

LADISH VALVES

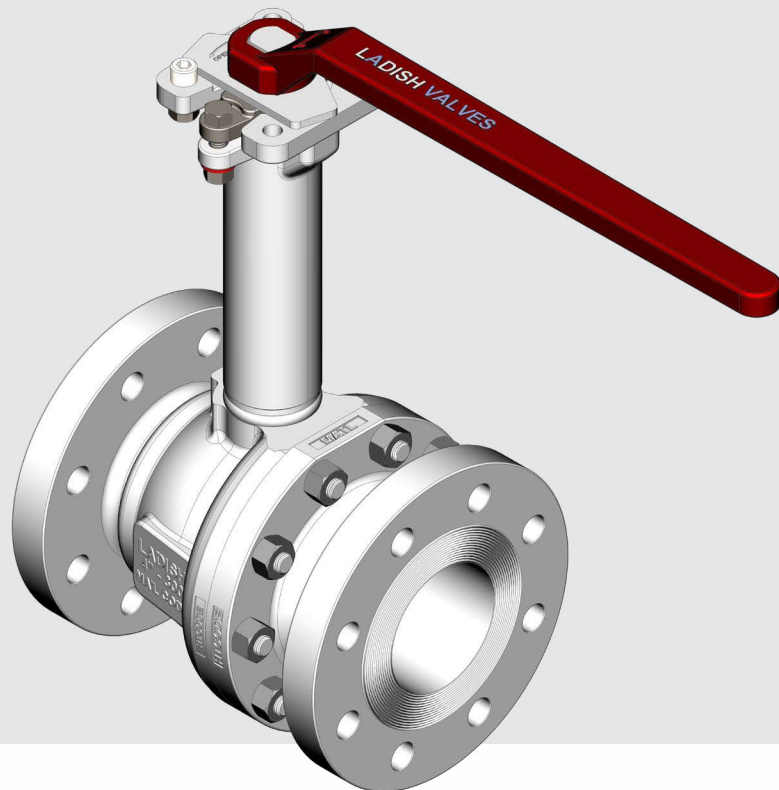
CONTROLLED QUALITY • CORROSION RESISTANT



TO MARK PROGRESS

Cryogenic Cast & Forged Valves

CATALOG 321



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LADISH MALT

LADISH MALT CO. MILWAUKEE, WIS.

THERE IS
NO SUBSTITUTE
FOR FINE

Malt

EXCLUSIVELY OFFERED BY
LADISH CO.

1. HEAT CODE PROTECTION—Heat code protection is provided for all valves available under this program. This protection is provided for all valves available under this program. This protection is provided for all valves available under this program.
2. FUEL FLANGE THERMALLY—Fuel flange thermally treated for high temperature service. This treatment is provided for all valves available under this program.

LADISH

CORROSION RESISTANT VALVES

VALVES AVAILABLE
IN
STAINLESS STEEL
TITANIUM
NICKEL



LADISH

QUALITY FLOUR



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

Handwheel Options

RISING STEM
NON-RISING STEM

Disc Options

SOLID WEDGE
FLEX WEDGE
SPLIT WEDGE
PLUG DISC
TEFLON DISC

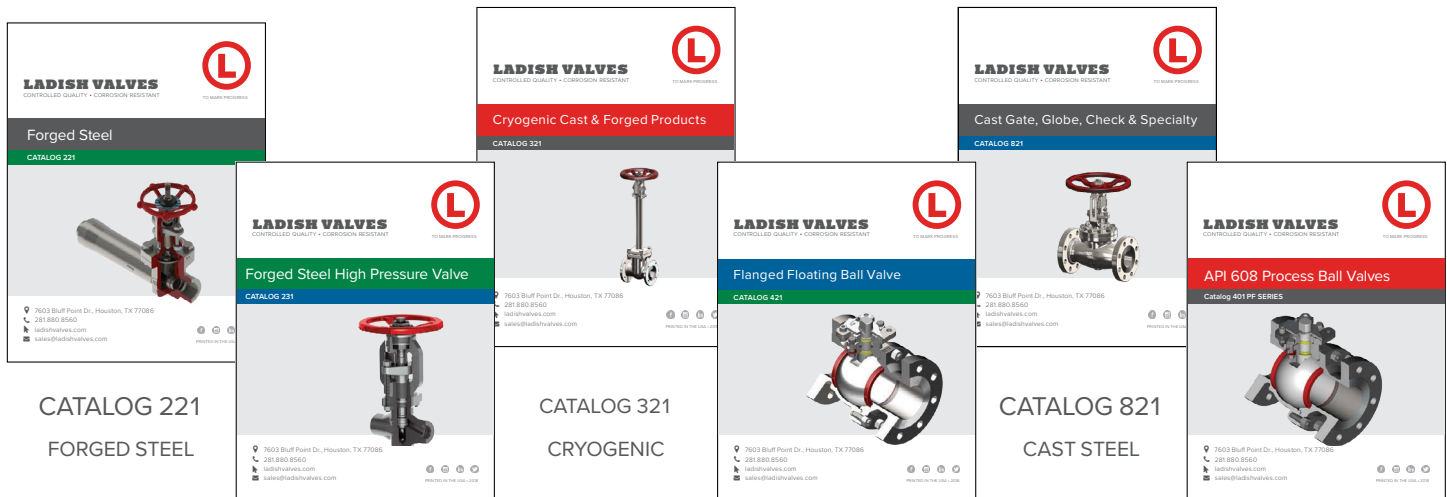
Size and Class Options

½"—36"
CL150—CL2500

Materials

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

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.

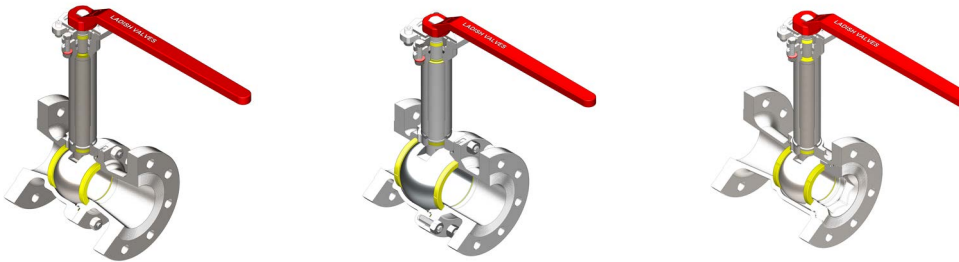
We're a Step Above the Competition. Here's Why.

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

CATALOG 321 CRYOGENIC CAST AND FORGED VALVES

Catalog 321 serves to highlight the Ladish Valves line of low temperature, cryogenic valves and assist piping system designers, engineers, contractors and purchasing personnel in finding the ideal product for their application.



CAST CRYOGENIC FLOATING BALL VALVE



CAST CRYOGENIC GATES, GLOBES AND CHECKS



FORCED CRYOGENIC GATES , GLOBES AND CHECKS

CRYOGENIC CAST & FORGED PRODUCTS

Products for Low Temperature Environments

Ladish Valves stainless steel cryogenic valves are produced to the rigid 'Controlled Quality' standards that assure dependable operating performance at sub-zero temperatures. The production, transport and storage of liquefied gases such as oxygen, nitrogen, natural gas (down to -425°F) demand a thoughtful solution.

Ladish Valves custom design bonnets and modified extended bonnets provide safe, dependable service to LNG receiving terminals and liquification facilities as well as processes using liquid nitrogen and hydrogen. The main structural feature of these valves is the enclosed vapor chamber which isolates the packing from the cryogenic fluid allowing the packing to function properly.

Ladish Valves ability to manufacture specifically designed cryogenic valves and to convert standard valves to cryogenic service, all in-house, allows for a completely controlled quality process. In addition, custom modification requests and any associated non-destructive testing can be expedited. Cryogenic testing per BS 6364 can also be facilitated from our headquarters in Houston.

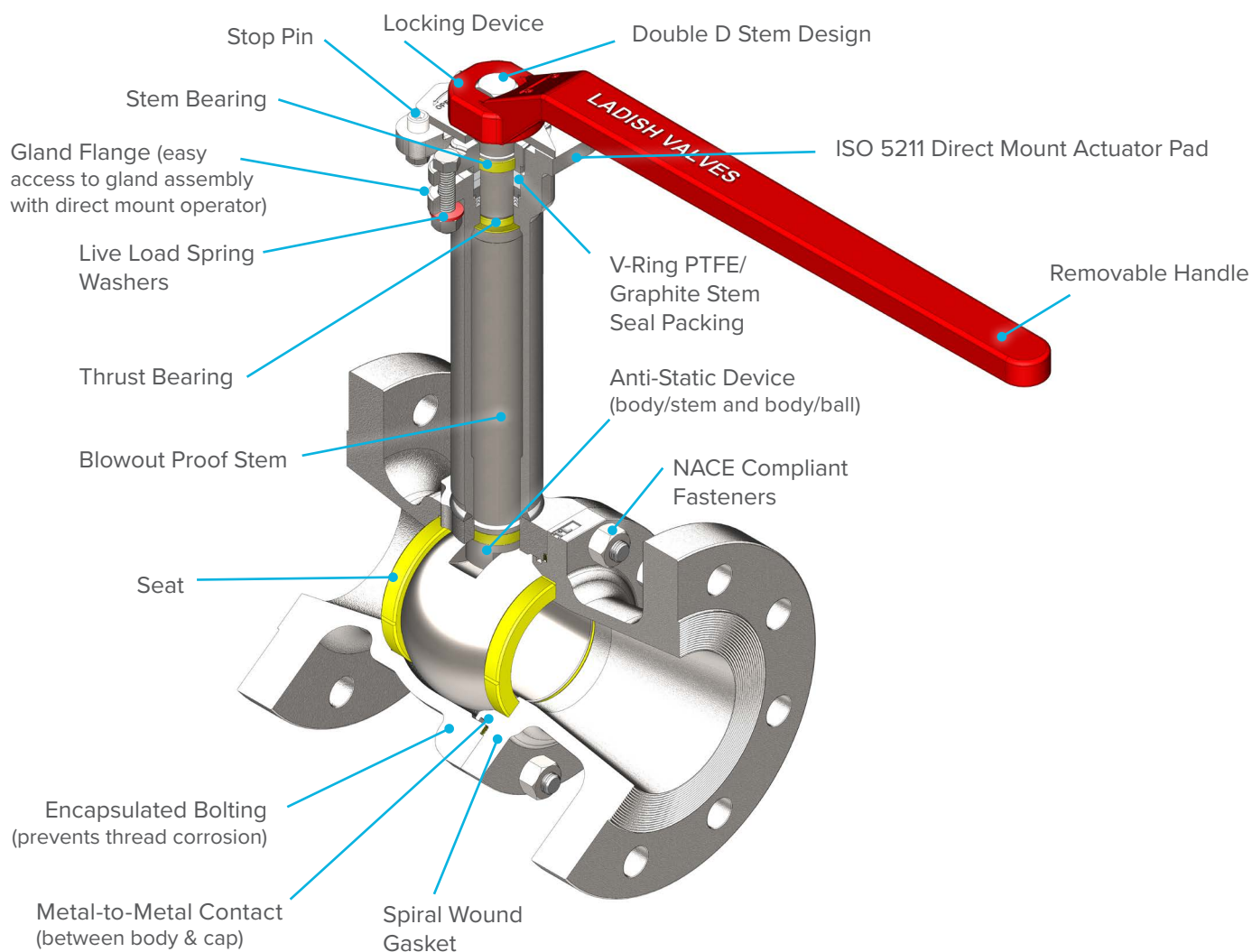
Ladish Valves exists to serve our customers. If you require anything outside the scope of this catalog, please don't hesitate contacting us. We would be happy to assist you.



P7 SERIES

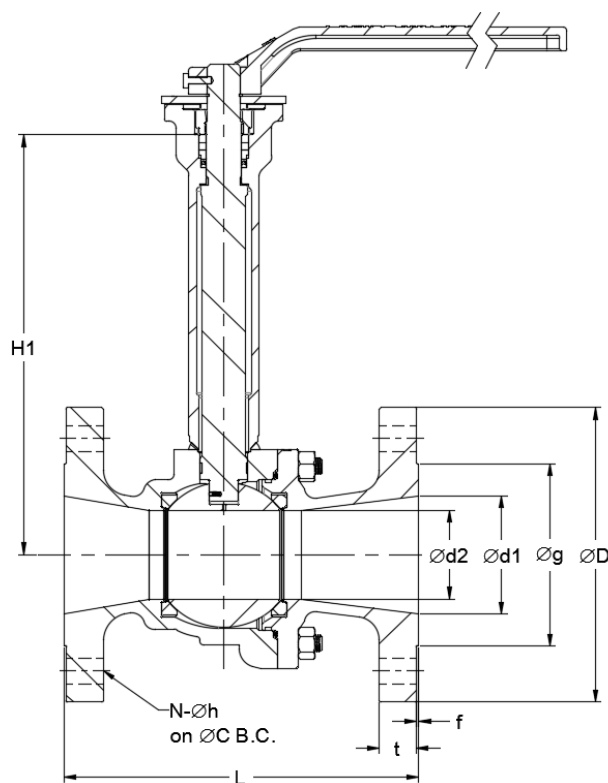
Two-Piece, Cast Cryogenic Standard Bore

- API 608, ASME B16.34, API 607, MSS-SP 134
- Tested in accordance to API 598
- Optional non-cold box and cold-box testing per MSS SP-134 or BS.6364
- Integrally cast extension on select sizes
- Class 150–600
- Double D and square stem available
- Dual V-ring PTFE/Graphite stem packing to meet API 607
- Live load spring washer for packing adjustment



Dimensional Data

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



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

150	Model P7, Class 150,											Weight LBS
	Ød1	Ød2	L	H1	ØD	ØC	Øg	t	f	N	Øh	
2"	2.00	1.50	7.00	10.31	6.00	4.75	3.63	0.56	0.06	4	0.75	29
3"	3.00	2.00	8.00	13.25	7.50	6.00	5.00	0.69	0.06	4	0.75	50
4"	4.00	3.00	9.00	14.25	9.00	7.50	6.19	0.88	0.06	8	0.75	87
6"	6.00	4.00	15.50	17.26	11.00	9.50	8.50	1.00	0.06	8	0.88	169

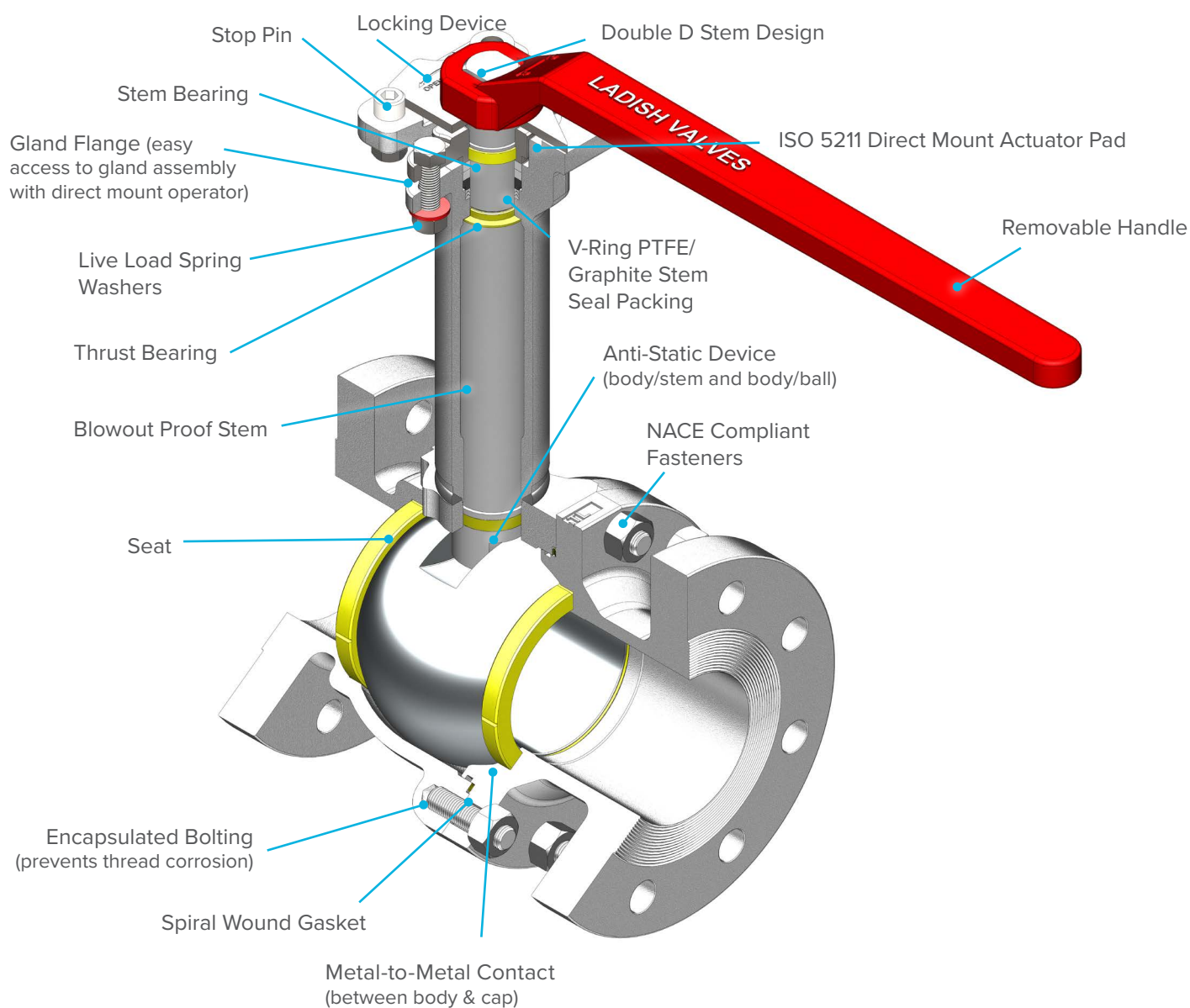
300	Model P7, Class 300											Weight LBS
	Ød1	Ød2	L	H1	ØD	ØC	Øg	t	f	N	Øh	
2"	2.00	1.50	8.50	10.31	6.50	5.00	3.63	0.81	0.06	8	0.75	36
3"	3.00	2.00	11.12	13.25	8.25	6.62	5.00	1.06	0.06	8	0.88	65
4"	4.00	3.00	12.00	14.25	10.00	7.88	6.19	1.19	0.06	8	0.88	114
6"	6.00	4.00	15.87	17.26	12.50	10.62	8.50	1.38	0.06	12	0.88	2219

600	Model P7, Class 600, 2"–6"											Weight LBS
	Ød1	Ød2	L	H1	ØD	ØC	Øg	t	f	N	Øh	
2"	2.00	1.50	11.50	10.31	6.50	5.00	3.63	1.00	0.25	8	0.75	44
3"	3.00	2.00	14.00	13.25	8.25	6.62	5.00	1.25	0.25	8	0.88	78
4"	4.00	3.00	17.00	14.25	10.75	8.50	6.19	1.50	0.25	8	1.00	161
6"	6.00	4.00	22.00	17.26	14.00	11.50	8.50	1.88	0.25	12	1.12	333

P8 SERIES

Two-Piece, Cast Cryogenic Full Bore

- API 608, ASME B16.34, API 607, MSS-SP 134
- Tested in accordance to API 598
- Optional non-cold box and cold-box testing per MSS SP-134 or BS.6364
- Integrally cast extension on select sizes
- Class 150 – 600
- Double D and square stem available
- Dual V-ring PTFE/Graphite stem packing to meet API 607
- Live load spring washer for packing adjustment



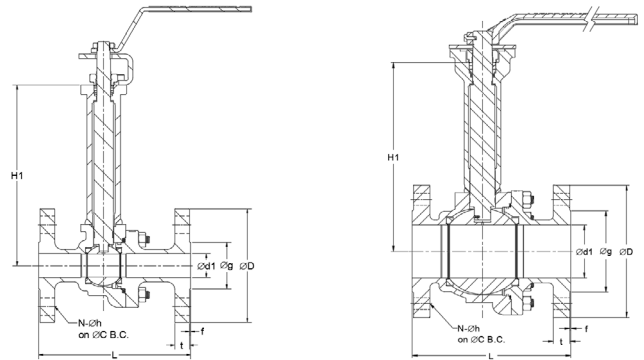
Dimensional Data

½"–1"

Model P8 Full Bore,
Two-Piece Body, Pressure
Classes: 150, 300 & 600 (*left*)

1½"–14"

Model P8 Full Bore,
Two-Piece Body, Pressure
Classes: 150, 300 & 600 (*right*)



150	Model P8, Class 150, ½"–14"											Weight LBS
	Ød1	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
½"	0.50	4.25	7.63	12	3.50	2.38	1.38	0.31	0.06	4	0.63	5
¾"	0.75	4.63	7.75	12	3.88	2.75	1.68	0.34	0.06	4	0.63	7
1"	1.00	5.00	7.75	12	4.25	3.12	2.00	0.38	0.06	4	0.63	9
1½"	1.50	6.50	8.75	14	5.00	3.88	2.88	0.50	0.06	4	0.63	17
2"	2.00	7.00	10.26	16	6.00	4.75	3.63	0.56	0.06	4	0.75	32
3"	3.00	8.00	13.25	18	7.50	6.00	5.00	0.69	0.06	4	0.75	72
4"	4.00	9.00	14.31	22	9.00	7.50	6.19	0.88	0.06	8	0.75	119
6"	6.00	15.50	17.25	24	11.00	9.50	8.50	0.94	0.06	8	0.88	250
8"	8.00	18.00	18.41	27	13.50	11.75	10.62	1.06	0.06	8	0.88	447
10"	10.00	21.00	25.37	32	16.00	14.25	12.75	1.12	0.06	12	1.00	660
12"	12.00	24.00	27.80	36	19.00	17.00	15.00	1.19	0.06	12	1.00	788
14"	13.25	27.00	28.30	38	21.00	18.75	16.25	1.30	0.06	14	1.13	2021

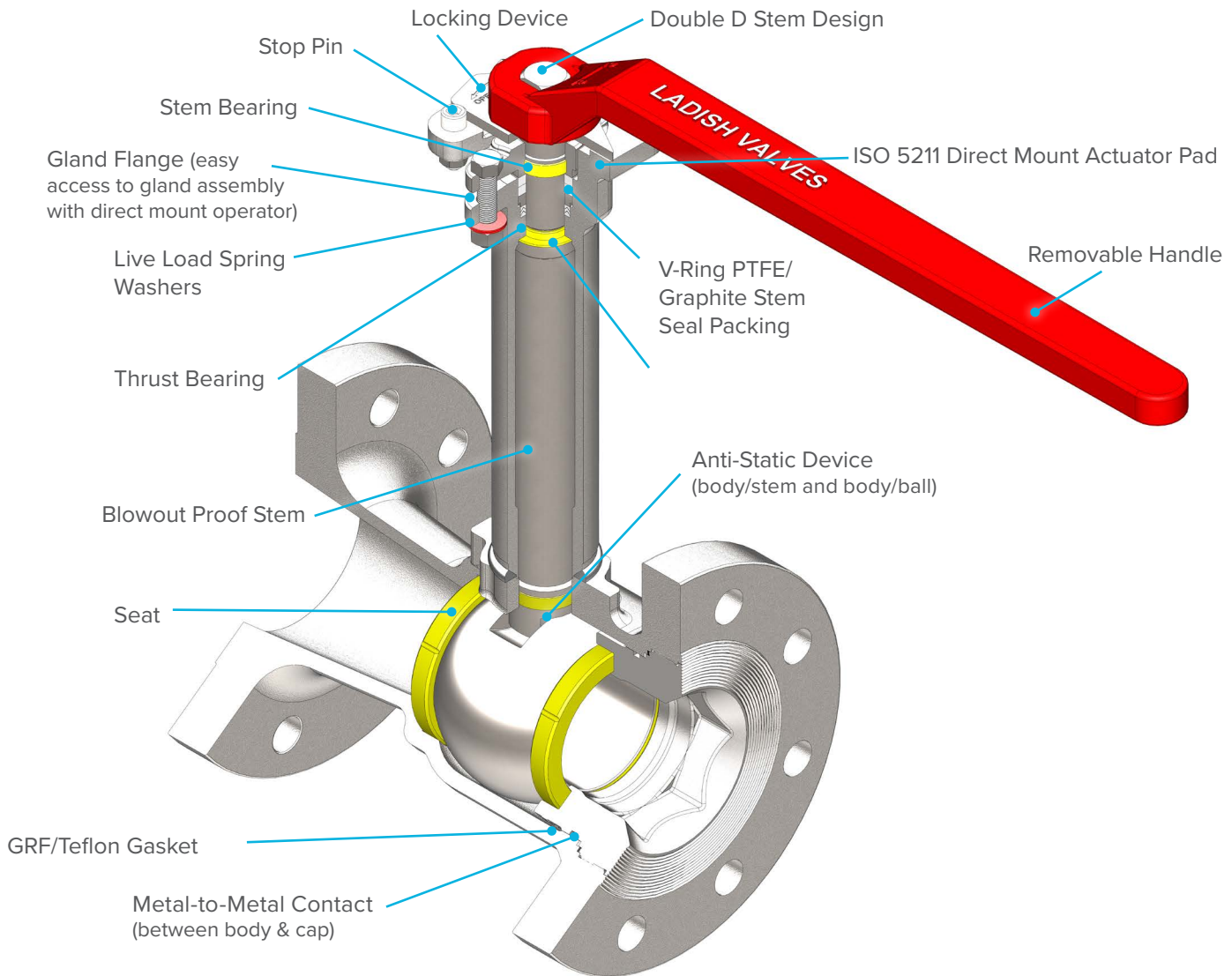
300	Model P8, Class 300, ½"–14"											Weight LBS
	Ød1	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
½"	0.50	5.50	7.63	12	3.75	2.61	1.38	0.50	0.06	4	0.63	7
¾"	0.75	6.00	7.75	12	4.62	3.25	1.68	0.56	0.06	4	0.75	11
1"	1.00	6.50	7.75	12	4.88	3.50	2.00	0.63	0.06	4	0.75	14
1½"	1.50	7.50	8.75	14	6.12	4.50	2.88	0.81	0.06	4	0.88	21
2"	2.00	8.50	10.26	16	6.50	5.00	3.63	0.81	0.06	8	0.75	44
3"	3.00	11.12	13.25	18	8.25	6.62	5.00	1.06	0.06	8	0.88	87
4"	4.00	12.00	14.31	22	10.00	7.88	6.19	1.19	0.06	8	0.88	153
6"	6.00	15.88	17.25	24	12.50	10.62	8.50	1.38	0.06	12	0.88	322
8"	8.00	19.75	18.41	27	15.00	13.00	10.62	1.56	0.06	12	1.00	561
10"	10.00	22.38	25.37	32	17.50	15.25	12.75	1.81	0.06	16	1.13	843
12"	12.00	25.50		36	20.50	17.75	15.00	2.00	0.06	16	1.25	965
14"	13.25	30.00	28.30	38	23.00	20.25	16.25	2.06	0.06	20	1.25	2660

600	Model P8, Class 600, ½"–6"											Weight LBS
	Ød1	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
½"	0.50	6.50	7.63	12	3.75	2.63	1.38	0.63	0.25	4	0.63	9
¾"	0.75	7.50	7.75	12	4.63	3.25	1.68	0.68	0.25	4	0.75	13
1"	1.00	8.50	7.75	12	4.88	3.50	2.00	0.68	0.25	4	0.75	17
1½"	1.50	9.50	8.75	14	6.13	4.50	2.88	0.94	0.25	4	0.88	26
2"	2.00	11.50	10.26	16	6.50	5.00	3.63	1.00	0.25	8	0.75	54
3"	3.00	14.00	13.25	18	8.25	6.62	5.00	1.25	0.25	8	0.88	114
4"	4.00	17.00	14.31	22	10.83	8.50	6.19	1.56	0.25	8	1.00	227
6"	6.00	22.00	17.25	24	14.00	11.50	8.50	1.88	0.25	12	1.13	499

P9 SERIES

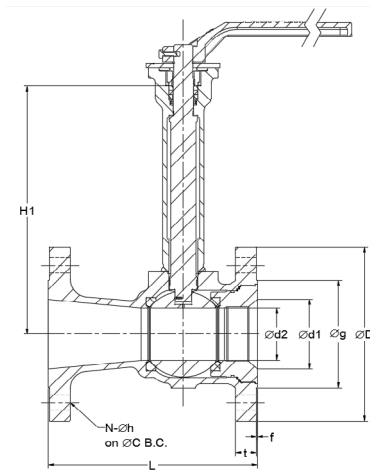
Two-Piece Unibody, Cast Cryogenic Standard Bore

- API 608, ASME B16.34, API 607-MSS-SP134
- Tested in accordance to API 598
- Optional non-cold box and cold-box testing per MSS SP-134 or BS.6364
- Integrally cast extension on select sizes
- Class 150 – 600
- Full and reduced port available
- Dual V-ring PTFE/Graphite stem packing to meet API 607
- Live load spring washer for packing adjustment

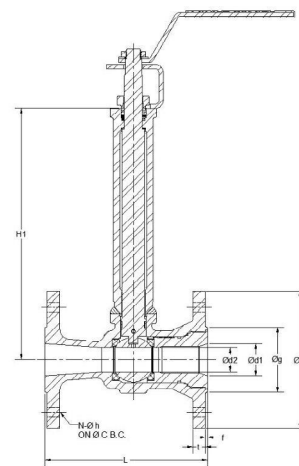


Dimensional Data

Model P9 Standard Bore, Uni-Body



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



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

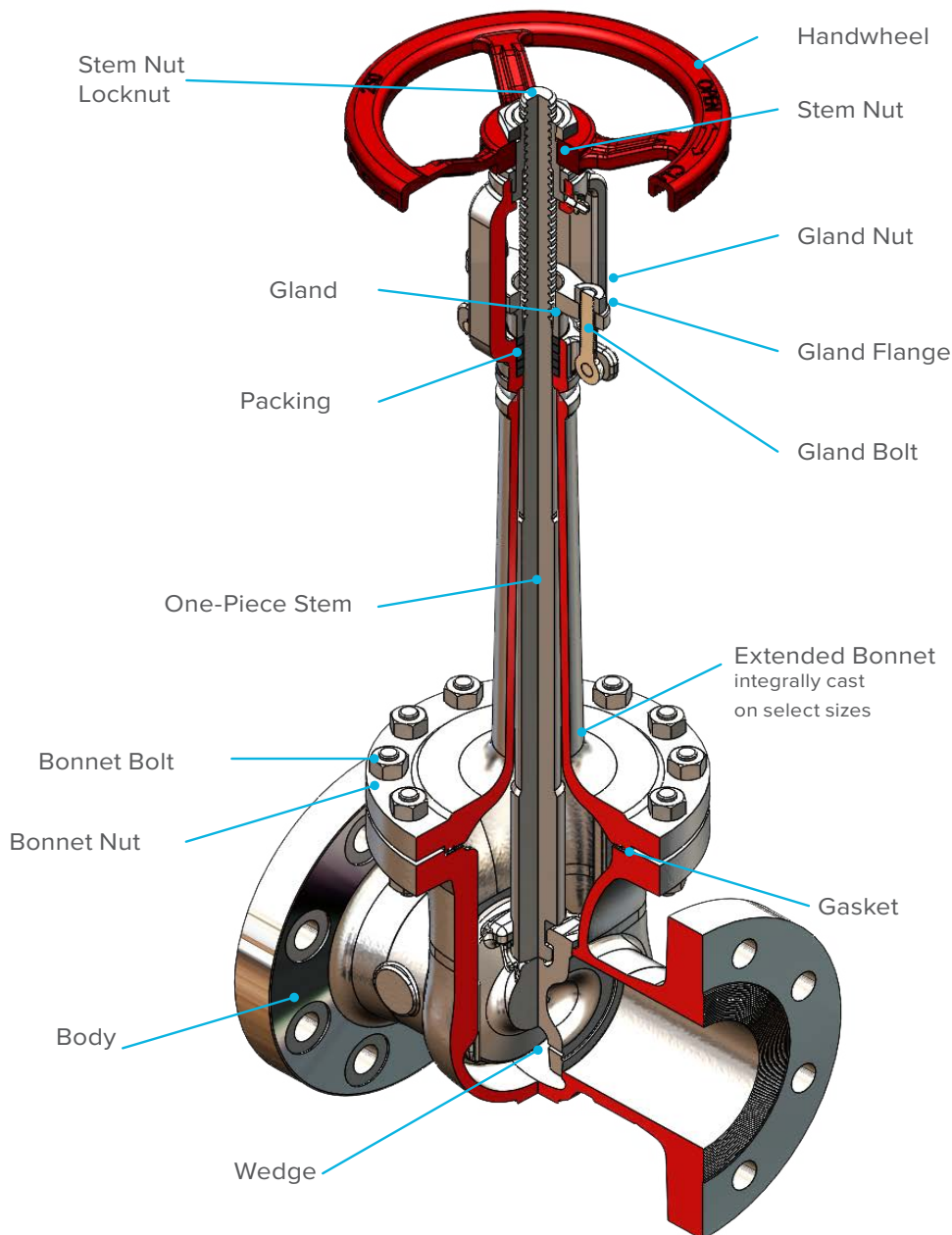
150	Model P9, Class 150, 1/2"–12"												Weight LBS
	Ød1	Ød2	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
1/2"	0.50	0.38	4.25	7.63	12	3.50	2.38	1.38	0.31	0.06	4	0.63	4
3/4"	0.75	0.50	4.61	7.75	12	3.88	2.75	1.69	0.34	0.06	4	0.63	6
1"	1.00	0.75	5.00	7.75	12	4.25	3.12	2.00	0.38	0.06	4	0.63	8
1 1/2"	1.50	1.00	6.50	8.75	14	5.00	3.88	2.88	0.50	0.06	4	0.63	13
2"	2.00	1.50	7.00	10.26	16	6.00	4.75	3.63	0.56	0.06	4	0.75	24
3"	3.00	2.00	8.00	13.25	18	7.50	6.00	5.00	0.69	0.06	4	0.75	44
4"	4.00	3.00	9.00	14.31	22	9.00	7.50	6.19	0.88	0.06	8	0.75	77
6"	6.00	4.00	10.50	17.25	24	11.00	9.50	8.50	0.94	0.06	8	0.88	140
8"	8.00	6.00	11.50	18.41	27	13.50	11.75	10.62	1.06	0.06	8	0.88	250
10"	10.00	7.36	13.00	25.37	32	16.00	14.25	12.75	1.12	0.06	12	1.00	391
12"	12.00	9.00	14.00	27.80	36	19.00	17.00	15.00	1.19	0.06	12	1.00	461

300	Model P9, Class 300, 1/2"–12"												Weight LBS
	Ød1	Ød2	L	D1	H1	ØD	ØC	Øg	t	f	N	Øh	
1/2"	0.50	0.38	5.50	7.63	12	3.75	2.63	1.38	0.50	0.06	4	0.63	5
3/4"	0.75	0.50	6.00	7.75	12	4.62	3.25	1.69	0.56	0.06	4	0.75	9
1"	1.00	0.75	6.50	7.75	12	4.88	3.50	2.00	0.62	0.06	4	0.75	11
1 1/2"	1.50	1.00	7.50	8.75	14	6.12	4.50	2.88	0.75	0.06	4	0.88	19
2"	2.00	1.50	8.50	10.26	16	6.50	5.00	3.63	0.81	0.06	8	0.75	29
3"	3.00	2.00	11.12	13.25	18	8.25	6.62	5.00	1.06	0.06	8	0.88	60
4"	4.00	3.00	12.00	14.31	22	10.00	7.88	6.19	1.19	0.06	8	0.88	106
6"	6.00	4.00	15.88	17.25	24	12.50	10.62	8.50	1.44	0.06	12	0.88	188
8"	8.00	6.00	16.50	18.41	27	15.00	13.00	10.62	1.62	0.06	12	1.00	317
10"	10.00	7.36	18.00	25.37	32	17.50	15.25	12.75	1.88	0.06	16	1.12	492
12"	12.00	9.00	19.75	27.80	36	20.50	17.50	15.00	1.94	0.06	16	1.25	794

CAST CRYOGENIC GATE VALVE

Design & Construction

- API 600, API 603, ASME B16.34, MSS SP-134, BS 6364, full port design
- Threaded, socket weld, butt weld ends class 150 thru 600
- Flanged ends class 150 to class 1500
- Hard facing on seating surfaces available
- Customizable bonnet extension
- Optional degrease, clean and seal to prevent contamination
- Flexible wedge with pressure relief vent
- Body/bonnet austenitic stainless steel castings offer excellent impact strength at low temperature and corrosion protection.
- Bolted body-bonnet joint fully enclosed gasket design, both on ID and OD, allows for leak tight design.
- Packing API 622 and API 624 qualified packing for low fugitive emissions protected from freezing by extended column of insulated gas.



Dimensional Data

Cast Cryogenic GATE VALVES

CRYOGENIC GATE VALVE FIGURE NUMBER	CLASS 150		CLASS 300		CLASS 600		CLASS 900		CLASS 1500	
	FIG #	END	FIG #	END	FIG #	END	FIG #	END	FIG #	END
	8293	THD	8393	THD	8693	THD	8995	RF	8595	RF
	8294	SWE	8394	SWE	8694	SWE	8999	BWE	8599	BWE
	8295	RF	8395	RF	8695	RF				
	8299	BWE	8399	BWE	8699	BWE				

Note: For full figure number and ordering information please see 'How to Order' on page 32.

THD & SWE ENDS	CLASS	CLASS 150 Ladish 8293/8294					CLASS 300 Ladish 8393/8394					CLASS 600 Ladish 8693/94				
	SIZE	½"	¾"	1"	1½"	2"	½"	¾"	1"	1½"	2"	½"	¾"	1"	1½"	2"
	L	2.75	2.88	3.50	4.25	5.00	2.75	3.25	3.75	5.00	5.75	2.75	3.25	3.75	5.00	5.75
	D	3.50	3.50	4.88	6.50	6.50	4.88	4.88	6.50	7.50	7.50	4.88	4.88	6.50	7.50	7.50
	H	12	12	12	14	16	12	12	12	14	16	12	12	12	14	16
	WT LBS	9	10	12	17	25	12	14	19	31	42	15	18	25	45	60

CL150 8295 RF	SIZE	½"	¾"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	L	4.25	4.63	5.00	6.50	7.00	8.00	9.00	10.50	11.50	13.00	14.00	15.00	16.00	17.00	18.00	20.00
	D	3.50	3.50	4.88	6.50	6.50	7.88	9.81	11.81	11.81	13.98	17.72	19.69	22.05	24.80	24.80	27.95
	H	12	12	12	14	16	18	22	24	27	32	36	41	43	45	48	52
	WT LBS	12	12	14	23	32	68	99	177	292	406	550	825	1,218	1,395	1,838	2,694

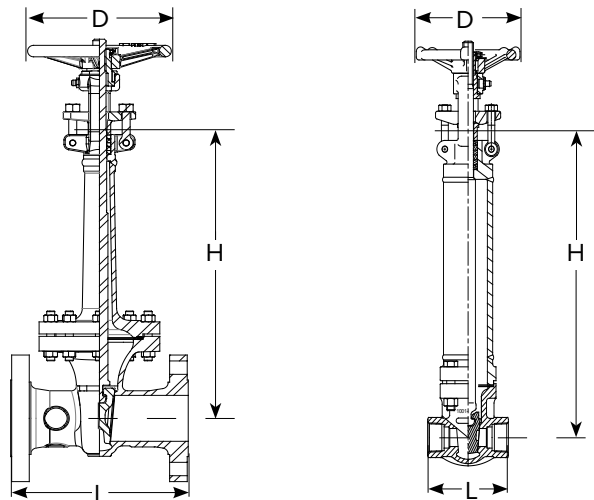
CL300 8395 RF	SIZE	½"	¾"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	L	5.50	6.00	6.50	7.50	8.50	11.12	12.00	15.88	16.50	18.00	19.75	30.00	33.00	36.00	39.00	45.00
	D	4.88	4.88	6.50	7.50	7.50	9.81	9.81	14.19	16.75	17.72	17.72	19.69	19.69	24.80	24.80	27.95
	H	12	12	12	14	16	18	22	24	27	32	36	41	43	45	48	52
	WT LBS	15	17	22	35	48	84	123	230	373	699	1,005	1,523	2,046	2,748	3,457	5,048

CL600 8695 RF	SIZE	½"	¾"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	L	6.50	7.50	8.50	9.50	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	D	4.88	4.88	6.50	7.50	7.50	9.84	13.98	17.72	19.69	19.69	24.80	24.80	27.95	27.95	31.50	35.43
	H	12	12	12	14	16	18	22	24	27	32	36	41	43	45	48	52
	WT LBS	19	22	32	61	74	171	273	539	943	1,455	2,011	2,643	3,385	4,148	5,438	8,173

CL900 8995 RF	SIZE	3"	4"	6"	8"
	L	15.00	18.00	24.00	29.00
	D	13.98	13.98	19.69	24.80
	H	18	22	24	27
	WT LBS	257	401	751	1,327

CL1500 8595 RF	SIZE	3"	4"	6"	8"
	L	18.50	21.50	27.75	32.75
	D	9.84	13.98	19.69	24.80
	H	18	22	24	27
	WT LBS	361	550	1,210	2,287

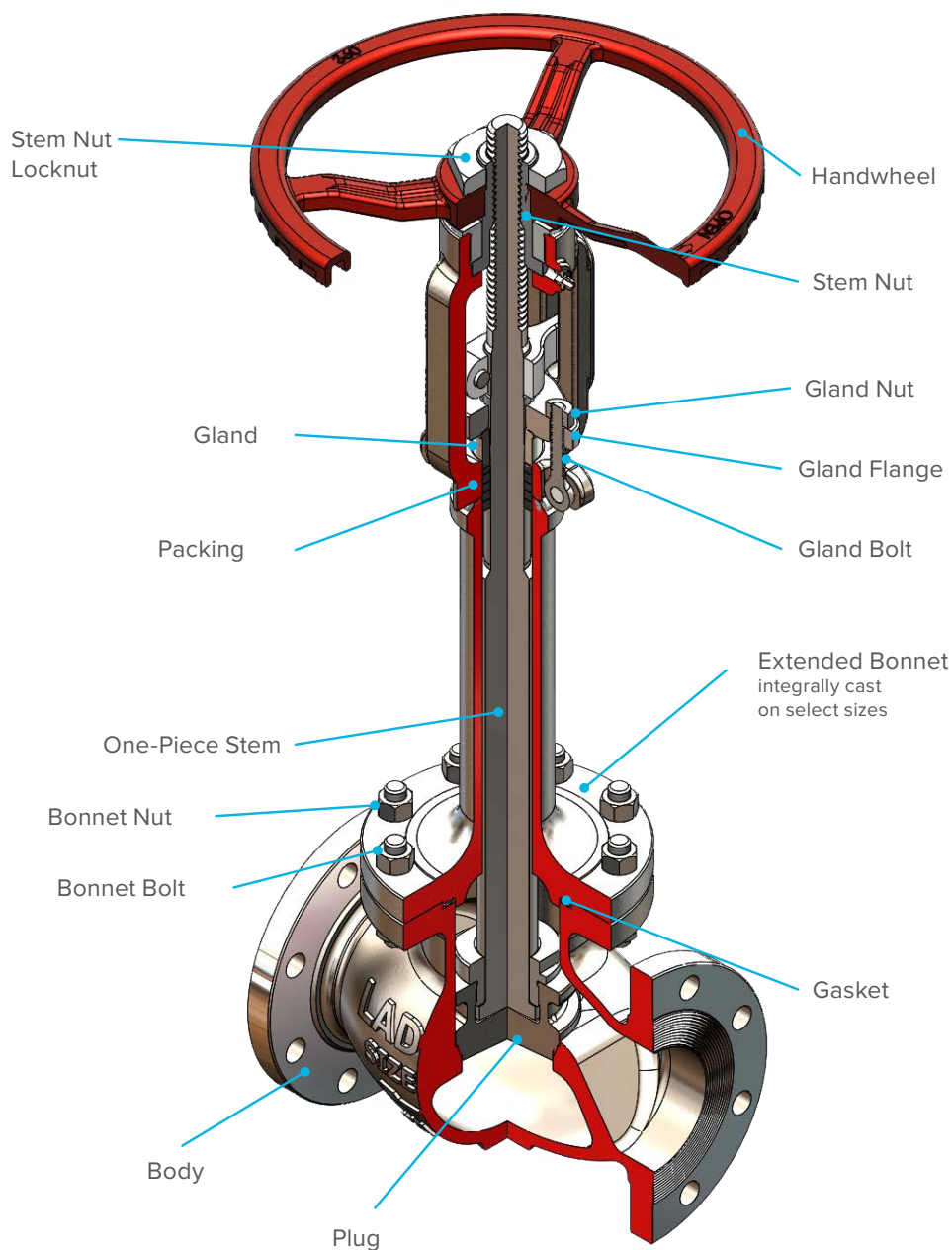
Note: H= Center line of valve to top of stuffing box per MSS-SP-134



CAST CRYOGENIC GLOBE VALVE

Design & Construction

- API 623, ASME B16.34, MSS SP-134, BS 6364, full port design
- Threaded, socket weld, butt weld ends class 150 – 600
- Flanged ends class 150 – 1500
- Hard facing on seating surfaces available
- Customizable bonnet extension
- Optional degrease, clean and seal to prevent contamination
- Rising, non-rotating, one piece stem design available
- Body/bonnet austenitic stainless steel castings offer excellent impact strength at low temperature and corrosion protection.
- Bolted body-bonnet joint fully enclosed gasket design, both on ID and OD, allows for leak tight design.
- Packing API 622 and API 624 qualified packing for low fugitive emissions protected from freezing by extended column of insulated gas.



Dimensional Data

CAST Cryogenic GLOBE VALVES

GLOBE VALVE FIGURE NUMBER	CLASS 150		CLASS 300		CLASS 600		CLASS 900		CLASS 1500	
	FIG #	END	FIG #	END	FIG #	END	FIG #	END	FIG #	END
	7290	THD	7390	THD	7690	THD	7992	RF	7592	RF
	7291	SWE	7391	SWE	7691	SWE	7996	BWE	7596	BWE
	7292	RF	7392	RF	7692	RF				
	7296	BWE	7396	BWE	7696	BWE				

Note: For full figure number and ordering information please see 'How to Order' on page 32.

THD & SWE ENDS	CLASS	CLASS 150 Ladish 7290/7291					CLASS 300 Ladish 7390/7391					CLASS 600 Ladish 7690/7691				
	SIZE	½"	¾"	1"	1½"	2"	½"	¾"	1"	1½"	2"	½"	¾"	1"	1 ½"	2"
	L	3.38	3.75	4.25	5.75	6.25	3.75	4.25	5.00	6.00	7.25	3.75	4.25	5.00	6.00	7.25
	D	3.50	3.50	4.88	6.50	6.50	4.88	4.88	6.50	7.50	7.50	4.88	4.88	6.50	7.50	7.50
	H	12	12	12	14	16	12	12	12	14	16	12	12	12	14	16
	WT LBS	10	10	15	26	34	14	16	25	42	61	15	18	27	45	63

CL150 7292 RF	SIZE	½"	¾"	1"	1½"	2"	3"	4"	6"	8"	10"	12"
	L	4.25	4.63	5.00	6.50	8.00	9.50	11.50	16.00	19.50	24.50	27.50
	D	3.50	3.50	4.88	6.50	6.50	9.84	12.40	13.98	13.98	15.75	15.75
	H	12	12	12	14	16	18	22	24	27	32	36
	WT LBS	13	13	20	32	48	65	115	225	421	594	975

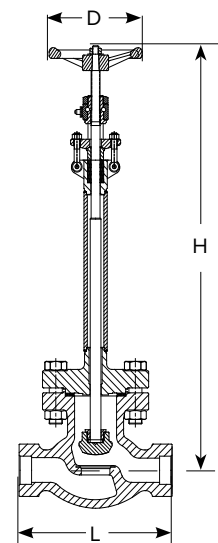
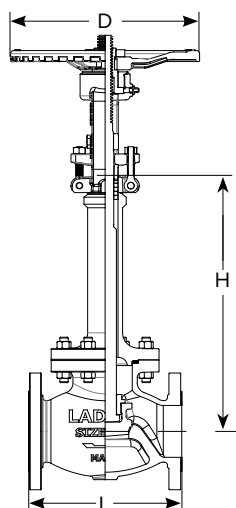
CL300 7392 RF	SIZE	½"	¾"	1"	1 ½"	2"	3"	4"	6"	8"	10"	12"
	L	6.00	7.00	8.00	9.00	10.50	12.50	14.00	17.50	22.00	24.50	28.00
	D	4.88	4.88	6.50	7.50	7.50	9.84	12.40	13.98	15.75	17.72	16.69
	H	12	12	12	14	16	18	22	24	27	32	36
	WT LBS	16	18	29	52	73	92	138	329	593	980	1,300

CL600 7692 RF	SIZE	½"	¾"	1"	1½"	2"	3"	4"	6"	8"	10"	12"
	L	6.50	7.50	8.50	9.50	11.50	14.00	17.00	22.00	26.00	31.00	33.00
	D	4.88	4.88	6.50	7.50	7.50	12.40	12.40	17.72	22.05	24.80	31.50
	H	12		12	14	16	18	22	24	27	32	36
	WT LBS	18	23	32	58	77	139	265	514	915	1,437	2,901

CL900 7992 RF	SIZE	3"	4"	6"	8"
	L	15.00	18.00	24.00	29.00
	D	12.40	13.98	17.72	27.95
	H-OPEN	18	22	24	27
	WT LBS	247	420	895	1,544

CL1500 7592 RF	SIZE	3"	4"	6"	8"
	L	18.50	21.50	27.75	32.75
	D	13.98	15.75	19.69	31.50
	H-OPEN	18	22	24	27
	WT LBS	342	598	1,525	2,717

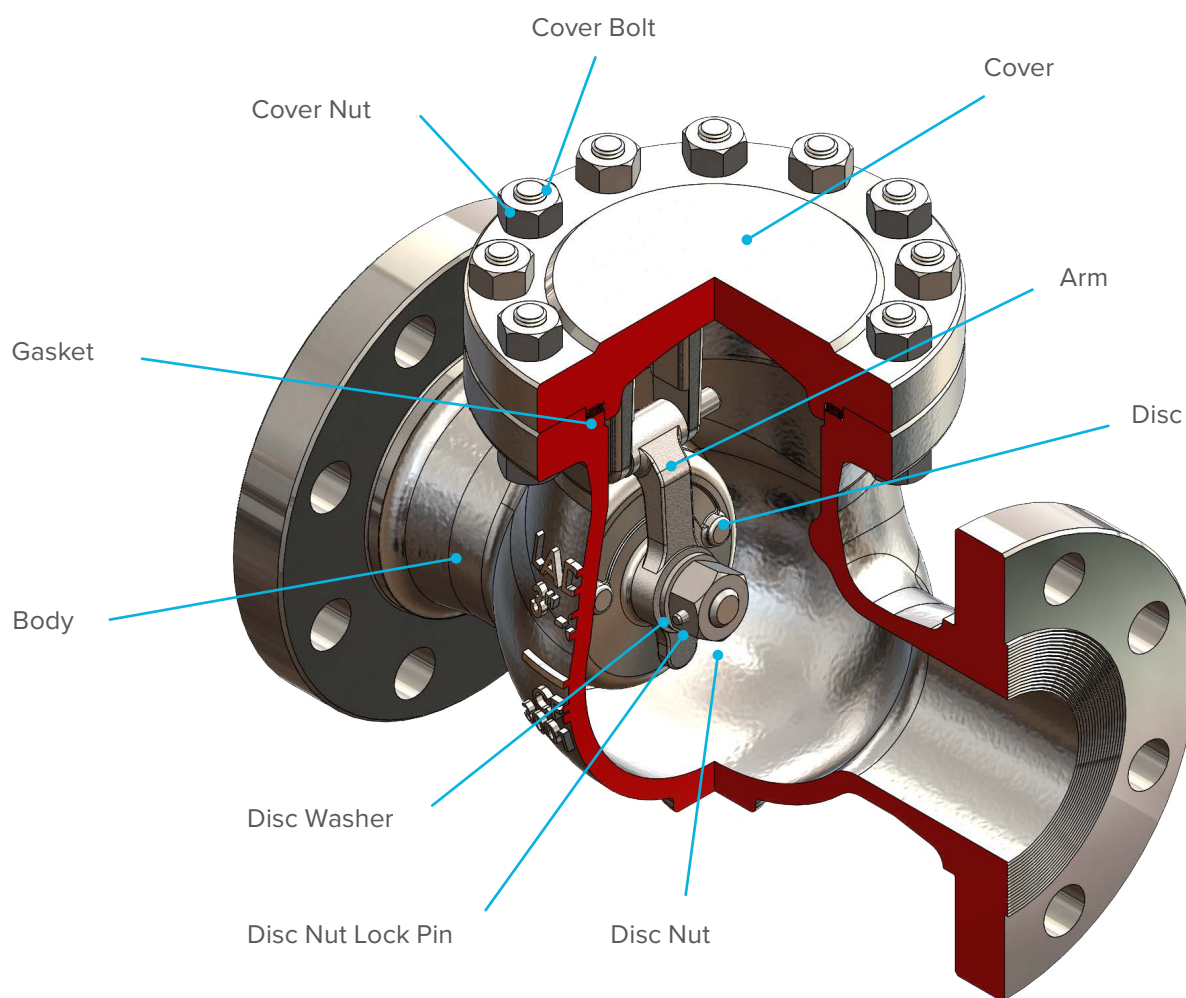
Note: H= Center line of valve to top of stuffing box per MSS-SP-134



CAST CRYOGENIC CHECK VALVE

Design & Construction

- API 594, ASME B16.34, MSS SP-134, BS 6364, full port design
- Threaded, socket weld, butt weld ends class 150 – 600
- Flanged ends class 150 – 1500
- Hard facing on seating surfaces available
- Optional degrease, clean and seal to prevent contamination
- Non-rotating disc design available
- Teflon, renewable discs available
- Internally hung disc design available
- Body/bonnet austenitic stainless steel castings offer excellent impact strength at low temperature and corrosion protection.
- Bolted body-bonnet joint fully enclosed gasket design, both on ID and OD, allows for leak tight design.



Dimensional Data

Cast Cryogenic CHECK VALVES

CHECK VALVE FIGURE NUMBER	CLASS 150		CLASS 300		CLASS 600		CLASS 900		CLASS 1500	
	FIG #	END	FIG #	END	FIG #	END	FIG #	END	FIG #	END
	5290	THD	5390	THD	5690	THD	5992	RF	5592	RF
	5291	SWE	5391	SWE	5691	SWE	5996	BWE	5596	BWE
	5292	RF	5392	RF	5692	RF				
	5296	BWE	5396	BWE	5696	BWE				

Note: For full figure number and ordering information please see 'How to Order' on page 32

THD & SWE ENDS	CLASS	CLASS 150 Ladish 5290/5291					CLASS 300 Ladish 5390/5391					CLASS 600 Ladish 5690/5691				
	SIZE	½"	¾"	1"	1½"	2"	½"	¾"	1"	1½"	2"	½"	¾"	1"	1½"	2"
	L	3.63	3.63	4.00	5.88	6.25	3.63	3.63	4.00	5.88	6.25	3.63	3.63	4.00	5.88	6.25
	H	2.88	2.88	2.88	4.38	4.63	3.25	3.25	3.50	5.50	6.25	3.25	3.25	3.50	5.50	6.25
	WT LBS	3	3	4	12	15	7	7	9	28	30	7	7	9	28	30

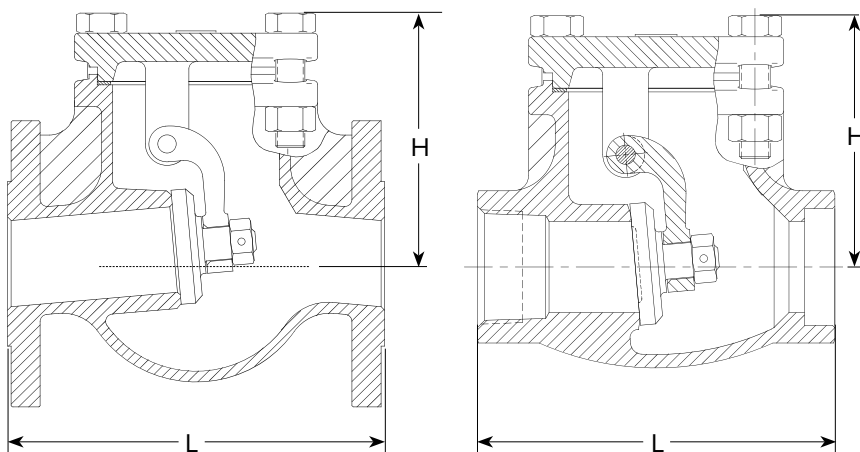
CL150 5292 RF	SIZE	½"	¾"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	L	4.25	4.25	5.00	6.50	8.00	9.50	11.50	14.00	19.50	24.50	27.50	31.00	34.00	38.50	38.50	51.00
	H	3.00	3.00	3.00	4.38	4.38	7.48	8.86	10.24	12.60	13.78	14.96	15.94	18.11	19.88	22.44	26.77
	WT LBS	5	5	7	17	28	57	99	172	300	472	703	908	1,133	1,651	2,057	2,967

CL300 5392 RF	SIZE	½"	¾"	1"	1½"	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	L	6.00	7.00	8.50	9.50	10.50	12.50	14.00	17.50	21.00	24.50	28.00	33.00	34.00	38.50	40.00	53.00
	H	3.50	3.63	3.88	6.00	6.25	7.83	8.94	10.94	12.68	15.08	17.13	20.08	20.51	22.52	24.49	28.03
	WT LBS	10	13	17	42	43	93	119	273	490	642	979	1,394	1,733	2,333	2,668	4,225

CL600 5692 RF	SIZE	½"	¾"	1"	1 ½"	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	L	6.50	7.50	8.50	9.50	11.50	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	H	3.63	3.63	3.88	6.00	6.25	8.27	10.08	12.95	14.33	18.27	19.13	22.52	25.98	27.99	30.98	34.02
	WT LBS	10	13	17	44	47	123	227	450	754	1,376	1,711	2,068	2,756	3,347	5,269	8,126

CL900 5992 RF	SIZE	3"	4"	6"	8"
	L	15.00	18.00	24.00	29.00
	H	11.42	12.05	13.31	18.11
	WT LBS	234	306	648	1,157

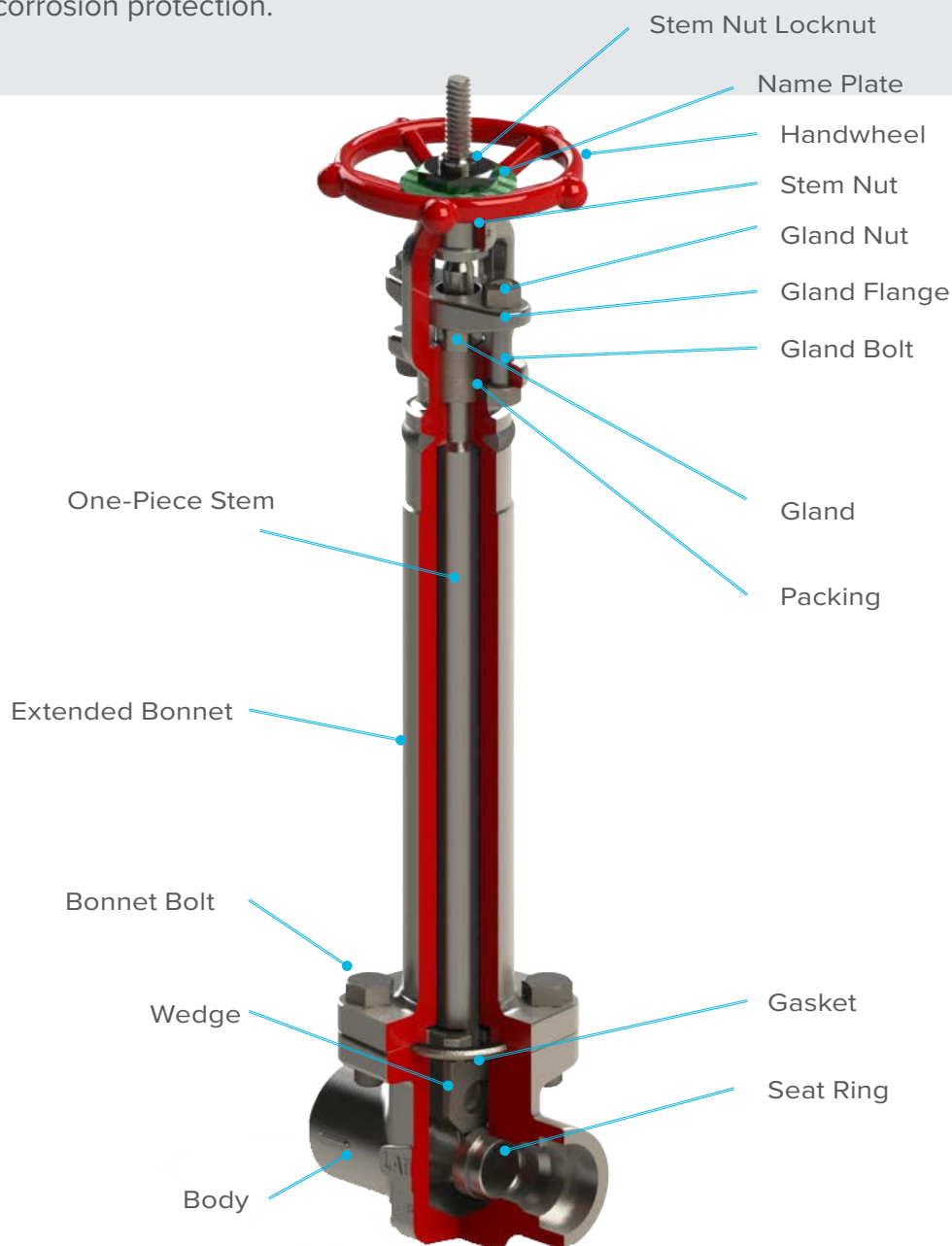
CL1500 5592 RF	SIZE	3"	4"	6"	8"
	L	18.50	21.50	27.75	32.75
	H	11.65	13.98	18.31	21.26
	WT LBS	276	467	1,036	1,819



FORGED CRYOGENIC GATE VALVE

Design & Construction

- API 602, ASME B16.34 , MSS SP-134, BS 6364
- Full and reduced port available
- Threaded, socket weld, butt weld ends class 800 and 1500
- Flanged ends class 150 – 1500
- Hard facing on seating surfaces available
- Customizable bonnet extension
- Optional degrease, clean and seal to prevent contamination
- Body/bonnet austenitic stainless steel forgings offer excellent impact strength at low temperature and corrosion protection.
- Bolted body-bonnet joint fully enclosed gasket design, both on ID and OD, allows for leak tight design.
- Wedge/seat solid wedge design constructed in forged or investment cast steel. Seating surfaces use Stellite® to prevent seizing and galling.
- Packing API 622 and API 624 qualified packing for low fugitive emissions protected from freezing by extended column of insulated gas.



Dimensional Data

Forged Cryogenic Gate Valve

Welded bonnet (NPT,SWE,BWE)

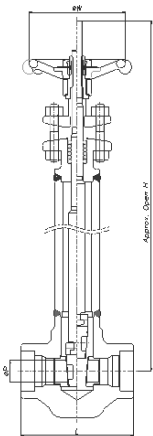


Figure #

8793 CL 800 NPT
8794 CL 800 SWE
8799 CL 800 BWE

8193 CL 1500 NPT
8194 CL 1500 SWE
8199 CL 1500 BWE

Bolted bonnet (NPT,SWE,BWE)

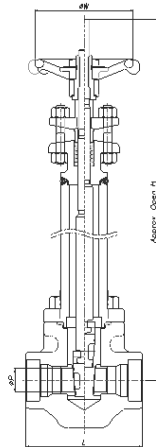


Figure #

8893 CL 800 NPT
8894 CL 800 SWE
8899 CL 800 BWE

8593 CL 1500 NPT
8594 CL 1500 SWE
8599 CL 1500 BWE

Bolted bonnet (Integral Flange)

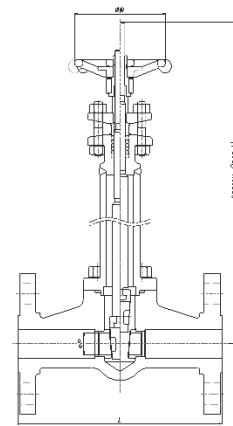


Figure #

8295 CL 150 RF
8395 CL 300 RF
8695 CL 600 RF
8995 CL 900 RF
8595 CL 1500 RF

SOCKET WELD, THREADED, BUTT WELD END

CLASS 800							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.39	3.39	4.17	4.74	4.74	5.35
HANDWHEEL	Ø W	3.54	3.54	3.54	4.72	4.72	5.51
OPEN	H	16.54	16.54	17.13	19.09	19.29	21.85
WEIGHT	LBS	8.6	8.4	10.6	19.8	20.3	31.5

CLASS 1500							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.39	4.17	4.74	4.74	5.35	6.26
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	5.51
OPEN	H	15.75	15.75	16.54	21.26	21.46	21.85
WEIGHT	LBS	8.6	11.5	24.3	22.0	33.1	41.9

CLASS 800							
FULL PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.39	4.17	4.74	4.74	5.35	5.71
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	5.51
OPEN	H	16.54	17.13	19.09	19.29	21.85	23.23
WEIGHT	LBS	8.4	10.8	19.8	20.3	31.5	34.2

CLASS 1500							
FULL PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	4.17	4.74	4.74	5.35	6.26	-
HANDWHEEL	Ø W	3.54	4.72	4.72	5.51	5.51	-
OPEN	H	15.75	16.54	21.26	21.46	21.85	-
WEIGHT	LBS	11.5	24.3	22.0	33.1	41.9	-

FLANGED TYPE

CLASS 150							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	4.25	4.61	5.00	-	6.50	7.01
HANDWHEEL	Ø W	3.54	3.54	3.54	-	4.72	5.51
OPEN	H	16.54	16.54	17.13	-	19.29	21.85
WEIGHT	LBS	10.8	11.9	13.9	-	25.8	44.1

CLASS 600							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	6.50	7.48	8.50	-	9.49	11.50
HANDWHEEL	Ø W	3.54	3.54	3.54	-	4.72	5.51
OPEN	H	16.54	16.54	17.13	-	19.29	21.85
WEIGHT	LBS	11.9	15.4	18.5	-	38.6	55.1

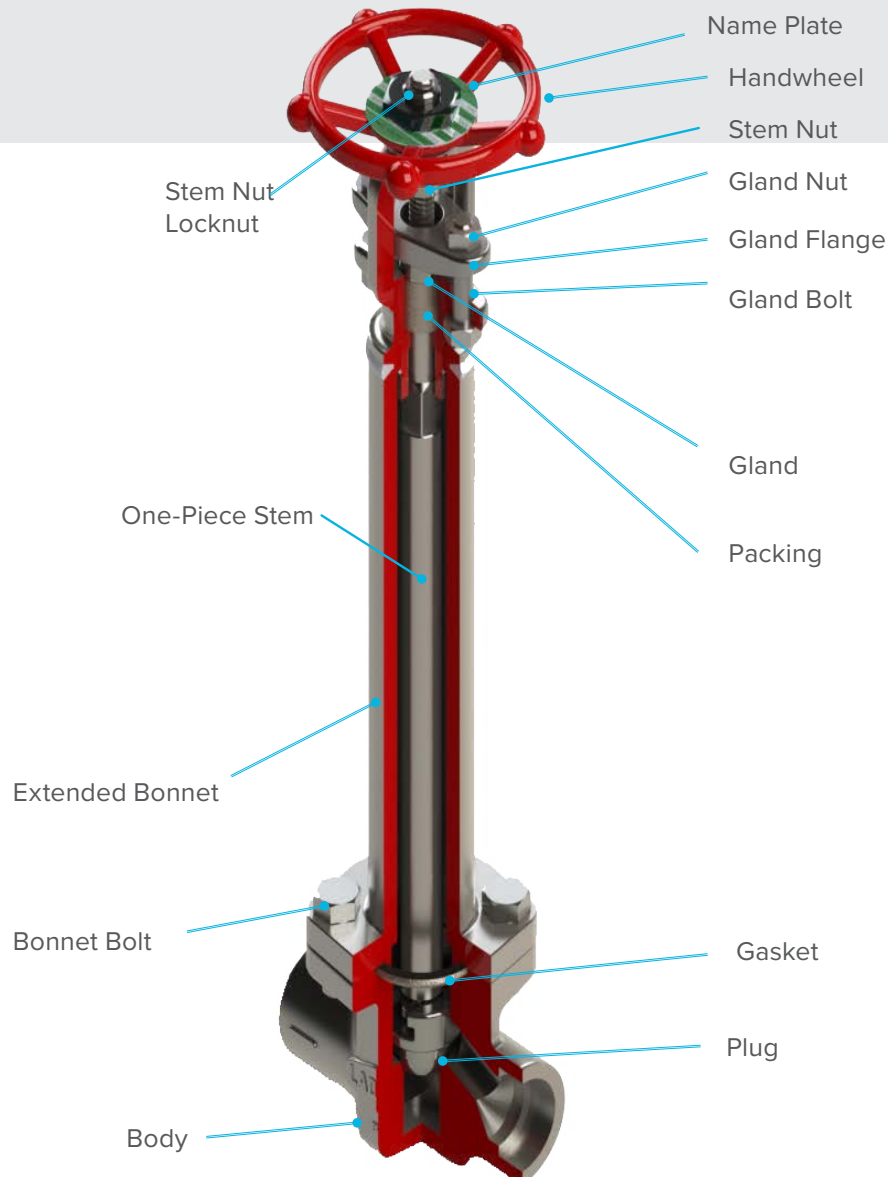
CLASS 300							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	5.51	5.98	6.50	-	7.50	8.50
HANDWHEEL	Ø W	3.54	3.54	3.54	-	4.72	5.51
OPEN	H	16.54	16.54	17.13	-	19.29	21.85
WEIGHT	LBS	11.9	13.7	17.0	-	33.1	44.1

CLASS 900 – 1500							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	8.50	9.02	10.00	-	12.01	14.49
HANDWHEEL	Ø W	3.54	3.54	4.72	-	5.51	5.51
OPEN	H	15.75	15.75	16.54	-	21.46	21.85
WEIGHT	LBS	22.7	26.0	33.5	-	95.9	111.1

FORGED CRYOGENIC GLOBE VALVE

Design & Construction

- API 602, ASME B16.34 , MSS SP-134, BS 6364
- Rising, non-rotating, one-piece stem design
- Full and reduced port available
- Threaded, socket weld, butt weld ends class 800 and 1500
- Flanged ends class 150 – 1500
- Hard facing on seating surfaces available
- Customizable bonnet extension
- Optional degrease, clean and seal to prevent contamination
- Body/bonnet austenitic stainless steel forgings offer excellent impact strength at low temperature and corrosion protection.
- Bolted Body-bonnet joint fully enclosed gasket design, both on ID and OD, allows for leak tight design.
- Disc/seat solid wedge design constructed in forged or investment cast steel. Seating surfaces use Stellite® to prevent seizing and galling.
- Packing API 622 and API 624 qualified packing for low fugitive emissions protected from freezing by extended column of insulated gas.



Dimensional Data

Forged Cryogenic Globe Valve

Welded bonnet (NPT,SWE,BWE)

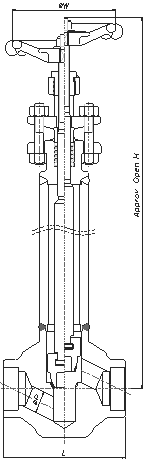


Figure #

7790 CL 800 NPT
7791 CL 800 SWE
7796 CL 800 BWE

7190 CL 1500 NPT
7191 CL 1500 SWE
7196 CL 1500 BWE

Bolted bonnet (NPT,SWE,BWE)

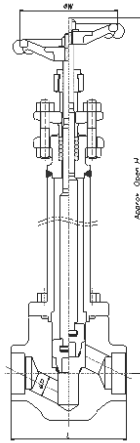


Figure #

7890 CL 800 NPT
7891 CL 800 SWE
7896 CL 800 BWE

7590 CL 1500 NPT
7591 CL 1500 SWE
7596 CL 1500 BWE

Bolted bonnet (Integral Flange)

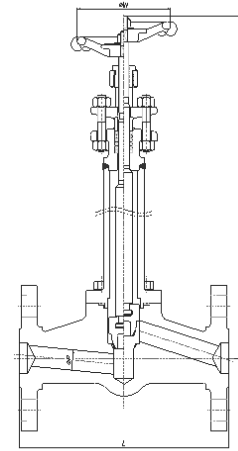


Figure #

7295 CL 150 RF
7395 CL 300 RF
7695 CL 600 RF
7995 CL 900 RF
7595 CL 1500 RF

SOCKET WELD, THREADED, BUTT WELD END

CLASS 800							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.39	3.39	4.17	5.94	5.94	6.73
HANDWHEEL	Ø W	3.54	3.54	3.54	4.72	4.72	5.51
OPEN	H	15.75	15.75	15.94	18.31	18.50	21.65
WEIGHT	LBS	8.6	8.4	10.6	20.9	21.4	35.5

CLASS 1500							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.39	4.17	5.94	5.94	6.73	8.66
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	5.51
OPEN	H	15.35	15.35	15.75	18.70	18.90	20.87
WEIGHT	LBS	8.6	11.5	24.3	23.4	35.1	43.9

CLASS 800							
FULL PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.39	4.17	5.94	5.94	6.73	8.66
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	5.51
OPEN	H	15.75	15.94	18.31	18.50	22.05	22.44
WEIGHT	LBS	8.4	10.8	20.9	21.4	35.5	46.3

CLASS 1500							
FULL PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	4.17	5.94	5.94	6.73	8.66	–
HANDWHEEL	Ø W	3.54	4.72	4.72	5.51	5.51	–
OPEN	H	15.35	15.75	18.70	18.90	20.87	–
WEIGHT	LBS	11.5	24.3	23.4	35.1	43.9	–

FLANGED TYPE

CLASS 150							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	4.25	4.61	5.00	–	6.50	7.99
HANDWHEEL	Ø W	3.54	3.54	3.54	–	4.72	5.51
OPEN	H	15.35	15.35	15.75	–	18.90	21.65
WEIGHT	LBS	11.5	12.6	14.6	–	28.9	40.1

CLASS 600							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	6.50	7.48	8.50	–	9.49	11.50
HANDWHEEL	Ø W	3.54	3.54	3.54	–	4.72	5.51
OPEN	H	15.75	15.75	15.94	–	18.50	21.65
WEIGHT	LBS	12.8	15.4	19.2	–	39.9	57.8

CLASS 300							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	5.98	7.01	7.99	–	9.02	10.51
HANDWHEEL	Ø W	3.54	3.54	3.54	–	4.72	5.51
OPEN	H	15.75	15.75	15.94	–	18.50	21.65
WEIGHT	LBS	12.1	14.6	18.3	–	39.2	52.0

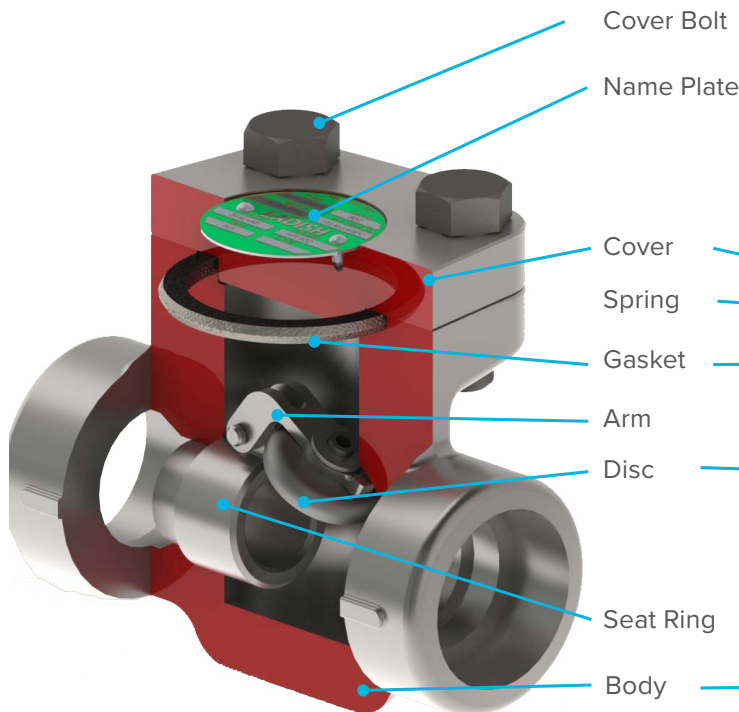
CLASS 900 – 1500							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	8.50	9.02	10.00	–	12.01	14.49
HANDWHEEL	Ø W	3.54	3.54	4.72	–	5.51	5.51
OPEN	H	15.35	15.35	15.75	–	18.90	20.87
WEIGHT	LBS	23.1	26.9	34.0	–	96.8	112.2

FORGED STEEL CHECK VALVES

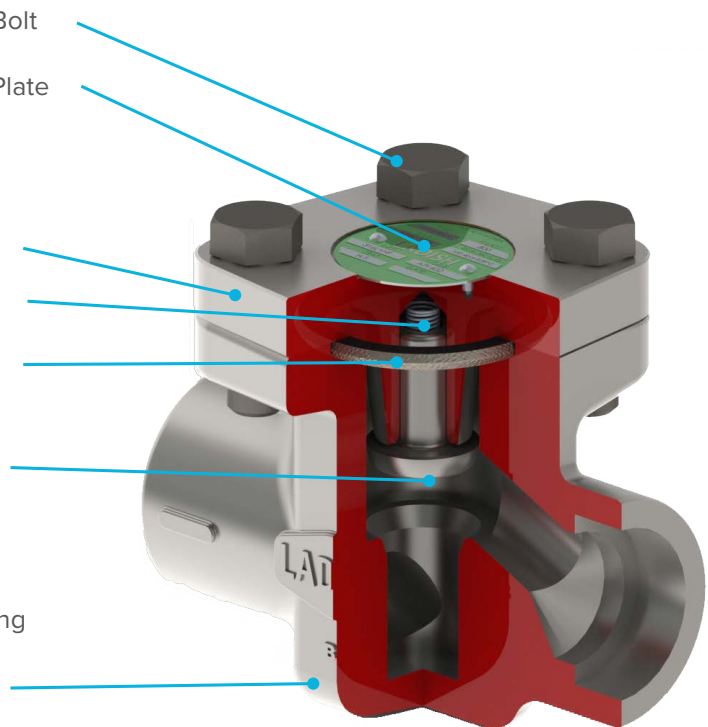
Design & Construction

- API 602, ASME B16.34, MSS SP-134, BS 6364
- Tested in accordance to API 598, ASME B16.34
- Hard faced seating surfaces available
- Threaded, socket weld and butt weld ends available class 800 and 1500
- Flanged ends available class 150 – 1500
- Full and reduced port available
- Body/cover austenitic stainless steel forging offering excellent impact strength at low temperatures and corrosion protection.
- Body-bonnet joint fully enclosed gasket design.
- Piston/disc seating surfaces are stellite faced to assist in avoiding seizing and galling. All checks can be fitted with TFE inserts.

SWING CHECK

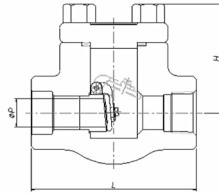


LIFT CHECK

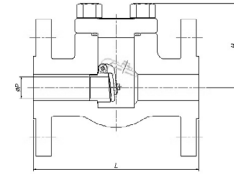


Dimensional Data - Forged Steel Check Valves

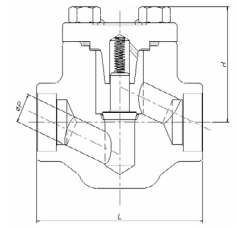
Swing Figure #
5890 CL 800 NPT
5891 CL 800 SWE
5896 CL 800 BWE



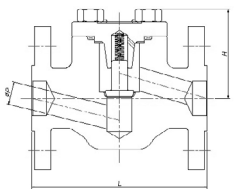
5292 CL 150 RF
5392 CL 300 RF
5682 CL 600 RF
5193 CL 1500 RF



Lift Check Figure #
5590 CL 1500 NPT
5591 CL 1500 SWE
5596 CL 1500 BWE



5282 CL 150 RF
5382 CL 300 RF
5682 CL 600 RF
5182 CL 1500 RF



SOCKET WELD, THREADED, BUTT WELD END

SWING CHECK CLASS 800							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.27	3.39	4.17	4.76	4.76	5.35
CENTER-TOP	H	2.17	2.36	2.76	3.94	3.94	4.53
WEIGHT	LBS	2.2	2.4	3.7	8.4	8.6	13.2

LIFT CHECK CLASS 800							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.27	3.39	4.17	5.94	5.94	6.73
CENTER-TOP	H	2.17	2.36	2.76	3.15	3.15	3.94
WEIGHT	LBS	2.4	3.5	5.5	10.6	10.8	18.3

SWING CHECK CLASS 1500							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.39	4.17	4.76	4.76	5.35	5.71
CENTER-TOP	H	2.36	2.76	3.94	3.94	4.53	5.51
WEIGHT	LBS	4.0	6.0	12.3	10.6	16.8	23.8

LIFT CHECK CLASS 1500							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.39	4.17	5.94	5.94	6.73	8.66
CENTER-TOP	H	2.36	2.76	3.15	3.15	3.94	4.92
WEIGHT	LBS	4.0	6.2	13.9	11.5	19.0	25.8

FLANGED TYPE

SWING CHECK CLASS 150							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	4.25	4.61	5.00	—	6.50	7.99
CENTER-TOP	H	2.17	2.36	2.76	—	3.94	4.53
WEIGHT	LBS	5.3	6.6	9.7	—	16.3	24.3

LIFT CHECK CLASS 150							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	4.25	4.61	5.00	—	6.50	7.99
CENTER-TOP	H	2.17	2.36	2.76	—	3.15	3.94
WEIGHT	LBS	5.3	5.5	8.8	—	17.6	25.4

SWING CHECK CLASS 300							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	5.98	7.01	7.99	—	9.02	10.51
CENTER-TOP	H	2.17	2.36	2.76	—	3.94	4.53
WEIGHT	LBS	6.6	10.6	14.1	—	27.8	35.9

LIFT CHECK CLASS 300							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	5.98	7.01	7.99	—	9.02	10.51
CENTER-TOP	H	2.17	2.36	2.76	—	3.15	3.94
WEIGHT	LBS	5.7	9.5	13.2	—	28.9	37.0

SWING CHECK CLASS 600							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	6.50	7.48	8.50	—	9.49	11.50
CENTER-TOP	H	2.17	2.36	2.76	—	3.94	4.53
WEIGHT	LBS	7.3	11.7	14.3	—	28.4	42.6

LIFT CHECK CLASS 600							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	6.50	7.48	8.50	—	9.49	11.50
CENTER-TOP	H	2.17	2.36	2.76	—	3.15	3.94
WEIGHT	LBS	6.4	10.6	13.5	—	28.9	37.0

SWING CHECK CLASS 1500							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	8.50	9.02	10.00	—	12.01	14.49
CENTER-TOP	H	2.36	2.76	3.94	—	4.53	4.92
WEIGHT	LBS	9.5	15.7	22.5	—	35.9	62.8

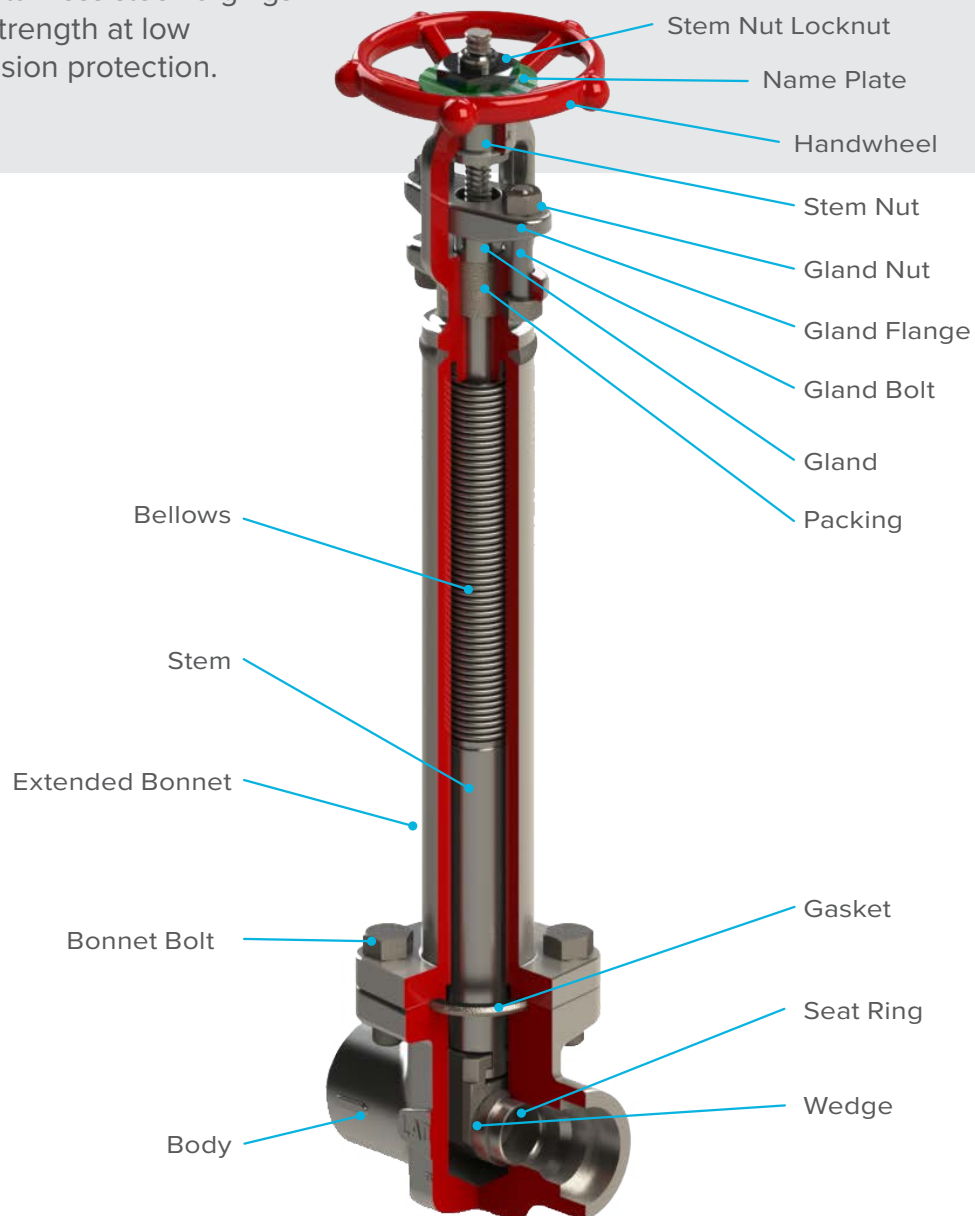
LIFT CHECK CLASS 1500							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	8.50	9.02	10.00	—	12.01	14.49
CENTER-TOP	H	2.36	2.76	3.15	—	3.94	4.53
WEIGHT	LBS	8.8	14.6	21.4	—	28.4	42.6

FORGED CRYOGENIC BELLOWS GATE VALVES

Design & Construction

- API 602, ASME B16.34, MSS SP-134, BS 6364
- Full and reduced port available
- Threaded, socket weld, butt weld ends class 800 and 1500
- Flanged ends class 150 – 1500
- Hard facing on seating surfaces available
- Customizable bonnet extension
- Optional degrease, clean and seal to prevent contamination
- Multi-ply bellows for extended life
- Body/bonnet austenitic stainless steel forgings offer excellent impact strength at low temperatures and corrosion protection.

- Bolted body-bonnet joint fully enclosed gasket design, both on ID and OD, allows for leak tight design.
- Wedge/seat solid wedge design constructed in forged or investment cast steel. Seating surfaces use Stellite® to prevent seizing and galling.
- Packing API 622 and API 624 qualified packing for low fugitive emissions protected from freezing by extended column of insulated gas.



Dimensional Data - Forged Cryogenic Bellows Gate Valve

Welded bonnet (NPT,SWE,BWE)

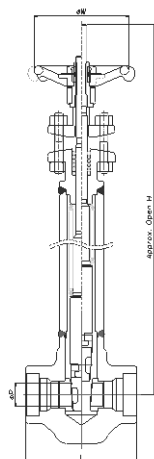


Figure #
 8743 CL 800 NPT
 8744 CL 800 SWE
 8749 CL 800 BWE

 8143 CL 1500 NPT
 8144 CL 1500 SWE
 8149 CL 1500 BWE

Bolted bonnet (NPT,SWE,BWE)

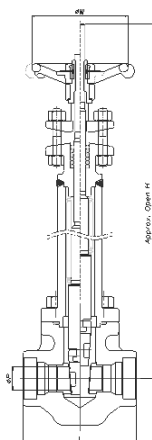


Figure #
 8843 CL 800 NPT
 8844 CL 800 SWE
 8849 CL 800 BWE

 8543 CL 1500 NPT
 8544 CL 1500 SWE
 8549 CL 1500 BWE

Bolted bonnet (Integral Flange)

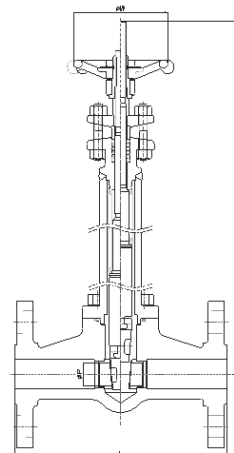


Figure #
 8245 CL 150 RF
 8345 CL 300 RF
 8645 CL 600 RF
 8945 CL 900 RF
 8545 CL 1500 RF

SOCKET WELD, THREADED, BUTT WELD END

CLASS 800							
REDUCED PORT	DIM/SIZE	½"	¾"	1"	1¼"	1½"	2"
END TO END	L	3.39	3.39	4.17	4.74	4.74	5.35
HANDWHEEL	Ø W	3.54	3.54	3.54	4.72	4.72	5.51
OPEN	H	16.54	16.54	17.13	19.09	19.29	21.85
WEIGHT	LBS	8.8	8.6	11.0	20.3	20.9	32.4

CLASS 1500							
REDUCED PORT	DIM/SIZE	½"	¾"	1"	1¼"	1½"	2"
END TO END	L	3.39	4.17	4.74	4.74	5.35	6.26
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	5.51
OPEN	H	15.75	15.75	16.54	21.26	21.46	21.85
WEIGHT	LBS	8.8	11.9	24.7	22.7	34.0	43.0

CLASS 800							
FULL PORT	DIM/SIZE	½"	¾"	1"	1¼"	1½"	2"
END TO END	L	3.39	4.17	4.74	4.74	5.35	5.71
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	5.51
OPEN	H	16.54	17.13	19.09	19.29	21.85	23.23
WEIGHT	LBS	8.6	11.0	20.3	20.9	32.4	35.3

CLASS 1500							
FULL PORT	DIM/SIZE	½"	¾"	1"	1¼"	1½"	2"
END TO END	L	4.17	4.74	4.74	5.35	6.26	-
HANDWHEEL	Ø W	3.54	4.72	4.72	5.51	5.51	-
OPEN	H	15.75	16.54	21.26	21.46	21.85	-
WEIGHT	LBS	11.9	24.7	22.7	34.0	43.0	

FLANGED TYPE

CLASS 150							
REDUCED PORT	DIM/SIZE	½"	¾"	1"	1¼"	1½"	2"
END TO END	L	4.25	4.61	5.00	-	6.50	7.01
HANDWHEEL	Ø W	3.54	3.54	3.54	-	4.72	5.51
OPEN	H	16.54	16.54	17.13	-	19.29	21.85
WEIGHT	LBS	11.0	12.3	14.6	-	26.9	45.4

CLASS 600							
REDUCED PORT	DIM/SIZE	½"	¾"	1"	1¼"	1½"	2"
END TO END	L	6.50	7.48	8.50	-	9.49	11.50
HANDWHEEL	Ø W	3.54	3.54	3.54	-	4.72	5.51
OPEN	H	16.54	16.54	17.13	-	19.29	21.85
WEIGHT	LBS	12.3	15.9	19.2	-	39.7	56.4

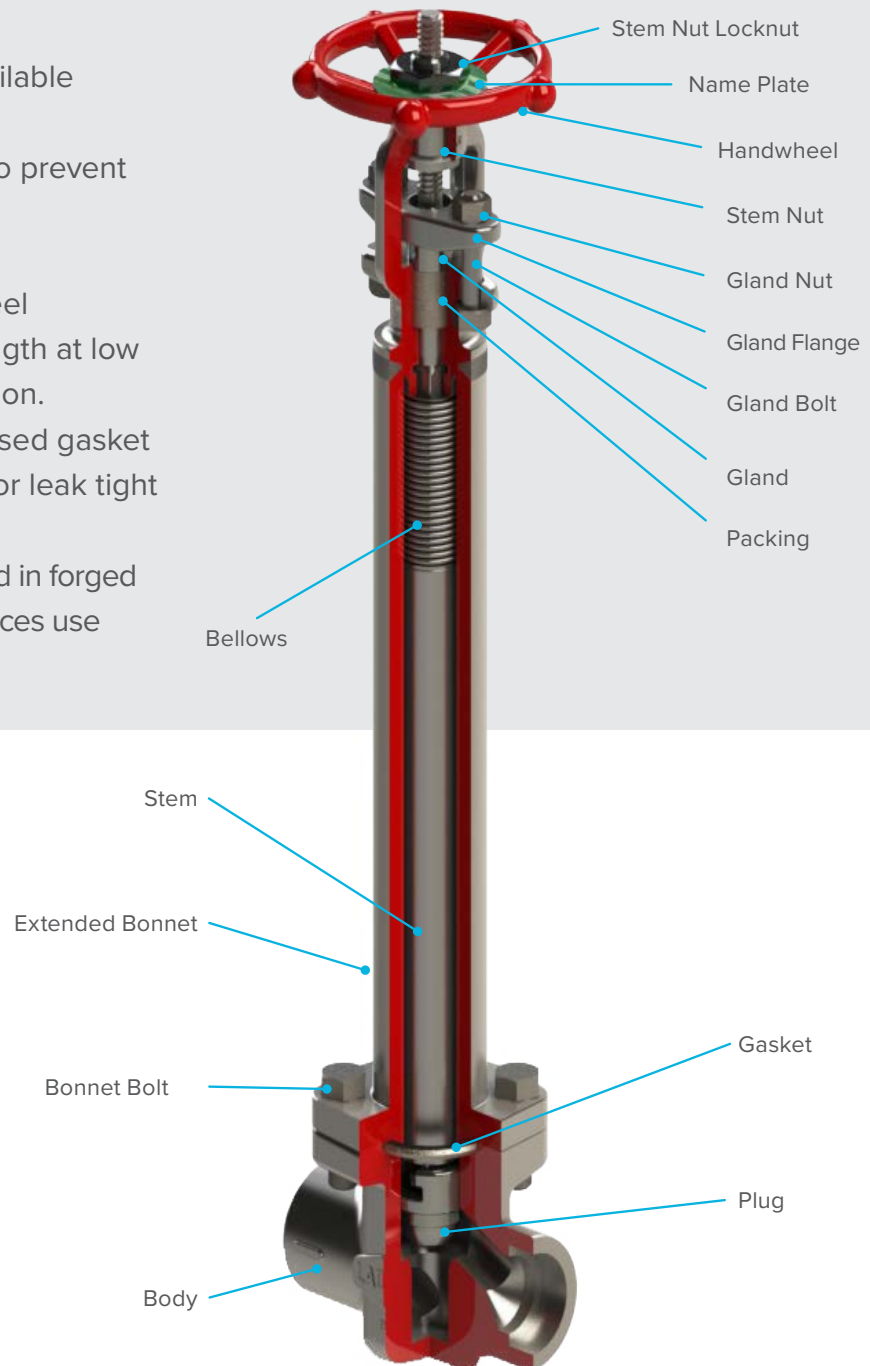
CLASS 300							
FULL PORT	DIM/SIZE	½"	¾"	1"	1¼"	1½"	2"
END TO END	L	5.51	5.98	6.50	-	7.50	8.50
HANDWHEEL	Ø W	3.54	3.54	3.54	-	4.72	5.51
OPEN	H	16.54	16.54	17.13	-	19.29	21.85
WEIGHT	LBS	12.3	14.1	17.6	-	34.2	47.6

CLASS 900 – 1500							
FULL PORT	DIM/SIZE	½"	¾"	1"	1¼"	1½"	2"
END TO END	L	8.50	9.02	10.00	-	12.01	14.49
HANDWHEEL	Ø W	3.54	3.54	4.72	-	5.51	5.51
OPEN	H	15.75	15.75	16.54	-	21.46	21.85
WEIGHT	LBS	23.4	26.5	34.2	-	97.0	112.4

FORGED CRYOGENIC BELLOWS GLOBE VALVES

Design & Construction

- API 602, ASME B16.34, MSS SP-134, BS 6364
- Rising, non-rotating stem design
- Full and reduced port available
- Threaded, socket weld, butt weld ends class 800 and 1500
- Flanged ends class 150 –1500
- Hard facing on seating surfaces available
- Customizable bonnet extension
- Optional degrease, clean and seal to prevent contamination
- Multiple bellows for extended life
- Body/bonnet austenitic stainless steel forgings offer excellent impact strength at low temperatures and corrosion protection.
- Bolted body-bonnet joint fully enclosed gasket design, both on ID and OD, allows for leak tight design.
- Disc/seat solid disc design constructed in forged or investment cast steel. Seating surfaces use Stellite® to prevent seizing and galling.



Dimensional Data - Forged Cryogenic Bellows Globe Valve

Welded bonnet (NPT,SWE,BWE)

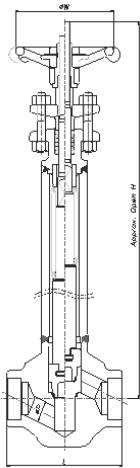


Figure #
7743 CL 800 NPT
7744 CL 800 SWE
7749 CL 800 BWE

7143 CL 1500 NPT
7144 CL 1500 SWE
7149 CL 1500 BWE

Bolted bonnet (NPT,SWE,BWE)

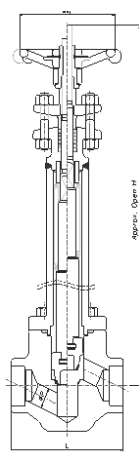


Figure #
7840 CL 800 NPT
7841 CL 800 SWE
7846 CL 800 BWE

7540 CL 1500 NPT
7541 CL 1500 SWE
7546 CL 1500 BWE

Bolted bonnet (Integral Flange)

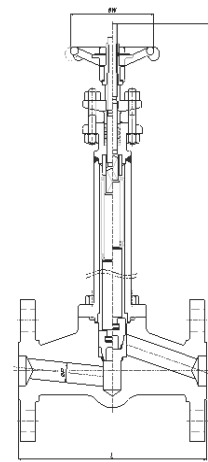


Figure #
7242 CL 150 RF
7342 CL 300 RF
7642 CL 600 RF
7942 CL 900 RF
7542 CL 1500 RF

SOCKET WELD, THREADED, BUTT WELD END

CLASS 800							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.39	3.39	4.17	5.94	5.94	6.73
HANDWHEEL	Ø W	3.54	3.54	3.54	4.72	4.72	5.51
OPEN	H	15.75	15.75	15.94	18.31	18.50	21.65
WEIGHT	LBS	8.8	8.6	11.0	21.4	22.0	36.4

CLASS 1500							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.39	4.17	5.94	5.94	6.73	8.66
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	5.51
OPEN	H	15.35	15.35	15.75	18.70	18.90	20.87
WEIGHT	LBS	8.8	11.9	24.7	24.0	35.9	45.0

CLASS 800							
FULL PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	3.39	4.17	5.94	5.94	6.73	8.66
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	5.51
OPEN	H	15.75	15.94	18.31	18.50	22.05	22.44
WEIGHT	LBS	8.6	11.0	21.8	23.6	36.4	47.4

CLASS 1500							
FULL PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	4.17	5.94	5.94	6.73	8.66	—
HANDWHEEL	Ø W	3.54	4.72	4.72	5.51	5.51	—
OPEN	H	15.35	15.75	18.70	18.90	20.87	—
WEIGHT	LBS	11.9	24.7	24.0	35.9	45.0	—

FLANGED TYPE

CLASS 150							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	4.25	4.61	5.00	—	6.50	7.99
HANDWHEEL	Ø W	3.54	3.54	3.54	—	4.72	5.51
OPEN	H	15.75	15.75	15.94	—	18.50	21.65
WEIGHT	LBS	11.7	12.8	15.0	—	29.5	41.0

CLASS 600							
REDUCED PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	6.50	7.48	8.50	—	9.49	11.50
HANDWHEEL	Ø W	3.54	3.54	3.54	—	4.72	5.51
OPEN	H	15.75	15.75	15.94	—	18.50	21.65
WEIGHT	LBS	13.0	15.7	19.6	—	40.6	58.6

CLASS 300							
FULL PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	5.98	7.01	7.99	—	9.02	10.51
HANDWHEEL	Ø W	3.54	3.54	3.54	—	4.72	5.51
OPEN	H	15.75	15.75	15.94	—	18.50	21.65
WEIGHT	LBS	12.3	14.8	18.7	—	39.9	52.9

CLASS 900 – 1500							
FULL PORT	DIM/SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
END TO END	L	8.50	9.02	10.00	—	12.01	14.49
HANDWHEEL	Ø W	3.54	3.54	4.72	—	5.51	5.51
OPEN	H	15.35	15.35	15.75	—	18.90	20.87
WEIGHT	LBS	23.4	27.1	34.4	—	97.4	113.1

HOW TO ORDER

Cast & Forged Cryogenic Multi Turn Valves

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:

8295-1051-GG01-V82B 2" CL150 RF OS&Y CRYO GATE A351 CF8M TR 10 GRF P&G B8CL1 VENT

VALVE TYPE & PRESSURE CLASS	CONSTRUCT & STEM ACTION	END CONNECT & CLOSURE TYPE		DESIGN	MATERIAL
82	9	5		1	05
GATE 82 – CL150 83 – CL300 86 – CL600 88 – CL800 89 – CL900 85 – CL1500 GLOBE 72 – CL150 73 – CL300 76 – CL600 78 – CL800 79 – CL900 75 – CL1500 CHECK 52 – CL150 53 – CL300 56 – CL600 58 – CL800 59 – CL900 55 – CL1500	GATE 2 – Pressure Seal 4 – Bellows Seal 6 – OS&Y THD/SWE/BWE (≥ CL300) 7 – OS&Y THD/SWE/BWE CL150) & RF (ALL CL) 9 – CRYO GLOBE 2 – Pressure Seal 4 – Bellows Seal 6 – OS&Y THD/SWE/BWE (≥ CL300) 7 – OS&Y THD/SWE/BWE CL150) & RF (ALL CL) 8 – Angle 9 – CRYO CHECK 2 – Pressure Seal 3 – Stop type 5 – Lift type 7 – Swing type 9 – CRYO 4 – Ball check	GATE 3 – THD, Solid 4 – SWE, Solid 5 – RF, Solid 9 – BWE, Solid 0 – THD, Split 1 – SWE, Split 2 – RF, Split 6 – BWE, Split GLOBE 3 – THD, PTFE 4 – SWE, PTFE 5 – RF, PTFE 9 – BWE, PTFE 0 – THD, Plug 1 – SWE, Plug 2 – RF, Plug 6 – BWE, Plug	CHECK 3 – THD, PTFE 4 – SWE, PTFE 5 – RF, PTFE 9 – BWE, PTFE 0 – THD, Metal 1 – SWE, Metal 2 – RF, Metal 6 – BWE, Metal	1 – API603 2 – API600 3 – B16.34 4 – API6D 5 – API608 6 – API602 7 – API594 8 – API623	

Cast Materials

01 A351-CF8
02 A351-CF3
05 A351-CF8M
06 A351-CF3M
10 A351-CG8M
11 A351-CG3M
12 A351-CF8C
15 A351-CN7M
23 A494-CX2MW
30 A494-M35-1
31 A494-M35-2
52 A995-CD4MCUN-GR1B

53 A995-CE8MN-GR2A
54 A995-CD6MN-GR3A
55 A995-CD3MN-GR4A
56 A995-CE3MN-GR5A
57 A995-CD3MWCUN-GR6A

SELECT CAST MATERIALS FOR CRYOGENIC APPLICATIONS

OTHERS AVAILABLE UPON REQUEST

Forged Materials

A1 A182 – F304
A2 A182-F304L
A3 A182-F304H
A4 A182-F310
A5 A182-F316DC
A6 A182-F316L
A7 A182-F316H
B0 A182-F317
B1 A182-F317L
B2 A182-F347H
B4 A182-F309
B5 B462-N08020

D0 B564-N04400
F5 A182-F51
F6 A182-F53
F7 A182-F55
H2 A350 LF2 CL 1

SELECT FORGED MATERIALS FOR CRYOGENIC APPLICATIONS

OTHERS AVAILABLE UPON REQUEST



TRIM & PORT	PACKING TYPE	GASKET TYPE	BOLTING & NUTS	MISC. OPTIONS	SIZE	INTERNAL USE ONLY
1	G	G	01	V	82	B
1 – Std Trim Full Port 2 – Half Hard Full Port 3 – Full Hard Full Port 4 – Std Trim Red Port 5 – Half Hard Red Port 6 – Full Hard Red Port	A – N/A G – Teadit API 622 GRF P – Pillar API 622 GRF B – Generic GRF E – Garlock EVSP H – High Temp T – Teflon V-Ring F – Teflon Braided	G – GRF H – HIGH TEMP T – PTFE R – METAL (RING JOINT)	01 – B8CL1/8 02 – B8CL2/8 03 – B8MCL1/8M 04 – B8MCL2/8M 05 – B7/2H 06 – B7M/2HM 07 – ALLOY 20 08 – MONEL400 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	A – N/A B – Clean G – Gear Op H – Flat Face J – RTJ K – Actuator L – Live Load M – Acid Shield O – IREBxTHD R – 100% RT S – Spring Load V – Vent Wedge W – Chain Wheel OP 1 – BWE S10 4 – BWE S40 5 – BWE S5 6 – BWE S160 8 – BWE S80	02 – 1/8" 03 – 3/8" 04 – 1/4" 05 – 1/2" 07 – 3/4" 10 – 1" 12 – 1 1/4" 15 – 1 1/2" 20 – 2" 22 – 22" 25 – 2 1/2" 30 – 3" 40 – 4" 50 – 5" 60 – 6" 80 – 8" 81 – 10" 82 – 12" 83 – 14" 84 – 16" 85 – 18" 86 – 20" 87 – 24"	A B C D E F G H

HOW TO ORDER

Cast Flanged Floating Ball Valve

The Ladish Valves figure number is comprised 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:

P915-L650-GF00-C20M 2", CL150, CF8M Cryogenic Ball Valve with 316SS Trim, Graphite Packing, Fire Safe, Meets NACE MR0103 Material Requirements

VALVE STYLE	CONSTRUCT & VALVE TYPE	ANSI CLASS	END CONNECT	OPER.	BODY/CAP MATERIAL	TRIM	PACKING & GASKET
P	8	1	5	L	05	3	G
P - Packing	8 - Cast Two Piece Full Bore	1 - 150	5 - RF	A - Actuator		0 - Same as Body 3 - 316SS	D - Dual PTFE Graphoil
	7 - Cast Two Piece Standard Bore	3 - 300	F - FF	B - Bare Stem G - Gear		A - Alloy 20 C - Inc 600	G- Graphoil
	9 - Cast Unibody Standard Bore	6 - 600	J - RTJ	L - Lever		M - Monel H - Hast C	T - PTFE W- Viton® B
	1 - Bar Stock Two-Piece Standard Bore 2 - Bar Stock Two-Piece Full Bore			V - Oval Handle		OTHER MATERIALS AVAILABLE UPON REQUEST	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	20 A494 CW12MW	31 A494 M35-2	52 A995 CD4MCUN-GR1B	62 B367 GRC7
10 A351 CG8M	21 A494 CW6M	32 A494 M30C	53 A995 CE8MN-GR2A	63 B752 GR702C
11 A351 CG3M	22 A494 CW2M	33 A494 CY40	54 A995 CD6MN-GR3A	BAR STOCK EQUIVALENTS ALSO AVAILABLE
12 A351 CF8C	23 A494 CX2MW	34 A494 CW6MC	55 A995 CD3MN-GR4A	
15 A351 CN7M	24 A494 CX2M	35 A351 CT15C	56 A995 CE3MN-GR5A	
	25 A494 N12MV	36 A494 CU5MCuC	57 A995 CD3MWCUN-GR6A	



SEAT MATERIAL	BOLTING & NUTS	MISC. OPTION	SIZE	DESIGN FIRE-SAFE NACE
F	03	C	40	M
C - Carbon Filled TFMC D - Delrin®	01 - B8CL1/8 02 - B8CL2/8	A - No Added Option B - Cleaned	05 - ½"	M - API 608 Fire Safe NACE
F - TFM N - Nylon Devlon®	03 - B8MCL1/8M 04 - B8MCL2/8M	C - Cryogenic Bonnet, Vented Ball, Unidirectional	07 - ¾" 10 - 1"	N - API 608 Fire Safe Non-NACE
P - PEEK® M - Metal V - Vespel®	05 - B7/2H 06 - B7M/2HM 07 - ALLOY 20	D - Cryogenic Bonnet, Bi-Directional E - Extended Stem	15 - 1½" 20 - 2" 30 - 3"	P - API 608 Non-Fire Safe NACE
R - Glass Filled TFM T - Virgin PTFE K - Kel-F(PCTFE) G - Carbon Graphite	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	F - Low Fugitive Emission Extended Bonnet M - Acid Shield N - Cavity Filler V - Unidirectional (Vented Ball - Standard Bonnet)	40 - 4" 60 - 6" 80 - 8" 81 - 10" 82 - 12"	Q - API 608 Non-Fire Safe Non-NACE

LADISH VALVES

CONTROLLED QUALITY • CORROSION RESISTANT



TO MARK PROGRESS

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