LADISH VALVES

CONTROLLED QUALITY • CORROSION RESISTANT

TO MARK PROGRESS

MEGA SEAL FLOATING BALL VALVES

Metal & Graphite Seated

CATALOG 411

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LADISH MALT
LADISH MALTING CO
MILWAUKEE, WIS.
THERE IS
NO SUBSTITUTE
FOR FINE
Malt
LADISH
QUALITY
FLOUR
LADISH
VALVES

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

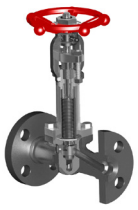
½"–36"
CL150 — CL2500

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

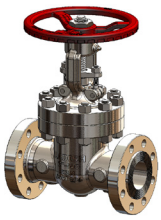
CATALOG 411
MEGA SEAL FLOATING BALL VALVES

FULL/STANDARD BORE
PACKING STEM DESIGN

ALSO AVAILABLE



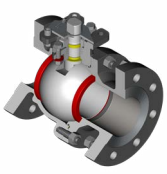
FORGED STEEL
CATALOG 221



CAST STEEL
CATALOG 821

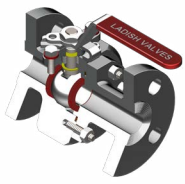
CRYOGENIC
CATALOG 321

HIGH PRESSURE
CATALOG 231



API 608 PROCESS BALL VALVES
CATALOG 401

BALL VALVES
CATALOG 421



BAR STOCK BALL VALVES
CATALOG 451

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.

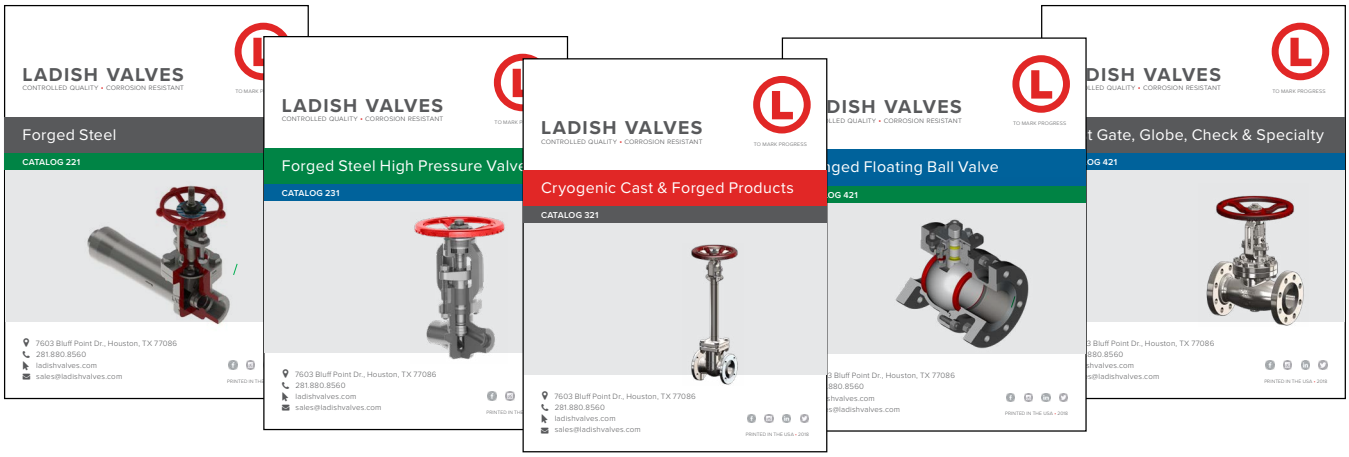
Ladish has a full complement of value-added services to address the many challenges that often delay projects. Our team specializes in quick turnaround deliveries—even on challenging orders—with the confidence of controlled quality through in-house design and manufacturing.

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

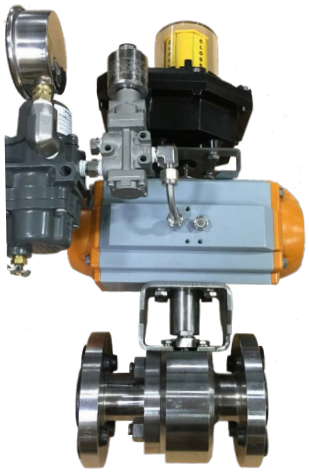
Ladish Product Line Catalogs



CATALOG 221 CATALOG 231 CATALOG 321 CATALOG 421 CATALOG 821

LADISH VALVES

After moving from Cynthiana, Kentucky to Houston in 2007, Ladish 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: MEGA SEAL Ball Valves - API 608 Design

CLASS	MODEL	SEAL	BODY	BORE	ENDS	½"	¾"	1"	1 ½"	2"	3"	4"	6"	8"	10"	12"	14"
150	P8	PACKING	2 PIECE	FULL	RF	◐	◐	◐	◐	◐	◐	◐	●	●	●	●	●
	P7	PACKING	2 PIECE	STANDARD	RF	—	—	—	—	◐	◐	◐	●	—	—	—	—
	P9	PACKING	UNI-BODY	STANDARD	RF	◐	◐	◐	◐	◐	◐	◐	●	●	●	●	—
300	P8	PACKING	2 PIECE	FULL	RF	◐	◐	◐	◐	◐	◐	◐	◐	●	●	●	●
	P7	PACKING	2 PIECE	STANDARD	RF	—	—	—	—	◐	◐	◐	◐	—	—	—	—
	P9	PACKING	UNI-BODY	STANDARD	RF	◐	◐	◐	◐	◐	◐	◐	◐	●	●	●	—
600	P8	PACKING	2 PIECE	FULL	RF	◐	◐	◐	◐	◐	◐	◐	●	—	—	—	—
	P7	PACKING	2 PIECE	STANDARD	RF	—	—	—	—	◐	◐	◐	◐	—	—	—	—

● = Long Pattern ● = Short Pattern ◐ = Long/Short Pattern

API 607 Fire Test (certifications available upon request)

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
FIRE-SAFE 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

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

LADISH VALVES

MEGA SEAL Design

Ladish Valves MEGA SEAL is our Critical-Service Metal and Graphite Seated Floating Ball Valve line with all of the technical features needed for the more 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 (Uni-body) reduced port construction. Available in Exotic Alloys as well as more common materials, the MEGA SEAL should be your go-to choice for Critical and Toxic Services in applications where Elastomeric Seats and Seals are impossible to use or limit system reliability.

Metal Seating

For Critical services containing solids, including those with high temperatures and pressures, Ladish recommends our Metal-Seated Ball Valve. This is a Bi-Directional Valve with graphite solids-proof gaskets between the seats and valve body. Ball and seat coatings prevent damage to erosion and galling during cycling. Features Include:

- Fully captured spiral-wound graphite filled body gasket on split body designs.
- Meets ASME B16.5, B16.10 and B16.34 design.
- Locking lever or gear operator standard.
- Blowout-proof stem
- Full and standard port available
- Testing to API 598
- All ball valves assembled and tested in Houston
- Meets all requirements of API 608
- 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 on cast valves for ease of automation without bracket or separate coupler.
- Internal and external stem bearings to prevent “side loads” that can cause leakage in the field.
- Live-loaded stem packing. Fully adjustable even with actuation installed.

Graphite Seating

For relatively clean High Temperature Applications, Ladish recommends our Bi-Directional, Compressed Carbon Graphite Seated valve with base metal ball.

- Self-lubricating for lower torque valve operation
- Resists corrosion and thermal cracking
- Seat material allows operation up to 1000F
- Tight shut-off capability

LADISH VALVES

Coating Options

Chromium Carbide with Nickel Chrome Binder

This HVOF applied coating is very wear resistant and an outstanding choice for the majority of special services including Steam and non-corrosive applications. It achieves a Hardness of approximately 68 HRC and is effective up to 1400F.

Tungsten Carbide with Cobalt Binder

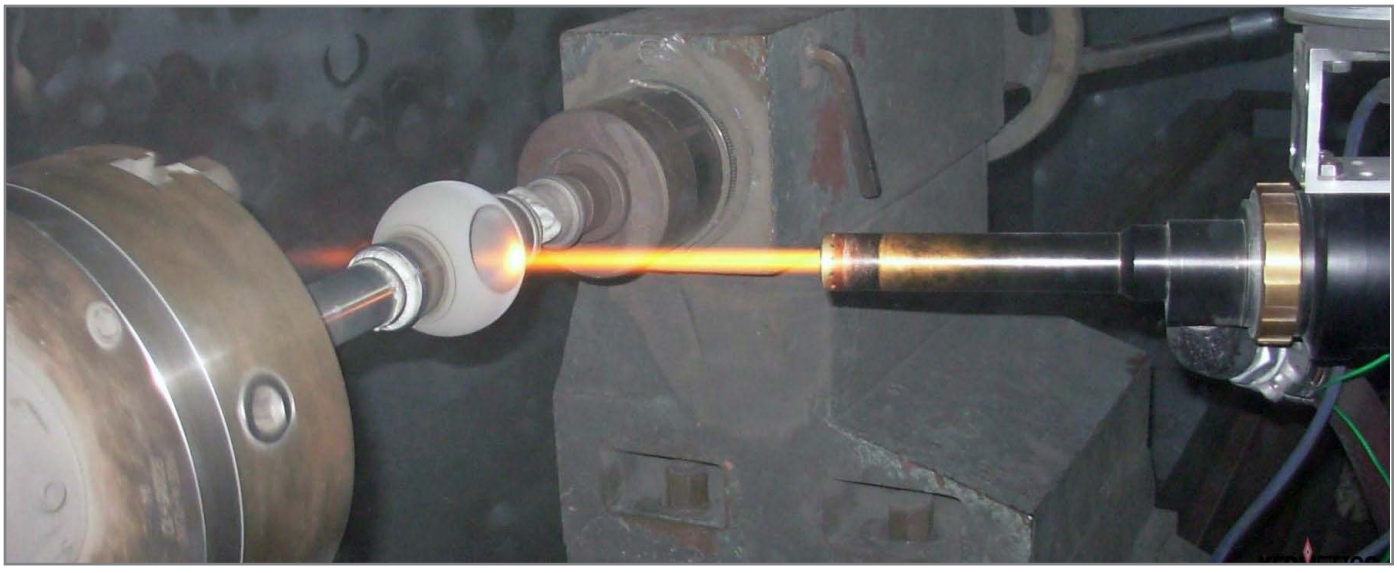
This is a standard for many lower temperature (Cryogenic - 900F) abrasive applications. It is also commonly used in Automated Valves in High-Cycle Service. This HVOF applied coating achieves a hardness of approximately 72 HRC.

Chromium Oxide

This is a plasma-applied Corrosion Resistant coating used in services where weak acids may be present and High Nickel Alloy valves are used. It is less erosion resistant with a HRC hardness of 60 - 65, but is recommended when ceramic-like corrosion resistance is required.

Specialty Coatings

Due to the wide variety of applications which may require metal-seated valves, Ladish also offers a variety of more specialized coatings. Please contact the factory for recommendations.



Options

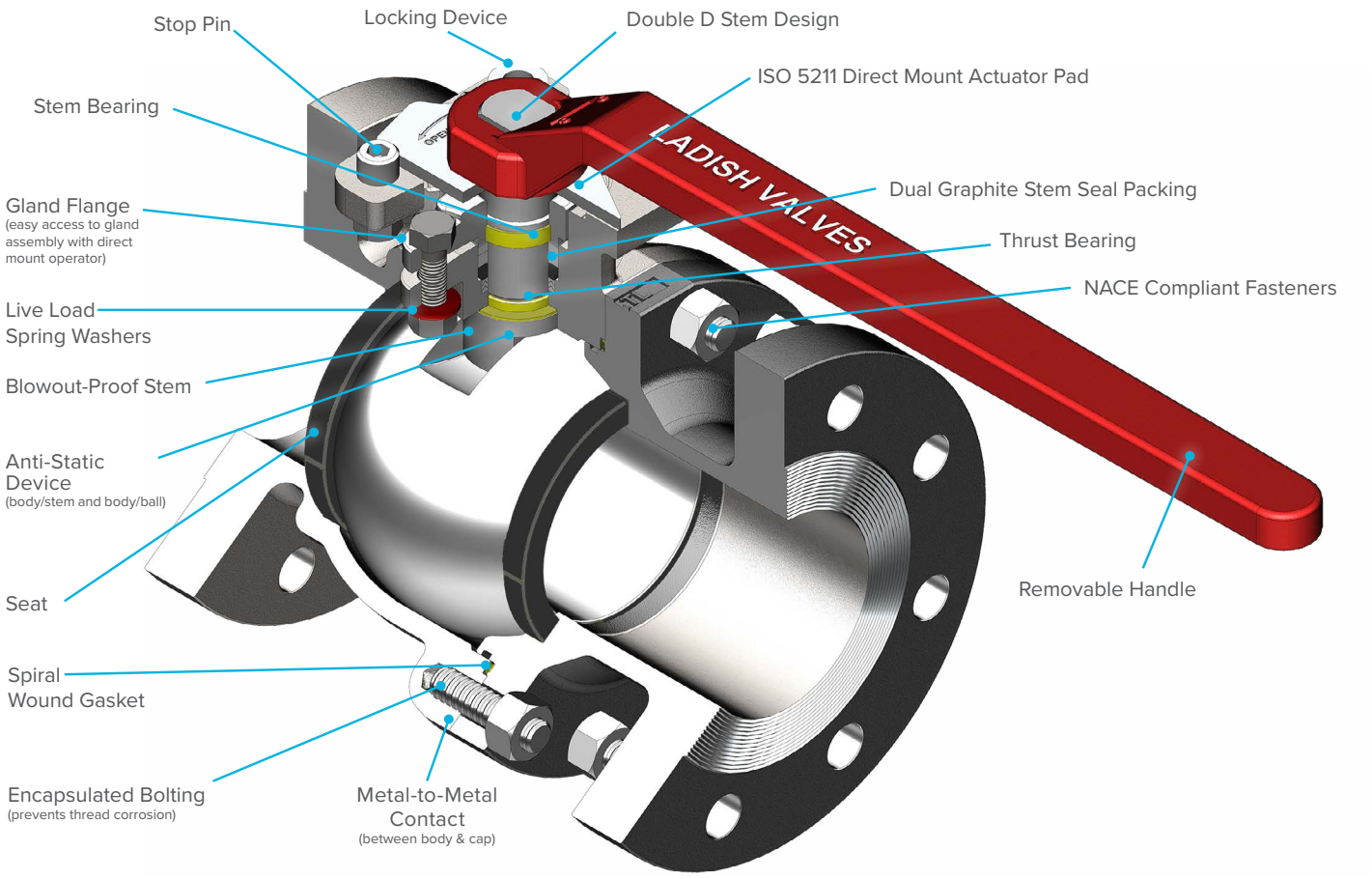
Materials

- Standard Materials for MEGA SEAL valves are Carbon Steel, Stainless Steel and Hastelloy C-276. Other materials are available on request.
- Specialty trims: As all Ladish valves are assembled and tested in our facilities in the USA, we can supply specialized valve trims per customer requirements
- Extended stems for insulated service
- Cryogenic bonnets/extensions
- Low FE (fugitive emission) dual packing systems
- Cavity fillers
- Gear Operators or Actuation per customer requirement
- Cleaning for special services

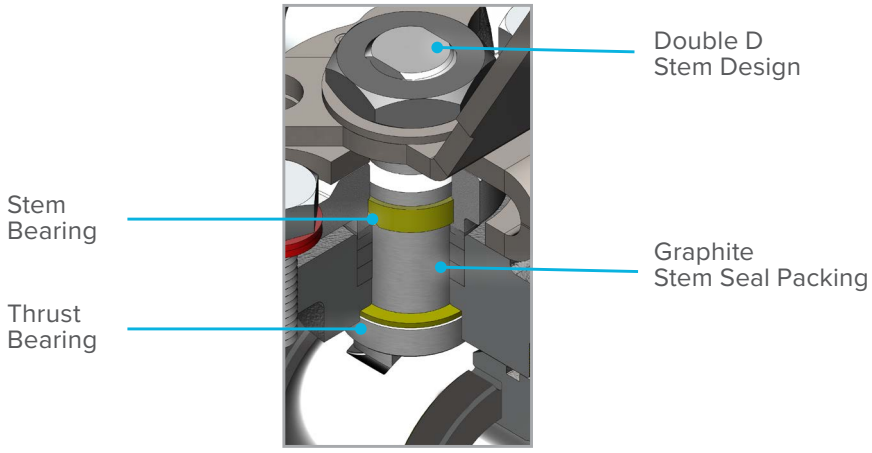
MEGA SEAL BALL VALVES

Metal and Graphite Seated Critical Service Ball Valves

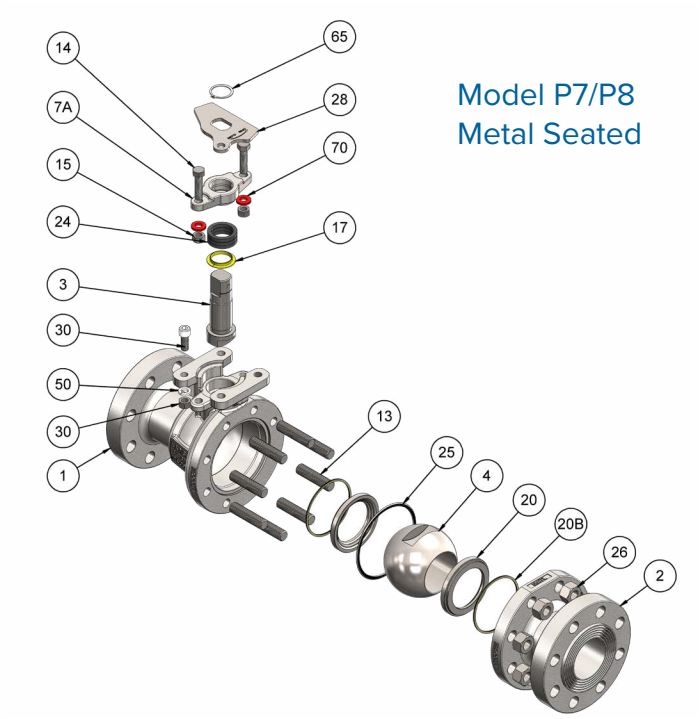
MEGA SEAL STEM PACKING DESIGN DUAL PACKING OPTION SHOWN BELOW (1½"–14")



MODEL P8 STEM PACKING DESIGN
SINGLE PACKING OPTION SHOWN BELOW

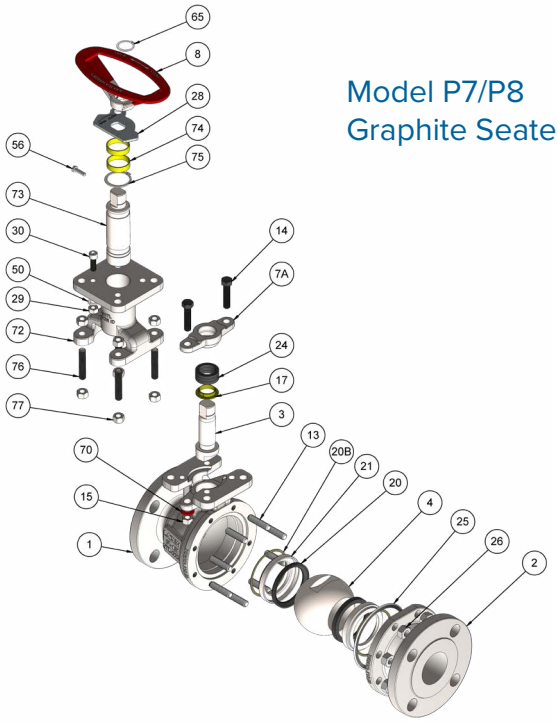


PARTS & MATERIALS



Model P7/P8
Metal Seated

Item No.	Description
1	Body
2	Cap
3	Stem
4	Ball
7A	Gland Flange
13	Body Stud
14	Gland Bolt
15	Gland Nut
11	Handle Adapter
13	Body Stud
14	Gland Flange Bolt
15	Gland Flange Nut
17	Thrust Bearing
20	Seat
20B	Seat Gasket
24	Packing
25	Body Gasket
26	Body Nut
28	Stop Plate
29	Stop Nut
30	Stop Bolt
40	Name Plate (Not Shown)
50	Stop WRS
65	Snap Ring
70	Inconel Belleville Springs

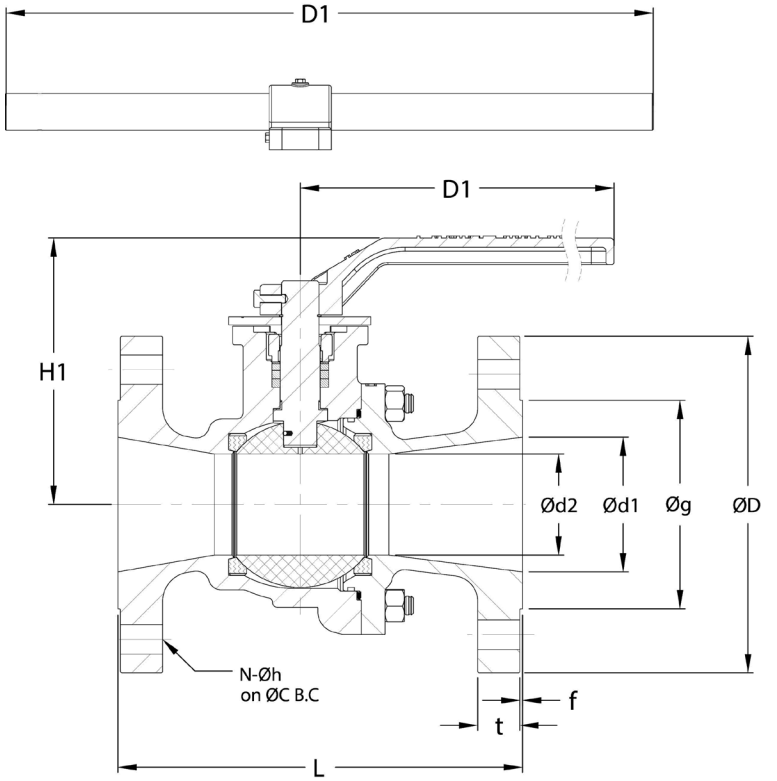


Model P7/P8
Graphite Seated

Item No.	Description
1	Body
2	Cap
3	Stem
4	Ball
7A	Gland Flange
8	Handle
13	Body Stud
14	Gland Bolt
15	Gland Nut
17	Trust Bearing
20	Seat
20B	Seat Gasket
21	Seat Carrier
24	Packing
25	Body Gasket
26	Body Nut
28	Stop Plate
29	Stop Nut
30	Stop Bolt
40	Name Plate (Not Shown)
50	Stop WRS
56	Handle Bolt
65	Snap Ring
70	Inconel Belleville Springs
72	Extension Bracket
73	Coupling
74	Coupling Bearing
75	Coupling Snap Ring
76	Ext. Bracket Bolt
77	Ext. Bracket Nut

DIMENSIONAL DATA

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



2" - 6" Model P7 Standard Bore, Two Piece
Pressure Classes 150, 300 & 600

150	Model P7, Class 150, 2"–6"–Model R7, Class 150, 2"–6"												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	15.50	19.69	8.76	11.00	9.50	8.50	1.00	0.06	8	0.88	112

300	Model P7, Class 300, 2"–6"–Model R7, Class 300, 2"–6"												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

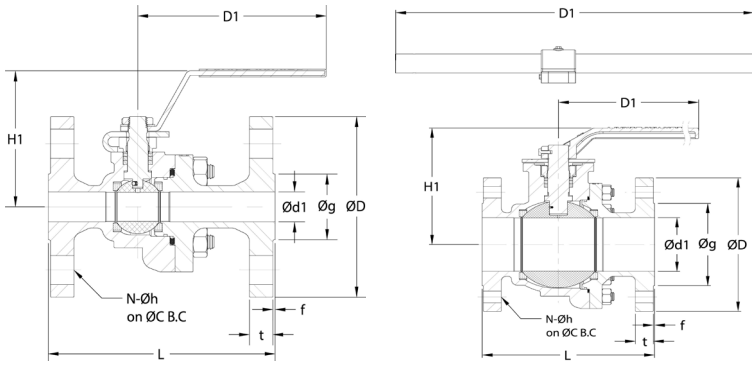
600	Model P7, Class 600, 2"–6"–Model R7, Class 600, 2"–6"												Weight LBS
	Ød1	Ød2	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
2"	2.00	1.50	11.50	10.00	5.22	6.50	5.00	3.63	1.00	0.25	8	0.75	36
3"	3.00	2.00	14.00	16.54	6.45	8.25	6.62	5.00	1.25	0.25	8	0.88	62
4"	4.00	3.00	17.00	19.69	8.45	10.75	8.50	6.19	1.50	0.25	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

DIMENSIONAL DATA

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

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

1 ½"–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
1½"	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

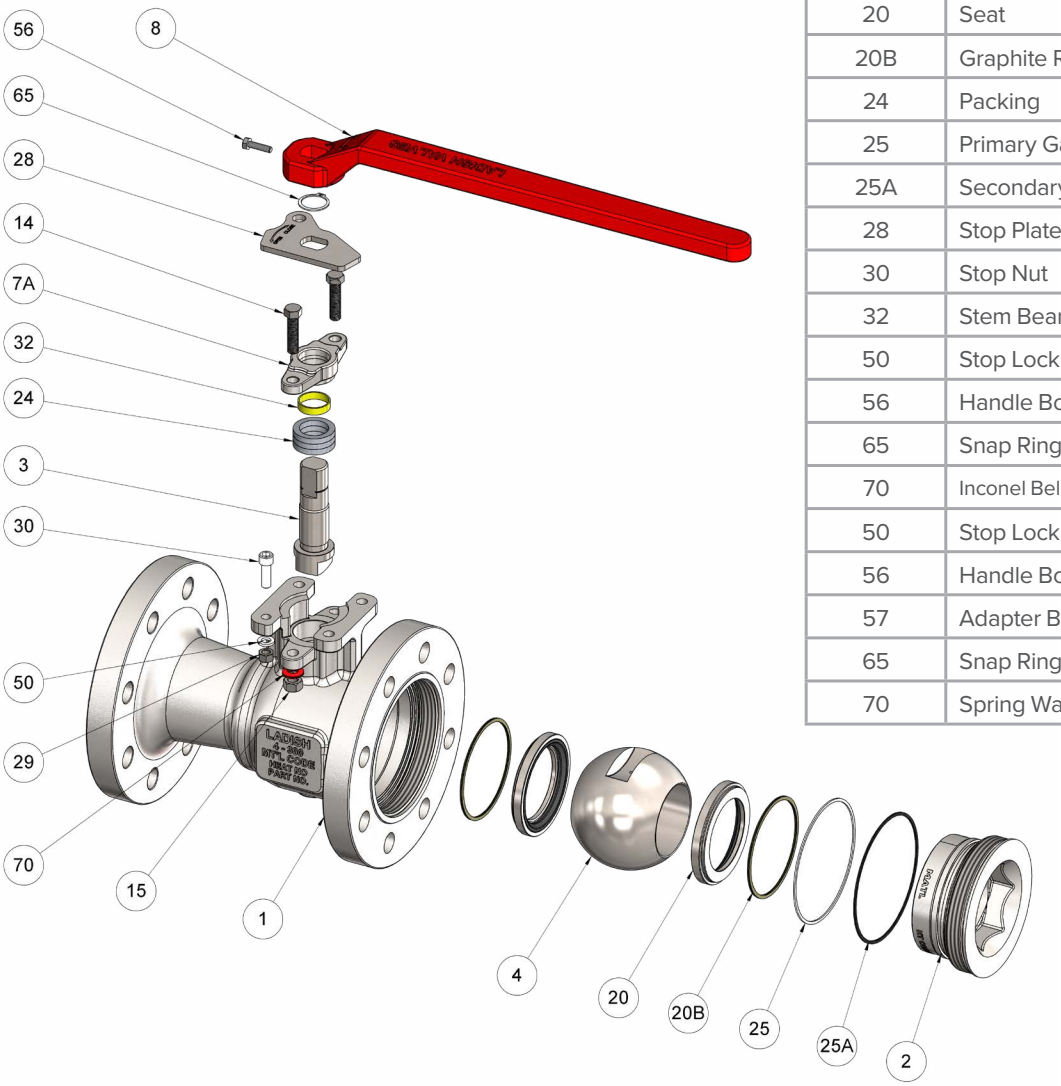
300	Model P8, Class 300											Weight LBS
	Ød1	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
½"	0.50	5.50	5.00	3.42	3.75	2.61	1.38	0.50	0.06	4	0.63	6
¾"	0.75	6.00	5.00	3.53	4.62	3.25	1.68	0.56	0.06	4	0.75	9
1"	1.00	6.50	6.32	4.39	4.88	3.50	2.00	0.63	0.06	4	0.75	12
1½"	1.50	7.50	9.60	5.22	6.12	4.50	2.88	0.81	0.06	4	0.88	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
1½"	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

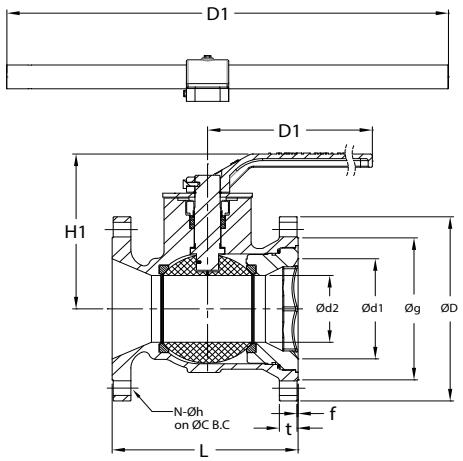
Model P9 Uni-Body
Metal / Graphite Seated

Item No.	Description
1	Body
2	Cap
3	Stem
4	Ball
7A	Gland Flange
8	Handle
14	Gland Flange Bolt
15	Gland Flange Nut
20	Seat
20B	Graphite Ring
24	Packing
25	Primary Gasket
25A	Secondary Gasket (Optional)
28	Stop Plate
30	Stop Nut
32	Stem Bearing
50	Stop Lock Washer
56	Handle Bolt
65	Snap Ring
70	Inconel Belleville Springs
50	Stop Lock Washer
56	Handle Bolt
57	Adapter Bolt
65	Snap Ring (stop plate)
70	Spring Washer

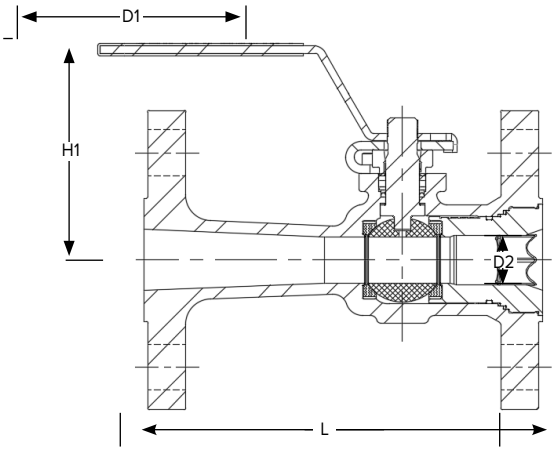


DIMENSIONAL DATA

Model P9 Standard Bore, Uni-Body, API 608 Design



½”–1½" Model P9 Uni-Body
Pressure Classes 150 & 300



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

150	Model P9, Class 150, ½"–12" • Model R9, Class 150, 1” — 12"												Weight LBS
	Ød1	Ød2	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
½"	0.50	0.38	4.25	5.00	2.91	3.50	2.38	1.38	0.31	0.06	4	0.63	3
¾"	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
1½"	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, ½"–12" • Model R9, Class 300, 1"–12"												Weight LBS
	Ød1	Ød2	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
½"	0.50	0.38	5.50	5.00	2.91	3.75	2.63	1.38	0.50	0.06	4	0.63	4
¾"	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
1½"	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 MEGA SEAL Floating Ball Valves

Ladish Valves are identified by a 16-digit alpha-numeric code, detailed in the table below. Our aim is to accurately fill your order, so if you need assistance, please contact our knowledgeable sales staff at 281.880.8560. Provide us with the leading four digits and we can guide you through the rest.

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	TRIM	PACKING & GASKET
P	**8**	**1**	**5**	**L**	**15**	**A**	**G**
P – Packing	8 – Cast, Two Piece Full Bore 7 – Cast, Two Piece Standard Bore 9 – Cast, Unibody Standard Bore 2 – Bar Stock Two Piece Full Bore 1 – Bar Stock Two Piece Standard Bore	1 – 150 3 – 300 6 – 600	5 – RF F – FF J – RTJ	A – Actuator B – Bare Stem G – Gear L – Lever V – Oval Handle		0 – Same as Body 3 – 316SS A – Alloy 20 C – Inc 600 K - Monel 400 Ball w/ K500 Stem H – Hast C 7 - 316SS Ball w/ 17-4 Stem 8 - 316SS Ball w/ Nitronic 60 Stem **OTHER MATERIALS AVAILABLE UPON REQUEST**	G – Graphoil D – Dual (TFE/ Graphoil) **OTHER MATERIALS AVAILABLE UPON REQUEST**

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	BOLTING & NUTS	MISC. OPTION	SIZE	DESIGN FIRE-SAFE NACE
G	**03**	**A**	**40**	**M**
B - Stellite Seat, Colmonoy 69 HF Ball G – Carbon Graphite M – HF Chrome Carbide (Ball/ Seat) W – Metal: Tungsten Carbide U – HF Hard Chrome (BALL/SEAT) X – Metal: Chromium Carbide Y – Metal: Chromium Oxide Z – Metal: Nickel/Chrome **OTHER MATERIALS AVAILABLE UPON REQUEST**	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) L - External Steam Jacket V – Unidirectional (Vented Ball)	05 – ½" 07 – ¾" 10 – 1" 15 – 1½" 20 – 2" 30 – 3" 40 – 4" 60 – 6" 80 – 8" 81 – 10" 82 – 12" 83 – 14"	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

ACTUATOR MOUNTING DATA

Valve Size	Model P8/R8 Class 150/300							
		A	B	n × ØI	ØJ	ØR	S	T
						STEM DIMENSIONS		
½"	F03	1.42	1.29	4 × 10-24UNC	1.417	0.500	0.354	0.915
¾"	F03	1.42	1.45	4 × 10-24UNC	1.417	0.500	0.354	0.915
1"	F05	1.97	1.77	4 × ¼-20UNC	1.969	0.562	0.433	1.099
1½"	F07	2.76	3.68	4 × 0.374	2.756	0.874	0.669	0.728
2"	F07	3.86	4.07	4 × 0.374	2.756	0.870	0.669	0.809
	F10	3.86	4.07	4 × 0.453	4.016	0.870	0.669	0.809
3"	F10	4.02	5.3	4 × 0.453	4.016	1.110	0.866	1.348
4"	F12	4.91	6.12	4 × 0.571	4.921	1.425	1.063	1.363
6" (150)	F14	5.51	8.03	4 × 0.689	5.512	1.898	1.417	1.673
6" (300)	F14	5.51	8.62	4 × 0.689	5.512	1.898	1.417	1.673
8"	F16	6.5	10.79	4 × 0.807	6.496	2.370	1.811	1.951
10" (150)	F16	6.50	12.91	4 × 0.807	6.496	2.370	1.811	2.262
10" (300)	F16	11.73	12.91	4 × 0.807	6.496	2.370	1.811	2.262
	F19	11.73	12.91	8 × 0.689	7.500	2.370	1.811	2.262
	F25	11.73	12.91	8 × 0.689	10.000	2.370	1.811	2.262
14" (150)	F25	13.78	6.12	8 × 0.689	10.000	1.425	1.063	1.363
	F30	13.78	6.12	8 × 0.812	11.732	1.425	1.063	1.363

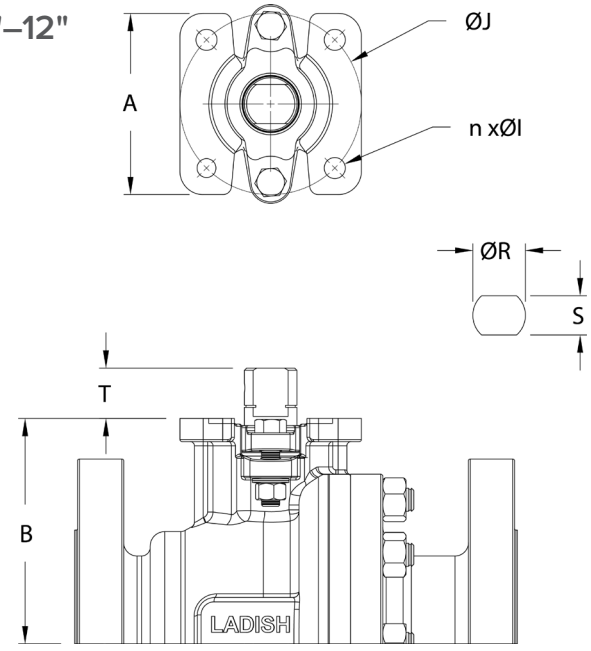
Valve Size	Model P8/R8 Class 600							
		A	B	n × ØI	ØJ	ØR	S	T
						STEM DIMENSIONS		
½"	F03	1.42	1.29	4 × 10-24UNC	1.417	0.500	0.354	0.915
¾"	F03	1.42	1.55	4 × 10-24UNC	1.417	0.500	0.354	0.916
1"	F05	1.97	1.77	4 × ¼-20UNC	1.969	0.562	0.433	1.099
1½"	F07	2.83	3.63	4 × 0.374	2.756	0.874	0.669	0.728
2"	F07	3.86	4.34	4 × 0.374	2.756	0.874	0.669	0.820
	F10	3.86	4.34	4 × 0.453	4.016	0.874	0.669	0.820
3"	F12	4.92	5.82	4 × 0.571	4.921	1.425	1.063	1.365
4"	F14	5.51	7.15	4 × 0.689	5.512	1.898	1.417	1.673
6" (600)	F16	6.69	9.547	4 × 0.807	6.496	2.370	1.811	1.951

Valve Size	Model P7/R7 Class 150/300							
		A	B	n × ØI	ØJ	ØR	S	T
						STEM DIMENSIONS		
2"	F07	2.76	3.63	4 × 0.374	2.756	0.874	0.669	0.728
3"	F07	3.86	4.07	4 × 0.374	2.756	0.870	0.669	0.809
	F10	3.86	4.07	4 × 0.453	4.016	0.870	0.669	0.809
4"	F10	4.02	5.30	4 × 0.453	4.016	1.110	0.866	1.348
6"	F12	4.92	6.12	4 × 0.571	4.921	1.425	1.063	1.363

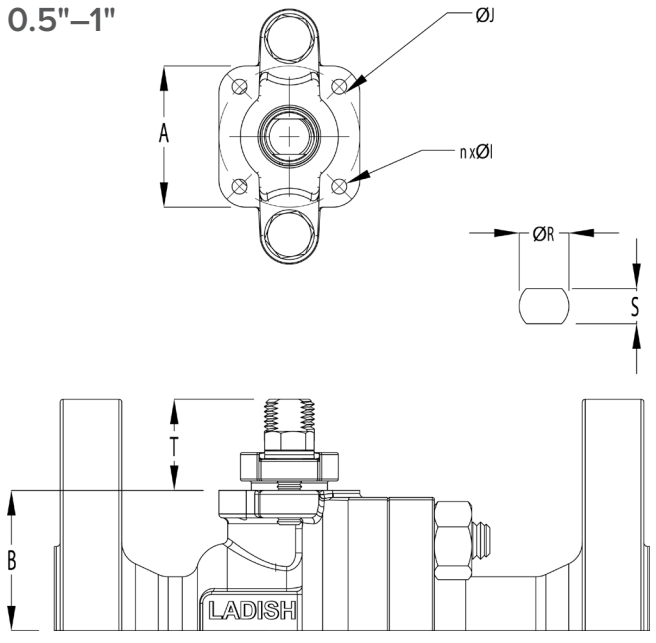
Valve Size	Model P7/R7 Class 600							
		A	B	n × ØI	ØJ	ØR	S	T
						STEM DIMENSIONS		
2"	F07	2.76	3.63	4 × 0.374	2.756	0.874	0.669	0.728
3"	F07	3.86	4.34	4 × 0.374	2.756	0.874	0.669	0.850
	F10	3.86	4.34	4 × . 0.453	4.016	0.874	0.669	0.850
4"	F12	4.92	5.82	4 × 0.571	4.921	1.425	1.063	1.365
6"	F14	5.51	7.15	4 × 0.689	5.512	1.898	1.417	1.673

Valve Size	Model P9/R9 Class 150/300							
		A	B	n × ØI	ØJ	ØR	S	T
						STEM DIMENSIONS		
½"	–	1.14	0.78	4 × 8-32UNC	1.102	0.274	0.215	0.453
¾"	F03	1.42	1.29	4 × 10-24UNC	1.417	0.500	0.354	0.915
1"	F03	1.42	1.42	4 × 10-24UNC	1.417	0.500	0.354	0.906
1½"	F05	1.97	1.77	4 × ¼-20UNC	1.969	0.562	0.433	1.099
2"	F07	2.76	3.63	4 × 0.374	2.756	0.874	0.669	0.728
3"	F07	3.86	4.07	4 × 0.374	2.756	0.870	0.669	0.809
	F10	3.86	4.07	4 × 0.453	4.016	0.870	0.669	0.809
4"	F10	4.02	5.30	4 × 0.453	4.016	1.110	0.866	1.348
6"	F12	4.92	6.63	4 × 0.571	4.921	1.425	1.063	1.363
8"	F14	5.51	7.95	4 × 0.689	5.512	1.898	1.417	1.673
10"	F16	6.69	10.29	4 × 0.807	6.496	2.370	1.811	1.959
12"	F16	11.81	10.79	4 × 0.807	6.496	2.370	1.811	1.959

1.5"–12"



0.5"–1"



FLOW COEFFICIENTS

Flow Coefficients (C_v) and Pressure Conversion Chart						
Valve Size	SERIES		BORE	PRESSURE CLASS		
				150	300	600
½"	P8		FP	16	16	15
	P9		RP			
¾"	P8		FP	40	39	36
	P7		RP			
	P9	DOWNSTREAM		12	12	–
		UPSTREAM		13	13	–
1"	P8/R8		FP	78	74	70
	P7/R7		RP			
	P9/R9	DOWNSTREAM		29	29	–
		UPSTREAM		30	30	–
1½"	P8/R8		FP	189	179	171
	P7/R7		RP			
	P9/R9	DOWNSTREAM		48	50	–
		UPSTREAM		53	56	–
2"	P8/R8		FP	369	338	321
	P7/R7		RP	162	162	156
	P9/R9	DOWNSTREAM		125	119	–
		UPSTREAM		129	129	–
3"	P8/R8		FP	900	833	793
	P7/R7		RP	235	258	270
	P9/R9	DOWNSTREAM		191	185	–
		UPSTREAM		187	207	–
4"	P8/R8		FP	1652	1602	1511
	P7/R7		RP	634	634	634
	P9/R9	DOWNSTREAM		475	476	–
		UPSTREAM		465	524	–
6"	P8/R8		FP	3987	3943	–
	P9/R9	DOWNSTREAM	RP	768	784	–
		UPSTREAM		726	840	–
8"	P8/R8		FP	7730	7773	–
	P9/R9	DOWNSTREAM	RP	1301	1390	–
		UPSTREAM		1232	1291	–
10"	P8/R8		FP	12446	12760	–
	P9/R9	DOWNSTREAM	RP	2453	2618	–
		UPSTREAM		2273	2543	–
12"	P8/R8		FP	–	–	–
	P9/R9	DOWNSTREAM	RP	3169	3467	–
		UPSTREAM		3110	3698	–
14"	P8/R8		FP	20010	19950	–

FLOW COEFFICIENTS (C_V) FACTOR

Capacity factors for the series P2, P7, P8, P9, R7, R8 and R9 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

psi × 0.06894757 = bar
bar × 14.50377 = psi

psi × 0.07030697 = Kg/cm^2
Kg/cm^2 × 14.22334 = psi

psi × 6894.757 = Pascal
Pascal × 0.0001450377 = psi

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 focuses efforts on helping member companies decrease valve emissions.

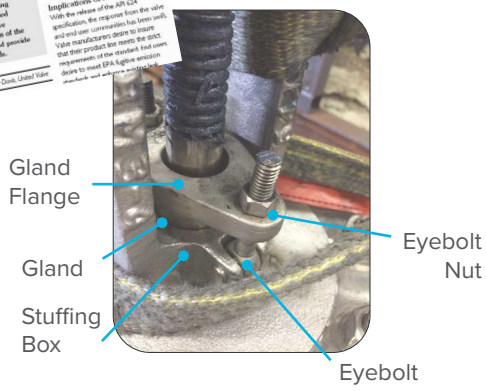
Ladish Valves was one of the first companies to help in assisting companies, by testing our valves to meet or exceed low fugitive emission in our valves. Ladish Valves has successfully tested our product, to the following industries standards.

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

Fugitive emissions testing: Its origins, current realities and the future

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.



LADISH VALVES

CONTROLLED QUALITY • CORROSION RESISTANT

TO MARK PROGRESS

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