem Nut Locknut	STAINLESS STEEL
8B	Stem Nut Lockwasher	STAINLESS STEEL
11	Handle Adapter	ASTM A197
13	Body Stud	B7M L7M B8M
14	Gland Flange Bolt	ASTM A193 B8M
15	Gland Flange Nut	ASTM A194 GR8
17	Thrust Bearing	PTFE
20	Seat	TFM
24	Packing	GRAPHOIL/TFE
25	Gasket	SPW GRAPHOIL/TFE
26	Body Nut	2HM 7M 8M
28	Stop Plate	STAINLESS STEEL
28A	Stop Bracket	STAINLESS STEEL
29	Stop Nut	ASTM A194 GR8
30	Stop Bolt	ASTM A194 GR8
30A	Bracket Bolt	STAINLESS STEEL
32	Stem Bearing	GRAPHOIL/TFE
40	Name Plate (not shown)	STAINLESS STEEL
50	Stop Lock Washer	STAINLESS STEEL
56	Handle Bolt	STEEL + ZINC
57	Adapter Bolt	STEEL + ZINC
65	Snap Ring (stop plate)	STAINLESS STEEL
70	Spring Washer	INCONOL

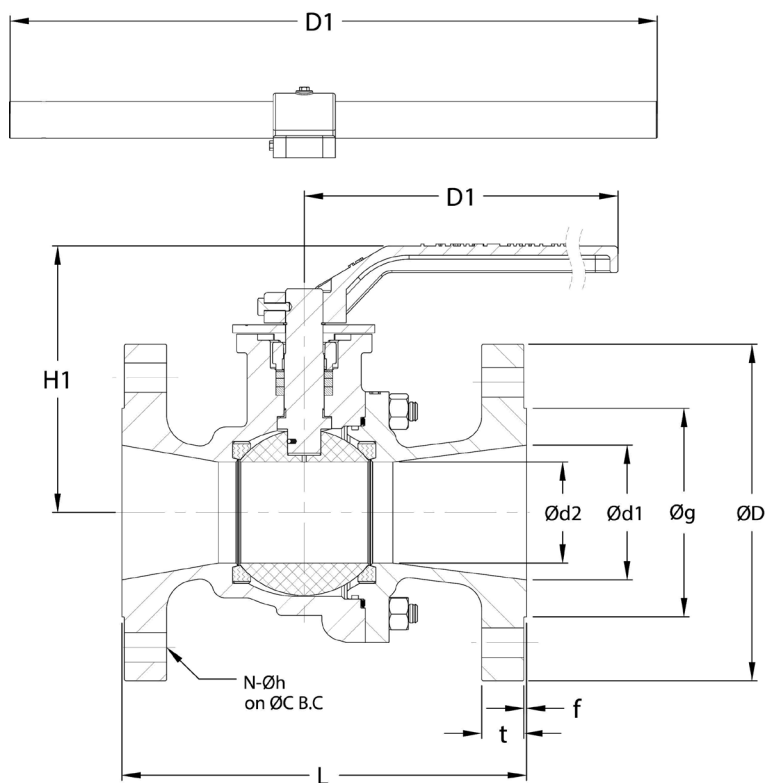
Item No.	Description
95	Actuator
96	Mount Nut
97	Mount Stud

NOTES:

1. P7 Standard Bore Model 2"–6" class 150, 300 & 600
2. Standard materials for petrochemical service shown. Other materials readily available. See 'How-to-Order' on page 18 for listing of available options.
3. Handle adapter used for class 150 & 300, 6" and above, and class 600, 4" and above.

DIMENSIONAL DATA

Model P7 Standard Bore, Two-Piece Body, API 608 Design



2" – 6" Model P7 Standard Bore, 2 piece
Pressure classes 150, 300, 600

150	Model P7, Class 150												Weight LBS
	Ød1	Ød2	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
2"	2.00	1.50	7.00	10.00	5.22	6.00	4.75	3.63	0.56	0.06	4	0.75	21
3"	3.00	2.00	8.00	16.54	6.13	7.50	6.00	5.00	0.69	0.06	4	0.75	34
4"	4.00	3.00	9.00	19.69	7.92	9.00	7.50	6.19	0.88	0.06	8	0.75	66
6"	6.00	4.00	10.50	19.69	8.76	11.00	9.50	8.50	1.00	0.06	8	0.88	112

300	Model P7, Class 300												Weight LBS
	Ød1	Ød2	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
2"	2.00	1.50	8.50	10.00	5.22	6.50	5.00	3.63	0.81	0.06	8	0.75	28
3"	3.00	2.00	11.12	16.54	6.13	8.25	6.62	5.00	1.06	0.06	8	0.88	49
4"	4.00	3.00	12.00	19.69	7.92	10.00	7.88	6.19	1.19	0.06	8	0.88	93
6"	6.00	4.00	15.87	19.69	8.76	12.50	10.62	8.50	1.38	0.06	12	0.88	162

600	Model P7, Class 600												Weight LBS
	Ød1	Ød2	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
2"	2.00	1.50	11.50	10.00	5.22	6.50	5.00	3.63	1.00	0.25	8	0.75	36
3"	3.00	2.00	14.00	16.54	6.45	8.25	6.62	5.00	1.25	0.25	8	0.88	62
4"	4.00	3.00	17.00	19.69	8.45	10.75	8.50	6.19	1.50	0.25	8	1.00	139
6"	6.00	4.00	22.00	59.06	11.18	14.00	11.50	8.50	1.88	0.25	12	1.12	277

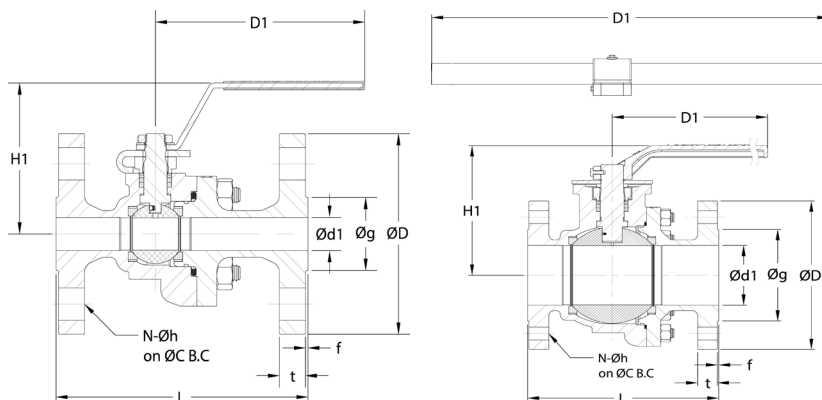
* 6" Class 150 also available in long pattern (L = 15.5")

DIMENSIONAL DATA

Model P8 Full Bore, Two-Piece Body,
API 608 Design

½" – 1": Pressure Classes
150, 300 & 600 (left)

1½" – 14": Pressure Classes
150, 300 & 600 (right)

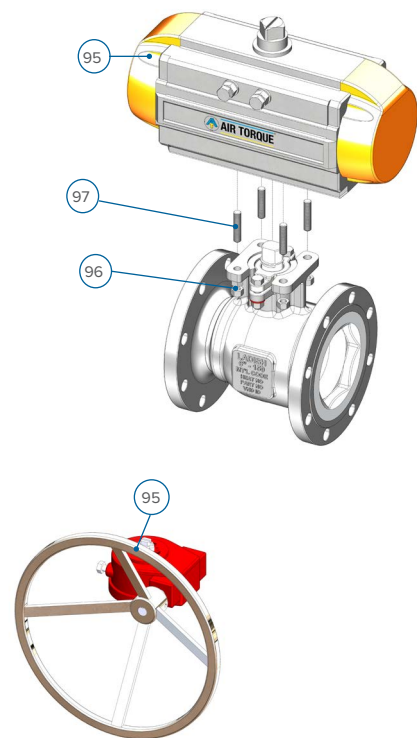
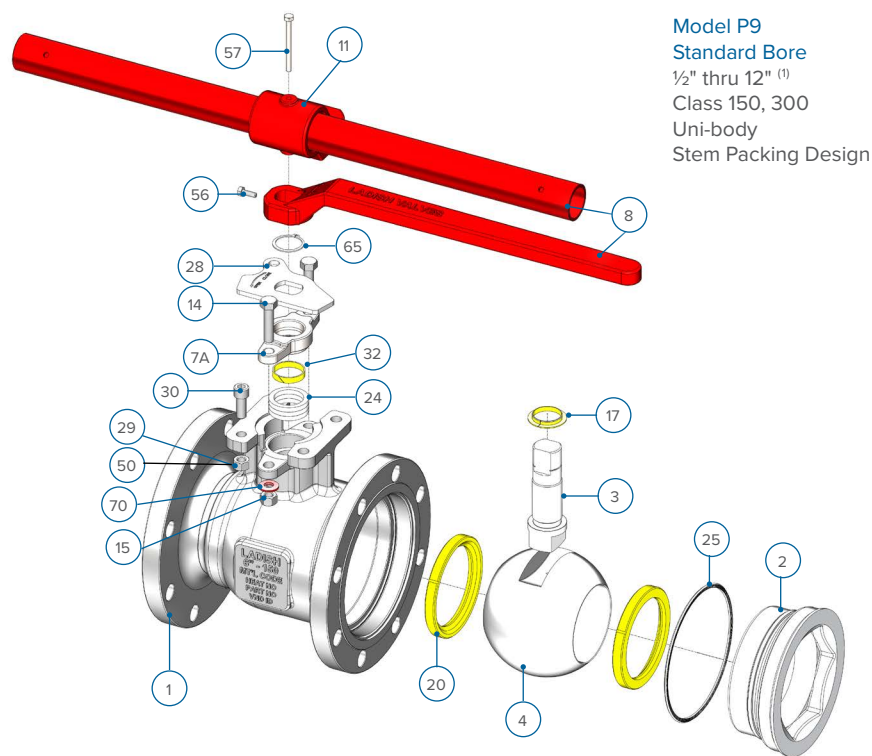


150	Model P8, Class 150											Weight LBS
	Ød1	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
½"	0.50	4.25	5.00	3.42	3.50	2.38	1.38	0.31	0.06	4	0.63	4
¾"	0.75	4.63	5.00	3.53	3.88	2.75	1.68	0.34	0.06	4	0.63	6
1"	1.00	5.00	6.25	4.39	4.25	3.12	2.00	0.38	0.06	4	0.63	8
1-½"	1.50	6.50	10.00	5.00	5.00	3.88	2.88	0.50	0.06	4	0.63	14
2"	2.00	7.00	16.56	6.13	6.00	4.75	3.63	0.56	0.06	4	0.75	25
3"	3.00	8.00	19.69	7.91	7.50	6.00	5.00	0.69	0.06	4	0.75	54
4"	4.00	9.00	19.69	8.74	9.00	7.50	6.19	0.88	0.06	8	0.75	87
6"	6.00	15.50	59.06	11.99	11.00	9.50	8.50	0.94	0.06	8	0.88	190
8"	8.00	18.00	63.00	15.38	13.50	11.75	10.62	1.06	0.06	8	0.88	362
10"	10.00	21.00	63.00	17.50	16.00	14.25	12.75	1.12	0.06	12	1.00	539
12"	12.00	24.00	63.00	20.50	19.00	17.00	15.00	1.19	0.06	12	1.00	646
14"	13.25	27.00	—	19.75	21.00	18.75	16.25	1.31	0.06	14	1.13	1907

300	Model P8, Class 300											Weight LBS
	Ød1	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
½"	0.50	5.50	5.00	3.42	3.75	2.61	1.38	0.50	0.06	4	0.63	6
¾"	0.75	6.00	5.00	3.53	4.62	3.25	1.68	0.56	0.06	4	0.75	9
1"	1.00	6.50	6.32	4.39	4.88	3.50	2.00	0.63	0.06	4	0.75	12
1-½"	1.50	7.50	9.60	5.22	6.12	4.50	2.88	0.81	0.06	4	0.88	18
2"	2.00	8.50	16.56	6.13	6.50	5.00	3.63	0.81	0.06	8	0.75	32
3"	3.00	11.12	19.69	7.91	8.25	6.62	5.00	1.06	0.06	8	0.88	72
4"	4.00	12.00	19.69	8.74	10.00	7.88	6.19	1.19	0.06	8	0.88	120
6"	6.00	15.88	59.06	12.56	12.50	10.62	8.50	1.38	0.06	12	0.88	256
8"	8.00	19.75	63.00	15.38	15.00	13.00	10.62	1.56	0.06	12	1.00	475
10"	10.00	22.38	63.00	17.50	17.50	15.25	12.75	1.81	0.06	16	1.13	722
12"	12.00	25.50	63.00	20.50	20.50	17.75	15.00	2.00	0.06	16	1.25	866
14"	13.25	30.00	—	19.75	23.00	20.25	16.25	2.06	0.06	20	1.25	2579

600	Model P8, Class 600											Weight LBS
	Ød1	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
½"	0.50	6.50	5.00	3.42	3.75	2.63	1.38	0.63	0.25	4	0.63	8
¾"	0.75	7.50	5.00	3.67	4.63	3.25	1.68	0.68	0.25	4	0.75	11
1"	1.00	8.50	6.32	4.39	4.88	3.50	2.00	0.68	0.25	4	0.75	15
1-½"	1.50	9.50	10.00	5.22	6.13	4.50	2.88	0.94	0.25	4	0.88	23
2"	2.00	11.50	16.56	6.42	6.50	5.00	3.63	1.00	0.25	8	0.75	42
3"	3.00	14.00	19.69	8.44	8.25	6.62	5.00	1.25	0.25	8	0.88	98
4"	4.00	17.00	59.06	11.18	10.83	8.50	6.19	1.56	0.25	8	1.00	194
6"	6.00	22.00	63.00	13.95	14.00	11.50	8.50	1.88	0.25	12	1.13	443

PARTS & MATERIALS: P9 Design



Item No.	Description	Material	
1	Body	CF8M	WCB
2	Cap	CF8M	WCB
3	Stem	ASTM A176 316	
4	Ball	ASTM A351 CF8M	
7A	Gland Flange	ASTM A351 CF8M	
8	Handle	ASTM A47	
11	Handle Adapter	ASTM A197	
14	Gland Flange Bolt	ASTM A193 B8M CL1	
15	Gland Flange Nut	ASTM A194 GR8	
17	Thrust Bearing	TFM	
20	Seat	TFM	
24	Packing	GRAPHOIL/TFE	
25	Gasket	SPW GRAPHOIL/TFE	
28	Stop Plate	STAINLESS STEEL	
29	Stop Nut	ASTM A194 GR8	
30	Stop Bolt	ASTM A193 B8 CL1	
32	Stem Bearing	GRAPHOIL/TFE	
40	Name Plate (not shown)	STAINLESS STEEL	
50	Stop Lock Washer	STAINLESS STEEL	
56	Handle Bolt	STEEL + ZINC	
57	Adapter Bolt	STEEL + ZINC	
65	Snap Ring (stop plate)	STAINLESS STEEL	
70	Spring Washer	INCONOL	

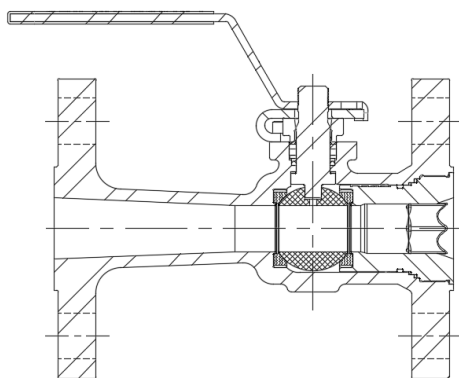
Item No.	Description
95	Gear
	Actuator
96	Mount Nut
97	Mount Stud

- NOTES:**
- Standard materials for petrochemical service shown. Other materials readily available. See "How-to-Order" on page 18 for listing of available options.
 - Handle adapter used for class 150 & 300, 6" and above.

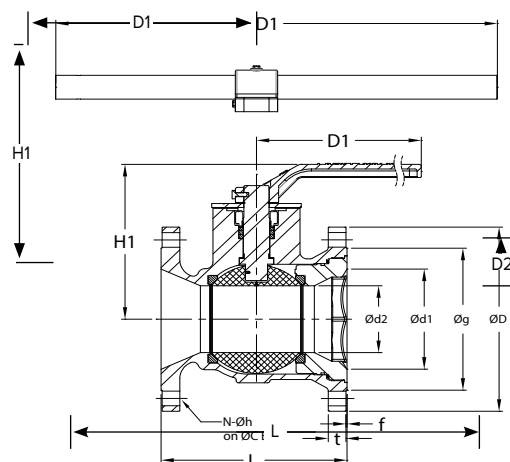


DIMENSIONAL DATA

Model P9 Standard Bore, Uni-Body, Stem Packing API 608/6D Design



1/2"–1 1/2" Model P9 Uni-Body Pressure
Classes 150 & 300



2"–12" Model P9 Bore, Uni-Body
Pressure Classes 150 &
300

150	Model P9, Class 150												Weight LBS
	Ød1	Ød2	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
1/2"	0.50	0.38	4.25	5.00	2.91	3.50	2.38	1.38	0.31	0.06	4	0.63	3
3/4"	0.75	0.50	4.61	5.00	3.42	3.88	2.75	1.69	0.34	0.06	4	0.63	4
1"	1.00	0.75	5.00	5.00	3.53	4.25	3.12	2.00	0.38	0.06	4	0.63	6
1 1/2"	1.50	1.00	6.50	6.30	4.39	5.00	3.88	2.88	0.50	0.06	4	0.63	10
2"	2.00	1.50	7.00	16.56	6.13	6.00	4.75	3.63	0.56	0.06	4	0.75	20
3"	3.00	2.00	8.00	19.69	7.91	7.50	6.00	5.00	0.69	0.06	4	0.75	36
4"	4.00	3.00	9.00	19.69	8.74	9.00	7.50	6.19	0.88	0.06	8	0.75	55
6"	6.00	4.00	10.50	19.69	9.27	11.00	9.50	8.50	0.94	0.06	8	0.88	102
8"	8.00	6.00	11.50	59.00	12.00	13.50	11.75	10.62	1.06	0.06	8	0.88	192
10"	10.00	7.36	13.00	63.00	14.88	16.00	14.25	12.75	1.12	0.06	12	1.00	310
12"	12.00	9.00	14.00	63.00	16.44	19.00	17.00	15.00	1.19	0.06	12	1.00	362

300	Model P9, Class 300												Weight LBS
	Ød1	Ød2	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
1/2"	0.50	0.38	5.50	5.00	2.91	3.75	2.63	1.38	0.50	0.06	4	0.63	4
3/4"	0.75	0.50	6.00	5.00	3.42	4.62	3.25	1.69	0.56	0.06	4	0.75	7
1"	1.00	0.75	6.50	5.00	3.53	4.88	3.50	2.00	0.62	0.06	4	0.75	9
1 1/2"	1.50	1.00	7.50	6.30	4.39	6.12	4.50	2.88	0.75	0.06	4	0.88	16
2"	2.00	1.50	8.50	16.56	6.13	6.50	5.00	3.63	0.81	0.06	8	0.75	25
3"	3.00	2.00	11.12	19.69	7.91	8.25	6.62	5.00	1.06	0.06	8	0.88	52
4"	4.00	3.00	12.00	19.69	8.74	10.00	7.88	6.19	1.19	0.06	8	0.88	84
6"	6.00	4.00	15.88	19.69	9.27	12.50	10.62	8.50	1.44	0.06	12	0.88	150
8"	8.00	6.00	16.50	59.00	12.00	15.00	13.00	10.62	1.62	0.06	12	1.00	260
10"	10.00	7.36	18.00	63.00	14.88	17.50	15.25	12.75	1.88	0.06	16	1.12	411
12"	12.00	9.00	19.75	63.00	16.44	20.50	17.50	15.00	1.94	0.06	16	1.25	695

HOW TO ORDER

Ladish Flanged Floating Ball Valve

The Ladish Valves figure number is compromised of 16 alpha numeric digits defining the required product in detail. If you need assistance, give our knowledgeable sales staff a call at 281.880.8560 with the leading 4 digits and we can guide you through the rest. Our aim is to provide you with precisely what you need.

EXAMPLE:

P815-L15A-GG03-A40M = 4" CL150 RF BALL A351 CN7M TR A20 CARBON GRF B8MCL1 FIRE SAFE NACE

VALVE STYLE	CONSTRUCT & VALVE TYPE	ANSI CLASS	END CONNECT	OPER.	BODY/CAP MATERIAL	BALL/STEM MATL.	PACKING & GASKET
P	8	1	5	L	15	A	G
P - Packing R - Oring B - Bellowseal	1 - Bar 2-PC, Long Pattern, Reduced Port 2 - Bar 2-PC, Long Pattern, Full Port 7 - Cast 2-PC, Split Body, Long Pattern, Reduced Port 8 - Cast, 2-PC, Split Body, Long Pattern, Full Port 9 - Cast Floater, Uni-body, Short Pattern, Reduced Port A - Bar 3-PC, Long Pattern, Full Port B - Bar 3-PC, Long Pattern, Reduced Port C - Cast 3-PC, Long Pattern, Full Port D - Cast 3-PC, Long Pattern, Reduced Port G - Cast 2-PC, Split body, Short Pattern, Reduced Port K - Instrumentation, Full Port L - Instrumentation, Reduced Port R - Forged, 3-PC, Long Pattern, Reduced Port S - Forged, 3-PC, Long Pattern, Full Port	1 - 150 2 - 2500 3 - 300 5 - 1500 6 - 600 8 - 800 9 - 900 A - 1000 WOG B - 1500 WOG C - 2000 WOG D - 3000 WOG E - 4000 WOG F - 5000 WOG G - 6000 WOG	1 - THD X MSWE 2 - THD X MNPT 3 - NPT 4 - SWE 5 - RF 7 - THD-SWE A - BWE-S5 B - BWE-S10 C - BWE-S40 D - BWE-S80 E - BWE-S160 F - BWE-S180 G - BWE-XXS H - MSWE-iFLG I - iFLG-iFLG J - RTJ K - FSWE-iFLG L - MTHD-iFLG M - FTTHD-iFLG O - MSWE	A - Actuator B - Bare Stem G - Gear L - Lever V - Oval Handle		0 - SAME AS BODY 3 - 316SS 4 - 410SS 5 - 316SS/DUPLEX 7 - 316/17-4PH 8 - 316SS/NITRONIC 60 A - ALLOY 20 B - ALLOY 20/HC276 C - ALLOY 20/INC600 D - DUPLEX S32205/S32205 E - ENP (316SS/316SS) G - HASTELLOY C22 H - HASTELLOY C276 K - MONEL 400/K500 L - HASTELLOY B2 M - MONEL 400 N - NICKEL N02200 P - INCONEL 625 Q - INCONEL 825 S - 904L T - TITANIUM G2 U - TITANIUM G2/G5 Z - ZIRCONIUM 702C	A - VITON A B - BUNA N D - DUAL PKG: PRIMARY: TFE SECONDARY: GRF E - EPDM F - DUAL PKG: PRIMARY: GRF SECONDARY: GRF G - GRAPHOIL H - HNBR (ED) R - ROW TEMP BUNA S - GLASS FILLED PTFE T - PTFE W - VITON B X - VITON GLT Y - VITON GF Z - AFLAS

MATERIALS OF CONSTRUCTION

71 A216 WCB/WCC	16 A351 CK3MCUN	26 A494 N7M	37 A494 CZ100	60 B367 GRC2
72 A352 LCC/LCB	17 A351 CN3MN	30 A494 M35-1	38 A494 CY40 CL.2	61 B367 GRC3
05 A351 CF8M / A182 F316	20 A494 CW12MW	31 A494 M35-2	52 A995 CD4MCUN-GR1B	62 B367 GRC7
06 A351-CF3M	21 A494 CW6M	32 A494 M30C	53 A995 CE8MN-GR2A	63 B752 GR702C
10 A351 CG8M	22 A494 CW2M	33 A494 CY40	54 A995 CD6MN-GR3A	65 A351 CF8M
11 A351 CG3M	23 A494 CX2MW	34 A494 CW6MC	55 A995 CD3MN-GR4A	69 A216 WCB
12 A351 CF8C	24 A494 CX2M	35 A351 CT15C	56 A995 CE3MN-GR5A	BAR STOCK EQUIVALENTS ALSO AVAILABLE
15 A351 CN7M	25 A494 N12MV	36 A494 CU5MCuC	57 A995 CD3MWCUN-GR6A	



SEAT MATERIAL	BOLTING & NUTS	MISC. OPTION	SIZE	DESIGN FIRE-SAFE NACE	MODIFIER
G	03	A	40	M	0000
C - Carbon Filled TFMC D - Delrin® E - TFMC-HT (HIGH TEMP) F - VIRGIN TFM N - Nylon Devlon® P - PEEK® V - VespeI® 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 - No Added Option B - Cleaned C - Cryo w/ Vented Ball D - Cryo w/out vented ball E - Extended Handle F - Fugitive Emission Ext. Bonnet Lantern Ring w/ Port (Ext. Handle Height) G - Cleaned / Packaged for Chlorine Service (per pamphlet 6), - Suitable for Vacuum Service (-14.25 psi), - No "300 series" fasteners for body or gland - Dye Penetrant testing on machined surfaces H - Fugitive Emission Extended Bonnet Lantern Ring (Chlorine Clean) I - IEC Flange J - Hemloch; Cryo (non-vented) Inc718 Bellville washer K - Cryo; Teadit 2236 PKG. Cleaned of Anhydrous Service M - Acid Shield N - Cavity Filler P - Multi-ports: 3x1/2" NPT Instrument Control Ports Q - FNPT End Connect. R - 100% Critical Areas RT S - Square Stem V - Unidirectional (Vented Ball - Standard Bonnet) W - Chain Wheel Operated Y - Yellow Paint Z - Nitronic 50 Stem	05 - 1/2" 07 - 3/4" 10 - 1" 15 - 1-1/2" 20 - 2" 30 - 3" 40 - 4" 60 - 6" 80 - 8" 81 - 10" 82 - 12"	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	NA
LADISH VALVES					

ACTUATOR MOUNTING DATA

Valve Size	Model P8 Class Class 150/300							
		A	B	n x ØI	ØJ	ØR	S	T
						STEM DIMENSIONS		
½"	F03	1.42	1.29	4 x 10-24UNC	1.417	0.500	0.354	0.915
¾"	F03	1.42	1.45	4 x 10-24UNC	1.417	0.500	0.354	0.915
1"	F05	1.97	1.77	4 x ¼-20UNC	1.969	0.562	0.433	1.099
1-½"	F07	2.76	3.68	4 x .374	2.756	0.874	0.669	0.728
2"	F07	3.86	4.07	4 x .374	2.756	0.870	0.669	0.809
	F10	3.86	4.07	4 x .453	4.016	0.870	0.669	0.809
3"	F10	4.02	5.3	4 x .453	4.016	1.110	0.866	1.348
4"	F12	4.91	6.12	4 x .571	4.921	1.425	1.063	1.363
6" (150)	F14	5.51	8.03	4 x .689	5.512	1.898	1.417	1.673
6" (300)	F14	5.51	8.62	4 x .689	5.512	1.898	1.417	1.673
8"	F16	6.5	10.79	4 x .807	6.496	2.370	1.811	1.951
	F25	11.81	10.79	8 x .689	10.000	2.370	1.811	1.951
10" (150)	F16	6.50	12.91	4 x .807	6.496	2.370	1.811	2.262
10" (300)	F16	11.73	12.91	4 x .807	6.496	2.370	1.811	2.262
	F19	11.73	12.91	8 x .689	7.500	2.370	1.811	2.262
	F25	11.73	12.91	8 x .689	10.000	2.370	1.811	2.262
14" (150)	F25	13.78	6.12	8 x .689	10.000	1.425	1.063	1.363
	F30	13.78	6.12	8 x .812	11.732	1.425	1.063	1.363

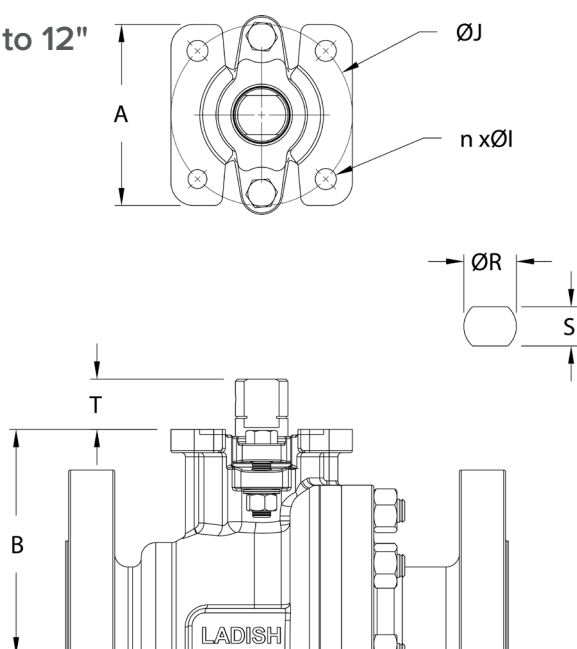
Valve Size	Model P8 Class 600							
		A	B	n x ØI	ØJ	ØR	S	T
						STEM DIMENSIONS		
½"	F03	1.42	1.29	4 x 10-24UNC	1.417	0.500	0.354	0.915
¾"	F03	1.42	1.55	4 x 10-24UNC	1.417	0.500	0.354	0.916
1"	F05	1.97	1.77	4 x ¼-20UNC	1.969	0.562	0.433	1.099
1-½"	F07	2.83	3.63	4 x .374	2.756	0.874	0.669	0.728
2"	F07	3.86	4.34	4 x .374	2.756	0.874	0.669	0.820
	F10	3.86	4.34	4 x .453	4.016	0.874	0.669	0.820
3"	F12	4.92	5.82	4 x .571	4.921	1.425	1.063	1.365
4"	F14	5.51	7.15	4 x .689	5.512	1.898	1.417	1.673
6" (600)	F16	6.69	9.547	4 x .807	6.496	2.370	1.811	1.951

Valve Size	Model P7 Class 150/300							
		A	B	n x ØI	ØJ	ØR	S	T
						STEM DIMENSIONS		
2"	F07	2.76	3.63	4 x .374	2.756	0.874	0.669	0.728
3"	F07	3.86	4.07	4 x .374	2.756	0.870	0.669	0.809
	F10	3.86	4.07	4 x .453	4.016	0.870	0.669	0.809
4"	F10	4.02	5.30	4 x .453	4.016	1.110	0.866	1.348
6"	F12	4.92	6.12	4 x .571	4.921	1.425	1.063	1.363

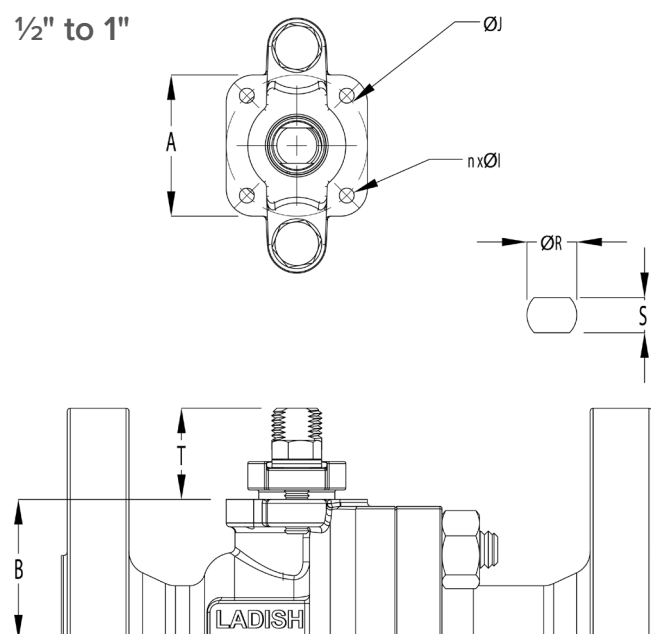
Valve Size	Model P7 Class 600							
		A	B	n x ØI	ØJ	ØR	S	T
						STEM DIMENSIONS		
2"	F07	2.76	3.63	4 x .374	2.756	0.874	0.669	0.728
3"	F07	3.86	4.34	4 x .374	2.756	0.874	0.669	0.850
	F10	3.86	4.34	4 x .453	4.016	0.874	0.669	0.850
4"	F12	4.92	5.82	4 x .571	4.921	1.425	1.063	1.365
6"	F14	5.51	7.15	4 x .689	5.512	1.898	1.417	1.673

Valve Size	Model P9 Class 150/300							
		A	B	n x ØI	ØJ	ØR	S	T
						STEM DIMENSIONS		
½"	-	1.14	0.78	4 x 8-32UNC	1.102	0.274	0.215	0.453
¾"	F03	1.42	1.29	4 x 10-24UNC	1.417	0.500	0.354	0.915
1"	F03	1.42	1.42	4 x 10-24UNC	1.417	0.500	0.354	0.906
1-½"	F05	1.97	1.77	4 x ¼-20UNC	1.969	0.562	0.433	1.099
2"	F07	2.76	3.63	4 x .374	2.756	0.874	0.669	0.728
3"	F07	3.86	4.07	4 x .374	2.756	0.870	0.669	0.809
	F10	3.86	4.07	4 x .453	4.016	0.870	0.669	0.809
4"	F10	4.02	5.30	4 x .453	4.016	1.110	0.866	1.348
6"	F12	4.92	6.63	4 x .571	4.921	1.425	1.063	1.363
8"	F14	5.51	7.95	4 x .689	5.512	1.898	1.417	1.673
10"	F16	6.69	10.29	4 x .807	6.496	2.370	1.811	1.959
12"	F16	11.81	10.79	4 x .807	6.496	2.370	1.811	1.959

1.5" to 12"



½" to 1"

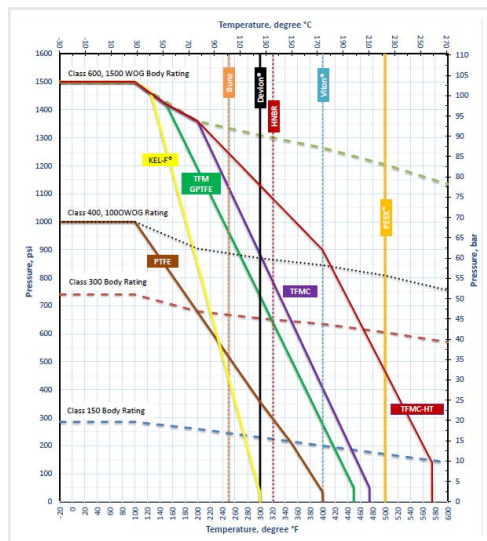


PRESSURE & TEMPERATURE RATINGS

The pressure temperature ratings for the Ladish Valves ball valve product line are determined by a combination of the body, seal and seating material. The charts below serve as a representative of our most common seat materials. For ratings on other materials, please contact a Ladish team member.

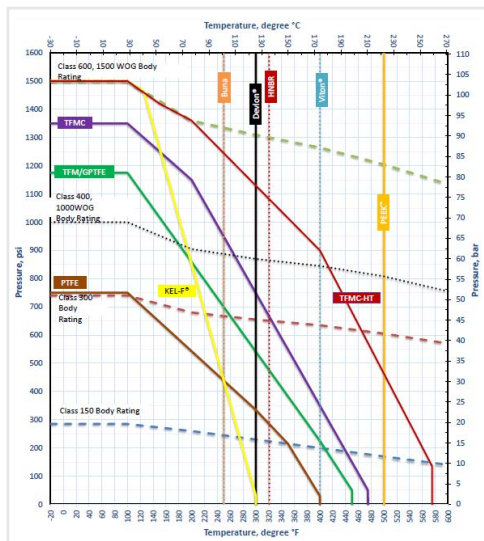
P8 Model: ½" thru 1 ½"

P9: ½" thru 2"



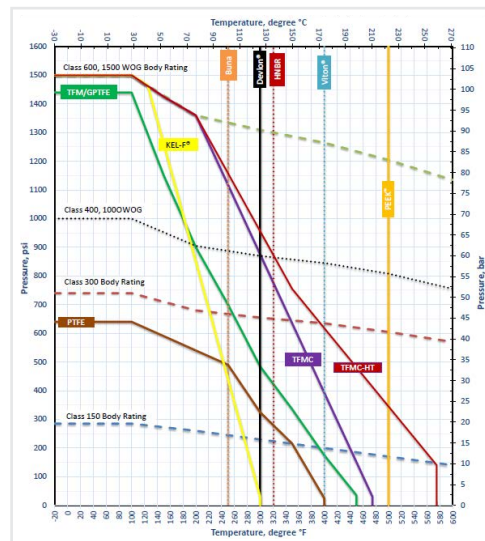
P8 Model: 2"

P7, P9: 3"



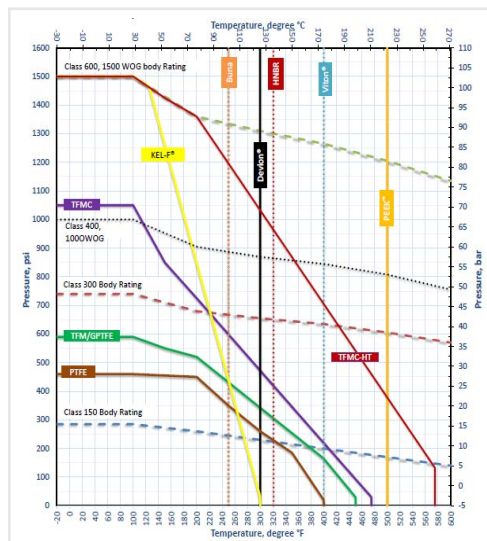
P8 Model: 3" thru 4"

P7, P9: 4" thru 6"



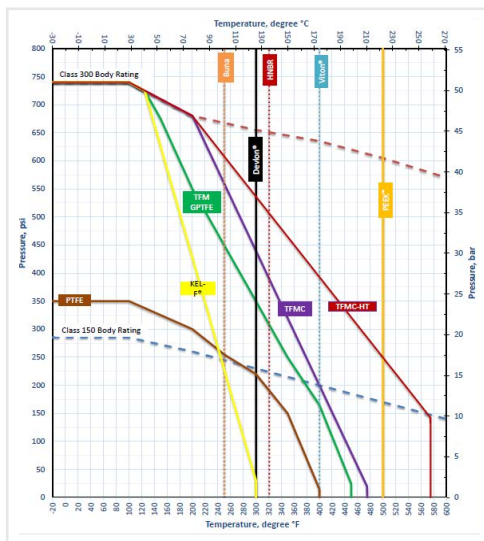
P8 Model: 6"

P9: 8"



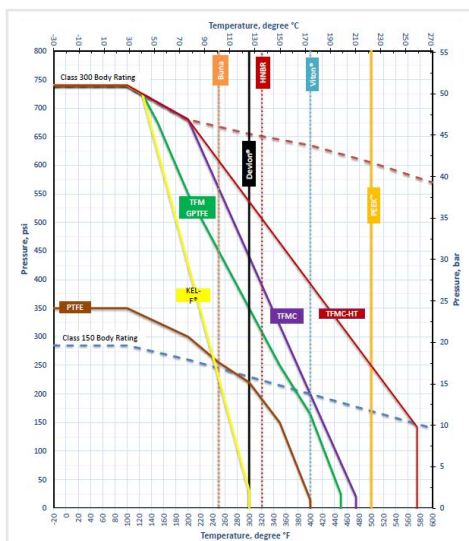
P8 Model: 8" thru 10"

P9: 10" thru 12"



P8 Model: 8" thru 14"

P7, P9: 10" thru 16"



NOTES:

1. The body ratings shown are for A216 WCB and A351 CF8M. For other shell materials, refer to the latest edition of ASME B16.34
2. The body pressure rating of the valve at service temperatures below -20°F (-29°C) shall not exceed the ASME B16.34 pressure rating at -20°F (-29°C)
3. The seat and seal pressure ratings of the valve at service temperatures below -20°F (-29°C) shall not exceed the above pressure rating at -20°F (-29°C).

FLOW COEFFICIENTS

Flow Coefficients (C _v) and Pressure Conversion Chart						
Valve Size	Series		Bore	Pressure Class		
				150	300	600
½"	P8/P2		FP	16	16	15
	P9		RP			
¾"	P8/P2		FP	40	39	36
	P7/P1		RP			
	P9	DOWNSTREAM		12	12	-
		UPSTREAM		13	13	-
1"	P8/P2		FP	78	74	70
	P7/P1		RP			
	P9	DOWNSTREAM		29	29	-
		UPSTREAM		30	30	-
1-½"	P8/P2		FP	189	179	171
	P7/P1		RP			
	P9	DOWNSTREAM		48	50	-
		UPSTREAM		53	56	-
2"	P8/P2		FP	369	338	321
	P7/P1		RP			
	P9	DOWNSTREAM		125	119	-
		UPSTREAM		129	129	-
2-½"	P8/P2		FP	-	-	-
	P7/P1		RP	-	-	-
3"	P8/P2		FP	900	833	793
	P7/P1		RP			
	P9	DOWNSTREAM		191	185	-
		UPSTREAM		187	207	-
4"	P8/P2		FP	1652	1602	1511
	P7/P1		RP			
	P9	DOWNSTREAM		475	476	-
		UPSTREAM		465	524	-
6"	P8/P2		FP	3987	3943	-
	P9	DOWNSTREAM	RP	768	784	-
		UPSTREAM		726	840	-
8"	P8/P2		FP	7730	7773	-
	P9	DOWNSTREAM	RP	1301	1390	-
		UPSTREAM		1232	1291	-
10"	P8/P2		FP	12446	12760	-
	P9	DOWNSTREAM	RP	2453	2618	-
		UPSTREAM		2273	2543	-
12"	P8/P2		FP	-	-	-
	P9	DOWNSTREAM	RP	3169	3467	-
		UPSTREAM		3110	3698	-
14"	P8/P2		FP	20010	19950	-

FLOW COEFFICIENTS (C_v) FACTOR

Capacity factors for the series P1, P2, P7, P8 and P9 designs listed are to be used as a reference for correct valve sizing. C_v equals the volume of water in gallons per minute that will flow through a given opening with a pressure drop of one psi.

PRESSURE CONVERSION

Directions: Formulas below may be used for pressure conversions.

$$\text{psi} \times 0.06894757 = \text{bar}$$

$$\text{bar} \times 14.50377 = \text{psi}$$

$$\text{psi} \times 0.07030697 = \text{Kg/cm}^2$$

$$\text{Kg/cm}^2 \times 14.22334 = \text{psi}$$

$$\text{psi} \times 6894.757 = \text{Pascal}$$

$$\text{Pascal} \times 0.0001450377 = \text{psi}$$

LADISH PF-1 FLOATING BALL VALVE FULL AND STANDARD PORT DESIGNS



Ladish Valves **PF-1 series** is our most economical ball valve line, yet retains all of the technical features needed for the most demanding industrial applications.

This series is available in split-body full port as well as one-piece (unibody) standard port designs. All valves in this series are API 608 compliant and available in carbon steel (WCB) and 316 (CF8M) stainless steel construction.

Key Standard Features:

- Seating: Engineered TFM advanced polymer technology.
- Low Emission Packing: Valves are certified to meet API 641 Group A, and use API 622 qualified packing.
- Integral ISO mounting pad for ease of automation without bracket or separate coupler
- Internal and external RPTFE Stem bearings to prevent “side loads” that can cause leakage in the field.
- Live-Loaded stem packing. Fully adjustable live loading even with actuation installed
- Blowout-proof stem
- Fully captured spiral-wound body gasket (graphite filled) in split-body full port valves
- Meets ASME B16.5, B16.10 and B16.34. Also meets API 608 and 641. Valves are API 607 certified when supplied with standard graphite or dual packing.
- NACE MR-0175 and MR-0103 material standard. full certification available.
- Testing to API 598
- All ball valves assembled and tested in Houston

Model	Type	Ansi Class	End Connect	Oper.	Body Material	Trim	Packing	Seat Material	Body Bolting	Misc. Options	Size	Design Options
P	9	1	5	L	65	0	G	F	00	A	20	M
Process Floating	9 - Cast Unibody Standard Bore	1 - CL 150	5 - Raised Face Flange	V - Oval Handle	65 - A351 CF8M (Stainless)	0 - Same as Body	G - API 622 Graphite	F - TFM 1600	00 - No Body Bolting Required	A - No Options	05 - ½"	M - API 608, Fire Safe Meets NACE MRO103 Material Requirements
	8 - Cast, Split Body, Full Port	3 - CL 300		L - Lever	69 - A216 WCB	3 - 316SS	D - Dual. PTFE Primary, API 622 Graphite Secondary		03 - B8M CL1	E - Extended Stem 4" Bolt On	07 - ¾"	N - API 608 Fire Safe
				G - Gear					06 - B7M/2HM		10 - 1" 15 - 1½"	
				B - Bare Stem							20 - 2" 30 - 3" 40 - 4" 60 - 6" 80 - 8" 81 - 10" 82 - 12"	

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

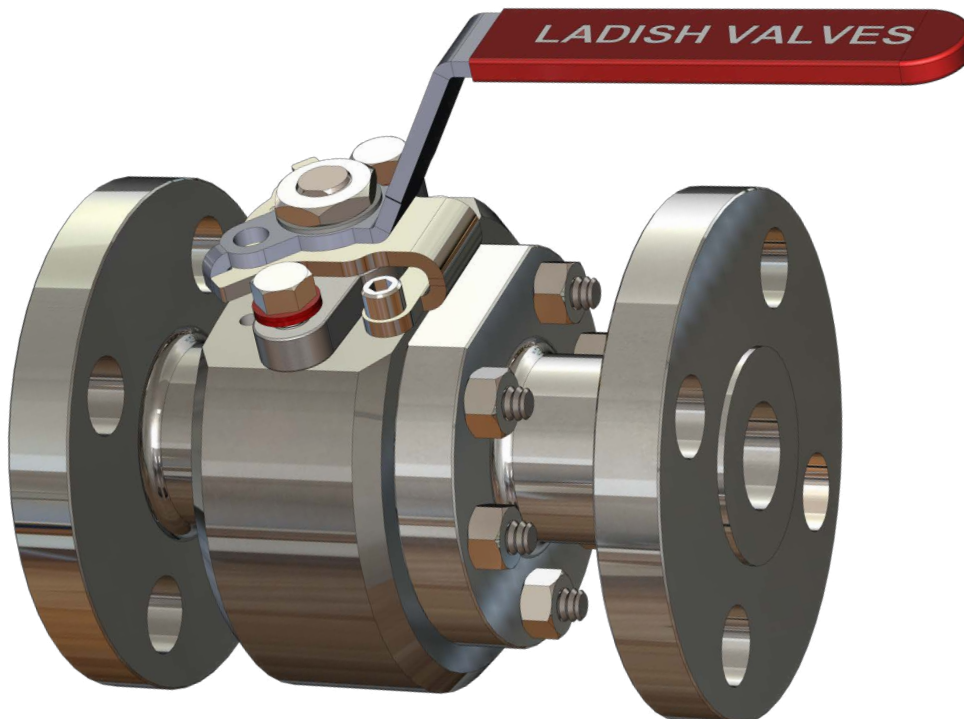
- Provides Ladish up-to-date access to the latest standard changes

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
- Bar stock



LADISH VALVES

CONTROLLED QUALITY • CORROSION RESISTANT



TO MARK PROGRESS

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