

LADISH

Controlled Quality **CORROSION RESISTANT**

VALVES



TO MARK PROGRESS

Forged Steel

CATALOG 221



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LADISH VALVES



Herman W. Ladish, Founder

HERMAN W. LADISH WAS BORN IN MILWAUKEE, WISCONSIN IN 1880 AND BEGAN HIS CAREER IN THE BUSTLING MALTING INDUSTRY AT THE RIPE AGE OF 16. HERMAN QUICKLY ESTABLISHED HIMSELF AND STEADILY MOVED UP THE CORPORATE LADDER ASSUMING THE ROLE OF SUPERINTENDENT AT THE AMERICAN MALTING COMPANY. HERMAN'S INTEREST IN METALWORKING WAS BORN FROM A PROBLEMATIC CRANKSHAFT THAT CONSISTENTLY HALTED PRODUCTION. HERMAN WAS TASKED WITH FINDING AN ALTERNATIVE METHOD OF MANUFACTURING THE CRANKSHAFT WHICH LED HIM TO METAL FORGING.

IN 1905, HERMAN BEGAN HIS RELATIONSHIP WITH THE OBERBERGER FAMILY WHO WERE ADEPT AT CLOSED-DIE FORGING. SOON AFTER, **THE LADISH COMPANY** WAS BORN.

A SINGLE, PROBLEMATIC CRANKSHAFT SPAWNED WHAT WOULD BECOME A METAL WORKING CONGLOMERATE WITH CORE COMPETENCIES IN FORGINGS, FLANGES AND FITTINGS, AND INDUSTRIAL VALVES. THE **LADISH VALVES** OF TODAY BEGAN DOING BUSINESS IN 1961 BASED IN CYNTHIANA, KENTUCKY. AFTER A CRIPPLING FLOOD OF THE OHIO RIVER AND SEVERAL CHANGES IN OWNERSHIP, **LADISH VALVES** MOVED ITS HEADQUARTERS TO HOUSTON, TEXAS IN 2005.

WITH OVER 60 YEARS OF INDUSTRIAL VALVE PRODUCTION BEHIND IT, **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. OUR PRODUCT IS PRODUCED UNDER PAINSTAKING 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 FANATICAL ABOUT THE QUALITY OF THE MATERIALS IT PROCURES FROM ITS VENDOR COMMUNITY.

LADISH VALVES IS A RESPONSIVE COMPANY. WHEN CUSTOMERS CALL US, YOU WILL GET AN ANSWER THAT IS CLEARLY COMMUNICATED IN A TIMELY MANNER RIGHT HERE IN HOUSTON, TEXAS. WE DELIGHT IN SERVING OUR CUSTOMERS AND TAKING ON THE CHALLENGE OF THE UNCONVENTIONAL PROJECT.

IN SUM, **LADISH VALVES** EXISTS "TO MARK PROGRESS". WE DO THIS BY THE WAY WE SERVE OUR CUSTOMERS AND THE CONSCIENTIOUS, EXHAUSTIVE APPROACH TAKEN TO PROVIDE THE PREMIER STAINLESS AND HIGH ALLOY INDUSTRIAL VALVE PRODUCT TO THE END USER COMMUNITY.

A Complete Line of Products...

manufactured to the ultimate in quality standards

**WIDE RANGE OF VALVE
TYPES, SIZES, RATINGS
AND MATERIALS**

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**

~
**1/2 THRU 36"
CL150 THROUGH CL2500**

~
**STAINLESS STEEL
ALLOY 20 - DUPLEX
HIGH NICKEL ALLOY
TITANIUM - ZIRCONIUM**

CATALOG 221: FORGED PRODUCTS

RETURNING TO OUR ROOTS



GATE



GLOBE



CHECK



BELLOWS SEAL



ALSO AVAILABLE:



**HIGH PRESSURE
FORGED STEEL
CATALOG 231**



**CAST STEEL
CATALOG 821**



**CRYOGENIC
CATALOG 321**



**BALL
CATALOG 421**

Catalog 221...

forged products for the Petrochemical Industry

CATALOG 221 SERVES TO HIGHLIGHT THE **LADISH VALVES** LINE OF FORGED MULTI-TURN PRODUCT. THE PRODUCTS FEATURED WITHIN INCLUDE OUR FORGED API 602 GATE, GLOBE AND CHECK VALVES AS WELL AS OUR BELLOWS SEAL DESIGN GATE AND GLOBE VALVE.

LADISH VALVES STOCKS THESE VALVES IN A VARIETY OF MATERIALS FROM CARBON STEEL TO NICKEL ALLOY AND PRESSURE CLASSES RANGING FROM 150 TO 2500. IN ADDITION, BOTH REDUCED AND FULL PORTS AND WELDED OR BOLTED BONNET JOINTS ARE AVAILABLE. OUR 35,000 SQ FT FACILITY ALLOWS FOR INVENTORY STORAGE, PRODUCT



TESTING AND MATERIAL CONFORMANCE CONTROL. WITH IN-HOUSE NDE CAPABILITIES AND FULLY INTEGRATED MACHINE SHOP, QUICK DELIVERIES AND UNCONVENTIONAL CUSTOMER REQUIREMENTS ARE ACHIEVED IN A TIMELY, QUALITY CONTROLLED MANNER.

THE **LADISH VALVES** FORGED PRODUCT LINE IS MANUFACTURED IN A DEDICATED, STATE-OF-THE-ART FACILITY IN SOUTH KOREA. THE COMPLEX CONSISTS OF OVER 30,000 SQUARE FEET OF MANUFACTURING AND WAREHOUSE SPACE.



ON-SITE TESTING CAPABILITIES INCLUDES BELLOW TESTING PER MSS SP-117, CRYOGENIC TESTING, API-598 PRESSURE TESTING AND PENETRANT TESTING. THE FACILITY CARRIES A CERTIFIED ISO-9001 QUALITY SYSTEM, CE-PED CERTIFICATION AND AN API 602 DESIGNATION.

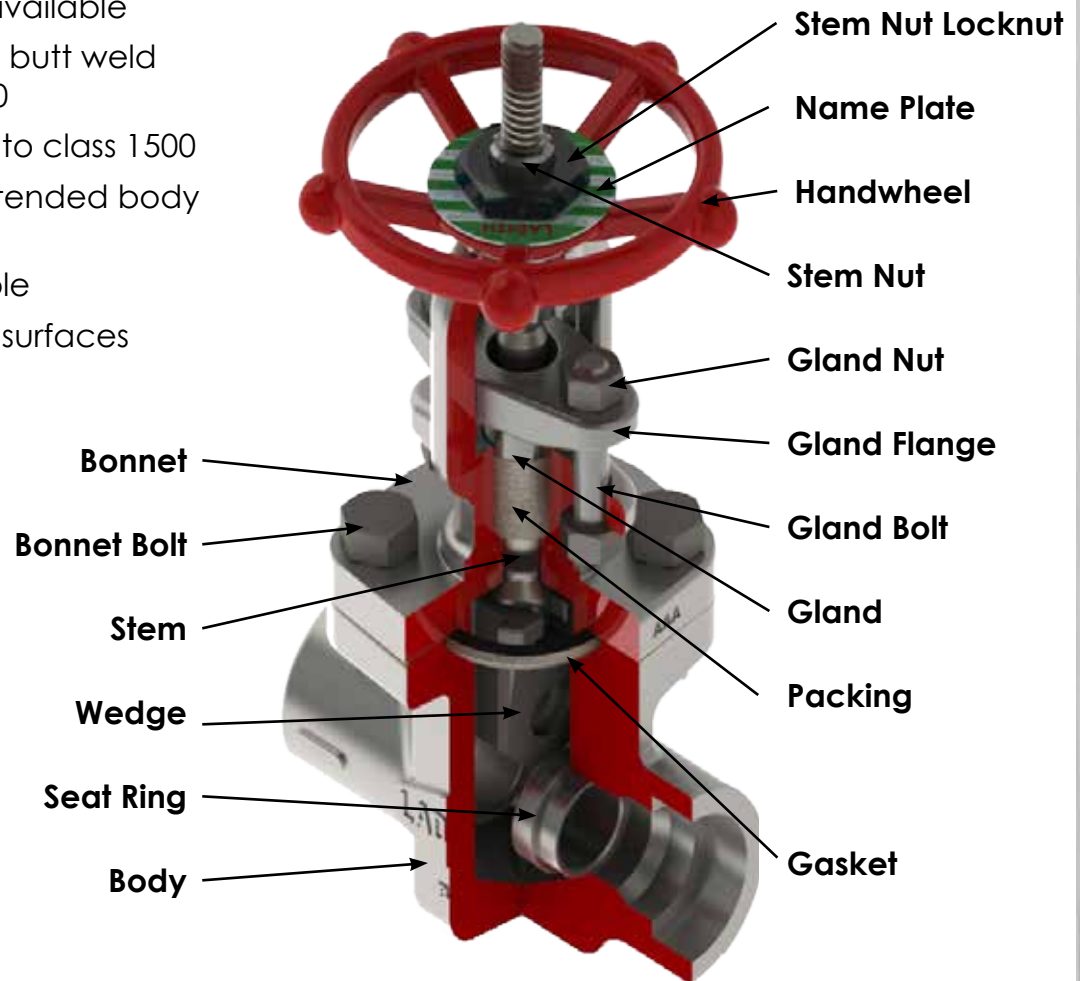
LADISH VALVES HAS PRIDED ITSELF IN MAKING ENVIRONMENTAL RESPONSIBILITY ONE OF OUR CHIEF COMPANY GOALS. OUR COMPLETE FORGED PRODUCT LINE HAS COMPLETED API 624 COMPLIANCE TESTING AND IS TAGGED AS SUCH.



FORGED STEEL GATE VALVES

Design & Construction

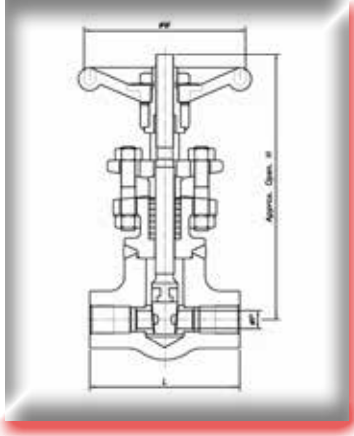
- API 602, ASME B16.34
- Bolted and welded bonnet available
- Full and reduced port available
- Threaded, socket weld, butt weld ends class 800 and 1500
- Flanged ends class 150 to class 1500
- Integrally reinforced extended body (IREB) available
- Extended body available
- Hard facing on seating surfaces available



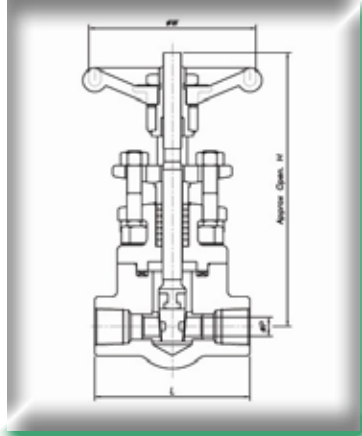
- **Body** Constructed of forged steel designed to API 602 and ASME B16.34.
- **Bonnet** Constructed of forged steel with integral backseat.
- **Bolted Body-Bonnet Joint** Fully enclosed gasket design, both on ID and OD, allows for leak tight design.
- **Welded Body-Bonnet Joint** Connection is butt weld end joint with a full strength weld.
- **Wedge** Solid wedge design constructed in forged or investment cast steel.
- **Namplate** Serialization for full traceability.
- **Packing** API 622 and API 624 qualified packing for low fugitive emissions.

FORGED STEEL GATE VALVES

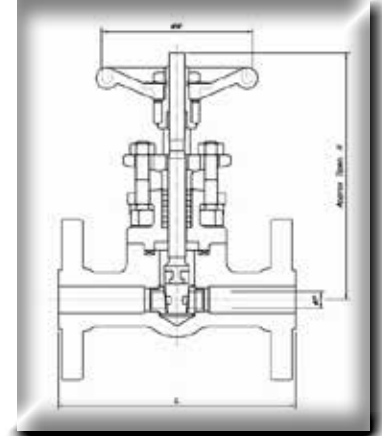
Dimensions



Welded bonnet (SWE,NPT,BWE)



Bolted bonnet (SWE,NPT,BWE)



Bolted bonnet (Integral Flange)

Socket Weld, Threaded, Butt Weld End

CLASS 800							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	2"
END TO END	L	3.27	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	6.30	6.50	7.28	8.86	9.06	11.02
PORT DIA.	Ø P	0.39	0.50	0.75	0.94	1.19	1.50
WEIGHT	LBS	4.0	4.9	6.8	9.5	12.3	20.5

CLASS 800							
FULL	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	6.50	7.28	8.86	9.06	11.02	12.40
PORT DIA.	Ø P	0.50	0.75	0.94	1.19	1.50	1.77
WEIGHT	LBS	4.9	6.8	9.5	12.3	20.5	23.2

CLASS 1500							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	6.69	7.28	9.06	11.22	11.42	11.81
PORT DIA.	Ø P	0.39	0.50	0.75	1.19	1.19	1.50
WEIGHT	LBS	5.7	7.7	15.7	13.5	23.4	31.1

CLASS 1500							
FULL	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	7.28	9.06	11.22	11.42	11.81	-
PORT DIA.	Ø P	0.50	0.75	0.94	1.19	1.50	-
WEIGHT	LBS	7.7	15.7	13.5	23.4	31.1	-

Flanged Type

CLASS 150							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	6.30	6.50	7.28	-	9.06	11.02
PORT DIA.	Ø P	0.39	0.50	0.75	-	1.19	1.50
WEIGHT	LBS	6.2	8.6	10.4	-	18.3	33.5

CLASS 300							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	6.30	6.50	7.28	-	9.06	11.02
PORT DIA.	Ø P	0.39	0.50	0.75	-	1.19	1.50
WEIGHT	LBS	7.5	10.3	13.5	-	25.6	35.5

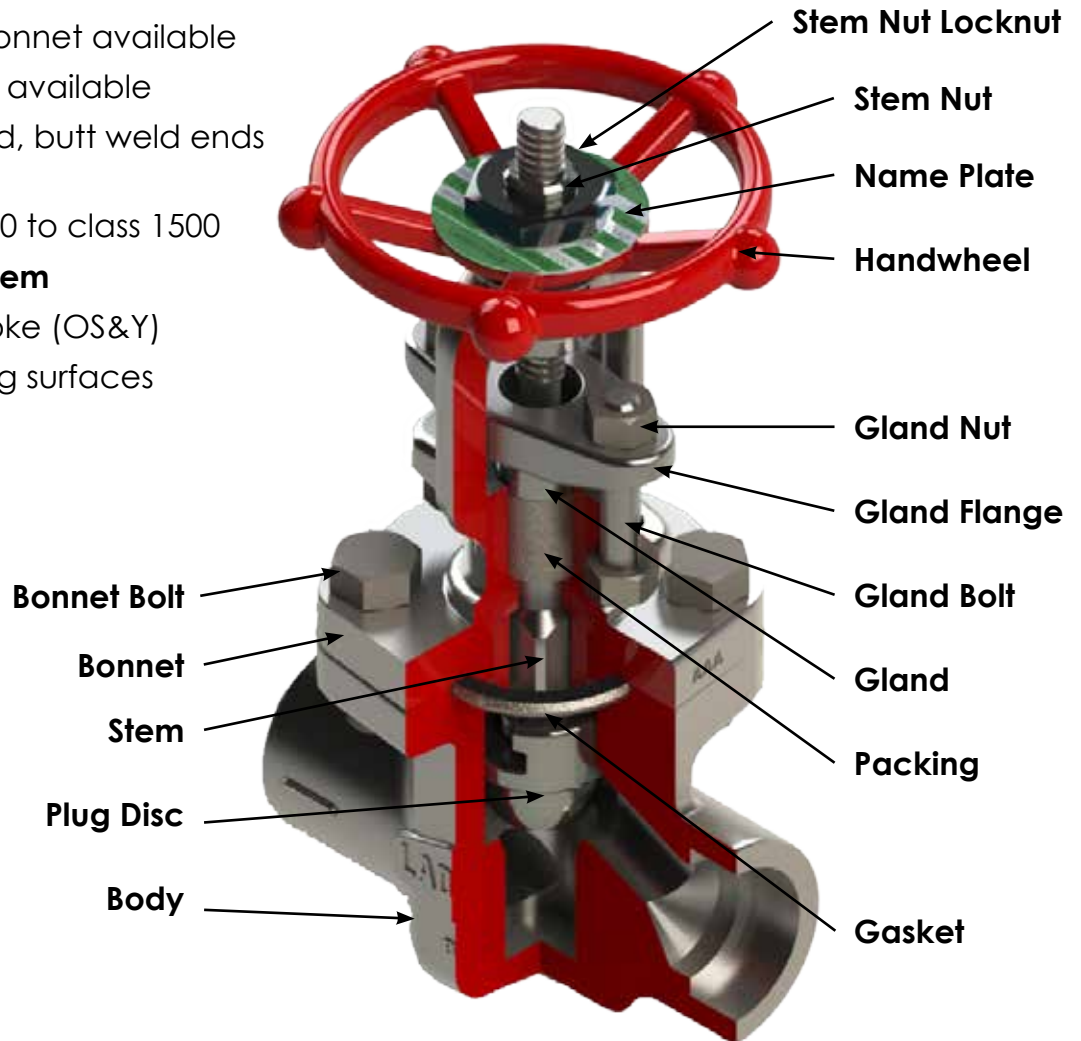
CLASS 600							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	2"
END TO END	L	6.50	7.48	8.50	-	9.49	11.50
HANDWHEEL	Ø W	3.54	3.54	3.54	-	4.72	5.51
OPEN	H	6.30	6.50	7.28	-	9.06	11.02
PORT DIA.	Ø P	0.39	0.50	0.75	-	1.19	1.50
WEIGHT	LBS	7.5	11.9	15.0	-	31.1	44.3

CLASS 900 - 1500							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	6.50	7.28	8.86	-	11.02	12.40
PORT DIA.	Ø P	0.39	0.50	0.75	-	1.19	1.50
WEIGHT	LBS	18.7	22.5	30.0	-	88.0	100.5

FORGED STEEL GLOBE VALVES

Design & Construction

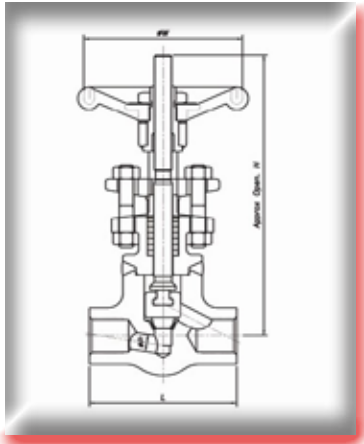
- API 602, ASME B16.34
- Bolted and welded bonnet available
- Full and reduced port available
- Threaded, socket weld, butt weld ends class 800 and 1500
- Flanged ends class 150 to class 1500
- **Rising, Non-rotating Stem**
- Outside Screw and Yoke (OS&Y)
- Hard facing on seating surfaces available



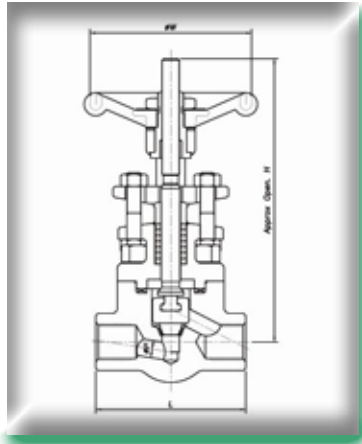
- **Body** Constructed of forged steel designed to API 602 and ASME B16.34.
- **Stem** Rising, Non-rotating design minimizes torsional packing stress.
- **Bolted Body-Bonnet Joint** Fully enclosed gasket design, both on ID and OD, allows for leak tight design.
- **Welded Body-Bonnet Joint** Connection is butt weld end joint with a full strength weld.
- **Plug Disc** Solid disc design constructed in forged or investment cast steel.
- **Namplate** Serialization for full traceability.
- **Packing** API 622 and API 624 qualified packing for low fugitive emissions.

FORGED STEEL GLOBE VALVES

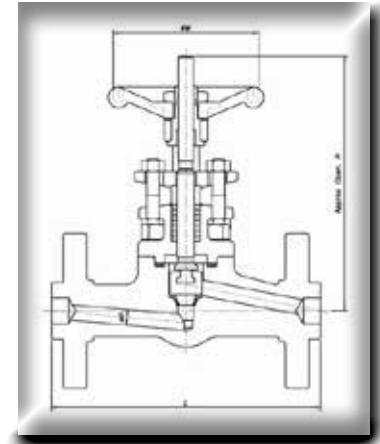
Dimensions



Welded bonnet (SWE,NPT,BWE)



Bolted bonnet (SWE,NPT,BWE)



Bolted bonnet (Integral Flange)

■ Socket Weld, Threaded, Butt Weld End ■

CLASS 800							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	2"
END TO END	L	3.27	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	6.10	6.50	7.28	8.07	8.07	10.04
PORT DIA.	Ø P	0.37	0.49	0.69	0.98	1.18	1.44
WEIGHT	LBS	4.0	4.9	6.8	12.7	13.2	24.7

CLASS 800							
FULL	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	6.50	7.28	8.07	8.07	10.04	11.81
PORT DIA.	Ø P	0.49	0.69	0.98	1.18	1.44	1.77
WEIGHT	LBS	4.9	6.8	12.8	13.2	24.7	28.7

CLASS 1500							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	6.69	7.28	7.87	7.87	9.84	11.42
PORT DIA.	Ø P	0.35	0.37	0.57	0.79	1.02	1.10
WEIGHT	LBS	5.7	7.7	15.7	14.8	25.4	33.1

CLASS 1500							
FULL	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	7.28	7.87	7.87	9.84	11.42	-
PORT DIA.	Ø P	0.37	0.57	0.79	1.02	1.02	-
WEIGHT	LBS	7.7	15.7	14.8	25.4	33.1	-

■ Flanged Type ■

CLASS 150							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	6.10	6.10	7.28	-	8.07	10.04
PORT DIA.	Ø P	0.37	0.49	0.69	-	1.18	1.44
WEIGHT	LBS	6.7	6.8	10.8	-	20.7	29.3

CLASS 300							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	6.10	6.50	7.28	-	8.07	10.04
PORT DIA.	Ø P	0.37	0.49	0.69	-	1.18	1.44
WEIGHT	LBS	7.3	11.0	14.6	-	31.1	41.2

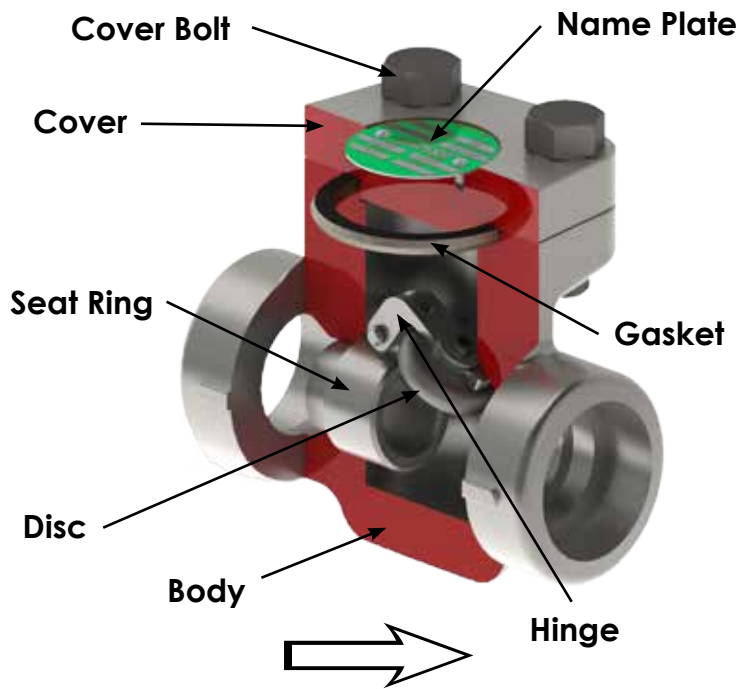
CLASS 600							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	2"
END TO END	L	6.50	7.48	8.50	-	9.49	11.50
HANDWHEEL	Ø W	3.54	3.54	3.54	-	4.72	5.51
OPEN	H	6.10	6.50	7.28	-	8.07	10.04
PORT DIA.	Ø P	0.37	0.49	0.69	-	1.18	1.44
WEIGHT	LBS	7.9	11.9	15.4	-	31.8	47.0

CLASS 900 - 1500							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	6.50	7.28	8.07	-	10.04	11.81
PORT DIA.	Ø P	0.35	0.37	0.57	-	1.02	1.02
WEIGHT	LBS	18.3	23.4	30.2	-	88.6	101.4

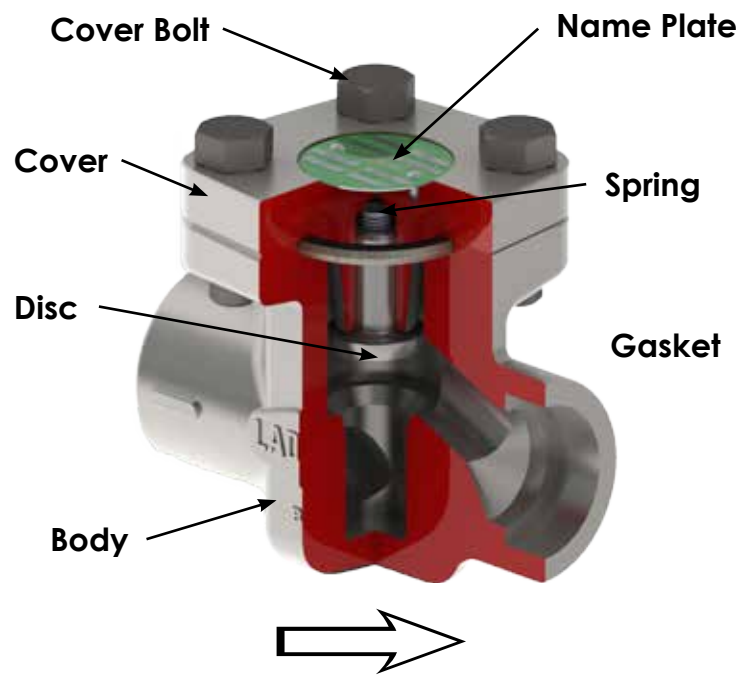
FORGED STEEL CHECK VALVES

Design & Construction

- API 602, ASME B16.34
- Tested in accordance to API 598, ASME B16.34
- Full port and reduced port available
- Hard faced seating surfaces available
- Threaded, socket weld and butt weld ends available
- Flanged ends available for class 150 thru 1500



SWING CHECK



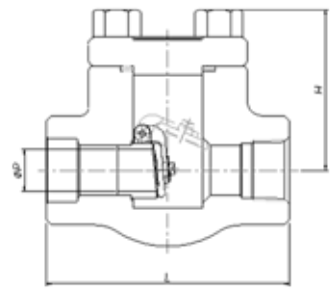
LIFT CHECK

- **Body / Cover** Constructed of forged steel designed to API 602 and ASME B16.34.
- **Body-Bonnet Joint** Fully enclosed gasket design.
- **Piston / Disc** Seating surface of the piston and ball check is a tapered or ball type design. The seating surface of the swing check is flat seat design.
- **Spring** Available upon request.

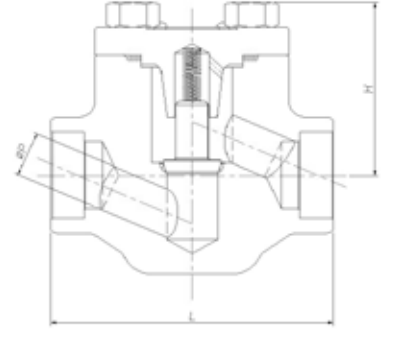
FORGED STEEL CHECK VALVES

Dimensions

SWING CHECK



LIFT CHECK



■ Socket Weld, Threaded, Butt Weld End ■

SWING CHECK CLASS 800							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	2"
END TO END	L	3.27	3.39	4.17	4.76	4.76	5.35
PORT DIA.	Ø P	0.35	0.50	0.67	0.94	1.10	1.42
CENTER-TOP	H	2.17	2.36	2.76	3.94	3.94	4.53
CRACK P	PSI	0.1	0.1	0.1	0.1	0.1	0.1
WEIGHT	LBS	2.2	2.4	3.7	8.4	8.6	13.2

LIFT CHECK CLASS 800							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	2"
END TO END	L	3.27	3.39	4.17	5.94	5.94	6.73
PORT DIA.	Ø P	0.37	0.49	0.69	0.98	1.18	1.44
CENTER-TOP	H	2.17	2.36	2.76	3.15	3.15	3.94
CRACK P	PSI	0.2	0.3	0.3	0.4	0.4	0.5
WEIGHT	LBS	2.4	3.5	5.5	10.6	10.8	18.3

SWING CHECK CLASS 1500							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	2"
END TO END	L	3.39	4.17	4.76	4.76	5.35	5.71
PORT DIA.	Ø P	0.35	0.50	0.67	0.94	1.10	1.42
CENTER-TOP	H	2.36	2.76	3.94	3.94	4.53	5.51
CRACK P	PSI	0.1	0.1	0.1	0.1	0.1	0.1
WEIGHT	LBS	4.0	6.0	12.3	10.6	16.8	23.8

LIFT CHECK CLASS 1500							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	2"
END TO END	L	3.39	4.17	5.94	5.94	6.73	8.66
PORT DIA.	Ø P	0.35	0.37	0.57	0.79	1.02	1.10
CENTER-TOP	H	2.36	2.76	3.15	3.15	3.94	4.92
CRACK P	PSI	0.3	0.3	0.4	0.4	0.5	0.5
WEIGHT	LBS	4.0	6.2	13.9	11.5	19.0	25.8

■ Flanged Type ■

SWING CHECK CLASS 150							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	4.4	5.5	8.8	-	17.6	25.4

SWING CHECK CLASS 300							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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

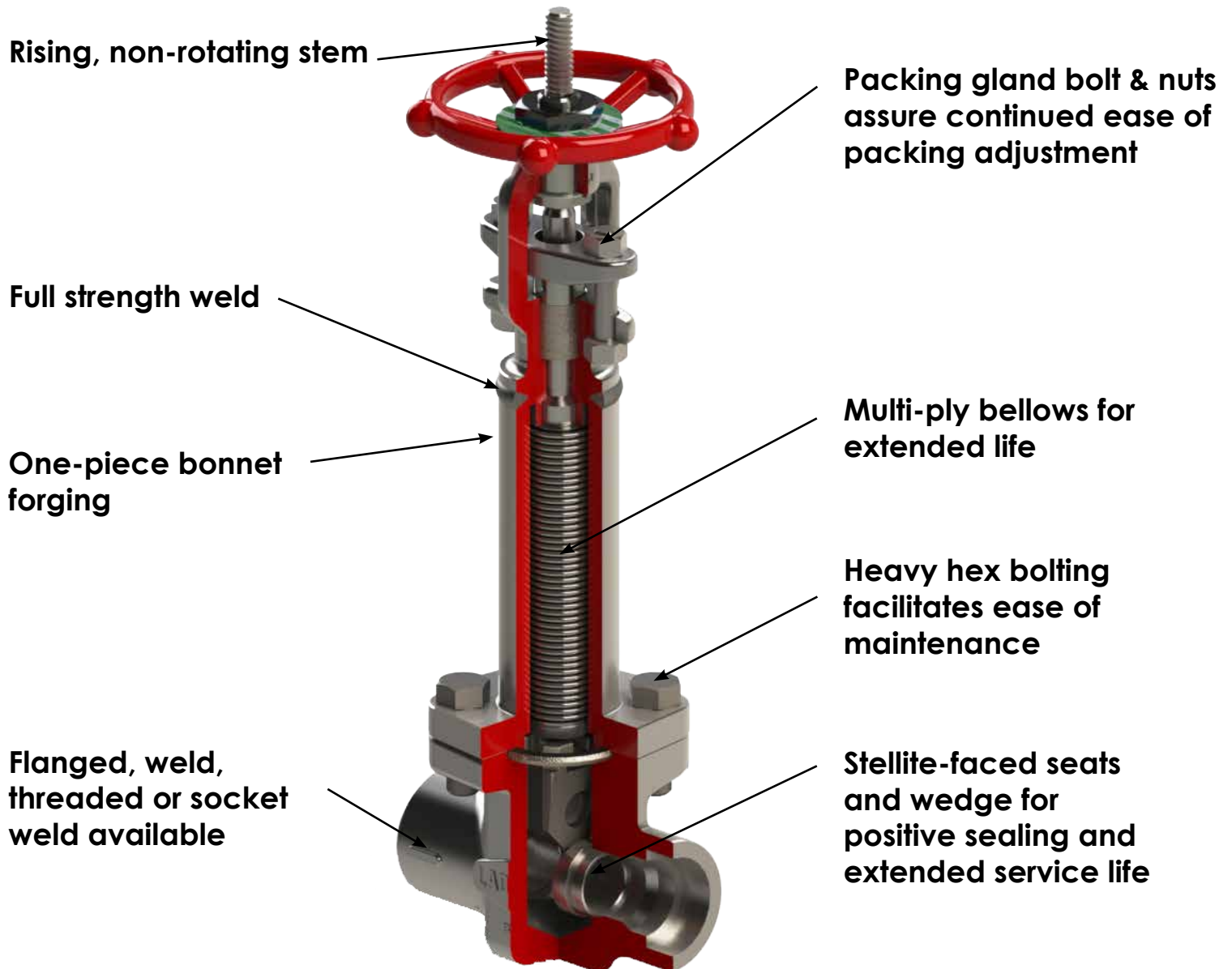
LIFT CHECK CLASS 600							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	2"
END TO END	L	6.50	7.48	8.50	-	9.49	11.50
CENTER-TOP	H	2.17	2.36	2.76	-	3.15	3.94
WEIGHT	LBS	6.4	10.6	13.5	-	29.5	43.7

SWING CHECK CLASS 900 - 1500							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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 900 - 1500							
REDUCED	SIZE DIM	½"	¾"	1"	1-¼"	1-½"	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	4.92
WEIGHT	LBS	8.8	14.6	21.4	-	37.0	63.9

BELLOWS SEAL GATE VALVES

Design & Construction



Rising, non-rotating stem

Packing gland bolt & nuts assure continued ease of packing adjustment

Full strength weld

Multi-ply bellows for extended life

One-piece bonnet forging

Heavy hex bolting facilitates ease of maintenance

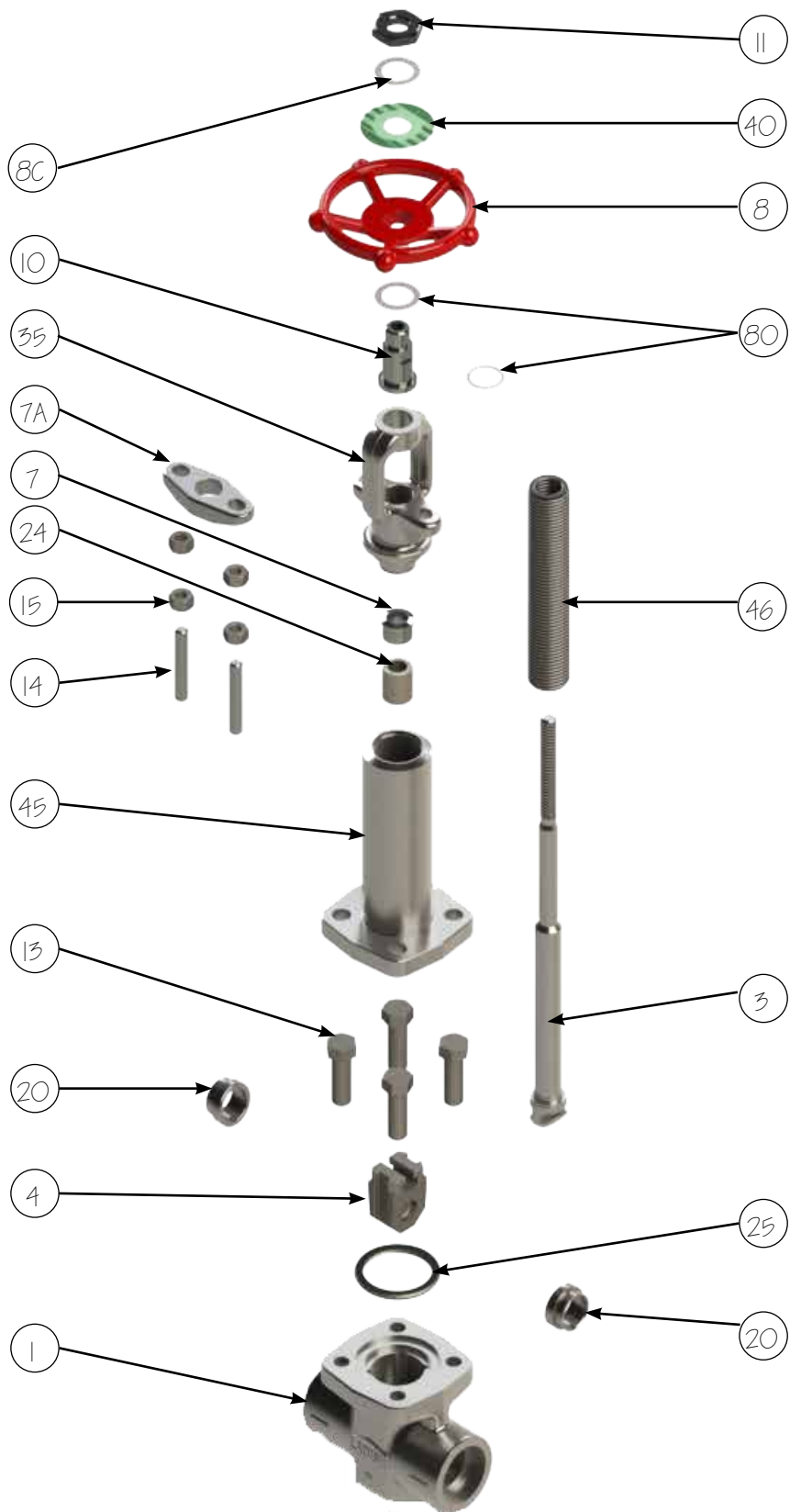
Flanged, weld, threaded or socket weld available

Stellite-faced seats and wedge for positive sealing and extended service life

- Zero emissions
- Helium leak testing
- Low emissions secondary sealing
 - » Graphite gland packing
 - » Integral backseat
- Full strength weld
- Welded or bolted bonnet type
- Seat and wedge stellite faced

BELLOWS SEAL GATE VALVES

Design & Construction



1	Body
3	Stem
4	Wedge
7	Gland
7A	Gland Flange
8	Handwheel
8C	Handwheel Washer
10	Stem Nut
11	Stem Nut Locknut
13	Body Bolt/Stud
14	Gland Stud
15	Gland Nut
20	Seat Ring
24	Packing
25	Gasket
35	Yoke
40	Name plate
45	Extension
46	Bellows
80	Stem Nut Washer

BELLOWS SEAL GLOBE VALVES

Design & Construction

Rising, non-rotating stem



Packing gland bolt & nuts assure continued ease of packing adjustment

Full strength weld

Multi-ply bellows for extended life

One-piece bonnet forging

Heavy hex bolting facilitates ease of maintenance

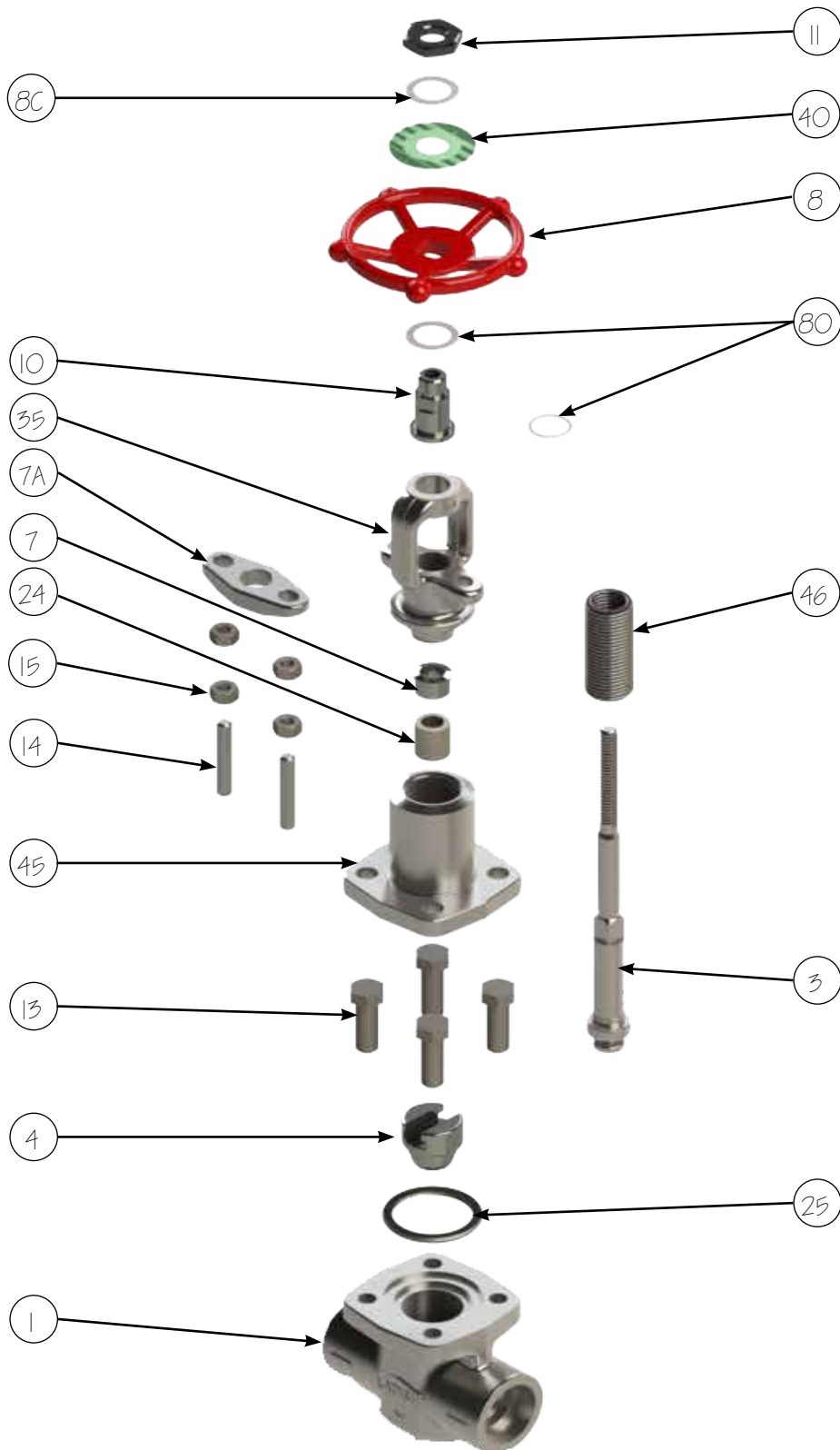
Flanged, weld, threaded or socket weld available

Stellite-faced seats and plug disc for positive sealing and extended service life

- Zero emissions
- Helium leak testing
- Low emissions secondary sealing
 - » Graphite gland packing
 - » Integral backseat
- Full strength weld
- Welded or bolted bonnet type
- Seat and plug disc stellite faced

BELLOWS SEAL GLOBE VALVES

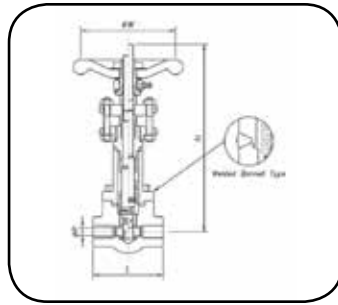
Exploded View



1	Body
3	Stem
4	Plug
7	Gland
7A	Gland Flange
8	Handwheel
8C	Handwheel Washer
10	Stem Nut
11	Stem Nut Locknut
13	Body Bolt/Stud
14	Gland Stud
15	Gland Nut
24	Packing
25	Gasket
35	Yoke
40	Name plate
45	Extension
46	Bellows
80	Stem Nut Washer

BELLOWS SEAL GATE VALVES

Dimensions



- CLASS - 800,1500
- SIZE - 1/2" TO 2"
- PORT - REDUCED / FULL
- END - NPT, SWE, BWE

CLASS 800

REDUCED	SIZE DIM	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
HANDWHEEL	Ø W	3.54	3.54	3.54	4.72	4.72	5.51
OPEN	H	9.06	10.24	11.81	16.54	16.54	18.90
PORT DIA.	Ø P	0.39	0.50	0.75	0.94	1.19	1.50
WEIGHT	LBS	7.7	8.4	10.1	16.5	16.5	28.2

CLASS 800

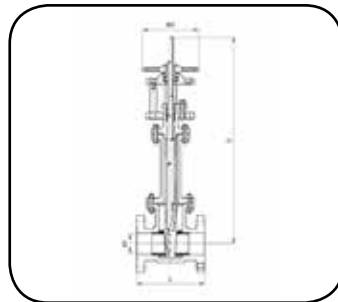
FULL	SIZE DIM	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
END TO END	L	3.39	4.17	4.76	4.76	5.35	-
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	-
OPEN	H	10.24	11.81	16.54	16.54	18.90	-
PORT DIA.	Ø P	0.50	0.75	0.94	1.19	1.50	-
WEIGHT	LBS	8.4	10.1	16.5	16.5	28.2	-

CLASS 1500

REDUCED	SIZE DIM	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
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	5.51
OPEN	H	12.99	16.14	17.72	19.69	24.41	29.92
PORT DIA.	Ø P	0.39	0.50	0.75	0.94	1.19	1.50
WEIGHT	LBS	11.0	12.1	22.1	36.8	36.8	0

CLASS 1500

FULL	SIZE DIM	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
END TO END	L	4.17	4.76	4.76	5.35	5.71	-
HANDWHEEL	Ø W	3.54	4.72	4.72	5.51	5.51	-
OPEN	H	16.14	17.72	19.69	24.41	29.92	-
PORT DIA.	Ø P	0.50	0.75	0.94	1.19	1.50	-
WEIGHT	LBS	12.1	22.1	36.8	36.8	47.4	-



- CLASS-150,300,600,1500
- SIZE - 1/2" TO 2"
- PORT - REDUCED, FULL
- END - Integral Flange; FF, RF, RTJ

CLASS 150

REDUCED	SIZE DIM	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	9.06	10.24	11.81	-	16.54	18.90
PORT DIA.	Ø P	0.39	0.50	0.75	-	1.19	1.50
WEIGHT	LBS	9.9	11.0	13.7	-	22.7	41.2

CLASS 300

REDUCED	SIZE DIM	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
END TO END	L	5.51	5.98	6.50	-	7.52	8.50
HANDWHEEL	Ø W	3.54	3.54	3.54	-	4.72	5.51
OPEN	H	9.06	10.24	11.81	-	16.54	18.90
PORT DIA.	Ø P	0.39	0.50	0.75	-	1.19	1.50
WEIGHT	LBS	11.2	12.8	16.8	-	30.0	43.9

CLASS 600

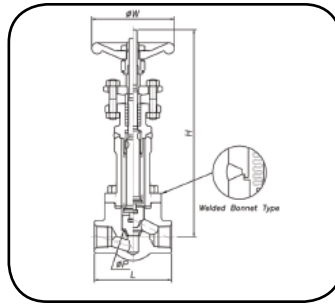
REDUCED	SIZE DIM	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
END TO END	L	6.50	7.48	8.50	-	9.49	11.50
HANDWHEEL	Ø W	3.54	3.54	3.54	-	4.72	5.51
OPEN	H	9.06	10.24	11.81	-	16.54	18.90
PORT DIA.	Ø P	0.39	0.50	0.75	-	1.19	1.50
WEIGHT	LBS	11.2	14.1	18.7	-	35.5	52.9

CLASS 900 - 1500

REDUCED	SIZE DIM	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	12.99	16.14	17.72	-	24.41	29.92
PORT DIA.	Ø P	0.39	0.50	0.75	-	1.19	1.50
WEIGHT	LBS	24.0	26.9	36.4	-	101.4	115.8

BELLOWS SEAL GLOBE VALVES

Dimensions



- CLASS - 800,1500
- SIZE - 1/2" TO 2"
- PORT - REDUCED / FULL
- END - NPT, SWE, BWE

CLASS 800

REDUCED	SIZE DIM	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
HANDWHEEL	Ø W	3.54	3.54	3.54	4.72	4.72	5.51
OPEN	H	9.45	9.45	9.65	12.40	12.40	16.34
PORT DIA.	Ø P	0.37	0.49	0.69	0.98	1.18	1.44
WEIGHT	LBS	6.2	6.6	8.8	17.4	17.4	29.8

CLASS 800

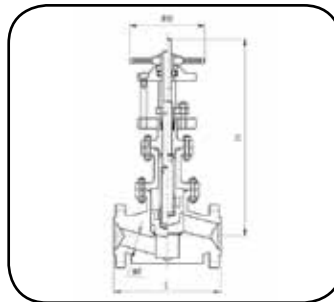
FULL	SIZE DIM	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
END TO END	L	3.39	4.17	5.94	5.94	6.73	-
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	-
OPEN	H	9.45	9.65	12.40	12.40	16.34	-
PORT DIA.	Ø P	0.49	0.69	0.98	1.18	1.44	-
WEIGHT	LBS	6.6	8.8	17.4	17.4	29.8	-

CLASS 1500

REDUCED	SIZE DIM	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	-
HANDWHEEL	Ø W	3.54	3.54	4.72	4.72	5.51	-
OPEN	H	9.45	9.45	12.60	16.54	18.11	-
PORT DIA.	Ø P	0.35	0.37	0.57	0.79	1.02	-
WEIGHT	LBS	8.4	9.5	19.4	31.3	31.3	-

CLASS 1500

FULL	SIZE DIM	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	9.45	12.60	16.54	18.11	19.69	-
PORT DIA.	Ø P	0.37	0.57	0.79	1.02	1.02	-
WEIGHT	LBS	9.5	19.4	31.3	31.3	43.0	-



- CLASS - 150,300,600,1500
- SIZE - 1/2" TO 2"
- PORT - REDUCED, FULL
- END - Integral Flange; FF, RF, RTJ

CLASS 150

REDUCED	SIZE DIM	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	9.45	9.45	9.65	-	12.40	16.34
PORT DIA.	Ø P	0.37	0.49	0.69	-	1.18	1.44
WEIGHT	LBS	8.8	9.3	12.8	-	25.1	34.6

CLASS 300

REDUCED	SIZE DIM	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	9.45	9.45	9.65	-	12.40	16.34
PORT DIA.	Ø P	0.37	0.49	0.69	-	1.18	1.44
WEIGHT	LBS	9.5	12.3	16.5	-	34.4	44.5

CLASS 600

REDUCED	SIZE DIM	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	9.45	9.45	9.65	-	12.40	16.34
PORT DIA.	Ø P	0.37	0.49	0.69	-	1.18	1.44
WEIGHT	LBS	10.1	13.2	17.4	-	35.1	50.3

CLASS 900 - 1500

REDUCED	SIZE DIM	1/2"	3/4"	1"	1-1/4"	1-1/2"	2"
END TO END	L	8.50	9.02	10.00	-	12.01	-
HANDWHEEL	Ø W	3.54	3.54	4.72	-	5.51	-
OPEN	H	9.45	9.45	12.60	-	18.11	-
PORT DIA.	Ø P	0.35	0.37	0.57	-	1.02	-
WEIGHT	LBS	20.9	25.1	34.0	-	94.6	-

BELLOWS VALVES

Design Highlights

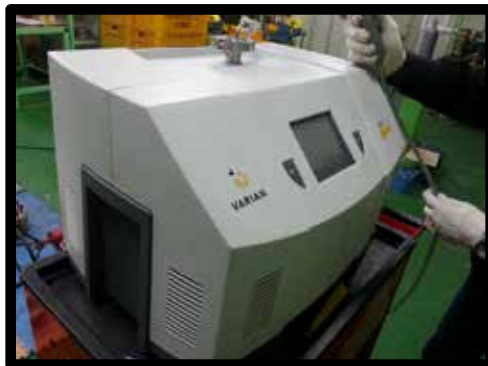
- **Microplasma welding of bellows**
 - » Stem-bellows connection and yoke-bellows connection both microplasma welded
- **Cycle testing in accordance with API-602**
 - » Bellows samples are extended and compressed at maximum working conditions until required cycle life is achieved
 - » 1 Cycle = Open to Close to Open



Minimum Cycle Life		≤ 2"	
		Gate	Globe
API 602	≤CL800	2,000	5,000
	>CL800	2,000	2,000
LADISH VALVES	≤CL800	3,000	6,000
	>CL800	3,000	3,000



Post cycling penetrant test of bellows



Helium leak testing - instrument sensitivity <math>< 10^{-3}</math> mm³/s



Pressure testing of each valve

FUGITIVE EMISSIONS



WHEN THE **API 624** COMMITTEE ON TYPE TESTING OF RISING STEM VALVES RELEASED ITS STANDARD OUTLINING FUGITIVE EMISSION TESTING, **LADISH VALVES** DID NOT HESITATE IN BECOMING THE **FIRST VALVE MANUFACTURER TO COMPLETE TESTING**. FUGITIVE EMISSIONS IS A CRITICAL ISSUE MOVING FORWARD FOR VALVE MANUFACTURERS AND END USERS AND **LADISH VALVES** IS LEADING THE WAY.



LADISH VALVES SUCCESSFULLY TESTED ITS FORGED LINE OF GATE AND GLOBE VALVES. BE SURE TO ASK YOUR LADISH VALVES SALES REPRESENTATIVE FOR AN **API 624** QUALIFIED PRODUCT.

LOW FUGITIVE EMISSION SEALS REQUIRE THAT EACH ELEMENT OF THE SEALING SYSTEM IS PRECISELY MANUFACTURED FOR STRAIGHTNESS, SURFACE FINISH, AND CONCENTRICITY.

LADISH VALVES UTILIZES INTER-BRAIDED GRAPHITE PACKING AS STANDARD IN ITS GATE AND GLOBE VALVES WITH MACHINE SURFACE STEM FINISHES OF BETTER THAN 32 RA AND STUFFING BOX WALL FINISHES TO 125 RA ENSURING MAXIMUM SEALING EFFECTIVENESS.




LADISH VALVES CAN ACCOMMODATE ANY CUSTOMER REQUIRED PACKING REQUEST. PLEASE LET YOUR SALES AGENT KNOW YOUR SPECIFIC CUSTOMER REQUEST.

How to Order your Ladish Forged Valve

The **Ladish Valves** figure number is comprised of 16 alpha numeric digits defining the required product in detail. Our aim is to provide you with precisely what you need. 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.

EXAMPLE: 8863-6C06-CG04-A10F 1" CL800 THD GATE B564 N10276 TR HHF GRF B8MCL2 RP

Valve Type & Pressure Class	Construct & Stem Action	End Connect & Closure Type	Design Std.	Mat.	Trim & Port	Packing Type	Gasket Type	Bolting & Nuts	Misc.	Size
88	6	3	6	C0	6	C	G	04	A	10

GATE Bolt Bonnet 82 - CL150 83 - CL300 86 - CL600 88 - CL800 89 - CL900 85 - CL1500 Weld Bonnet 87 - CL800 81 - CL1500 84 - CL2500 GLOBE Bolt Bonnet 72 - CL150 73 - CL300 76 - CL600 78 - CL800 79 - CL900 75 - CL1500 Weld Bonnet 77 - CL800 71 - CL1500 74 - CL2500 Y-GLOBE 62 - CL150 63 - CL300 66 - CL600 68 - CL800 69 - CL900 65 - CL1500 64 - CL2500 CHECK Bolt Cover 52 - CL150 53 - CL300 56 - CL600 58 - CL800 59 - CL900 55 - CL1500 Weld Cover 57 - CL800 51 - CL1500 54 - CL2500 Y-CHECK 32 - CL150 33 - CL300 36 - CL600 38 - CL800 39 - CL900 35 - CL1500 34 - CL2500	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 Y-GLOBE 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 CHECK 2 - Pressure Seal 3 - Stop type 5 - Lift type 7 - Swing type 9 - CRYO 4 - Ball check Y-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 7 - THDxSWE, Solid 8 - Ext body (FTHxMP) 9 - BWE, Solid 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 7 - THDxSWE, Plug 9 - BWE, PTFE Y-GLOBE 3 - THD, PTFE 4 - SWE, PTFE 5 - RF, PTFE 9 - BWE, PTFE 0 - THD, Metal 1 - SWE, Metal 2 - RF, Metal 6 - BWE, Metal 7 - THDxSWE, Metal 9 - BWE, PTFE Y-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 7 - THDxSWE, Metal 9 - BWE, PTFE	1 - API603 2 - API600 3 - B16.34 4 - API6D 5 - API608 6 - API602 7 - API594 8 - API623		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 C - Garlock API 622	A - N/A G - GRF H - HIGH TEMP T - PTFE R - METAL (RING JOINT)	00 - N/A 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 20 - L7M/7M	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 D - FTHDx MTHD	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" 88 - 26" 89 - 28" 90 - 30" 91 - 32" 92 - 34" 93 - 36"
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Forged Materials of Construction

A1	A182-F304	B0	A182-F317	C0	B564-N10276	F6	A182-F53	J5	A182 F5
A2	A182-F304L	B1	A182-F317L	D0	B564-N04400	F7	A182-F55	J9	A182 F9
A3	A182-F304H	B2	A182-F347H	D3	B564-N06600	F8	A182-F60	H9	A182 F91
A4	A182-F310	B4	A182-F309	D4	B564-N06625	H0	A105	More available upon request	
A5	A182-F316DC	B5	B462-N08020	D6	B564-N08825	H2	A350 LF2 CL 1		
A6	A182-F316L	B6	A182-F44	F2	A182-F61	J1	A182 F11 CL 2		
A7	A182-F316H	B8	A182-F321	F5	A182-F51	J2	A182 F22		



LADISH VALVES

281.880.8560 (direct)
866.523.4740 (toll free)
www.ladishvalves.com

7603 Bluff Point Dr
Houston, TX 77086
USA

CAST STEEL VALVES

- Gate - Globe - Check
- Size ranges: 1/2" - 36"
- Class 150, 300, 600, 900, 1500, 2500
- Gate Valve per API 600 / API 603
- Check Valve per API 594 / ASME B16.34
- Globe Valve per API 623 / ASME B16.34
- End Connection - RF, RTJ, BWE, SWE, THD

FORGED STEEL VALVES

- Gate - Globe - Check
- Size ranges: 1/2" - 3"
- Class 150, 300, 600, 800, 1500, 2500
- Welded and bolted bonnet design
- Integrally reinforced extended body and take-off type available
- Design per API 602 / ASME B16.34
- End Connection - RF, RTJ, BWE, SWE, THD

CRYOGENIC VALVES

- Gate - Globe - Check
- Size ranges: 1/2" - 24"
- Class 150, 300, 600, 800, 1500, 2500
- Cast and forged product available
- Cold Box Testing available
- End Connection - RF, RTJ, BWE, SWE, THD

SPECIALTY VALVES

- Stop Checks
- Lift Checks
- Y-pattern gate and globe valves
- Pressure seal valves
- Bellows seal gate and globe valves
- Nickel alloy bar stock ball valves

FUGITIVE EMISSIONS-API 624 CERTIFIED 

- Completed API 624 testing on forged gate and globe product line using Garlock 1303/GL409 FEP
- Other API 622 packings available upon request

ADDITIONAL IN-HOUSE LADISH SERVICES

CLEAN ROOM CAPABILITIES

- Facilities compliant to ASTM E2312
- Common cleaning standards adhered to:
 - » Oxygen
 - » Chlorine
 - » Hydrogen Peroxide
 - » Ethylene Oxide
 - » Anhydrous HCl or HF

TESTING AND OTHER CAPABILITIES

- Liquid dye penetrant
- Two Level II technicians on-staff
- Ultrasonic wall thickness testing
- Hardness testing
- Ferrite content measurement
- Positive material identification
- In-house FEA, simulation and prototyping

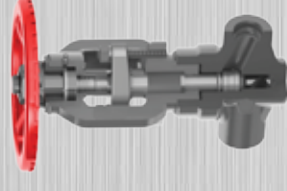
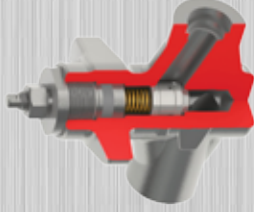
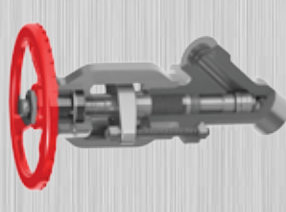
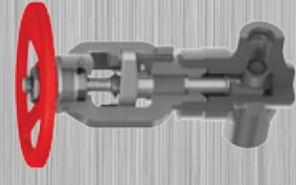
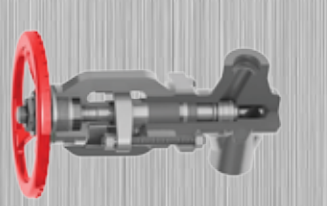


FORGED MATERIALS

- A182 F304 / F304L
- A182 F304H
- A182 F310
- A182 F316 / F316L
- A182 F316H
- A182 F317
- A182 F321
- A182 F347
- A182 F347H
- B462 N08020
- A182 F44
- B564 N08800
- B564 N10276
- B564 N04400
- B564 N06600
- B564 N06625
- B564 N08825
- A182 F51
- A182 F53
- A182 F55
- A182 F60
- A105
- A350 LF2 Class 1
- A182 F5
- A182 F9
- A182 F11 Class 2
- A182 F22
- A182 F91

SELECTED APPROVALS

ExxonMobil	Huntsman	Eastman Chemical
Chevron	Enterprise	Formosa
Shell Oil USA	Dow	Celanese
Marathon	Dupont	Cenovus
Valero	Sasol	Syncrude
Tesoro	Invista Chemical	Flint Hills Resources



Common	Elements	Forging		Castings		Bar	
		ASTM	UNS	ASTM	UNS	ASTM	UNS
303	18Cr - 9Ni - 1.5Mn	A473-303	S30300	A743 CF16Fa	J92701	A276-303	S30300
304	18Cr - 8Ni	A182-F304	S30400	A351 CF8	J92600	A276-304	S30400
309	23Cr - 13.5Ni	A182-F309H	S30909	A351 CH20	J93402	A276-309	S30900
310	25Cr - 20Ni	A182-F310	S31008	A351 CK20	J94202	A276-310S	S31008
316	18Cr - 8Ni - 2Mo	A182-F316	S31600	A351 CF8M	J92900	A276-316	S31600
317	19Cr - 13Ni - 3.5Mo	A182-F317	S31700	A351 CG8M	J93000	A276-317	S31700
321	18Cr - 8Ni - Ti	A182-F321	S32100	N/A	N/A	A276-321	S32100
347	18Cr - 8Ni - Nb	A182-F347	S34700	A351 CF8C	J92710	A276-347	S34700
410	13Cr - 5Mo - 86Fe	A182-F6A	S41000	A217 CA15	J91150	A276-410	S41000
254-SMO	20Cr - 18Ni - 6Mo	A182-F44	S31254	A351 CK3MCUN	J93254	A276-S31254	S31254
304H	18Cr - 8Ni - .10C (max)	A182-F304H	S30409	A351 CF10	J92590	A479-304H	S30409
304L	18Cr - 8Ni - .03C (max)	A182-F304L	S30403	A351 CF3	J92700	A276-304L	S30403
316H	18Cr - 8Ni - 2Mo - .10C (max)	A182-F316H	S31609	A351 CF10M	J92901	A479-316H	S31609
316L	18Cr - 8Ni - 2Mo - .03C (max)	A182-F316L	S31603	A351 CF3M	J92800	A276-316L	S31603
317L	19Cr - 13Ni - 3.5Mo - .03C (max)	A182-F317L	S31703	A351 CG3M	J92999	A276-317L	S31703
321H	18Cr - 8Ni - Ti - .10C (max)	A182-321H	S32109	N/A	N/A	A276-321H	S32109
347H	18Cr - 8Ni - Nb - .10C (max)	A182-F347H	S34709	N/A	N/A	A276-347H	S34709
AL6XN	21Cr - 25Ni - 6.5Mo - Cu - N	A182-F62	N08367	A351 CN3MN	J94651	B462-N08367	N08367
Alloy 20	20Cr - 35Ni - 2.5Mo - 3.5Cu	A182-F20	N08020	A351/744 CN7M	N08007	B473-N08020	N08020
Alloy 20 (Low Carbon)	20Cr - 35Ni - 2.5Mo - 3.0Cu	N/A	N/A	A990 CN3MCU	N/A	N/A	N/A
Ferrallum 255	26Cr - 6Ni - 3.5Mo - Cu - N	A182-F61	S32550	A995 Gr. 1B CD4MCUN	J93372	A479-S32550	S32550
Duplex 2205	22Cr - 5.5Ni - 3Mo - N	A182-F51	S31803	A995 Gr. 4A CD3MN	J92205	A276-S32205	S32205
Super Duplex 2507	25Cr - 7Ni - 4Mo - N	A182-F53	S32750	A995 Gr. 5A CE3MN	J93404	A479-S32750	S32750
Super Duplex Zeron	25Cr - 7Ni - 3.5Mo - N	A182-F55	S32760	A995 Gr. 6A CD3MWCUN	J93380	A479-S32760	S32760
Hastelloy B	67Ni - 28Mo - 5Fe	N/A	N/A	A494 N12MV	N30012	B335-N10001	N10001
Hastelloy B2	68Ni - 31Mo - 1Fe	B564-N10665	N10665	A494 N7M	N30007	B335-N10665	N10665
Hastelloy C (Mood)	54Ni - 20Cr - 20Mo - 3Fe	N/A	N/A	A494 CW6M	N30107	N/A	N/A
Hastelloy C22	58Ni - 21Cr - 14Mo - 4Fe - 3W	B564-N06022	N06022	A494 CX2MW	N26022	B574-N06022	N06022
Hastelloy C276	58Ni - 16Cr - 16Mo - 6Fe - 4W	B564-N10276	N10276	A494 CW12MW	N30002	B574-N10276	N10276
Hastelloy C4	62Ni - 16Cr - 16Mo - 2Fe	N/A	N/A	A494 CW2M	N26455	B574-N06455	N06455
Incoloy 800	33Ni - 20Cr - 45Fe - Nb	B564-N08800	N08800	A351 CT15C	N08151	B408-N08800	N08800
Inconel 400	78Ni - 15Cr - 5Fe	B564-N06600	N06600	A494 CY40	N06040	B166-N06600	N06600
Inconel 625	65Ni - 22Cr - 9Mo - 3.5Nb	B564-N06625	N06625	A494 CW6MC	N26625	B446-N06625	N06625
Inconel 825	43Ni - 22Cr - 3Mo - 30Fe - Nb	B564-N08825	N08825	A494 CUSMJC	N08826	B425-N08825	N08825
Monel (Weldable)	64Ni - 30Cu - 2Cb - 3.5Fe	N/A	N/A	A494 M30-C	N24130	N/A	N/A
Monel 400	67Ni - 30Cu	B564-N04400	N04400	A494 M35-1	N24135	B164-N04400	N04400
Monel K500	65Ni - 29.5Cu - 2.8Al - 1Fe	B564-N05500	N05500	N/A	N/A	B865-N05500	N05500
Nickel 200	97Ni	B160-N02200	N02200	A494 CZ100	N02100	B160-N02200	N02200
Titanium	.10C - .30Fe - .05N - 99Ti	B381 Gr. F-3	R50550	B367 Gr. C-3	R50550	B348 Gr. 3	R50550
Titanium	.10C - .30Fe - .03N - .25Pd - 99Ti	B381 Gr. F-7	R52400	B367 Gr. C-7	R52400	B348 Gr. 7	R52400
Titanium	.10C - .30Fe - .03N - 99Ti	B381 Gr. F-2	R50400	B367 Gr. C-2	R50400	B348 Gr. 2	R50400
Zirconium	95Zr - 4.5Cu	B493 Gr. 702	R60702	B752 Gr. 702C	R60702	B550 Gr. 702	R60702

L A D I S H FORCED VALVES



LADISH VALVES

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