

I N D U S T R I A L V A L V E S

BALL VALVES



arflu
INDUSTRIAL VALVES



INDUSTRIAL VALVES FOR THE **PETROCHEMICAL, ENERGY & GAS DIVISIONS**



I N D E X

ARFLU

BALL VALVES

FLOATING BALL

TRUNNION BALL

FULLY WELDED

FULLY WELDED PLATE

CLASS 2500

TECHNICAL DATAS

DIMENSIONS

FLANGES
BUTT WELDING

TECHNICAL HELP

FORGED STEEL STANDARDS COMPARISON
CAST IRON
FERRITIC STEELS
COPPER ALLOYS
NICKEL ALLOYS
AUSTENITIC STEELS
NICKEL-COPPER ALLOYS
PRESSURE - TEMPERATURE RATINGS

We are pleased to present you our company which, since its foundation more than 25 years ago, is dedicated to the production of high quality valves. Since 1988 we have been manufacturing all kind of valves mainly for petrochemical, energy, gas, marine services and water and we are proud to manufacture our valves under our brand ARFLU.

ARFLU 's quality guarantee system as well as all its processes and procedures, both technical ones regarding products and in the organization of the company are certified according to the UNE-EN ISO 9001 standard. In addition ARFLU is certified according to H module of 97/23/CE of the EU. Though this certification is extremely important for our company, it must be said that the best certification and guaranty we can offer is the fact that our customers are placing their confidence in ARFLU products day by day. Living in a world of technology and communications as it is today, in ARFLU we try to keep at the forefront of industry. ARFLU owns the latest and most powerful informatic technology systems in order to have our whole organization perfectly communicated and to be in constant contact with customers worldwide. ARFLU is one of the most qualified companies in its field. We develop tailor made solutions as well as we provide customized advice and training for our clients.



arflu

INNOVATION, QUALITY, DESIGN

BALL VALVES

Ball valves

Ball valves, like gate valves, are used in open or close position, not recommended for intermediate positions. Unlike gate valves, ball valves are quarter turn valves which closure member rotates very fast from full-open to full-closed position.



MANUFACTURING AND DESIGN STANDARDS

Ball valves are designed and manufactured according to the following international codes and standards:

DESIGN AND MANUFACTURING:

- ASME B16.34 valves - flanged, threaded, and welding end
- API-6D Specification for pipeline and piping valves
- ISO 14313 Petroleum and natural gas industries, pipeline transportation systems, pipeline valves
- API 608 metal ball valves - flanged, threaded, and welding end
- ISO 17292 (outdated BS-5351) Metal ball valves for petroleum, petrochemical and allied industries

INSPECTION AND TEST:

- API 598 valve inspection and testing
- API-6D Specification for pipeline and piping valves
- ISO 14313 Petroleum and natural gas industries, pipeline transportation systems, pipeline valves

FLANGE DIMENSION:

- ASME B16.5 pipe flanges and flanged fittings
- ASME B16.47 large diameter steel flanges: NPS 26 through NPS 60
- MSS SP 44 steel pipeline flanges

WELDED OR THREADED ENDS:

- ASME B16.25 butt welding ends
- ASME B16.11 forged steel fittings, socket-welding and threaded
- ASME B1.20.1 pipe threads general purpose

FACE TO FACE AND END TO END

- ASME B16.10 face to face and end-to-end dimensions of valves
- API-6D Specification for pipeline and piping valves
- ISO 14313 Petroleum and natural gas industries, pipeline transportation systems, pipeline valves

DESIGN FEATURES

| BALL VALVES |

Ball valves are a quarter turn operating valves, usually for ON-OFF services.

Main design parameters in ball valves are the parallelism, and perpendicularity of the turning axe and the pipeline, and the spherical of the ball. Taking care of these two facts operating torque will be smooth and the valve will have a long tight life, as not foreseen stresses on the seat will be avoided.

BODY AND ENDS

The body is made of cast steel or forged steel, depending on the customers' requirements. In the case of normal design standards, (API-6D, ISO 17292, etc.) the thickness of the body will comply with what is indicated in these standards according to the pressure rating of the valve. Should none of these standards apply ARFLU uses the regular standard EN 12516 for the determination of minimum thickness.

All our ball valves are bidirectional and can be installed both in vertical and horizontal position.

The spherical sections are designed to reduce tension under the most severe working conditions.

The sealing rings of the seats are carefully machined to prevent leaks between the body and the seat. The surface of the seats should be at least 1.6 AARH. Extraordinary careful attention is made to ensure that the body flange and the bonnet flange are parallel and perpendicular to prevent leakage problems between both, except for fully welded valves in which case they are obviously welded.

The standard flange face has a spiral type smooth finish 125-250 AARH. Other finishes may be carried according to requirements.

Our valves are provided with the possibility of fitting auxiliary plugs or connections in accordance with ASME B 16.34 to allow drainage, secondary injection lines, instrumentation, measurements, etc.

The connections from the valves to the pipes can be done using flanges or butt weld ends according to either international or national standards as the client so requirements.



SPECIFIC DESIGN APPLICATIONS

Many different design features are fitted on ball valves depending on the specific application.

Main ones are the following:

DOUBLE BLOCK AND BLEED

A system that allows the closure of the two faces and a venting of the valve chamber.

PACKING

The packing, in general, is made of elastomeric or graphite rings. The most usual shapes of these rings are V or rectangular. The pressure in the rings is supplied by means of the gland flange. In the gas valves Arflu uses dual packing made up of an elastomeric or graphite ring and two O-rings.

AUTO DECOMPRESSION OF THE BODY CAVITY

The spring system in the seat rings means that the sealing ring is always in contact with the ball. In the event of a pressure increase in the chamber of the body due, for example, to thermal expansion which exceeds the load of the seat springs, the springs will compress freeing the liquid from the cavity to the tube, creating an auto-decompression of the area.

FULLY WELDED VALVES

In this type of valve the body-face union is done by welding. In these cases Arflu carries out a specific design of these zones, giving maximum importance to the welding angle. Welds are carried out by approved procedures and welders. To guarantee the quality of the welds non destructive tests, such as ultrasound and penetrating liquids, are carried out.

During the welding process special attention is paid to ensure no damage is done to the seats. To do so, the temperature of the seat area is controlled by thermocouples.

DESIGN OF FLOATING BALL VALVE WITH SOFT METAL SEATS

This design gives flexibility to the seat ring. When the pressure in the line is low, the ball is pushed against the seat ring without deforming it. As the seat ring is flexible it can adapt to the ball, increasing the closure area, therefore enhancing closure at low pressure.

When the pressure in the line increases, the ball is thrust against the seat ring. The seat ring deforms elastically and the closure

surface reaches its maximum limit. When the pressure decreases once again the seat ring recovers its shape. We have a special design in which one of the seats is replaced by a rigid ring with spring activated soft closing. In this case the valve is unidirectional. This design allows for a better closure in the medium and long term with pressure free valves. Likewise it allows for automatic depressurisation in the case of over pressure. With this design we obtain a longer life of the soft seats as they self-adjust depending on the wear-and-tear.

FIRE SAFE DESIGN

All our valves incorporate fire protection design, complying with international standards such as API-607, API-6FA, BS-6755.

To guarantee this design we use fire resistant gaskets and packings namely graphite for the packings and metal with graphite for the gaskets.

The seats are designed to have secondary metallic closing with the ball in case the soft seats get destroyed.

SECONDARY INJECTION SYSTEM

System normally used for gas valves. A sealant may be injected both in the body and in the stem to repair loss of airtightness. For 6" valves and greater, the body injectors are positioned on the two seats, while for 4" and greater the injectors are placed directly on the body.

These injectors consist of a ball check valve to avoid leaks. In the case of buried valves these systems prolong the whole length of the stem.

DESIGN OF TRUNNION BALL VALVES WITH SOFT METAL SEATS

In this design the ball is guided by the up and down stems. In this case the only possible movement for the ball is to rotate on its stem.

To close the valve, the springs push the seat rings against the ball making a perfect close. The springs are used for providing uniform pressure and guided movement.

This type of design is normally used for medium and high pressure valves (600 lbs. and above) and for 10" sizes (DN-250) or more. For these cases, a floating ball design is not advisable as the pressure and/or size will compress the ball against the seat, causing breakage or the wedging of the ball in the seat.

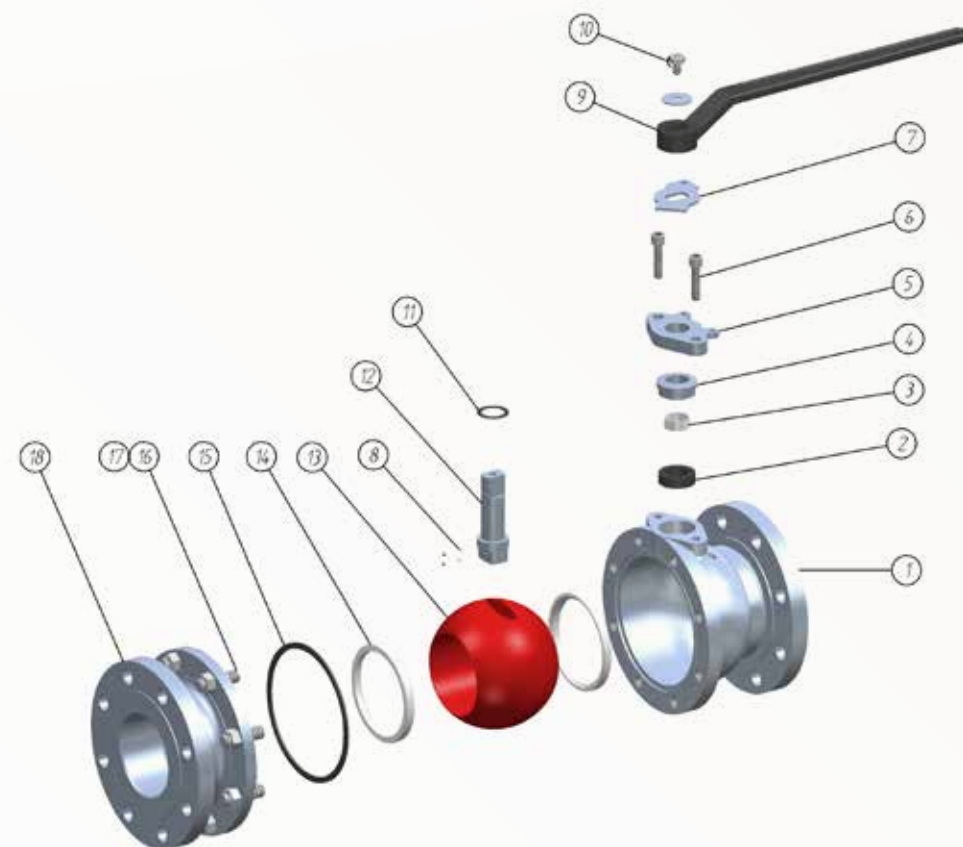
ANTISTATIC DESIGN

In general the packing closures and the gaskets are made with non conductive materials such as PTFE, Viton, graphite, etc.

In these cases, to guarantee electric continuity, a simple system of ball and spring positioned on the stem of the valve.

The spring pushes the ball, placing the stem and the body in constant contact, thus maintaining electric continuity throughout the unit while at the same time avoiding sparks caused by electrostatic.

Floating Ball Valves

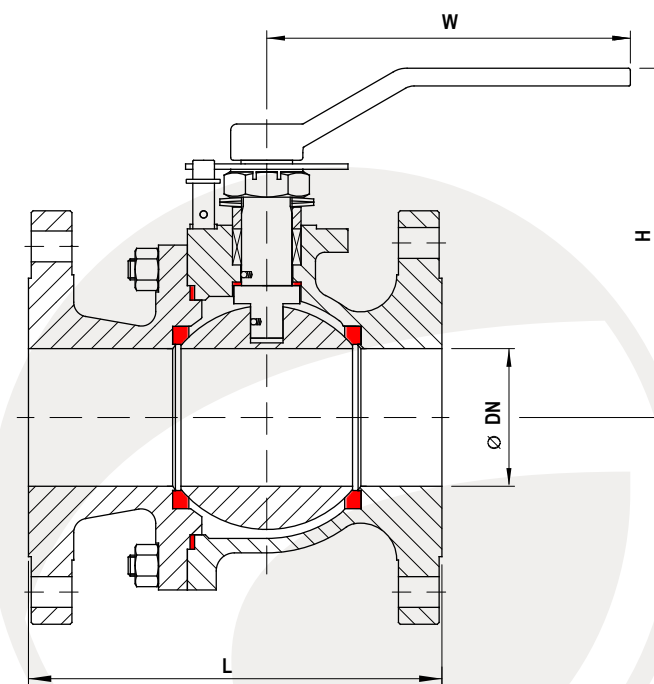


	WCB /F6/SOFT	WCB /304/SOFT	WCB/SOFT	CF8/304/SOFT	CF8M/316/SOFT	LCB/F6/SOFT	LCB/F304/SOFT
1 BODY		ASTM A216 WCB		ASTM A351 CF8	ASTM A351 CF8M	ASTM 216 WCB	ASTM A352 LCB
2 PAKING		PTFE or PTFE+GRAPHITE		PTFE or PTFE+GRAPHITE	PTFE or PTFE+GRAPHITE	PTFE or PTFE+GRAPHITE	PTFE or PTFE+GRAPHITE
3 STEM BEARING		PTFE		PTFE	PTFE	PTFE	PTFE
4 GLAND	ASTM A182 F6A	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316	ASTM A182 F316	ASTM A182 F304
5 GLAND FLANGE		ASTM A216 WCB		ASTM A351 CF8	ASTM A351 CF8M	ASTM A216 WCB	ASTM A352 LCB
6 GLAND BOLT		ASTM A193 B7		ASTM A193 B8	ASTM A193 B8M	ASTM A193 L7	ASTM A193 L7
7 STOP COLLAR		CARBON STEEL		STAINLESS STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL
8 ANTISTATIC DEVICE		CARBON STEEL		STAINLESS STEEL	STAINLESS STEEL	CARBON STEEL	CARBON STEEL
9 LEVER		CARBON STEEL		CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL
10 NUT HEAD		CARBON STEEL		CARBON STEEL	CARBON STEEL	CARBON STEEL	CARBON STEEL
11 THRUST WASHER		PTFE		PTFE	PTFE	PTFE	PTFE
12 STEM	ASTM A182 F6A	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316	ASTM A182 F316	ASTM A182 F304
13 BALL	ASTM A182 F6A	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316	ASTM A182 F316	ASTM A182 F304
14 SEAT		PTFE or RPTFE or NYLON		PTFE or RPTFE or NYLON	PTFE or RPTFE or NYLON	PTFE or PTFE+GRAPHITE	PTFE or PTFE+GRAPHITE
15 GASKET		PTFE or PTFE+GRAPHITE		PTFE or PTFE+GRAPHITE	PTFE or PTFE+GRAPHITE	PTFE or PTFE+GRAPHITE	PTFE or PTFE+GRAPHITE
16 BODY NUT		ASTM A194 2H		ASTM A194 8	ASTM A194 8M	ASTM A194 4	ASTM A194 4
17 BOLT		ASTM A193 B7		ASTM A193 B8	ASTM A193 B8M	ASTM A193 L7	ASTM A193 L7
18 END		ASTM A216 WCB		ASTM A351 CF8	ASTM A351 CF8M	ASTM A352 LCB	ASTM A352 LCB

Ball valve API-6D & API-608 OR ISO 17292

COD.
AB-1000

FLOATING BALL VALVES CLASS 150 1/2" TO 8"



DESIGN	ASME B16.34 & API-6D & API-608 or ISO 17292	- Self-relieving Structure - Full and Reduced Bore - Manual and actuator operated (gearbox,electric, pneumatic...)
FACE TO FACE	ASME B16.10 & API6D	
FLANGED ENDS	ASME B16.5	
BUTT WELD ENDS	ASME B16.25	
BY-PASS & DRAIN	MSS SP-45	
TEST	API-598, API 6D, ISO 5208 & ISO 15848	
CONSTRUCTION	- Open/close position indicator - Locking Device - Anti-blow out stem - Antistatic Device - Fire Protection Structure - Middle Flange Leak-tight Structure - Dependable Seating Structure	MATERIALS Ac c/ASME B16.34 DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials TRIM 13%Cr, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials... SEATS Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available OTHERS Jacketed, cryogenic services, H.F. services, all kind of operated, all type of painting and coating <i>* other requirements upon request.</i> <i>*Arflu has Monogram API certification (API 600) if required by the customer</i>

CLASS 150 DIMENSIONS IN MILLIMETERS

ND.	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
L (BW)	140	152	165	190	216	241	282	305	457	521
L (RF)	108	117	127	165	178	190	203	229	394	457
L (RTJ)	119	130	140	178	191	203	216	242	406	470
DN	12	20	25	40	50	65	80	100	150	200
H (OPEN)	59	63	75	95	153	165	195	213	272	342
W	130	130	160	230	230	400	400	600	850	1100
WEIGHT (KG.) (BW)	2	2,5	3,8	5,8	12	17	21	36	93	154
WEIGHT (KG.) (RF)	2,3	3	4,5	7	15	20	25	40	97	160

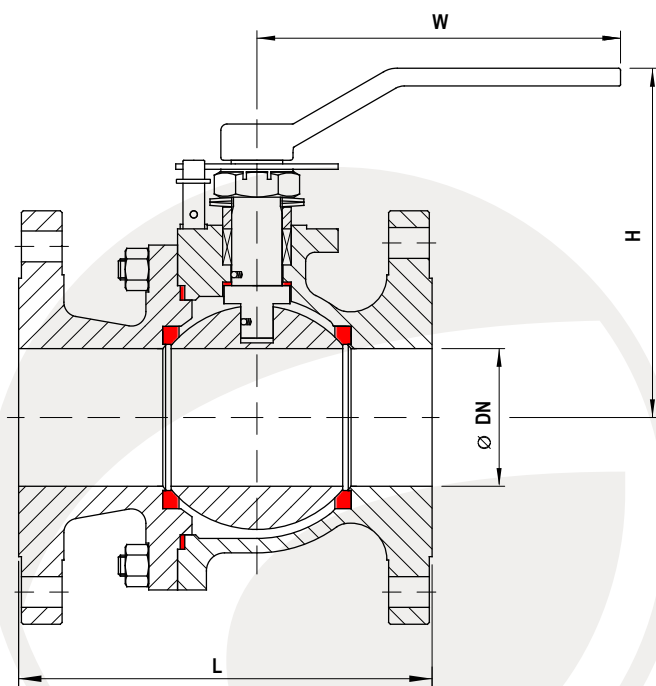
* Other measures upon request.

technical datas

Ball valve API-6D & API-608 OR ISO 17292

COD.
AB-3000

FLOATING BALL VALVES CLASS 300 1/2" TO 8"



- DESIGN** ASME B16.34 & API-6D & API-608 or ISO 17292
- FACE TO FACE** ASME B16.10 & API6D
- FLANGED ENDS** ASME B16.5
- BUTT WELD ENDS** ASME B16.25
- BY-PASS & DRAIN** MSS SP-45
- TEST** API-598, API 6D, ISO 5208 & ISO 15848
- CONSTRUCTION**
- Open/close position indicator
 - Locking Device
 - Anti-blow out stem
 - Antistatic Device
 - Fire Protection Structure
 - Middle Flange Leak-tight Structure
 - Dependable Seating Structure

- Self-relieving Structure
 - Full and Reduced Bore
 - Manual and actuator operated (gearbox,electric, pneumatic...)
- MATERIALS** Ac c/ASME B16.34, DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials
- TRIM** 13%Cr, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials...
- SEATS** Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available
- OTHERS** Jacketed, cryogenic services, H.F. services, all kind of operated, all type of painting and coating
- * other requirements upon request.

*Arflu has Monogram API certification (API 600) if required by the customer

CLASS 300 DIMENSIONS IN MILLIMETERS

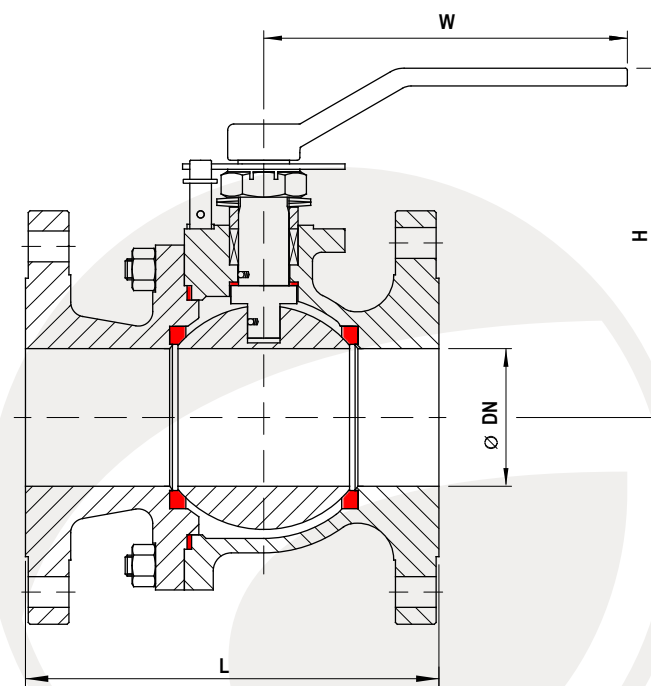
ND.	1/2"	3/4"	1"	1 1/2"	2"	2 1/2"	3"	4"	6"	8"
L (BW)	140	152	165	190	216	241	282	305	457	521
L (RF)	140	152	165	190	216	241	282	305	403	502
L (RTJ)	151	165	178	203	232	257	298	321	419	518
DN	12	20	25	40	50	65	80	100	150	200
H (OPEN)	59	63	75	107	153	165	195	213	272	342
W	130	130	160	230	230	400	400	600	850	1100
WEIGHT (KG.) (BW)	2,1	3	4,8	8,7	17	22	28	48	105	185
WEIGHT (KG.) (RF)	2,5	3,5	5,5	10,5	20	25	31	52	118	200

* Other measures upon request.

Ball valve API-6D & API-608 OR ISO 17292

COD.
AB-6000

FLOATING BALL VALVES CLASS 600 1/2" TO 1 1/2"



- DESIGN** ASME B16.34 & API-6D & API-608 or ISO 17292
- FACE TO FACE** ASME B16.10 & API6D
- FLANGED ENDS** ASME B16.5
- BUTT WELD ENDS** ASME B16.25
- BY-PASS & DRAIN** MSS SP-45
- TEST** API-598, API 6D, ISO 5208 & ISO 15848
- CONSTRUCTION**
- Open/close position indicator
 - Locking Device
 - Anti-blow out stem
 - Antistatic Device
 - Fire Protection Structure
 - Middle Flange Leak-tight Structure
 - Dependable Seating Structure

- Self-relieving Structure
 - Full and Reduced Bore
 - Manual and actuator operated (gearbox,electric, pneumatic...)
- MATERIALS** Ac c/ASME B16.34, DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials
- TRIM** 13%Cr, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials...
- SEATS** Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available
- OTHERS** Jacketed, cryogenic services, H.F. services, all kind of operated, all type of painting and coating
- * other requirements upon request.

*Arflu has Monogram API certification (API 600) if required by the customer

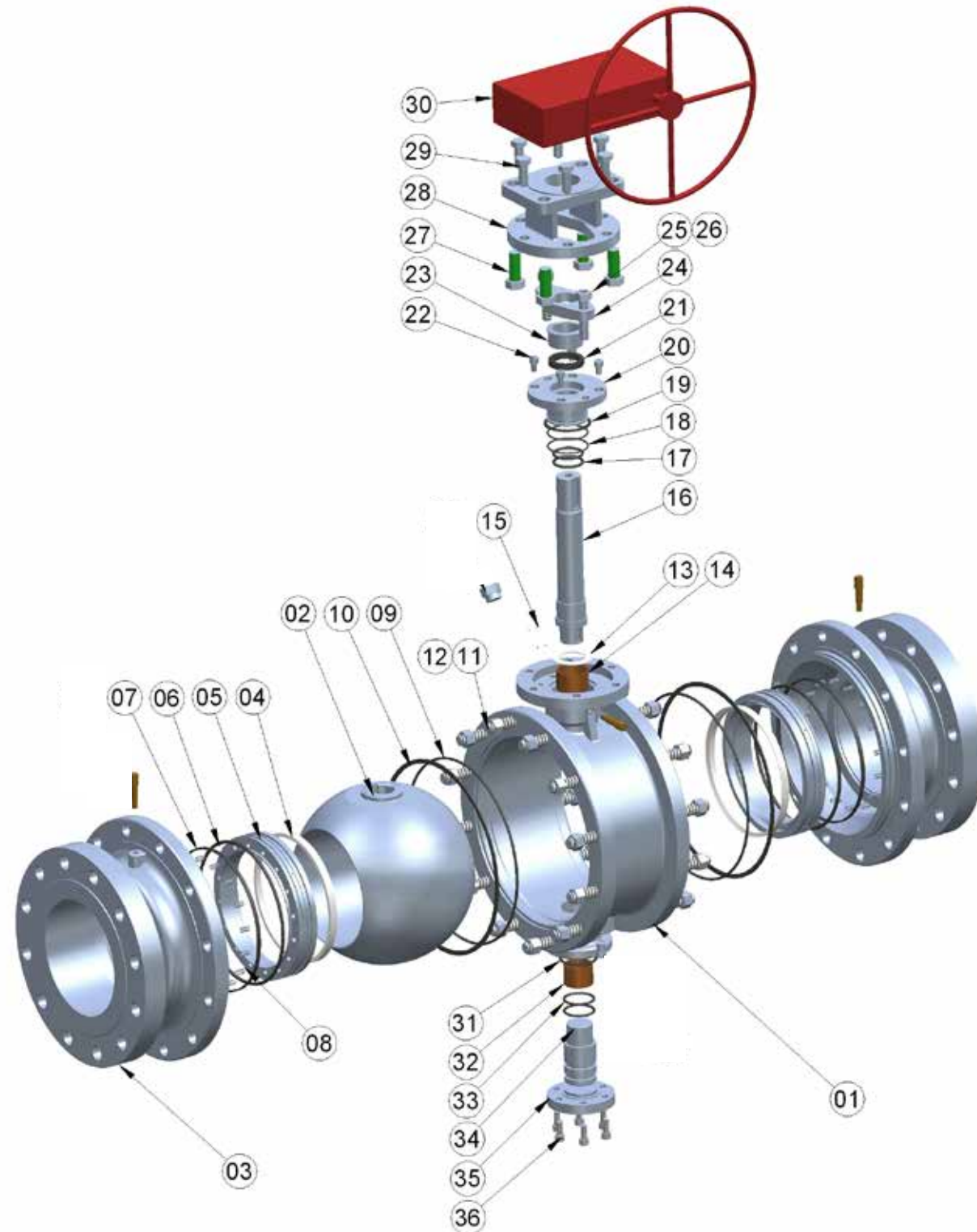
CLASS 600 DIMENSIONS IN MILLIMETERS

ND.	1/2"	3/4"	1"	1 1/2"
L (BW)	165	190	216	241
L (RF)	165	190	216	241
L (RTJ)	165	190	216	241
DN	12	20	25	40
H (OPEN)	59	63	75	107
W	130	130	160	230
WEIGHT (KG.) (BW)	6	8,7	11	14,7
WEIGHT (KG.) (RF)	7,5	10,5	14,5	18,5

* Other measures upon request.

TRUNNION BALL VALVES

Technical datas



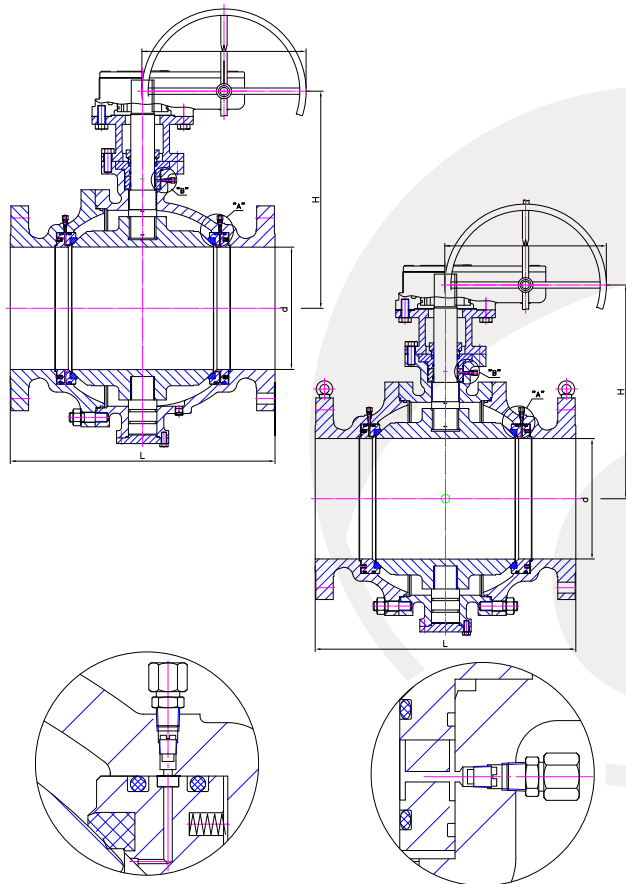
	A105/F6/SOFT	A105/304	A105/316	F304/304	F316/316	LCB/316
1 BODY	A105			A182 F304	A182 F316	ASTM A352 LCB
2 BALL	ASTM A182 F6A	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316	ASTM A182 F316
3 END	A105			F304/304	F316/316	LCB/316
4 SEAT	RPTFE / DEVLON / NYLON / PEEK			RPTFE / NYLON / PEEK	RPTFE / NYLON / PEEK	RPTFE / NYLON / PEEK
5 SEAT RING	ASTM A105+ENP			SS 304	SS 316	ASTM A350 LF2+ENP
6 SEAT GASKET	VITON			VITON	VITON	VITON
7 FIRE SAFE SEAT GASKET	GRAPHITE			GRAPHITE	GRAPHITE	GRAPHITE
8 SPRING	SS 304 OR INCONEL 750			SS 304 OR INCONEL 750	SS 304 OR INCONEL 750	SS 304 OR INCONEL 750
9 GASKET	VITON			VITON	VITON	VITON
10 FIRE SAFE GASKET	GRAPHITE			GRAPHITE	GRAPHITE	GRAPHITE
11 STUD	ASTM A193 B7			ASTM A193 B8	ASTM A193 B8	ASTM A193 L7
12 NUT	ASTM A194 2H			ASTM A194 8	ASTM A194 8	ASTM A194 4
13 AXIAL BUSHING	NYLON			NYLON	NYLON	NYLON
14 RADIAL BUSHING	STEEL LINER PTFE			STEEL LINER PTFE	STEEL LINER PTFE	STEEL LINER PTFE
15 ANTISTATIC DEVICE	SS 304			SS 304	SS 304	SS 304
16 STEM	ASTM A182 F6A	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316	ASTM A182 F316
17 O RING	VITON			VITON	VITON	VITON
18 O RING	VITON			VITON	VITON	VITON
19 GASKET	GRAPHITE			GRAPHITE	GRAPHITE	GRAPHITE
20 BONNET	A105			A182 F304	A182 F316	A350 LF2
21 PACKING	GRAPHITE			GRAPHITE	GRAPHITE	GRAPHITE
22 BOLT	ASTM A193 B7			ASTM A193 B8	ASTM A193 B8M	ASTM A193 L7
23 PRESSURE RING	ASTM A182 F6A			ASTM A182 F6A	ASTM A182 F6A	ASTM A182 F6A
24 GLAND FLANGE	A105			A182 F304	A182 F316	A350 LF2
25 BRACKET	A105			A182 F304	A182 F316	A350 LF2
26 BOLT	ASTM A193 B7			ASTM A193 B8	ASTM A193 B8M	ASTM A193 L7
30 GEAR	CARBON STEEL			CARBON STEEL	CARBON STEEL	CARBON STEEL
31 FIRE SAFE GASKET	GRAPHITE			GRAPHITE	GRAPHITE	GRAPHITE
32 BACK STEM BUSHING	STEEL LINER PTFE			STEEL LINER PTFE	STEEL LINER PTFE	STEEL LINER PTFE
33 O-RING	VITON			VITON	VITON	VITON
34 BACK STEM	ASTM A182 F6A	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316	ASTM A182 F316
35 BONNET	A105			A182 F304	A182 F316	A182 F316
36 BOLT	ASTM A193 B7			ASTM A193 B8	ASTM A193 B8M	ASTM A193 L7
37 SECONDARY SEALANT INJECTION	ASME 1025			ASME 1025	ASME 1025	ASME 1025
38 PLUG	ASME 1025			ASME 1025	ASME 1025	ASME 1025
39 PLUG	ASME 1025			ASME 1025	ASME 1025	ASME 1025

technical datas

Ball valve API6D, API 608 OR ISO17292

COD.
ABT-
1000

TRUNNION MOUNTED BALL VALVES CLASS 150 2" TO 60"



- DESIGN** ASME B16.34 & API-6D & API-608 or ISO 17292
- FACE TO FACE** ASME B16.10 & API6D
- FLANGED ENDS** From 2" to 24" Ac c/ASME B16.5, upper than 24" Ac c/ASME B16.47 or MSS SP-44 or upon request
- BUTT WELD ENDS** ASME B16.25
- BY-PASS & DRAIN** MSS SP-45
- TEST** API-598, API 6D & ISO 15848
- CONSTRUCTION**
- Distinctive Seating Structure
 - Self-relieving Structure
 - First Aid of Seal
 - Fire Safe Design
 - Antistatic Structure
 - Locking Device
 - Full and Reduced Bore Structure
 - Discharge Device On Valve Body
 - Corrosion Resistance
 - Sulfide Stress Cracking Resistance
 - Extension Bar Device
 - Manual and actuator operated (gearbox,electric, pneumatic...)
- MATERIALS** Ac c/ASME B16.34 DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials
- TRIM** 13%Cr, stellite, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials...
- SEATS** Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available
- OTHERS** Jacketed, cryogenic services, H.F. services, all kind of operated, all type of painting and coating
- * other requirements upon request.

*Arflu has Monogram API certification (API 600) if required by the customer

CLASS 150 DIMENSIONS IN MILLIMETERS

ND.	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	216	241	282	305	381	457	521	559	635	762	838	914	991	1143
L (RF)	178	191	203	229	356	394	457	533	610	686	762	864	914	1067
L (RTJ)	191	202	216	242	369	407	470	546	623	699	775	877	927	1080
DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
H (OPEN)	107	125	152	178	252	378	421	482	549	582	687	730	772	995
W	230	400	400	650	1050	400	400	400	600	600	800	800	800	800
WEIGHT (KG.) (BW)	11	15,3	21,3	34	55,4	72	201	310	447	536	814	1210	1500	3000
WEIGHT (KG.) (RF)	12	16	22	35	58	74	205	322	460	576	864	1280	1600	3540

CLASS 150 DIMENSIONS IN MILLIMETERS

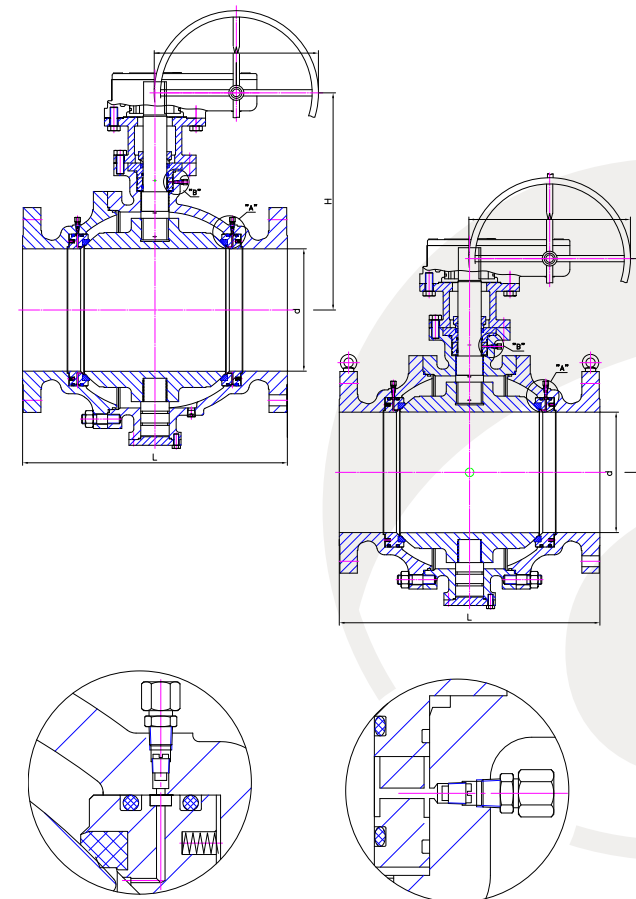
ND.	26"	28"	30"	32"	34"	36"	40"	42"	48"	56"	60"
L (BW)	1245	1346	1397	1524	1626	1727	1956	2083	2100	2250	2489
L (RF)	1143	1245	1295	1372	1473	1524	1753	1855	1995	2300	2489
DN	650	700	750	800	850	900	1000	1050	1166	1360	1458
H (OPEN)	1022	1088	1153	1223	1307	1374	1468	1532	1620	1700	1795
W	800	800	800	800	800	800	960	960	1000	1000	1000
WEIGHT (KG.) (BW)	3240	3710	4530	4870	5305	6010	7400	12150	21200	29600	32800
WEIGHT (KG.) (RF)	3930	4500	5370	5940	6615	7540	9320	14450	24210	34100	38500

* Other measures upon request.

Ball valve API6D, API 608 OR ISO17292

COD.
ABT-
3000

TRUNNION MOUNTED BALL VALVES CLASS 300 2" TO 60"



- DESIGN** ASME B16.34 & API-6D & API-608 or ISO 17292
- FACE TO FACE** ASME B16.10 & API6D
- FLANGED ENDS** From 2" to 24" Ac c/ASME B16.5, upper than 24" Ac c/ASME B16.47 or MSS SP-44 or upon request
- BUTT WELD ENDS** ASME B16.25
- BY-PASS & DRAIN** MSS SP-45
- TEST** API-598, API 6D & ISO 15848
- CONSTRUCTION**
- Distinctive Seating Structure
 - Self-relieving Structure
 - First Aid of Seal
 - Fire Safe Design
 - Antistatic Structure
 - Locking Device
 - Full and Reduced Bore Structure
 - Discharge Device On Valve Body
 - Corrosion Resistance
 - Sulfide Stress Cracking Resistance
 - Extension Bar Device
 - Manual and actuator operated (gearbox,electric, pneumatic...)
- MATERIALS** Ac c/ASME B16.34 DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials
- TRIM** 13%Cr, stellite, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials...
- SEATS** Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available
- OTHERS** Jacketed, cryogenic services, H.F. services, all kind of operated, all type of painting and coating
- * other requirements upon request.

*Arflu has Monogram API certification (API 600) if required by the customer

CLASS 300 DIMENSIONS IN MILLIMETERS

ND.	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	216	241	282	305	381	457	521	559	635	762	838	914	991	1143
L (RF)	216	241	282	305	381	403	502	568	648	762	838	914	991	1143
L (RTJ)	232	257	298	321	397	419	518	584	664	778	854	930	1010	1165
DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
H (OPEN)	107	125	152	178	252	378	421	482	549	582	687	730	772	995
W	230	400	400	650	1050	400	400	400	600	600	800	800	800	800
WEIGHT (KG.) (BW)	11	18	22	45	69	98	225	330	493	600	930	1402	1900	2860
WEIGHT (KG.) (RF)	15	24	30	55	87	118	255	370	533	640	1030	1542	2100	3430

CLASS 300 DIMENSIONS IN MILLIMETERS

ND.	26"	28"	30"	32"	34"	36"	40"	42"	48"	56"	60"
L (BW)	1245	1346	1397	1524	1626	1727	1930	2032	2100	2250	2743
L (RF)	1245	1346	1397	1524	1626	1727	1930	2032	2180	2300	2743
L (RTJ)	1270	1371	1422	1552	1654	1755					
DN	650	700	750	800	850	900	1000	1050	1166	1360	1458
H (OPEN)	1022	1088	1153	1223	1307	1374	1468	1532	1620	1700	1795
W	800	800	800	800	800	800	960	960	1000	1000	1000
WEIGHT (KG.) (BW)	3620	4140	4960	5640	6900	8040	9680	13700	22400	33655	40900
WEIGHT (KG.) (RF)	4340	4960	5950	6760	8280	9640	11730	16300	25300	38155	46600

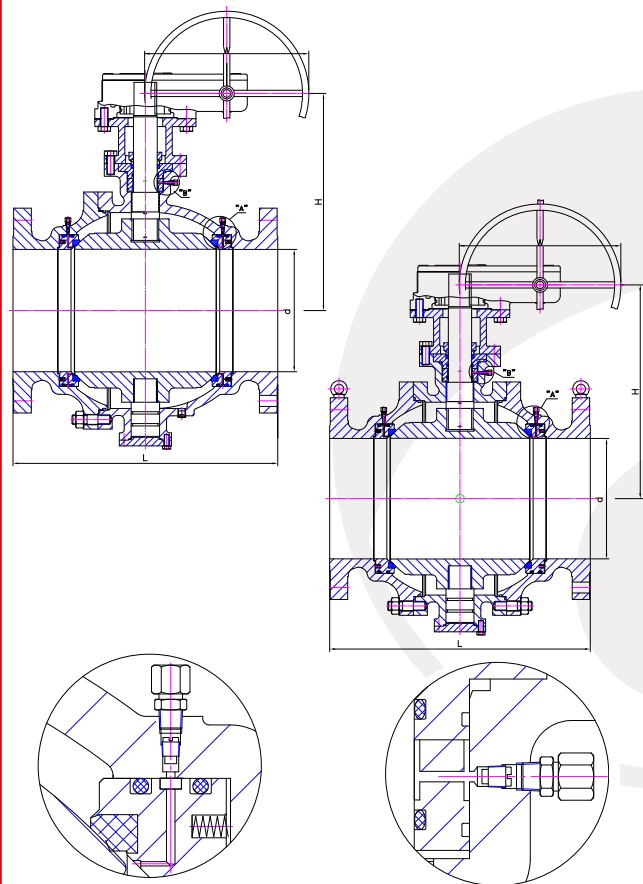
* Other measures upon request.

technical datas

Ball valve API6D, API 608 OR ISO17292

TRUNNION MOUNTED BALL VALVES CLASS 600 2" TO 60"

COD.
ABT-
6000



DESIGN ASME B16.34 & API-6D & API-608 or ISO 17292

FACE TO FACE ASME B16.10 & API6D

FLANGED ENDS From 2" to 24" Ac c/ASME B16.5, upper than 24"
Ac c/ASME B16.47 or MSS SP-44 or upon request

BUTT WELD ENDS ASME B16.25

BY-PASS & DRAIN MSS SP-45

TEST API-598, API 6D & ISO 15848

CONSTRUCTION

- Distinctive Seating Structure
- Self-relieving Structure
- First Aid of Seal
- Fire Safe Design
- Antistatic Structure
- Locking Device
- Full and Reduced Bore Structure
- Discharge Device On Valve Body
- Corrosion Resistance
- Sulfide Stress Cracking Resistance
- Extension Bar Device
- Manual and actuator operated (gearbox, electric, pneumatic...)

MATERIALS Ac c/ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M,
CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN,
Duplex, Superduplex, exotic materials

TRIM 13%Cr, stellite, 304, 304L, 316, 316L, 321, bronze, monel,
4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex,
exotic materials...

SEATS Soft (PTFE, Viton, Nylon) and Metal to Metal all kind
available

OTHERS Jacketed, cryogenic services, H.F. services,
all kind of operated, all type of painting and coating
* other requirements upon request.

*Arflu has Monogram API certification (API 600) if required by the customer

CLASS 600 DIMENSIONS IN MILLIMETERS

ND.	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L (RF)	292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L (RTJ)	295	333	359	435	562	663	790	841	892	994	1095	1200	1407
DN	50	65	80	100	150	200	250	300	350	400	450	500	600
H (OPEN)	107	125	152	178	389	449	497	550	582	687	730	780	995
W	400	650	650	1050	400	600	600	800	800	800	800	800	800
WEIGHT (KG.) (BW)	29	31	45	78	182	310	590	790	1490	1720	1830	2770	4030
WEIGHT (KG.) (RF)	35	38	55	102	232	390	710	960	1700	1970	2180	3250	4880

CLASS 600 DIMENSIONS IN MILLIMETERS

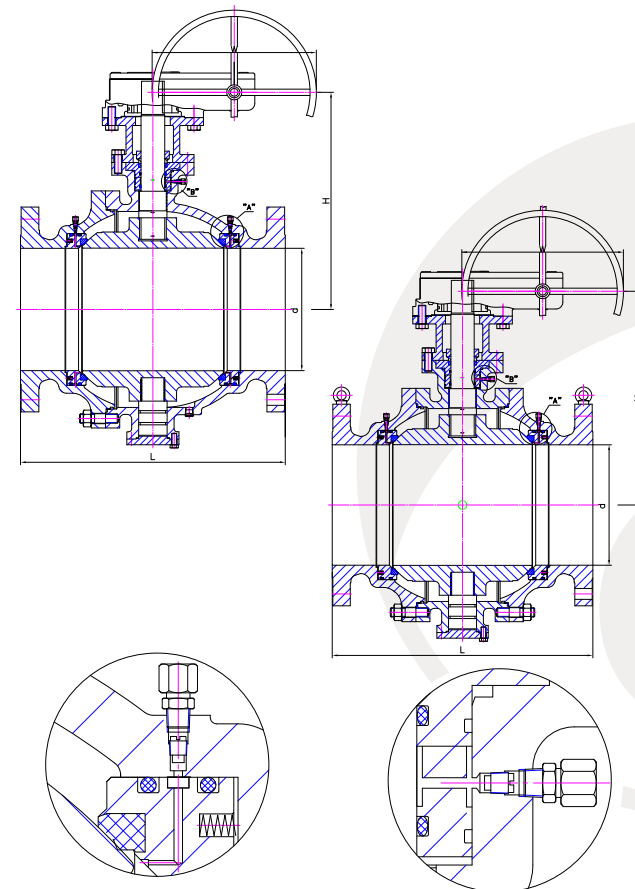
ND.	26"	28"	30"	32"	34"	36"	40"	42"	48"	56"	60"
L (BW)	1448	1549	1651	1778	1930	2083	1900	1950	2180	2385	2949
L (RF)	1448	1549	1651	1778	1930	2083	2000	2100	2400	2710	2949
L (RTJ)	1461	1562	1664	1794	1946	2099					
DN	650	700	750	800	850	900	976	1020	1166	1360	1458
H (OPEN)	1038	1088	1157	1190	1246	1292	1328	1442	1558	1690	1795
W	800	800	800	800	960	960	1000	1000	1000	1000	1000
WEIGHT (KG.) (BW)	4840	5610	6210	7060	8640	10070	16135	18456	26695	44980	55800
WEIGHT (KG.) (RF)	5830	6700	7450	8470	10360	12080	18335	21356	31195	47483	61500

* Other measures upon request.

Ball valve API6D, API 608 OR ISO17292

TRUNNION MOUNTED BALL VALVES CLASS 900 2" TO 56"

COD.
ABT-
9000



DESIGN ASME B16.34 & API-6D & API-608 or ISO 17292

FACE TO FACE ASME B16.10 & API6D

FLANGED ENDS From 2" to 24" Ac c/ASME B16.5, upper than 24"
Ac c/ASME B16.47 or MSS SP-44 or upon request

BUTT WELD ENDS ASME B16.25

BY-PASS & DRAIN MSS SP-45

TEST API-598, API 6D & ISO 15848

CONSTRUCTION

- Distinctive Seating Structure
- Self-relieving Structure
- First Aid of Seal
- Fire Safe Design
- Antistatic Structure
- Locking Device
- Full and Reduced Bore Structure
- Discharge Device On Valve Body
- Corrosion Resistance
- Sulfide Stress Cracking Resistance
- Extension Bar Device
- Manual and actuator operated (gearbox, electric, pneumatic...)

MATERIALS Ac c/ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M,
CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN,
Duplex, Superduplex, exotic materials

TRIM 13%Cr, stellite, 304, 304L, 316, 316L, 321, bronze, monel,
4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex,
exotic materials...

SEATS Soft (PTFE, Viton, Nylon) and Metal to Metal all kind
available

OTHERS Jacketed, cryogenic services, H.F. services,
all kind of operated, all type of painting and coating
* other requirements upon request.

*Arflu has Monogram API certification (API 600) if required by the customer

CLASS 900 DIMENSIONS IN MILLIMETERS

ND.	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	368	419	381	457	610	737	838	965	1029	1130	1219	1321	1549
L (RF)	368	419	381	457	610	740	841	968	1039	1140	1232	1334	1568
L (RTJ)	371	422	384	460	613								
DN	50	65	80	100	150	200	250	300	350	400	450	500	600
H (OPEN)	123	136	185	225	389	449	497	550	582	687	730	780	995
W	650	800	400	400	600	600	800	800	800	800	800	800	800
WEIGHT (KG.) (BW)	40	60	70	109	264	540	800	1110	1370	1910	2310	3120	4640
WEIGHT (KG.) (RF)	50	75	92	146	339	640	960	1330	1640	2240	2770	3740	5560

CLASS 900 DIMENSIONS IN MILLIMETERS

ND.	26"	28"	30"	32"	34"	36"	40"	42"	48"	56"
L (BW)	1651	1753	1880	2032	2159	2286	2100	2180	2380	2400
L (RF)	1651	1753	1880	2032	2159	2286	2180	2250	2450	2949
L (RTJ)	1672	1774	1901	2053	2188	2313				
DN	650	700	750	800	808	855	956	1006	1149	1360
H (OPEN)	1038	1088	1157	1190	1240	1290	1340	1395	1455	1508
W	800	800	800	960	960	960	960	960	1000	1000
WEIGHT (KG.) (BW)	5880	6730	8070	9170	10492	12105	16900	19995	27410	36541
WEIGHT (KG.) (RF)	7070	8070	9680	11000	13618	14280	20235	24600	31800	44483

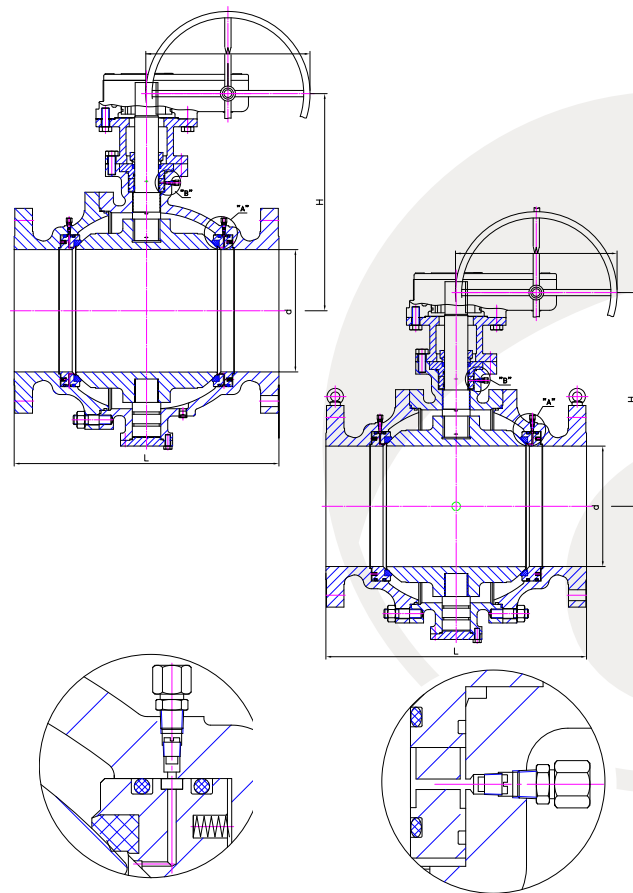
* Other measures upon request.

technical datas

Ball valve API6D, API 608 OR ISO17292

TRUNNION MOUNTED BALL VALVES CLASS 1500 2" TO 36"

COD.
ABT
4000



- DESIGN** ASME B16.34 & API-6D & ISO 17292
- FACE TO FACE** ASME B16.10 & API6D
- FLANGED ENDS** From 2" to 24" Ac c/ASME B16.5, upper than 24"
Ac c/ASME B16.47 or MSS SP-44 or upon request
- BUTT WELD ENDS** ASME B16.25
- BY-PASS & DRAIN** MSS SP-45
- TEST** API-598, API 6D & ISO 15848
- CONSTRUCTION**
- Distinctive Seating Structure
 - Self-relieving Structure
 - First Aid of Seal
 - Fire Safe Design
 - Antistatic Structure
 - Locking Device
 - Full and Reduced Bore Structure
 - Discharge Device On Valve Body
 - Corrosion Resistance
 - Sulfide Stress Cracking Resistance
 - Extension Bar Device
 - Manual and actuator operated (gearbox,electric, pneumatic...)
- MATERIALS** Ac c/ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials
- TRIM** 13%Cr, stellite, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials...
- SEATS** Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available
- OTHERS** Jacketed, cryogenic services, H.F. services, all kind of operated, all type of painting and coating
- * other requirements upon request.
- *Arflu has Monogram API certification (API 600) if required by the customer

CLASS 1500 DIMENSIONS IN MILIMETERS

ND.	2"	2 1/2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	368	419	470	546	705	832	991	1130	1257	1384	1537	1664	1943
L (RF)	368	419	470	546	705	832	991	1130	1257	1384	1537	1664	1943
L (RTJ)	371	422	473	549	711	842	1001	1146	1276	1406	1559	1686	1971
DN	49	62	74	100	144	192	239	287	315	380	406	454	546
H (OPEN)	154	169	187	217	346	384	452	512	561	601	688	727	803
W	400	400	600	600	800	800	800	800	800	800	800	800	800
WEIGHT (KG.) (BW)	40	60	82	150	414	677	1132	1777	2589	3782	4812	6555	9900
WEIGHT (KG.) (RF)	50	75	117	216	532	870	1467	2270	3240	4645	6035	8077	12357

CLASS 1500 DIMENSIONS IN MILIMETERS

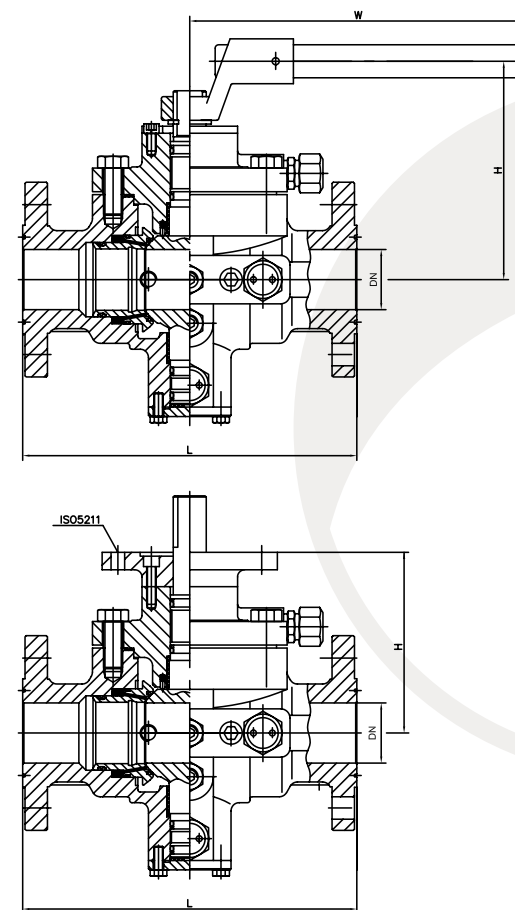
ND.	28"	30"	32"	36"
L (BW)	2148	2251	2346	2743
L (RF)	2148	2251	2346	2743
DN	641	686	730	819
H (OPEN)	938	1070	1200	1328
W	960	960	960	960
WEIGHT (KG.) (BW)	12422	14586	19993	26905
WEIGHT (KG.) (RF)	16314	19466	25728	32510

* Other measures upon request.

Ball valve API6D, API 608 OR ISO17292

TOP ENTRY BALL VALVES CLASS 150 2" TO 32"

COD.
ABE-1000



- DESIGN** ASME B16.34 & API-6D & ISO 17292
- FACE TO FACE** ASME B16.10 & API6D
- FLANGED ENDS** From 2" to 24" Ac c/ASME B16.5, upper than 24"
Ac c/ASME B16.47 or MSS SP-44 or upon request
- BUTT WELD ENDS** ASME B16.25
- BY-PASS & DRAIN** MSS SP-45
- TEST** API-598, API 6D, ISO 5208 & ISO 15848
- CONSTRUCTION**
- One-piece valve body, top installed trunnion to fix and support, flanged or butt welded structure.
 - In coned bellows spring makes the sealed metal seat moving oward the ball, providing the two way seal function of inlet and outlet.
 - Distinctive technology of retractable valve seat, inline replace ability of ball arm, valve stem sealing ring, metal seat and bellows spring, and torque down to the minimum for the easy to operation.
 - Easy to repair and installation, long performance life. Ac cess for repair and replacement of trims may be done with no need to remove the valve from the pipeline, thus to lengthen the service life.
 - Low torque, reliable sealing, and spherical seat different from ordinary ball valves, which can automatically adjust the position of seal.
 - Preset platform and bolt holes for drier device, and to ISO5211. Drive device can be installed ac cording to users' different requirements.
 - DBB(double block and bleed) function.
 - Hand operated top installed ball valve adopts high strength one-piece ball arm structure to ensure the precise positioning of the ball.
 - Anti-blowout protective structure of valve stem to enhance the operational safety of the valve.
 - Manual and actuator operated (gearbox,electric, pneumatic...)
- MATERIALS** WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials
- TRIM** 13%Cr, stellite, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials...
- SEATS** Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available
- OTHERS** Jacketed, cryogenic services, Jacketed, cryogenic services, H.F. services, all kind of operated, all type of painting and coating.
- * other requirements upon request.
- *Arflu has Monogram API certification (API 600) if required by the customer

CLASS 150 DIMENSIONS IN MILIMETERS

ND.	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	292	356	432	559	660	787	838	889	991	1092	1194	1397
L (RF)	292	356	432	559	660	787	838	889	991	1092	1194	1397
L (RTJ)	295	359	435	562	663	790	841	892	994	1095	1200	1406
DN	50	80	100	150	200	250	300	350	400	450	500	600
H (OPEN)	212	228	272	281	320	360	403	453	459	502	551	606
W	450	600	600	350	500	500	700	700	700	700	700	700
WEIGHT (KG.) (RF)	28	55	105	235	430	475	610	795	1160	1570	2000	3300

CLASS 150 DIMENSIONS IN MILIMETERS

ND.	26"	28"	30"	32"
L (BW)	1448	1549	1651	1778
L (RF)	1448	1549	1651	1778
L (RTJ)	1461	1562	1664	1794
DN	650	700	750	800
H (OPEN)	675	735	795	840
W	700	700	700	620
WEIGHT (KG.) (RF)	3970	4755	5820	7240

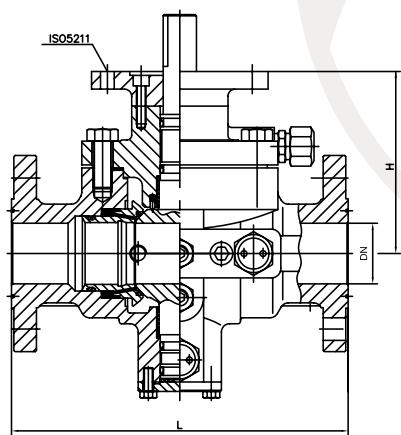
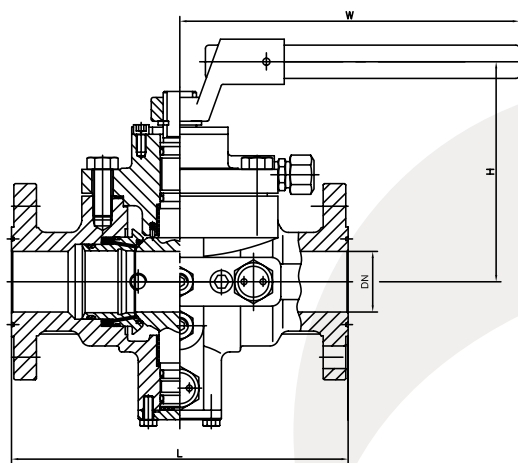
* Other measures upon request.

technical datas

Ball valve API6D, API 608 OR ISO17292

COD.
ABE-3000

TOP ENTRY BALL VALVES CLASS 300 2" TO 32"



- DESIGN** ASME B16.34 & API-6D & API-608 or ISO 17292
- FACE TO FACE** ASME B16.10 & API6D
- FLANGED ENDS** From 2" to 24" Ac c/ASME B16.5, upper than 24" Ac c/ASME B16.47 or MSS SP-44 or upon request
- BUTT WELD ENDS** ASME B16.25
- BY-PASS & DRAIN** MSS SP-45
- TEST** API-598, API 6D, ISO 5208 & ISO 15848
- CONSTRUCTION**
- One-piece valve body, top installed trunnion to fix and support, flanged or butt welded structure.
 - In coned bellows spring makes the sealed metal seat moving oward the ball, providing the two way seal function of inlet and outlet.
 - Distinctive technology of retractable valve seat, inline replace ability of ball arm, valve stem sealing ring, metal seat and bellows spring, and torque down to the minimum for the easy to operation.
 - Easy to repair and installation, long performance life. Access for repair and replacement of trims may be done with no need to remove the valve from the pipeline, thus to lengthen the service life.
 - Low torque, reliable sealing, and spherical seat different from ordinary ball valves, which can automatically adjust the position of seal.
 - Preset platform and bolt holes for drier device, and to ISO5211. Drive device can be installed according to users' different requirements.
 - DBB (double block and bleed) function.
 - Hand operated top installed ball valve adopts high strength one-piece ball arm structure to ensure the precise positioning of the ball.
 - Anti-blowout protective structure of valve stem to enhance the operational safety of the valve.
 - Manual and actuator operated (gearbox, electric, pneumatic...)
- MATERIALS** WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials
- TRIM** 13%Cr, stellite, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials...
- SEATS** Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available
- OTHERS** Jacketed, cryogenic services, HJacketed, cryogenic services, H.F. services, all kind of operated, all type of painting and coating.

* other requirements upon request.

*Arflu has Monogram API certification (API 600) if required by the customer

CLASS 300 DIMENSIONS IN MILLIMETERS

ND.	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	292	356	432	559	660	787	838	889	991	1092	1194	1397
L (RF)	292	356	432	559	660	787	838	889	991	1092	1194	1397
L (RTJ)	295	359	435	562	663	790	841	892	994	1095	1200	1406
DN	50	80	100	150	200	250	300	350	400	450	500	600
H (OPEN)	212	228	272	281	330	371	418	470	477	522	573	631
W	450	600	1000	500	700	700	700	700	700	700	700	700
WEIGHT (KG.) (RF)	33	64	123	275	505	557	715	932	1360	1840	2340	3870

CLASS 300 DIMENSIONS IN MILLIMETERS

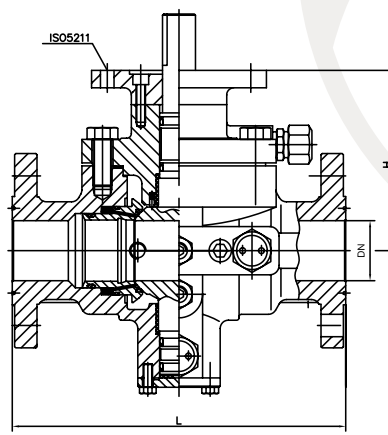
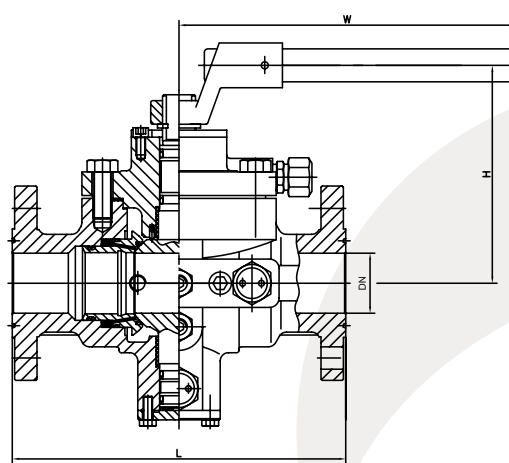
ND.	26"	28"	30"	32"
L (BW)	1448	1549	1651	1778
L (RF)	1448	1549	1651	1778
L (RTJ)	1461	1562	1664	1794
DN	650	700	750	800
H (OPEN)	702	764	827	874
W	620	1400	1400	1400
WEIGHT (KG.) (RF)	4655	5575	6825	8490

* Other measures upon request.

Ball valve API6D, API 608 OR ISO17292

COD.
ABE-6000

TOP ENTRY BALL VALVES CLASS 600 2" A 32"



- DESIGN** ASME B16.34 & API-6D & API-608 or ISO 17292
- FACE TO FACE** ASME B16.10 & API6D
- FLANGED ENDS** From 2" to 24" Ac c/ASME B16.5, upper than 24" Ac c/ASME B16.47 or MSS SP-44 or upon request
- BUTT WELD ENDS** ASME B16.25
- BY-PASS & DRAIN** MSS SP-45
- TEST** API-598, API 6D, ISO 5208 & ISO 15848
- CONSTRUCTION**
- One-piece valve body, top installed trunnion to fix and support, flanged or butt welded structure.
 - In coned bellows spring makes the sealed metal seat moving oward the ball, providing the two way seal function of inlet and outlet.
 - Distinctive technology of retractable valve seat, inline replace ability of ball arm, valve stem sealing ring, metal seat and bellows spring, and torque down to the minimum for the easy to operation.
 - Easy to repair and installation, long performance life. Access for repair and replacement of trims may be done with no need to remove the valve from the pipeline, thus to lengthen the service life.
 - Low torque, reliable sealing, and spherical seat different from ordinary ball valves, which can automatically adjust the position of seal.
 - Preset platform and bolt holes for drier device, and to ISO5211. Drive device can be installed according to users' different requirements.
 - DBB (double block and bleed) function.
 - Hand operated top installed ball valve adopts high strength one-piece ball arm structure to ensure the precise positioning of the ball.
 - Anti-blowout protective structure of valve stem to enhance the operational safety of the valve.
 - Manual and actuator operated (gearbox, electric, pneumatic...)
- MATERIALS** WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials
- TRIM** 13%Cr, stellite, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials...
- SEATS** Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available
- OTHERS** Jacketed, cryogenic services, HJacketed, cryogenic services, H.F. services, all kind of operated, all type of painting and coating.

* other requirements upon request.

*Arflu has Monogram API certification (API 600) if required by the customer

CLASS 600 DIMENSIONS IN MILLIMETERS

ND.	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	292	356	432	559	660	787	838	889	991	1092	1194	1397
L (RF)	292	356	432	559	660	787	838	889	991	1092	1194	1397
L (RTJ)	295	359	435	562	663	790	841	892	994	1095	1200	1406
DN	50	80	100	150	200	250	300	350	400	450	500	600
H (OPEN)	212	228	250	281	340	355	401	451	493	539	592	653
W	600	1000	1000	700	700	700	700	700	700	700	700	1400
WEIGHT (KG.) (RF)	37	72	137	302	560	710	910	1190	1735	2350	3000	4950

CLASS 600 DIMENSIONS IN MILLIMETERS

ND.	26"	28"	30"	32"
L (BW)	1448	1549	1651	1778
L (RF)	1448	1549	1651	1778
L (RTJ)	1461	1562	1664	1794
DN	650	700	750	800
H (OPEN)	725	790	850	900
W	1400	1400	1400	1400
WEIGHT (KG.) (RF)	5950	7130	8730	10850

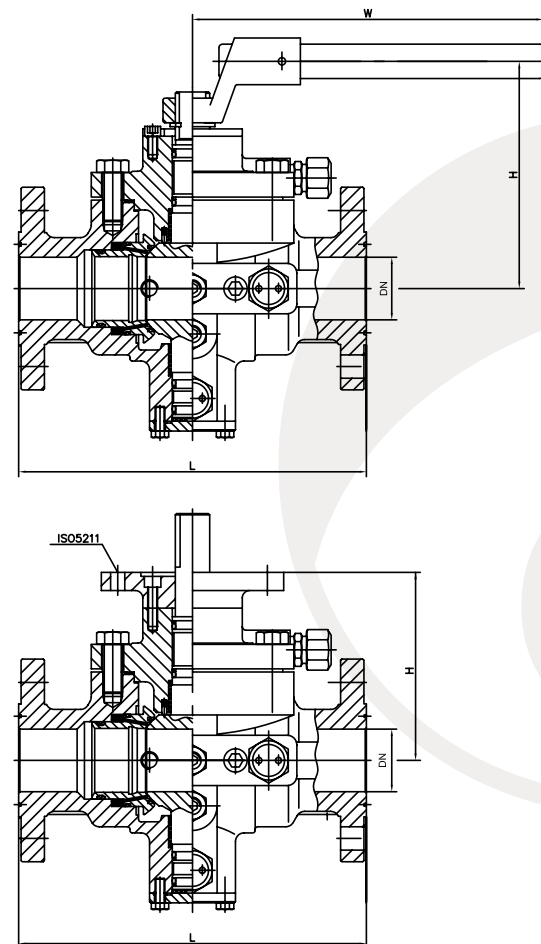
* Other measures upon request.

technical datas

Ball valve API6D, API 608 OR ISO17292

COD.
ABE-9000

TOP ENTRY BALL VALVES CLASS 900 2" TO 24"



DESIGN	ASME B16.34 & API-6D & API-608 or ISO 17292
FACE TO FACE	ASME B16.10 & API6D
FLANGED ENDS	From 2" to 24" ASME B16.5, upper than 24" ASME B16.47 or MSS SP-44 or upon request
BUTT WELD ENDS	ASME B16.25
BY-PASS & DRAIN	MSS SP-45
TEST	API-598, API 6D, ISO 5208 & ISO 15848
CONSTRUCTION	• One-piece valve body, top installed trunnion to fix and support, flanged or butt welded structure. • In coned bellows spring makes the sealed metal seat moving toward the ball, providing the two way seal function of inlet and outlet. • Distinctive technology of retractable valve seat, inline replace ability of ball arm, valve stem sealing ring, metal seat and bellows spring, and torque down to the minimum for the easy to operation. • Easy to repair and installation, long performance life. Access for repair and replacement of trims may be done with no need to remove the valve from the pipeline, thus to lengthen the service life. • Low torque, reliable sealing, and spherical seat different from ordinary ball valves, which can automatically adjust the position of seal. • Preset platform and bolt holes for drive device, and to ISO5211. Drive device can be installed according to users' different requirements. • DBB(double block and bleed) function. • Hand operated top installed ball valve adopts high strength one-piece ball arm structure to ensure the precise positioning of the ball. • Anti-blowout protective structure of valve stem to enhance the operational safety of the valve. • Manual and actuator operated (gearbox, electric, pneumatic...)
MATERIALS	WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials
TRIM	13%Cr, stellite, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials...
SEATS	Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available
OTHERS	Jacketed, cryogenic services, Jacketed, cryogenic services All kind of operated, all type of painting and coating.
* other requirements upon request.	

*Arflu has Monogram API certification (API 600) if required by the customer

CLASS 900 DIMENSIONS IN MILLIMETERS

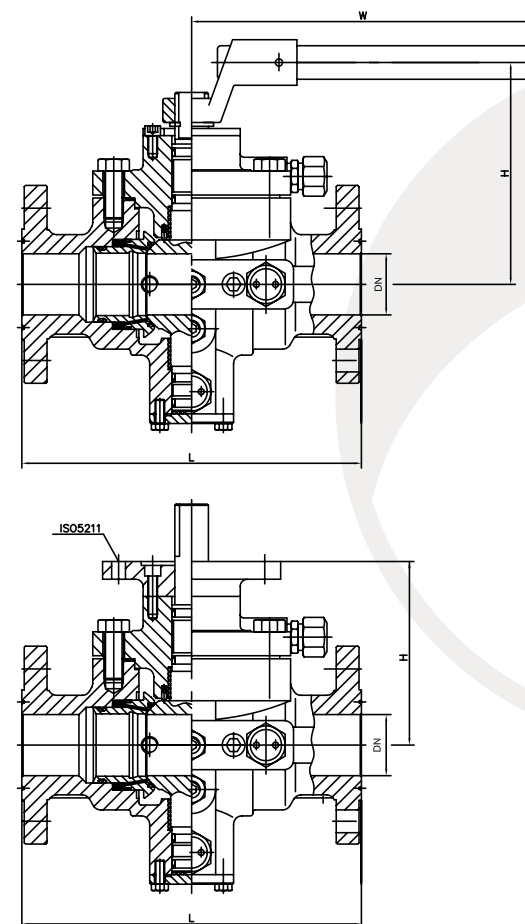
ND.	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
L (RF)	368	381	457	610	737	838	965	1029	1130	1219	1321	1549
L (RTJ)	371	384	460	613	740	841	968	1039	1140	1232	1334	1568
DN	50	80	100	150	200	250	300	350	400	450	500	600
H (OPEN)	215	193	227	258	318	370	418	470	515	560	620	680
W	600	1000	500	700	700	700	700	700	700	700	1400	1400
WEIGHT (KG.) (RF)	52	108	200	456	845	1070	1675	1800	2650	3550	4530	7450

* Other measures upon request.

Ball valve API6D, API 608 OR ISO17292

COD.
ABE-4000

TOP ENTRY BALL VALVES CLASS 1500 2" TO 24"



DESIGN	ASME B16.34 & API-6D & API-608 or ISO 17292
FACE TO FACE	ASME B16.10 & API6D
FLANGED ENDS	From 2" to 24" ASME B16.5, upper than 24" ASME B16.47 or MSS SP-44 or upon request
BUTT WELD ENDS	ASME B16.25
BY-PASS & DRAIN	MSS SP-45
TEST	API-598, API 6D, ISO 5208 & ISO 15848
CONSTRUCTION	• One-piece valve body, top installed trunnion to fix and support, flanged or butt welded structure. • In coned bellows spring makes the sealed metal seat moving toward the ball, providing the two way seal function of inlet and outlet. • Distinctive technology of retractable valve seat, inline replace ability of ball arm, valve stem sealing ring, metal seat and bellows spring, and torque down to the minimum for the easy to operation. • Easy to repair and installation, long performance life. Access for repair and replacement of trims may be done with no need to remove the valve from the pipeline, thus to lengthen the service life. • Low torque, reliable sealing, and spherical seat different from ordinary ball valves, which can automatically adjust the position of seal. • Preset platform and bolt holes for drive device, and to ISO5211. Drive device can be installed according to users' different requirements. • DBB(double block and bleed) function. • Hand operated top installed ball valve adopts high strength one-piece ball arm structure to ensure the precise positioning of the ball. • Anti-blowout protective structure of valve stem to enhance the operational safety of the valve. • Manual and actuator operated (gearbox, electric, pneumatic...)
MATERIALS	WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials
TRIM	13%Cr, stellite, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials...
SEATS	Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available
OTHERS	Jacketed, cryogenic services, Jacketed, cryogenic services All kind of operated, all type of painting and coating.
* other requirements upon request.	

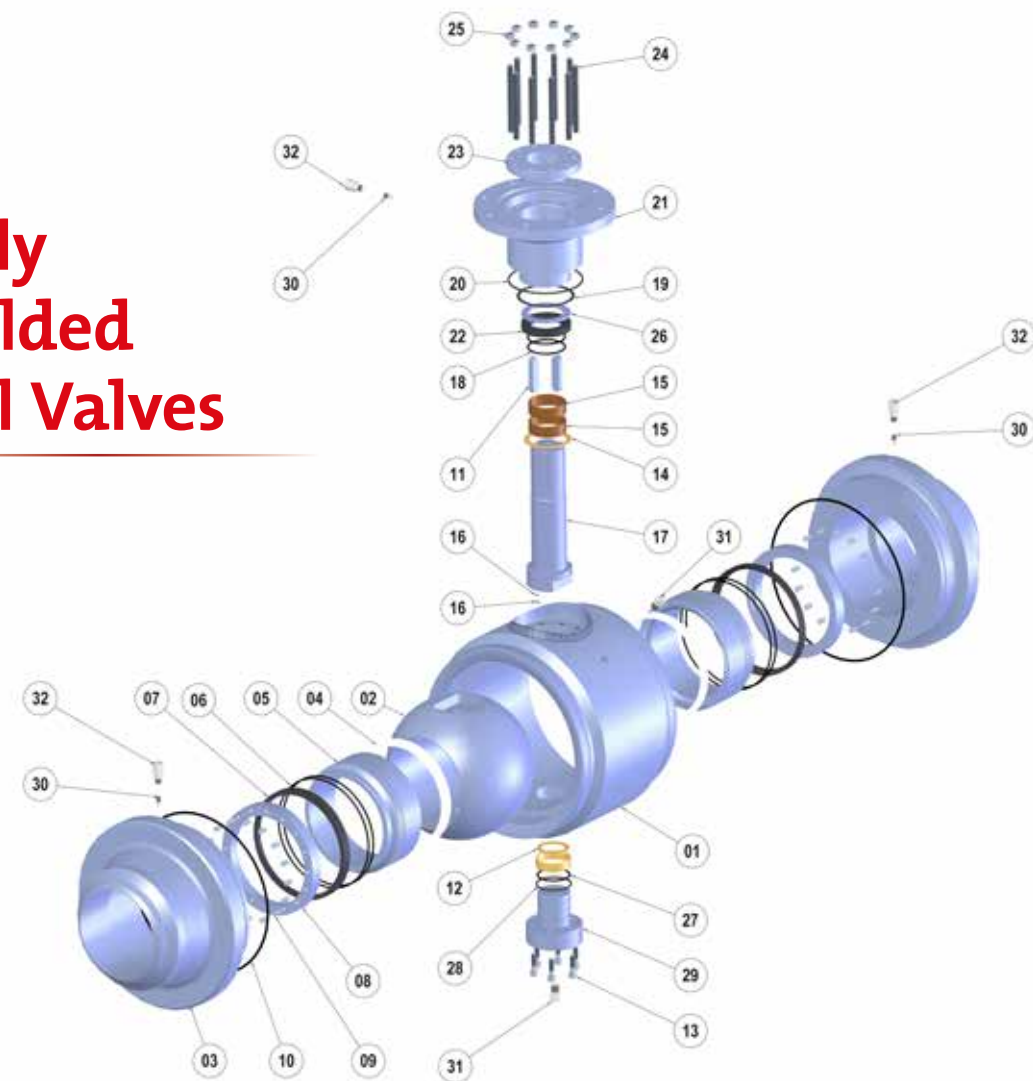
*Arflu has Monogram API certification (API 600) if required by the customer

CLASS 1500 DIMENSIONS IN MILLIMETERS

ND.	2"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943
L (RF)	368	470	546	705	832	991	1130	1257	1384	1537	1664	1943
L (RTJ)	371	473	549	711	842	1001	1146	1276	1406	1559	1686	1971
DN	50	80	100	150	200	250	300	350	400	450	500	600
H (OPEN)	179	201	240	273	335	385	436	485	530	585	640	708
W	600	1000	700	700	700	700	700	700	700	1400	1400	1400
WEIGHT (KG.) (RF)	52	152	280	640	1180	1500	2065	2700	3980	5325	6800	11900

* Other measures upon request.

Fully Welded Ball Valves

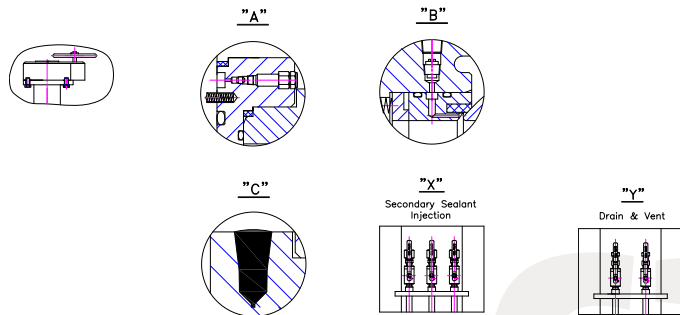
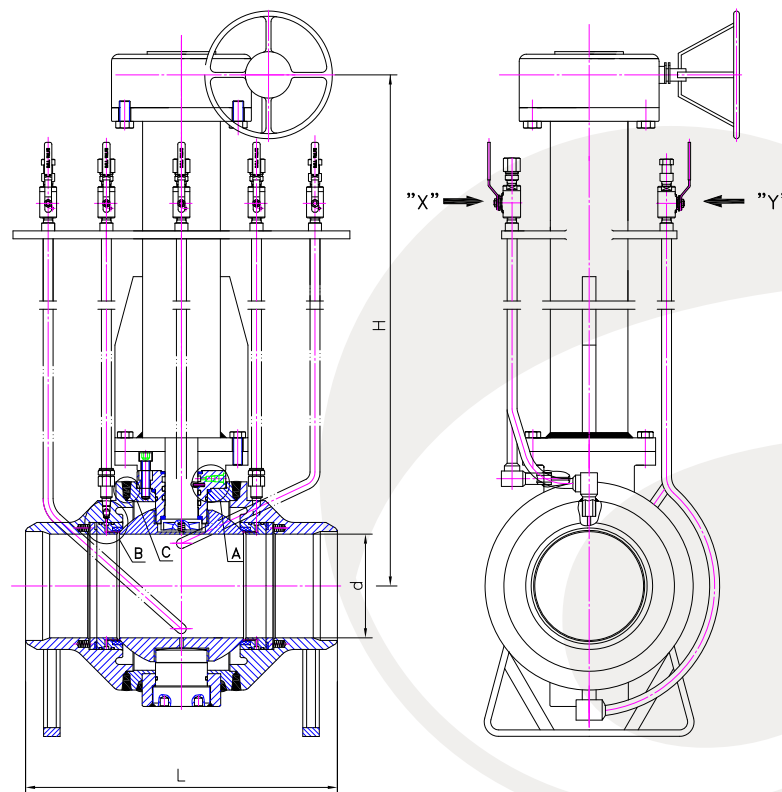


	A105+ENP	A105 / 304	A-105 / 316	LF2/LF2 + ENP	WCB / 304	WCB / 316
1 BODY		ASTM A105			ASTM A350 LF2	
2 BALL	ASTM A105+ ENP	ASTM A182 F304	ASTM A182 F316	ASTM A352 LF2 + ENP	ASTM A182 F316	ASTM A351 CF3
3 END		ASTM A105			ASTM A350 LF2	
4 SEAT	ASTM A105 + ENP	ASTM A182 F304	ASTM A182 F316	ASTM A350 LF2+ ENP	ASTM A182 F304	ASTM A182 F316
5 SEAT RING		PTFE / NYLON / PEEK			PTFE / NYLON / PEEK	
6 SEAT GASKET		GRAPHITE			GRAPHITE	
7 FIRE SAFE SEAT GASKET		GRAPHITE			GRAPHITE	
8 BACK SEAT RING	ASTM A105 + ENP	ASTM A182 F304	ASTM A182 F316	ASTM A350 LF2+ ENP	ASTM A182 F304	ASTM A182 F316
9 SPRING		INCONEL X-750			INCONEL X-750	
10 GASKET		GRAPHITE			GRAPHITE	
11 KEYSHAFT		KEYSHAFT STEEL			KEYSHAFT STEEL	
12 FRICTION BEARING		STEEL LINER PTFE			STEEL LINER PTFE	
13 BOLT		ASTM A193 B7			ASTM A193 L7	
14 FRICTION BEARING		STEEL LINER PTFE			STEEL LINER PTFE	
15 RADIAL BEARING		STEEL LINER PTFE			STEEL LINER PTFE	
16 ANTISTATIC DEVICE		SS304			SS304	
17 STEM	ASTM A182 F6	ASTM A182 F304	ASTM A182 F316	ASTM A350 LF2	ASTM A182 F304	ASTM A182 F316
18 O-RING		VITON			VITON	
19 O-RING		VITON			VITON	
20 FIRE SAFE GASKET		GRAPHITE			GRAPHITE	
21 BONNET		ASTM A105			ASTM A350 LF2	
22 PACKING		GRAPHITE			GRAPHITE	
23 GLAND FLANGE		ASTM A105			ASTM A350 LF2	
24 STUD		ASTM A193 B7			ASTM A193 L7	
25 NUT		ASTM A194 2H			ASTM A194 4	
26 WASHER		CARBON STEEL			CARBON STEEL	
27 O-RING		VITON			VITON	
28 FIRE SAFE GASKET		GRAPHITE			GRAPHITE	
29 TRUNNION	ASTM A182 F6	ASTM A182 F304	ASTM A182 F316	ASTM A350 LF2	ASTM A182 F304	ASTM A182 F316
30 CHECK VALVE		ASME-1025			ASME-1025	
31 PLUG		ASME-1025			ASME-1025	
32 INJECTION FITTING		ASME-1025			ASME-1025	

Ball valve FULLY WELDED

FULLY WELDED BALL VALVES **300** LBS 2" TO 60"

COD.
BFWG-3000



DESIGN
ASME B16.34, API-6D, API-608 & ISO 17292

FACE TO FACE
ASME B16.10

FLANGED ENDS
From 2" to 24" Ac c/ASME B16.5, upper than 24"
Ac c/ASME B16.47 or MSS SP-44 or upon request

BUTT WELD ENDS
ASME B16.25

BY-PASS & DRAIN
MSS SP-45

TEST
API-598, API 6D, ISO 5208 & ISO 15848

*** OTHER STANDARDS UPON REQUEST**

CONSTRUCTION

- Different seating structures
- Self relief seats
- Fire Safe Design
- Antistatic device
- Anti blow out Stem
- Locking device (optional)
- Double block and bleed
- Full and reduce bore structure
- Corrosion resistance
- Extension Stem (optional)
- Manual and actuator operated (gearbox, electric, pneumatic, hydraulic...)

MATERIALS
A-105, LF2, LF1

TRIM
F6, 304, 316, 316L, A-105+ENP, WCB+ENP, CF8, CF8M, CF3M

SEATS
Soft (PTFE, Viton, Nylon) and Metal to Metal
All kind available

*** other requirements upon request.**

***Arflu has Monogram API certification (API 600)
if required by the customer**

CLASS 300 DIMENSIONS IN MILLIMETERS

ND.	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	216	241	282	305	403	457	521	559	635	762	838	914	991	1143
H	ACCORDING CUSTOMER REQUEST													

CLASS 300 DIMENSIONS IN MILLIMETERS

ND.	26"	28"	30"	32"	34"	36"	40"	42"	48"	56"	60"
L (BW)	1245	1346	1397	1524	1626	1727	1780	1840	2100	2250	2743
H	ACCORDING CUSTOMER REQUEST										

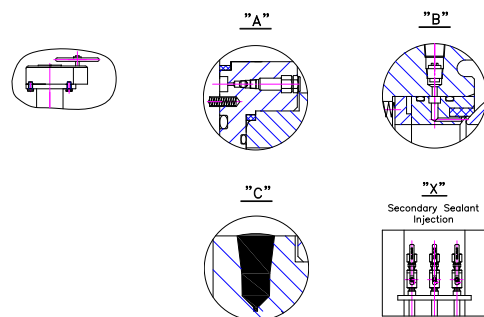
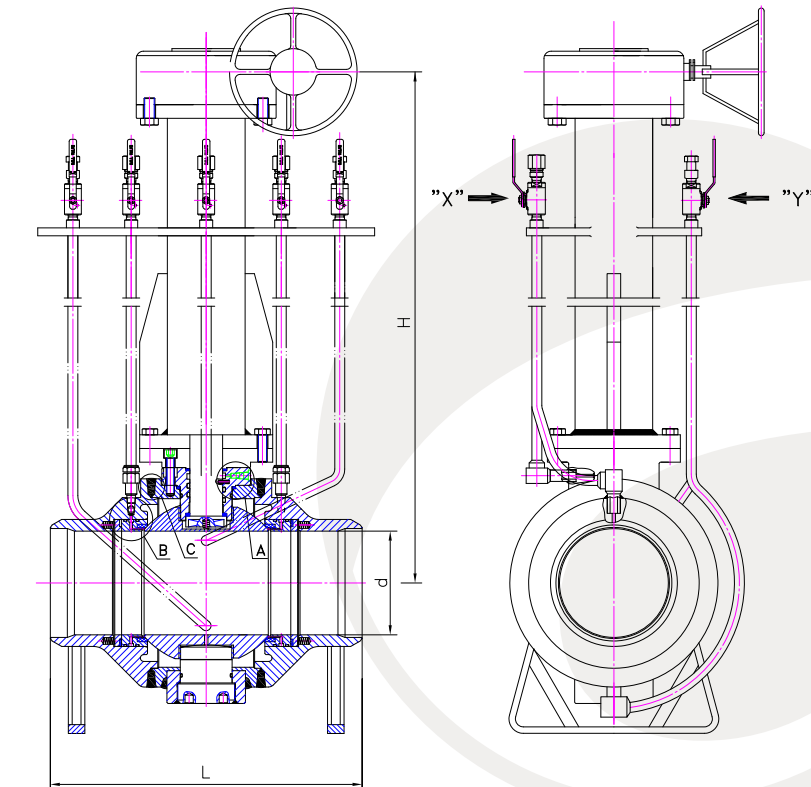
*** Other measures upon request.**

technical datas

Ball valve FULLY WELDED

FULLY WELDED BALL VALVES **600** LBS 2" TO 60"

cod.
ABTG-6000



DESIGN
ASME B16.34, API-6D, API-608 & ISO 17292

FACE TO FACE
ASME B16.10

FLANGED ENDS
From 2" to 24" Ac c/ASME B16.5, upper than 24"
Ac c/ASME B16.47 or MSS SP-44 or upon request

BUTT WELD ENDS
ASME B16.25

BY-PASS & DRAIN
MSS SP-45

TEST
API-598, API 6D, ISO 5208 & ISO 15848

* OTHER STANDARDS UPON REQUEST

CONSTRUCTION

- Different seating structures
- Self relief seats
- Fire Safe Design
- Antistatic device
- Anti blow out Stem
- Locking device (optional)
- Double block and bleed
- Full and reduce bore structure
- Corrosion resistance
- Extension Stem (optional)
- Manual and actuator operated (gearbox, electric, pneumatic, hydraulic...)

MATERIALS
A-105, LF2, LF1

TRIM
F6, 304, 316, 316L, A-105+ENP, WCB+ENP, CF8, CF8M, CF3M

SEATS
Soft (PTFE, Viton, Nylon) and Metal to Metal
All kind available

* other requirements upon request.

*Arflu has Monogram API certification (API 600)
if required by the customer

CLASS 600 DIMENSIONS IN MILLIMETERS

ND.	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	292	330	356	432	508	559	660	787	838	889	991	1092	1194	1397
DN	49	62	74	100	125	150	201	252	303	334	385	436	487	589
H	ACCORDING CUSTOMER REQUEST													

CLASS 600 DIMENSIONS IN MILLIMETERS

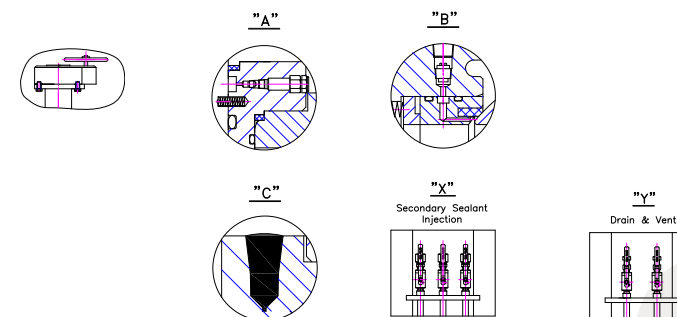
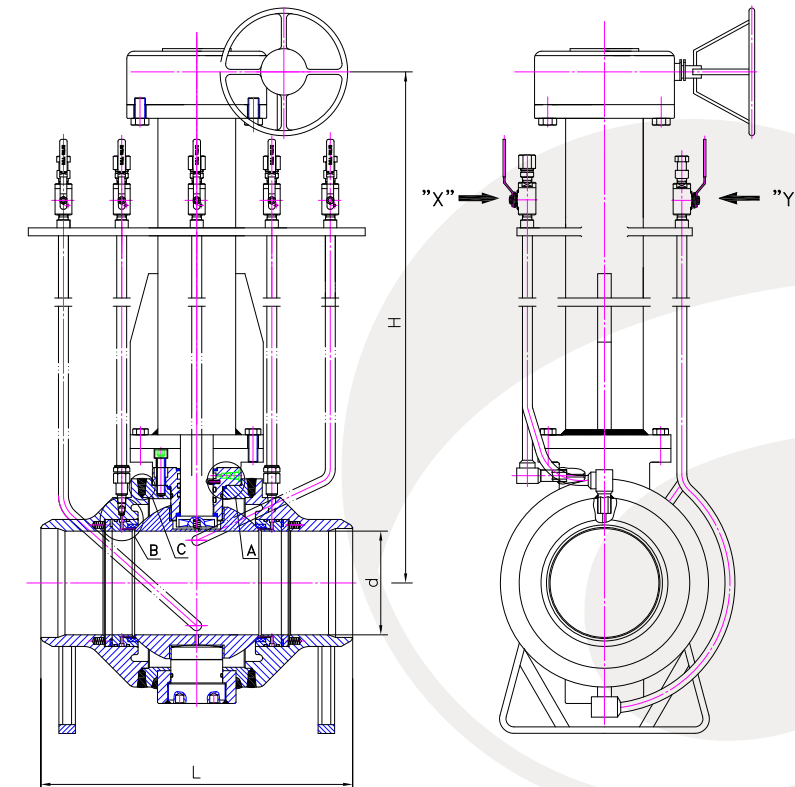
ND.	26"	28"	30"	32"	34"	36"	40"	42"	48"	56"	60"
L (BW)	1448	1549	1651	1778	1930	2083	1900	1950	2180	2385	2949
DN	668	684	735	779	830	874	976	1020	1166	1360	1458
H	ACCORDING CUSTOMER REQUEST										

* Other measures upon request.

Ball valve FULLY WELDED

FULLY WELDED BALL VALVES **900** LBS 2" TO 56"

cod.
ABTG-6000



DESIGN
ASME B16.34, API-6D, API-608 & ISO 17292

FACE TO FACE
ASME B16.10

FLANGED ENDS
From 2" to 24" Ac c/ASME B16.5, upper than 24"
Ac c/ASME B16.47 or MSS SP-44 or upon request

BUTT WELD ENDS
ASME B16.25

BY-PASS & DRAIN
MSS SP-45

TEST
API-598, API 6D, ISO 5208 & ISO 15848

* OTHER STANDARDS UPON REQUEST

CONSTRUCTION

- Different seating structures
- Self relief seats
- Fire Safe Design
- Antistatic device
- Anti blow out Stem
- Locking device (optional)
- Double block and bleed
- Full and reduce bore structure
- Corrosion resistance
- Extension Stem (optional)
- Manual and actuator operated (gearbox, electric, pneumatic, hydraulic...)

MATERIALS
A-105, LF2, LF1

TRIM
F6, 304, 316, 316L, A-105+ENP, WCB+ENP, CF8, CF8M, CF3M

SEATS
Soft (PTFE, Viton, Nylon) and Metal to Metal
All kind available

* other requirements upon request.

*Arflu has Monogram API certification (API 600)
if required by the customer

CLASS 900 DIMENSIONS IN MILLIMETERS

ND.	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L (BW)	368	419	381	457	534	610	737	838	965	1029	1130	1219	1321	1549
DN	49	62	74	100	125	150	201	252	303	322	373	423	471	570
H	ACCORDING CUSTOMER REQUEST													

CLASS 900 DIMENSIONS IN MILLIMETERS

ND.	26"	28"	30"	32"	34"	36"	40"	42"	48"	56"
L (BW)	1651	1753	1880	2032	2159	2286	2100	2180	2380	2400
DN	617	665	712	760	808	855	956	1006	1149	1360
H	ACCORDING CUSTOMER REQUEST									

* Other measures upon request.

FEATURES OF ARFLU FULLY WELDED PLATE BALL VALVES:

FULL BORE TYPE

FROM 1/2" TO 2"
3-PIECE BODY
ANTI BLOW OUT STEM
DOUBLE INDEPENDENT STEM SEAL IN ADDITION TO FIRE SAFE SEALING
STANDARD METAL TO METAL SEALING.
PRIMARY METAL SECONDARY SOFT (PMSS) OPTIONAL

FROM 3" TO 12"
3-PIECE BODY
SECONDARY SEALANT INJECTION FOR SEAT AND STEM (AS OF 6")
DRAIN AND VENT CONNECTIONS
TRUNNION-MOUNTED BALL
STEM PROTECTED AGAINST BLOW-OUT BY RING NUT
TRIPLE TRUNNION SEAL IN ADDITION TO FIRE SAFE SEALING
STANDARD METAL TO METAL SEALING.
PRIMARY METAL SECONDARY SOFT (PMSS) OPTIONAL
SOFT SEALING OPTIONAL

SERIES 14" BIS 60"
2-PIECE BODY
SECONDARY SEALANT INJECTION FOR MAIN SEAL
DRAINING AND VENTING CONNECTIONS TRUNNION-MOUNTED BALL
ANTI BLOW OUT STEM
TRIPLE TRUNNION SEAL IN ADDITION TO FIRE SAFE SEALING
STANDARD PRIMARY METAL SECONDARY SOFT (PMSS)
SOFT SEALING OPTIONAL

BODY CAVITY AUTO DECOMPRESSION

The spring system in the seat rings means that the sealing ring is always in contact with the ball. In the event of a pressure increase in the chamber of the body due, for example, to thermal expansion which exceeds the load of the seat springs, the springs will compress freeing the liquid from the cavity to the tube, creating an auto-decompression of the area.

FLOATING BALL WITH SOFT METAL SEATS

This design gives flexibility to the seat ring. When the pressure in the line is low, the ball is pushed against the seat ring without deforming it. As the seat ring is flexible it can adapt to the ball, increasing the closure area, therefore enhancing closure at low pressure. When the pressure in the line increases, the ball is thrust against the seat ring. The seat ring deforms elastically and the closing surface reaches its maximum limit. When the pressure decreases once again the seat ring recovers its shape. We have a special design in which one of the seats is replaced by a rigid ring with spring activated soft closing. In this case the valve is unidirectional. This design allows for a better closure in the medium and long term with pressure free valves. Likewise it allows for automatic depressurisation in the case of over pressure. With this design we obtain a longer life of the soft seats as they self-adjust depending on the wear-and-tear.

SEALED STEM

PTFE seals are incorporated in the upper stem area. PTFE is a non-deteriorating material that is not subjected to rapid decompression explosion. Most of our valve sizes have a provision for the sealant injection to establish a secondary seal.

DOUBLE BLOCK & BLEED

ARFLU Fully Welded Plate Ball valves have a double block and bleed function both upstream and downstream which otherwise would require two separated valves to obtain the same effect. This does not only mean an easier operation but also lower cost of maintenance and saving space.

MAINTENANCE AND SERVICEABILITY

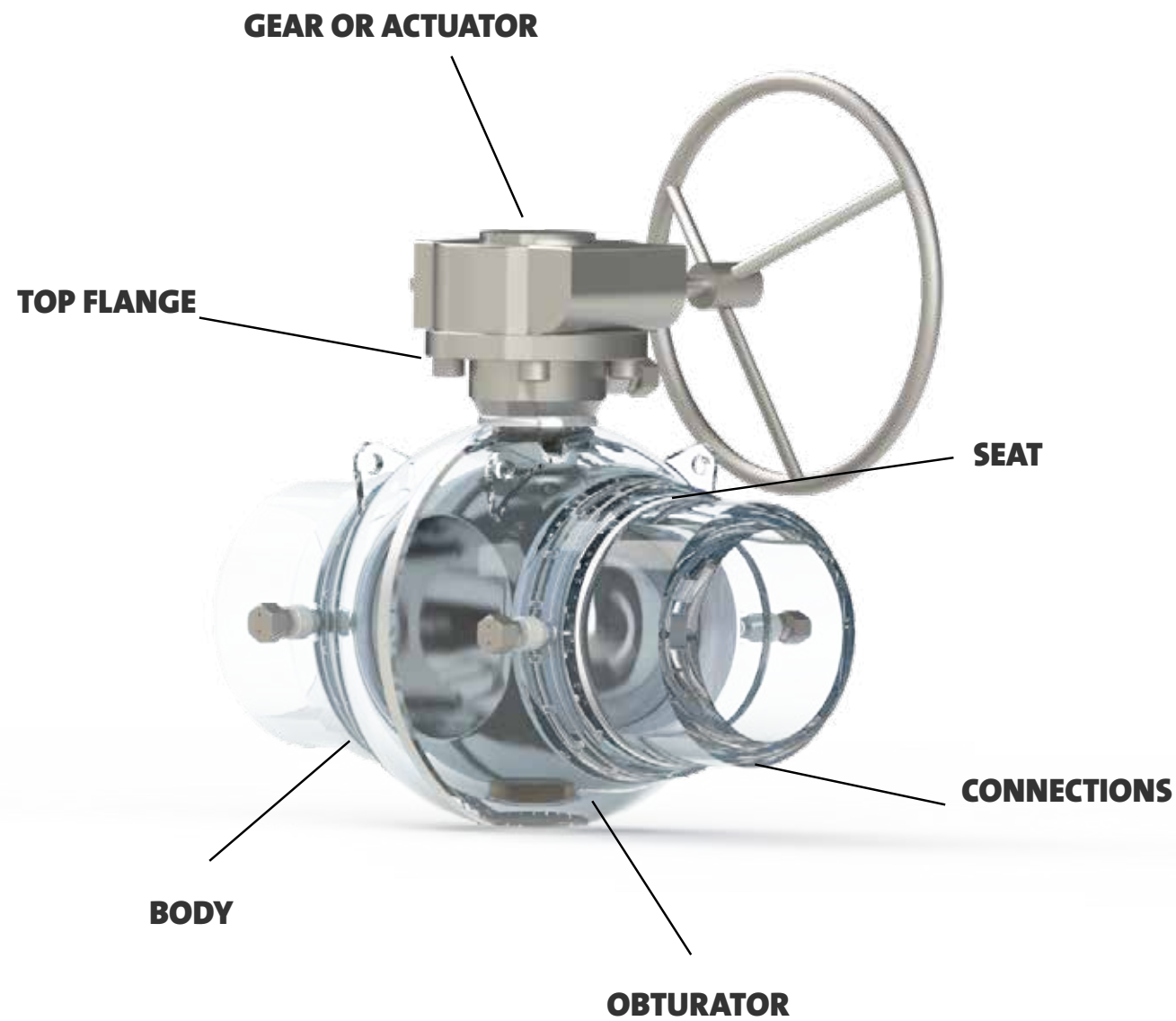
ARFLU Fully Welded Plate Ball valves have been designed to have a low maintenance and great serviceability. We also offer as option Primary Metal Secondary Soft if required

LOWER TRUNNION

The lower trunnion is not part of the ball but incorporated in the lower cover, thus eliminating a body cavity where accumulation of particles may interfere with the valve function.

ACTUATION

ARFLU Fully Welded Plate Ball valves can be equipped with any type of actuator, including linear pneumatic ones.

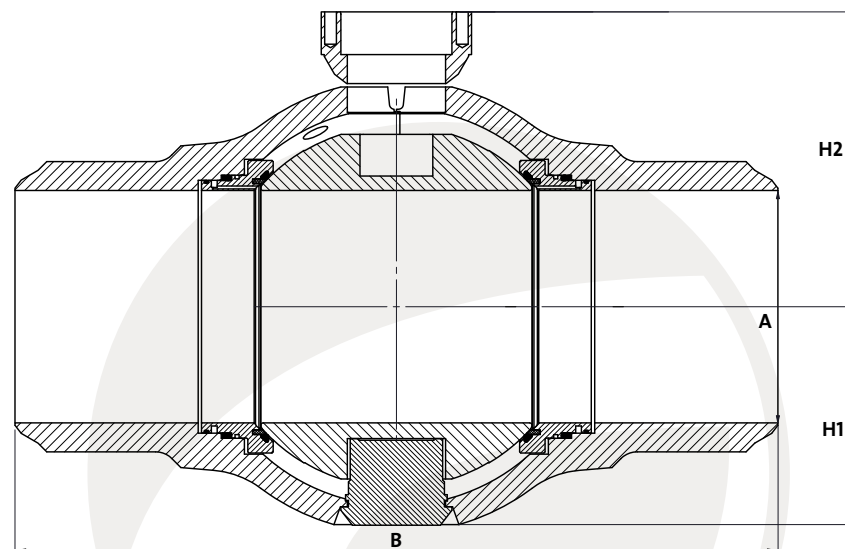


technical data

Fully Welded Plate Ball Valve

cod.
ABS-
1000

FULL BORE CLASS 150 1/2" TO 56"



SIZE	A	B	LRFR	LFRTJ	H1	H2	W LE	W LF
inches	mm	mm	mm	mm	mm	mm	kg	kg
1/2"	13	165	165	163,5	25	42	2	4
1"	25	216	216	216	40	62,5	6	10
2"	50	292	216	232	56	94	14	17
3"	74	356	283	298	95	211	30	42
4"	100	432	305	321	120	226	56	64
6"	150	559	394	406	160	280	115	148
8"	201	660	457	470	202	340	215	225
10"	252	787	533	546	245	380	350	395
12"	303	838	610	622	276	435	490	555
14"	334	889	686	699	320	440	411	485
16"	385	991	762	775	345	485	785	668
18"	436	1092	864	876	400	520	955	880
20"	487	1194	914	927	416	562	999	1141
22"	538	1295	-	-	460	606	1282	-
24"	589	1397	1067	1080	490	642	2174	2432
26"	633	1448	1143	-	520	680	2346	2578
28"	684	1549	1245	-	550	720	2948	2766
30"	735	1651	1295	-	574	790	3550	4165
32"	779	1778	1372	-	630	810	4558	4232
34"	830	1930	1473	-	680	850	4972	6185
36"	874	2083	1524	-	695	888	6050	6860
40"	976	2100	-	-	790	1016	8200	-
42"	1020	220	-	-	830	1028	10200	-
44"	1066	2200	-	-	880	1096	11650	-
48"	1166	2300	2057	-	970	1165	13800	12865
56"	1360	2500	-	-	1125	1334	21000	-

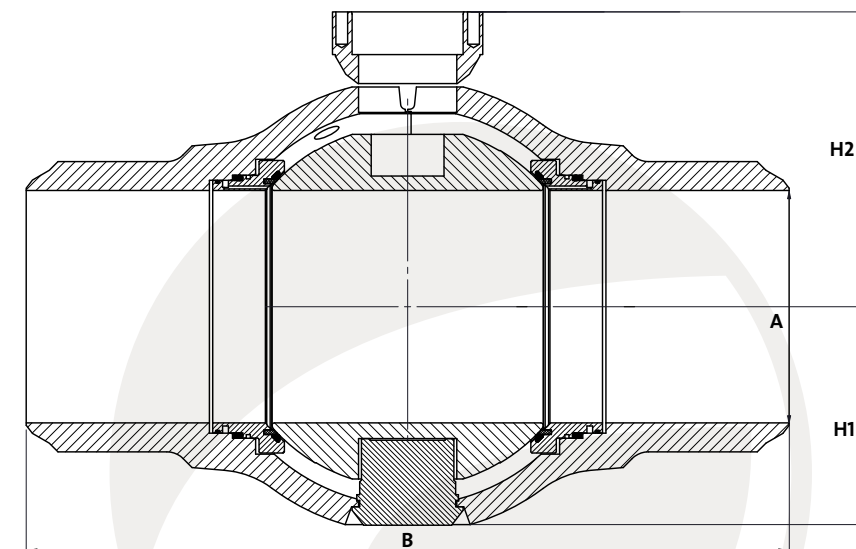
* Other measures upon request.

NOTE - Dimensions are for information only. Certified dimensional drawings are available upon request.

Fully Welded Plate Ball Valve

cod.
ABS-
3000

FULL BORE CLASS 300 1/2" TO 56"



SIZE	A	B	LRFR	LFRTJ	H1	H2	W LE	W LF
inches	mm	mm	mm	mm	mm	mm	kg	kg
1/2"	13	165	165	163,5	25	42	2	4
1"	25	316	316	316	40	62,5	6	10
2"	50	292	216	232	56	94	14	17
3"	74	356	293	298	95	211	30	42
4"	100	432	305	321	120	226	56	64
6"	150	559	403	419	160	280	115	148
8"	201	660	502	518	202	340	215	252
10"	252	787	568	584	245	380	350	432
12"	303	838	648	664	276	435	490	609
14"	334	889	762	778	320	440	414	571
16"	385	991	838	854	345	485	785	771
18"	436	1092	914	930	400	520	955	1012
20"	487	1194	991	1010	416	562	1006	1308
22"	538	1295	1092	1114	460	606	1285	1653
24"	589	1397	1143	1165	490	642	2174	2524
26"	633	1448	1245	1270	520	680	2346	2632
28"	684	1549	1346	1372	550	720	2948	3114
30"	735	1651	1397	1422	574	790	3550	4395
32"	779	1778	1524	1553	630	810	4558	4466
34"	830	1930	1626	1654	680	850	4972	6325
36"	874	2083	1727	1756	695	888	6050	7020
40"	976	2100	-	-	790	1016	8200	-
42"	1020	2200	-	-	830	1028	10200	-
44"	1066	2200	-	-	880	1096	11650	-
48"	1166	2300	-	-	970	1165	1380	-
56"	1360	2500	-	-	1125	1334	2100	-

* Other measures upon request.

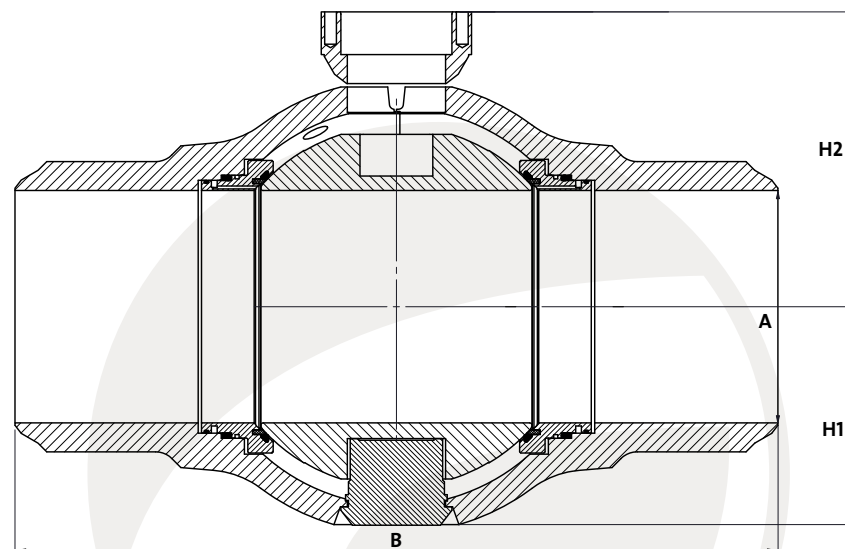
NOTE - Dimensions are for information only. Certified dimensional drawings are available upon request.

technical datas

Fully Welded Plate Ball Valve

cod.
ABS-
6000

FULL BORE CLASS 600 1/2" TO 56"



SIZE	A	B	LRFR	LFRTJ	H1	H2	W LE	W LF
inches	mm	mm	mm	mm	mm	mm	kg	kg
1/2"	13	165	165	163,5	25	42	2	4
1"	25	216	216	216	40	62,5	6	10
2"	50	292	292	295	56	94	14	17
3"	74	356	356	359	95	211	37	50
4"	100	432	432	435	120	226	56	90
6"	150	559	559	562	160	280	115	168
8"	201	660	660	664	202	340	215	290
10"	252	787	787	791	245	380	350	490
12"	303	838	838	841	276	435	492	689
14"	334	889	889	892	320	440	415	642
16"	385	991	991	994	345	485	785	894
18"	436	1092	1092	1095	400	520	955	1181
20"	487	1194	1194	1200	416	582	1124	1542
22"	538	1295	1295	1305	460	606	1301	1942
24"	589	1397	1397	1407	490	642	2174	2615
26"	633	1448	1448	1461	520	680	2346	2927
28"	684	1549	1549	1562	550	720	2948	3539
30"	735	1651	1651	1664	574	790	3550	4580
32"	779	1778	1778	1794	630	810	4558	5566
34"	830	1930	1930	1946	680	850	4972	6550
36"	874	2083	2083	2099	695	888	6050	7300
40"	976	2100	2159	-	790	1016	8200	9532
42"	1020	2200	-	-	830	1028	10200	-
44"	1066	2200	-	-	880	1096	11650	-
48"	1166	2300	2250	-	970	1165	13800	13720
56"	1360	2500	-	-	1125	1334	21000	-

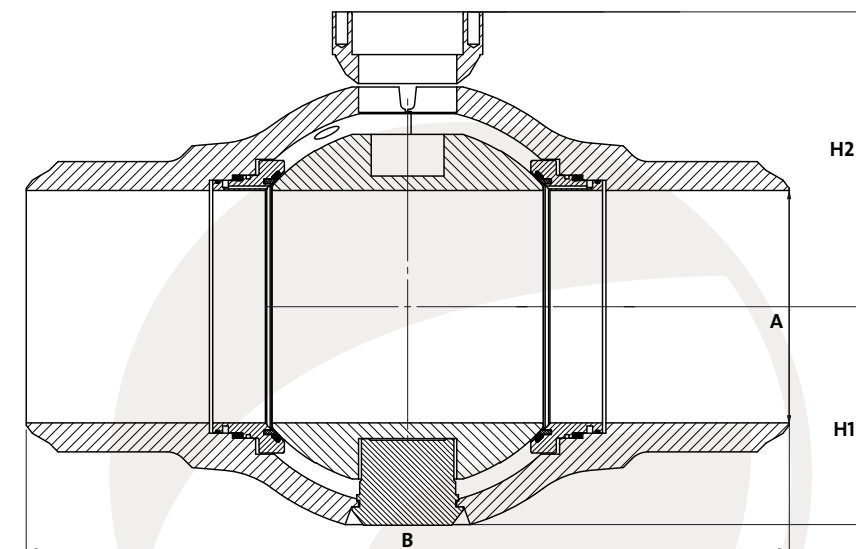
* Other measures upon request.

NOTE - Dimensions are for information only. Certified dimensional drawings are available upon request.

Fully Welded Plate Ball Valve

cod.
ABS-
9000

FULL BORE CLASS 300 1/2" TO 56"

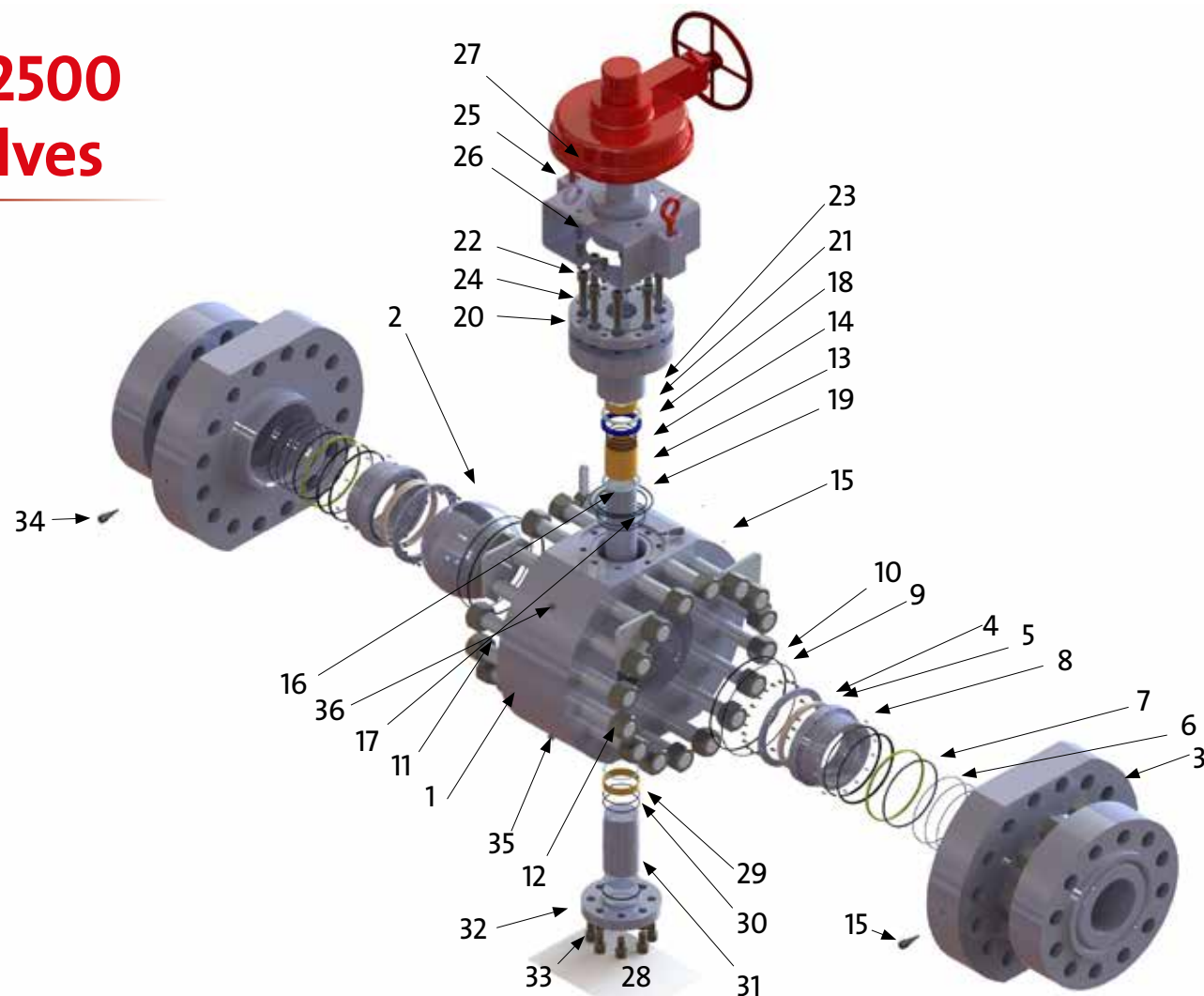


SIZE	A	B	LRFR	LFRTJ	H1	H2	W LE	W LF
inches	mm	mm	mm	mm	mm	mm	kg	kg
1/2"	13	165	216	216	25	42	2	4
1"	25	216	254	254	40	62,5	6	10
2"	50	292	368	371	56	94	17	38
3"	74	381	381	384	95	211	38	50
4"	100	457	457	460	120	226	60	96
6"	150	610	610	613	160	280	130	195
8"	201	737	737	740	202	340	225	340
10"	252	838	838	841	245	380	395	555
12"	303	965	965	968	276	435	540	804
14"	322	1029	1029	1038	320	440	559	904
16"	373	1130	1130	1140	345	485	860	1213
18"	423	1219	1219	1232	400	520	1180	1616
20"	471	1321	1321	1334	420	590	1490	2620
22"	522	-	-	-	-	-	-	-
24"	570	1549	1549	1568	502	687	2765	3885
26"	617	-	1651	1673	520	680	-	4465
28"	665	-	-	-	-	-	-	-
30"	712	-	1880	1902	582	775	-	6385
32"	760	-	-	-	-	-	-	-
34"	808	-	-	-	-	-	-	-
36"	855	-	2296	2315	725	926	-	10860
40"	956	-	-	-	-	-	-	-
42"	1006	-	-	-	-	-	-	-
44"	-	-	-	-	-	-	-	-
48"	1149	-	-	-	-	-	-	-
56"	1360	2500	-	-	1125	1334	2100	-

* Other measures upon request.

NOTE - Dimensions are for information only. Certified dimensional drawings are available upon request.

CLASS 2500
Ball Valves



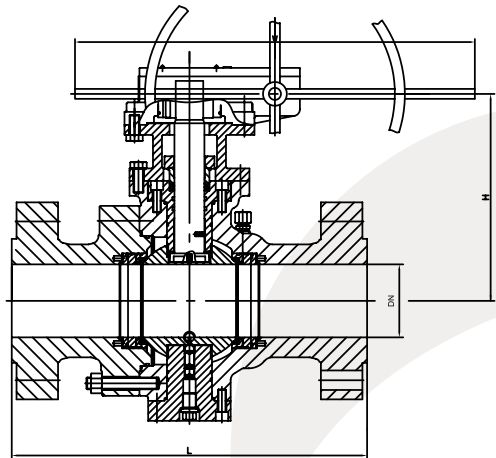
	A105 / F6	A105 / SS 304	A105 / SS 316	SS 304/ SS 304	SS 316 / SS 316	LF2 / 316
1 BODY	A105			A182 F304	A182 F316	A350 LF2
2 BALL	ASTM A182 F6A	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316	ASTM A182 F316
3 END	A105			A182 F304	A182 F316	A350 LF2
4 SEAT	DEVLON / NYLON / PEEK			DEVLON / NYLON / PEEK	DEVLON / NYLON / PEEK	DEVLON / NYLON / PEEK
5 SEAT RING	ASTM A105+ENP			SS 304	SS 316	SS 316
6 SEAT GASKET	VITON			VITON	VITON	VITON
7 FIRE SAFE SEAT GASKET	GRAPHITE			GRAPHITE	GRAPHITE	GRAPHITE
8 SPRING	INCONEL 750			INCONEL 750	INCONEL 750	INCONEL 750
9 GASKET	VITON			VITON	VITON	VITON
10 FIRE SAFE GASKET	GRAPHITE			GRAPHITE	GRAPHITE	GRAPHITE
11 STUD	ASTM A193 B7			ASTM A193 B8	ASTM A193 B8	ASTM A193 L7
12 NUT	ASTM A194 2H			ASTM A194 8	ASTM A194 8	ASTM A194 4
13 AXIAL BUSHING	NYLON			NYLON	NYLON	NYLON
14 RADIAL BUSHING	STEEL LINER PTFE			STEEL LINER PTFE	STEEL LINER PTFE	STEEL LINER PTFE
15 ANTISTATIC DEVICE	SS 304			SS 304	SS 304	SS 304
16 STEM	ASTM A182 F6A	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316	ASTM A182 F316
17 O RING	VITON			VITON	VITON	VITON
18 O RING	VITON			VITON	VITON	VITON
19 FIRE SAFE GASKET	GRAPHITE			GRAPHITE	GRAPHITE	GRAPHITE
20 BONNET	A105			A182 F304	A182 F316	A350 LF2
21 PACKING	GRAPHITE			GRAPHITE	GRAPHITE	GRAPHITE
22 BOLT	ASTM A193 B7			ASTM A193 B8	ASTM A193 B8M	ASTM A193 L7
23 PRESSURE RING	ASTM A182 F6A			ASTM A182 F6A	ASTM A182 F6A	ASTM A182 F6A
24 GLAND FLANGE	A105			A182 F304	A182 F316	A350 LF2
25 BRACKET	CS GALVANIZED			CS GALVANIZED	CS GALVANIZED	CS GALVANIZED
26 BOLT	ASTM A193 B7			ASTM A193 B8	ASTM A193 B8M	ASTM A193 L7
27 GEAR	CARBON STEEL			CARBON STEEL	CARBON STEEL	CARBON STEEL
28 FIRE SAFE GASKET	GRAPHITE			GRAPHITE	GRAPHITE	GRAPHITE
29 BACK STEM BUSHING	STEEL LINER PTFE			STEEL LINER PTFE	STEEL LINER PTFE	STEEL LINER PTFE
30 O-RING	VITON			VITON	VITON	VITON
31 BACK STEM	ASTM A182 F6A	ASTM A182 F304	ASTM A182 F316	ASTM A182 F304	ASTM A182 F316	ASTM A182 F316
32 BONNET	A105			A182 F304	A182 F316	A350 LF2
33 BOLT	ASTM A193 B7			ASTM A193 B8	ASTM A193 B8M	ASTM A193 L7
34 SECONDARY SEALANT INJECTION	ASME 1025			ASME 1025	ASME 1025	ASME 1025
35 PLUG	ASME 1025			ASME 1025	ASME 1025	ASME 1025
36 PLUG	ASME 1025			ASME 1025	ASME 1025	ASME 1025

datas

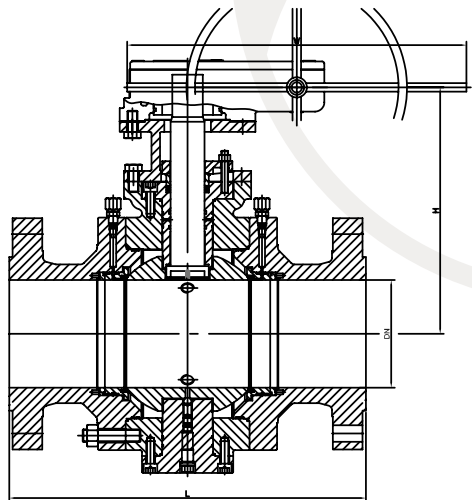
Ball valve API6D, API 608 OR ISO17292

cod.
ABT
7000

TRUNNION MOUNTED BALL VALVES CLASS 2500 2" TO 12"



TWO-PIECE



THREE-PIECE

- DESIGN ASME B16.34 & API-6D
- FACE TO FACE ASME B16.10 & API6D
- FLANGED ENDS Ac c/ASME B16.5
- BUTT WELD ENDS ASME B16.25
- BY-PASS & DRAIN MSS SP-45
- TEST API-598, API 6D, ISO 5208 & ISO 15848
- CONSTRUCTION
 - Different seating structures
 - Self relief seats
 - Fire Safe Design
 - Antistatic device
 - Anti blow out stem
 - Locking device (optional)
 - Double block and bleed
 - Full and reduce bore structure
 - Corrosion resistance
 - Extension stem (optional)
 - Manual and actuator operated (gearbox, electric, pneumatic, hydraulic...)
- MATERIALS WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8M, CF3, CF3M, CF8C, Bronze, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials
- TRIM 13%Cr, stellite, 304, 304L, 316, 316L, 321, bronze, monel, 4A, 6A, AISI-904L, CK3MCUN, Duplex, Superduplex, exotic materials...
- SEATS Soft (PTFE, Viton, Nylon) and Metal to Metal all kind available
- OTHERS Jacketed, cryogenic services
All kind of operated, all type of painting and coating

* other requirements upon request.

*Arflu has Monogram API certification (API 600)
if required by the customer

CLASS 2500 DIMENSIONS IN MILIMETERS							
ND.	2"	2 1/2"	3"	4"	6"	8"	10"
L (BW)	451	508	578	673	914	1022	1270
L (RF)	451	508	578	673	914	1022	1270
L (RTJ)	454	514	584	683	927	1038	1292
DN	50	65	80	100	150	200	250
H (OPEN)	154	169	187	217	346	384	452
W	350	400	450	500	700	700	800
WEIGHT (KG.) (BW)	40	60	82	150	414	677	1132
WEIGHT (KG.) (RF)	50	75	117	216	532	870	1467

* Other measures upon request.



Technical datas

► dimensions

FLANGES
BUTT WELDING

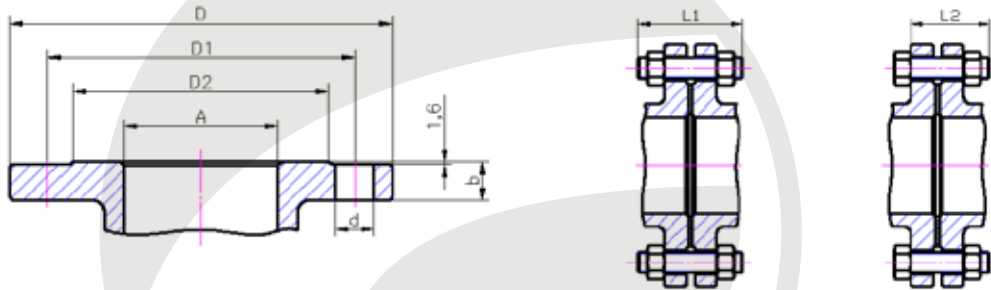
► Technical help materials

FORGED STEEL STANDARDS COMPARISON
CAST IRON
FERRITIC STEELS
COPPER ALLOYS
NICKEL ALLOYS
AUSTENITIC STEELS
NICKEL-COPPER ALLOYS
PRESSURE - TEMPERATURE RATINGS

DIMENSIONS

Flanges ASME B 16.5 RF

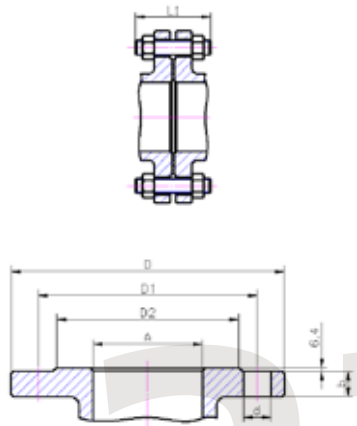
Class 150 lbs | Class 300 lbs



Class 150 lbs

Nominal size			A Size of port valve	D Flanges diameter	D1 Holes circle diameter	D2 Raised diameter	b Flange thickness	d Diameter of holes	Bolt		L1 Length stud bolts	L2 Length machine bolts
NPS	DN								Number of holes	Diameter of bolts		
1/2"	15	inch. mm.	1/2 13	3.50 88,90	2.38 60,45	1.38 35,05	0.38 9,65	0.62 15,75	4	1/2"	2.50 63,50	2.00 50,80
3/4"	20	inch. mm.	3/4 20	3.88 98,55	2.75 69,85	1.69 42,93	0.41 10,41	0.62 15,75	4	1/2"	2.50 63,50	2.25 57,15
1"	25	inch. mm.	1 25	4.25 107,95	3.12 79,25	2.00 50,80	0.44 11,18	0.62 15,75	4	1/2"	2.75 69,85	2.25 57,15
1 1/4"	32	inch. mm.	1 1/4 32	4.62 117,35	3.50 88,90	2.50 63,50	0.50 12,70	0.62 15,75	4	1/2"	2.75 69,85	2.50 63,50
1 1/2"	40	inch. mm.	1 1/2 38	5.00 127,00	3.88 98,55	2.88 73,15	0.56 14,22	0.62 15,75	4	1/2"	3.00 76,20	2.50 63,50
2"	50	inch. mm.	2 50	6.00 152,40	4.75 120,65	3.62 91,95	0.62 15,75	0.75 19,05	4	5/8"	3.25 82,55	2.75 69,85
2 1/2"	65	inch. mm.	2 1/2 65	7.00 177,80	5.50 139,70	4.12 104,65	0.69 17,53	0.75 19,05	4	5/8"	3.50 88,90	3.00 76,20
3"	80	inch. mm.	3 77	7.50 190,50	6.00 152,40	5.00 127,00	0.75 19,05	0.75 19,05	4	5/8"	3.50 88,90	3.25 82,55
3 1/2"	90	inch. mm.	3 1/2 90	8.50 215,90	7.00 177,80	5.50 139,70	0.81 20,57	0.75 19,05	8	5/8"	3.50 88,90	3.25 82,55
4"	100	inch. mm.	4 102	9.00 228,60	7.50 190,50	6.19 157,23	0.94 23,88	0.75 19,05	8	5/8"	3.50 88,90	3.25 82,55
5"	125	inch. mm.	5 127	10.00 254,00	8.50 215,90	7.31 185,67	0.94 23,88	0.88 22,35	8	3/4"	3.75 95,25	3.25 82,55
6"	150	inch. mm.	6 152	11.00 279,40	9.50 241,30	8.50 215,90	1.00 25,40	0.88 22,35	8	3/4"	4.00 101,60	3.50 88,90
8"	200	inch. mm.	8 203	13.50 342,90	11.75 298,45	10.62 269,75	1.12 28,45	0.88 22,35	8	3/4"	4.25 107,95	3.75 95,25
10"	250	inch. mm.	10 254	16.00 406,40	14.25 361,95	12.75 323,85	1.19 30,23	1.00 25,40	12	7/8"	4.50 114,30	4.00 101,60
12"	300	inch. mm.	12 305	19.00 482,60	17.00 431,80	15.00 381,00	1.25 31,75	1.00 25,40	12	7/8"	4.75 120,65	4.25 107,95
14"	350	inch. mm.	13 1/4 337	21.00 533,40	18.75 476,25	16.25 412,75	1.38 35,05	1.12 28,45	12	1"	5.25 133,35	4.50 114,30
16"	400	inch. mm.	15 1/4 387	23.50 596,90	21.25 539,75	18.50 469,90	1.44 36,58	1.12 28,45	16	1"	5.25 133,35	4.75 120,65
18"	450	inch. mm.	17 1/4 438	25.00 635,00	22.75 577,85	21.00 533,40	1.56 39,62	1.25 31,75	16	1 1/8"	5.75 146,05	5.00 127,00
20"	500	inch. mm.	19 1/4 489	27.50 698,50	25.00 635,00	23.00 584,20	1.69 42,93	1.25 31,75	20	1 1/8"	6.25 158,75	5.50 139,70
24"	600	inch. mm.	23 1/4 591	32.00 812,80	29.50 749,30	27.25 692,15	1.88 47,75	1.38 35,05	20	1 1/4"	6.75 171,45	6.00 152,40

Class 600 lbs

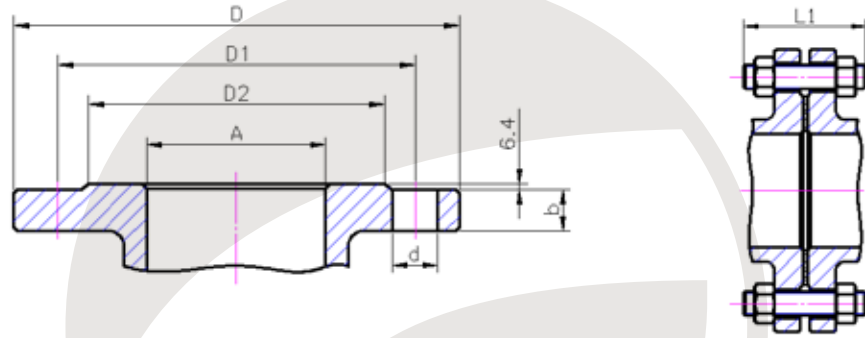


Nominal size			A Size of port valve	D Flanges diameter	D1 Holes circle diameter	D2 Raised diameter	b Flange thickness	d Diameter of holes	Bolt		L1 Length stud bolts
NPS	DN								Number of holes	Diameter of bolts	
1/2"	15	inch. mm.	1/2 13	3.75 95,25	2.62 66,55	1.38 35,05	0.56 14,22	0.62 15,75	4	1/2"	3.25 82,55
3/4"	20	inch. mm.	3/4 20	4.62 117,35	3.25 82,55	1.69 42,93	0.62 15,75	0.75 19,05	4	5/8"	3.50 88,90
1"	25	inch. mm.	1 25	4.88 123,95	3.50 88,90	2.00 50,80	0.69 17,53	0.75 19,05	4	5/8"	3.75 95,25
1 1/4"	32	inch. mm.	1 1/4 32	5.25 133,35	3.88 98,55	2.50 63,50	0.75 19,05	0.75 19,05	4	5/8"	4.00 101,60
1 1/2"	40	inch. mm.	1 1/2 38	6.12 155,45	4.50 114,30	2.88 73,15	0.88 22,35	0.88 22,35	4	3/4"	4.25 107,95
2"	50	inch. mm.	2 50	6.50 165,10	5.00 127,00	3.62 91,95	1.00 25,40	0.75 19,05	8	5/8"	4.25 107,95
2 1/2"	65	inch. mm.	2 1/2 65	7.50 190,50	5.88 149,35	4.12 104,65	1.12 28,45	0.88 22,35	8	3/4"	4.75 120,65
3"	80	inch. mm.	3 77	8.25 209,55	6.62 168,15	5.00 127,00	1.25 31,75	0.88 22,35	8	3/4"	5.00 127,00
3 1/2"	90	inch. mm.	3 1/2 90	9.00 228,60	7.25 184,15	5.50 139,70	1.38 35,05	1.00 25,40	8	7/8"	5.50 139,70
4"	100	inch. mm.	4 102	10.75 273,05	8.50 215,90	6.19 157,23	1.50 38,10	1.00 25,40	8	7/8"	5.75 146,05
5"	125	inch. mm.	5 127	13.00 330,20	10.50 266,70	7.31 185,67	1.75 44,45	1.12 28,45	8	1"	6.50 165,10
6"	150	inch. mm.	6 152	14.00 355,60	11.50 292,10	8.50 215,90	1.88 47,75	1.12 28,45	12	1"	6.75 171,45
8"	200	inch. mm.	7 7/8 200	16.50 419,10	13.75 349,25	10.62 269,75	2.19 55,63	1.25 31,75	12	1 1/8"	7.75 196,85
10"	250	inch. mm.	9 3/4 248	20.00 508,00	17.00 431,80	12.75 323,85	2.50 63,50	1.38 35,05	16	1 1/4"	8.50 215,90
12"	300	inch. mm.	11 3/4 299	22.00 558,80	19.25 488,95	15.00 381,00	2.62 66,55	1.38 35,05	20	1 1/4"	8.75 222,25
14"	350	inch. mm.	12 7/8 327	23.75 603,25	20.75 527,05	16.25 412,75	2.75 69,85	1.50 38,10	20	1 3/8"	9.25 234,95
16"	400	inch. mm.	14 3/4 375	27.00 685,80	23.75 603,25	18.50 469,90	3.00 76,20	1.62 41,15	20	1 1/2"	10.00 254,00
18"	450	inch. mm.	16 1/2 419	29.25 742,95	25.75 654,05	21.00 533,40	3.25 82,55	1.75 44,45	20	1 5/8"	10.75 273,05
20"	500	inch. mm.	18 1/4 464	32.00 812,80	28.50 723,90	23.00 584,20	3.50 88,90	1.75 44,45	24	1 5/8"	11.50 292,10
24"	600	inch. mm.	22 559	37.00 939,80	33.00 838,20	27.25 692,15	4.00 101,60	2.00 50,80	24	1 7/8"	13.00 330,20

Technical data

Flanges ASME B 16.5 RF

Class 600 lbs | Class 900 lbs | Class 1500 lbs | Class 2500 lbs



Nominal size			A	D	D1	D2	b	d	Bolt		L1
			Size of port valve	Flanges diameter	Holes circle diameter	Raised diameter	Flange thickness	Diameter of holes	Number of holes	Diameter of bolts	Length stud bolts
NPS	DN										
1/2"	15	inch.	1/2	4,75	3,25	1,38	0,88	0,88	4	3/4"	4,25
		mm.	13	120,65	82,55	35,05	22,35	22,35			107,95
3/4"	20	inch.	11/16	5,12	3,50	1,69	1,00	0,88	4	3/4"	4,50
		mm.	17,5	130,05	88,90	42,93	25,40	22,35			114,30
1"	25	inch.	7/8	5,88	4,00	2,00	1,12	1,00	4	7/8"	5,00
		mm.	22	149,35	101,60	50,80	28,45	25,40			127,00
1 1/4"	32	inch.	1 1/8	6,25	4,38	2,50	1,12	1,00	4	7/8"	5,00
		mm.	28,5	158,75	111,25	63,50	28,45	25,40			127,00
1 1/2"	40	inch.	1 3/8	7,00	4,88	2,88	1,25	1,12	4	1"	5,50
		mm.	35	177,80	123,95	73,15	31,75	28,45			139,70
2"	50	inch.	1 7/8	8,50	6,50	3,62	1,50	1,00	8	7/8"	5,75
		mm.	47,5	215,90	165,10	91,95	38,10	25,40			146,05
2 1/2"	65	inch.	2 1/4	9,62	7,50	4,12	1,62	1,12	8	1"	6,25
		mm.	57	244,35	190,50	104,65	41,15	28,45			158,75
3"	80	inch.	2 3/4	10,50	8,00	5,00	1,88	1,25	8	1 1/8"	7,00
		mm.	70	266,70	203,20	127,00	47,75	31,75			177,80
4"	100	inch.	3 5/8	12,25	9,50	6,19	2,12	1,38	8	1 1/4"	7,75
		mm.	92	311,15	241,30	157,23	53,85	35,05			196,85
5"	125	inch.	4 3/8	14,75	11,50	7,31	2,88	1,62	8	1 1/2"	9,75
		mm.	111	374,65	292,10	185,67	73,15	41,15			247,65
6"	150	inch.	5 3/8	15,50	12,50	8,50	3,25	1,50	12	1 3/8"	10,25
		mm.	137	397,70	317,50	215,90	82,55	38,10			260,35
8"	200	inch.	7	19,00	15,50	10,62	3,62	1,75	12	1 5/8"	11,50
		mm.	178	482,60	393,70	269,75	91,95	44,45			292,10
10"	250	inch.	8 3/4	23,00	19,00	12,75	4,25	2,00	12	1 7/8"	13,25
		mm.	222	584,20	482,60	323,85	107,95	50,80			336,55
12"	300	inch.	10 3/8	26,50	22,50	15,00	4,88	2,12	16	2"	14,75
		mm.	263	673,10	571,50	381,00	123,95	53,85			374,65
14"	350	inch.	11 3/8	29,50	25,00	16,25	5,25	2,38	16	2 1/4"	16,00
		mm.	289	749,30	635,00	412,75	133,35	60,45			406,40
16"	400	inch.	13	32,50	27,75	18,50	5,75	2,62	16	2 1/2"	17,50
		mm.	330	825,50	704,85	469,90	146,05	66,55			444,50
18"	450	inch.	14 5/8	36,00	30,50	21,00	6,38	2,88	16	2 3/4"	19,50
		mm.	371	914,40	774,70	533,40	162,05	73,15			495,30
20"	500	inch.	16 3/8	38,75	32,75	23,00	7,00	3,12	16	3"	21,50
		mm.	416	984,25	831,85	584,20	177,80	79,25			546,10
24"	600	inch.	19 5/8	46,00	39,00	27,25	8,00	3,62	16	3 1/2"	24,50
		mm.	499	1.168,40	990,60	692,15	203,20	91,95			622,30

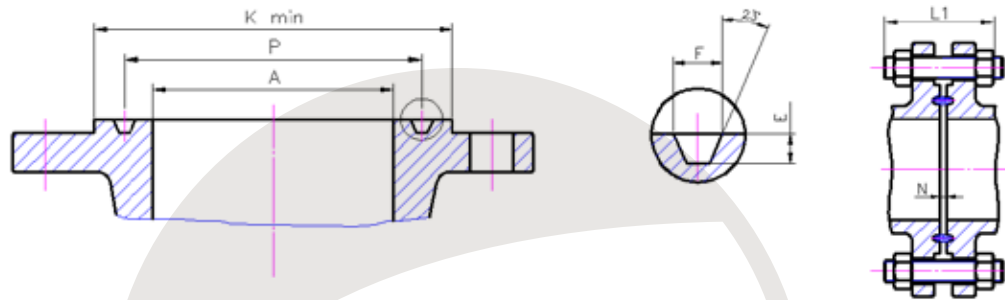
Nominal size			A	D	D1	D2	b	d	Bolt		L1
			Size of port valve	Flanges diameter	Holes circle diameter	Raised diameter	Flange thickness	Diameter of holes	Number of holes	Diameter of bolts	Length stud bolts
NPS	DN										
1/2"	15	inch.	1/2	4,75	3,25	1,38	0,88	0,88	4	3/4"	4,25
		mm.	13	120,65	82,55	35,05	22,35	22,35			107,95
3/4"	20	inch.	11/16	5,12	3,50	1,69	1,00	0,88	4	3/4"	4,50
		mm.	17,5	130,05	88,90	42,93	25,40	22,35			114,30
1"	25	inch.	7/8	5,88	4,00	2,00	1,12	1,00	4	7/8"	5,00
		mm.	22	149,35	101,60	50,80	28,45	25,40			127,00
1 1/4"	32	inch.	1 1/8	6,25	4,38	2,50	1,12	1,00	4	7/8"	5,00
		mm.	28,5	158,75	111,25	63,50	28,45	25,40			127,00
1 1/2"	40	inch.	1 3/8	7,00	4,88	2,88	1,25	1,12	4	1"	5,50
		mm.	35	177,80	123,95	73,15	31,75	28,45			139,70
2"	50	inch.	1 7/8	8,50	6,50	3,62	1,50	1,00	8	7/8"	5,75
		mm.	47,5	215,90	165,10	91,95	38,10	25,40			146,05
2 1/2"	65	inch.	2 1/4	9,62	7,50	4,12	1,62	1,12	8	1"	6,25
		mm.	57	244,35	190,50	104,65	41,15	28,45			158,75
3"	80	inch.	2 3/4	10,50	8,00	5,00	1,88	1,25	8	1 1/8"	7,00
		mm.	70	266,70	203,20	127,00	47,75	31,75			177,80
4"	100	inch.	3 5/8	12,25	9,50	6,19	2,12	1,38	8	1 1/4"	7,75
		mm.	92	311,15	241,30	157,23	53,85	35,05			196,85
5"	125	inch.	4 3/8	14,75	11,50	7,31	2,88	1,62	8	1 1/2"	9,75
		mm.	111	374,65	292,10	185,67	73,15	41,15			247,65
6"	150	inch.	5 3/8	15,50	12,50	8,50	3,25	1,50	12	1 3/8"	10,25
		mm.	137	397,70	317,50	215,90	82,55	38,10			260,35
8"	200	inch.	7	19,00	15,50	10,62	3,62	1,75	12	1 5/8"	11,50
		mm.	178	482,60	393,70	269,75	91,95	44,45			292,10
10"	250	inch.	8 3/4	23,00	19,00	12,75	4,25	2,00	12	1 7/8"	13,25
		mm.	222	584,20	482,60	323,85	107,95	50,80			336,55
12"	300	inch.	10 3/8	26,50	22,50	15,00	4,88	2,12	16	2"	14,75
		mm.	263	673,10	571,50	381,00	123,95	53,85			374,65
14"	350	inch.	11 3/8	29,50	25,00	16,25	5,25	2,38	16	2 1/4"	16,00
		mm.	289	749,30	635,00	412,75	133,35	60,45			406,40
16"	400	inch.	13	32,50	27,75	18,50	5,75	2,62	16	2 1/2"	17,50
		mm.	330	825,50	704,85	469,90	146,05	66,55			444,50
18"	450	inch.	14 5/8	36,00	30,50	21,00	6,38	2,88	16	2 3/4"	19,50
		mm.	371	914,40	774,70	533,40	162,05	73,15			495,30
20"	500	inch.	16 3/8	38,75	32,75	23,00	7,00	3,12	16	3"	21,50
		mm.	416	984,25	831,85	584,20	177,80	79,25			546,10
24"	600	inch.	19 5/8	46,00	39,00	27,25	8,00	3,62	16	3 1/2"	24,50
		mm.	499	1.168,40	990,60	692,15	203,20	91,95			622,30

Class 1500 lbs

Nominal size			A	D	D1	D2	b	d	Bolt		L1
			Size of port valve	Flanges diameter	Holes circle diameter	Raised diameter	Flange thickness	Diameter of holes	Number of holes	Diameter of bolts	Length stud bolts
NPS	DN										
1/2"	15	inch.	7/16	5,25	3,50	1,38	1,19	0,88	4	3/4"	5,25
		mm.	11	133,35	88,90	35,05	30,23	22,35			133,35
3/4"	20	inch.	9/16	5,50	3,75	1,69	1,25	0,88	4	3/4"	5,25
		mm.	14,5	139,70	95,25	42,93	31,75	22,35			133,35
1"	25	inch.	3/4	6,25	4,25	2,00	1,38	1,00	4	7/8"	5,75
		mm.	20	158,75	107,95	50,80	35,05	25,40			146,05
1 1/4"	32	inch.	1	7,25	5,12	2,50	1,50	1,12	4	1"	6,25
		mm.	25,5	184,15	130,05	63,50	38,10	28,45			158,75
1 1/2"	40	inch.	1 1/8	8,00	5,75	2,88	1,75	1,25	4	1 1/8"	7,00
		mm.	28,5	203,20	146,05	73,15	44,45	31,75			177,80</

Flanges ASME B 16.5 RTJ

Class 150 lbs | Class 300 lbs | Class 600 lbs
Class 900 lbs | Class 1500 lbs | Class 2500 lbs



Class 150 lbs

Nominal size			Ring number	A	K	P	E	F	R	N	L1
				Size of port valve	Raised diameter	Pitch diameter	Depth	Width	Radius at bottom	Distance between flanges	Length stud bolts
NPS	DN										
1"	25	inch.	R-15	1	2,50	1,88	0,25	0,34	0,03	0,16	3,00
		mm.		25	63,50	47,63	6,35	8,74	0,76	4,06	76,20
1 1/4"	32	inch.	R-17	1 1/4	2,88	2,25	0,25	0,34	0,03	0,16	3,25
		mm.		32	73,15	57,15	6,35	8,64	0,76	4,06	82,55
1 1/2"	40	inch.	R-19	1 1/2	3,25	2,56	0,25	0,34	0,03	0,16	3,25
		mm.		38	82,55	65,07	6,35	8,64	0,76	4,06	82,55
2"	50	inch.	R-22	2	4,00	3,25	0,25	0,34	0,03	0,16	3,75
		mm.		50	101,60	82,55	6,35	8,64	0,76	4,06	95,25
2 1/2"	65	inch.	R-25	2 1/2	4,75	4,00	0,25	0,34	0,03	0,16	4,00
		mm.		65	120,65	101,60	6,35	8,64	0,76	4,06	101,60
3"	80	inch.	R-29	3	5,25	4,50	0,25	0,34	0,03	0,16	4,00
		mm.		77	133,35	114,30	6,35	8,64	0,76	4,06	101,60
3 1/2"	90	inch.	R-33	3 1/2	6,06	5,19	0,25	0,34	0,03	0,16	4,00
		mm.		90	153,92	131,78	6,35	8,64	0,76	4,06	101,60
4"	100	inch.	R-36	4	6,75	5,88	0,25	0,34	0,03	0,16	4,00
		mm.		102	171,45	149,23	6,35	8,64	0,76	4,06	101,60
5"	125	inch.	R-40	5	7,62	6,75	0,25	0,34	0,03	0,16	4,25
		mm.		127	193,55	171,45	6,35	8,64	0,76	4,06	107,95
6"	150	inch.	R-43	6	8,62	7,63	0,25	0,34	0,03	0,16	4,50
		mm.		152	218,95	193,68	6,35	8,64	0,76	4,06	114,30
8"	200	inch.	R-48	8	10,75	9,75	0,25	0,34	0,03	0,16	4,75
		mm.		203	273,05	247,65	6,35	8,64	0,76	4,06	120,65
10"	250	inch.	R-52	10	13,00	12,00	0,25	0,34	0,03	0,16	5,00
		mm.		254	330,20	304,80	6,35	8,64	0,76	4,06	127,00
12"	300	inch.	R-56	12	16,00	15,00	0,25	0,34	0,03	0,16	5,25
		mm.		305	406,40	381,00	6,35	8,64	0,76	4,06	133,35
14"	350	inch.	R-59	13 1/4	16,75	15,63	0,25	0,34	0,03	0,12	5,75
		mm.		337	425,45	396,88	6,35	8,64	0,76	3,05	146,05
16"	400	inch.	R-64	15 1/4	19,00	17,88	0,25	0,34	0,03	0,12	5,75
		mm.		387	482,60	454,03	6,35	8,64	0,76	3,05	146,05
18"	450	inch.	R-68	17 1/4	21,50	20,38	0,25	0,34	0,03	0,12	6,25
		mm.		438	546,10	517,53	6,35	8,64	0,76	3,05	158,75
20"	500	inch.	R-72	19 1/4	23,50	22,00	0,25	0,34	0,03	0,12	6,75
		mm.		489	596,90	558,80	6,35	8,64	0,76	3,05	171,45
24"	600	inch.	R-76	23 1/4	28,00	26,50	0,25	0,34	0,03	0,12	7,25
		mm.		591	711,20	673,10	6,35	8,64	0,76	3,05	184,15

Class 300 lbs

Nominal size			Ring number	A	K	P	E	F	R	N	L1
				Size of port valve	Raised diameter	Pitch diameter	Depth	Width	Radius at bottom	Distance between flanges	Length stud bolts
NPS	DN										
1/2"	15	inch.	R-11	1/2	2,00	1,34	0,22	0,28	0,03	0,12	3,00
		mm.		13	50,80	34,14	5,56	7,14	0,76	3,05	76,20
3/4"	20	inch.	R-13	3/4	2,50	1,69	0,25	0,34	0,03	0,16	3,50
		mm.		20	63,50	42,88	6,35	8,74	0,76	4,06	88,90
1"	25	inch.	R-16	1	2,75	2,00	0,25	0,34	0,03	0,16	3,50
		mm.		25	69,85	50,80	6,35	8,74	0,76	4,06	88,90
1 1/4"	32	inch.	R-18	1 1/4	3,12	2,38	0,25	0,34	0,03	0,16	3,75
		mm.		32	79,25	60,33	6,35	8,64	0,76	4,06	95,25
1 1/2"	40	inch.	R-20	1 1/2	3,56	2,69	0,25	0,34	0,03	0,16	4,00
		mm.		38	90,42	68,28	6,35	8,64	0,76	4,06	101,60
2"	50	inch.	R-23	2	4,25	3,25	0,31	0,47	0,03	0,22	4,00
		mm.		50	107,95	82,55	7,92	11,91	0,76	5,59	101,60
2 1/2"	65	inch.	R-26	2 1/2	5,00	4,00	0,31	0,47	0,03	0,22	4,50
		mm.		65	127,00	101,60	7,92	11,94	0,76	5,59	114,30
3"	80	inch.	R-31	3	5,75	4,88	0,31	0,47	0,03	0,22	4,75
		mm.		77	146,05	123,83	7,87	11,94	0,76	5,59	120,65
3 1/2"	90	inch.	R-34	3 1/2	6,25	5,19	0,31	0,47	0,03	0,22	5,00
		mm.		90	158,75	131,78	7,87	11,94	0,76	5,59	127,00
4"	100	inch.	R-37	4	6,88	5,88	0,31	0,47	0,03	0,22	5,00
		mm.		102	174,75	149,23	7,87	11,94	0,76	5,59	127,00
5"	125	inch.	R-41	5	8,25	7,13	0,31	0,47	0,03	0,22	5,25
		mm.		127	209,55	180,98	7,87	11,94	0,76	5,59	133,35
6"	150	inch.	R-45	6	9,50	8,31	0,31	0,47	0,03	0,22	5,50
		mm.		152	241,30	211,12	7,87	11,94	0,76	5,59	139,70
8"	200	inch.	R-49	8	11,88	10,63	0,31	0,47	0,03	0,22	6,00
		mm.		203	301,75	269,88	7,87	11,94	0,76	5,59	152,40
10"	250	inch.	R-53	10	14,00	12,75	0,31	0,47	0,03	0,22	6,75
		mm.		254	355,60	323,85	7,87	11,94	0,76	5,59	171,45
12"	300	inch.	R-57	12	16,25	15,00	0,31	0,47	0,03	0,22	7,25
		mm.		305	412,75	381,00	7,87	11,94	0,76	5,59	184,15
14"	350	inch.	R-61	13 1/4	18,00	16,50	0,31	0,47	0,03	0,22	7,50
		mm.		387	457,20	419,10	7,87	11,94	0,76	5,59	190,50
16"	400	inch.	R-65	15 1/4	20,00	18,50	0,31	0,47	0,03	0,22	8,00
		mm.		432	508,00	469,90	7,87	11,94	0,76	5,59	203,20
18"	450	inch.	R-69	17	22,62	21,00	0,31	0,47	0,03	0,22	8,25
		mm.		432	574,55	533,40	7,87	11,94	0,76	5,59	209,55
20"	500	inch.	R-73	19	25,00	23,00	0,38	0,53	0,06	0,22	8,75
		mm.		483	635,00	584,20	9,53	13,49	1,52	5,59	222,25
24"	600	inch.	R-77	23	29,50	27,75	0,44	0,66	0,06	0,25	10,00
		mm.		584	749,30	704,85	11,13	16,66	1,52	6,35	254,00

Class 600 lbs

Nominal size			Ring number	A	K	P	E	F	R	N	L1
NPS	DN			Size of port valve	Raised diameter	Pitch diameter	Depth	Width	Radius at bottom	Distance between flanges	Length stud bolts
1/2"	15	inch.	R-11	1/2	2,00	1,34	0,22	0,28	0,03	0,12	3,00
		mm.		13	50,80	34,14	5,56	7,14	0,76	3,05	76,20
3/4"	20	inch.	R-13	3/4	2,50	1,69	0,25	0,34	0,03	0,16	3,50
		mm.		20	63,50	42,88	6,35	8,74	0,76	4,06	88,90
1"	25	inch.	R-16	1	2,75	2,00	0,25	0,34	0,03	0,16	3,50
		mm.		25	69,85	50,80	6,35	8,74	0,76	4,06	88,90
1 1/4"	32	inch.	R-18	1 1/4	3,12	2,38	0,25	0,34	0,03	0,16	3,75
		mm.		32	79,25	60,33	6,35	8,64	0,76	4,06	95,25
1 1/2"	40	inch.	R-20	1 1/2	3,56	2,69	0,25	0,34	0,03	0,16	4,25
		mm.		38	90,42	68,28	6,35	8,64	0,76	4,06	107,95
2"	50	inch.	R-23	2	4,25	3,25	0,31	0,47	0,03	0,19	4,25
		mm.		50	107,95	82,55	7,92	11,91	0,76	4,83	107,95
2 1/2"	65	inch.	R-26	2 1/2	5,00	4,00	0,31	0,47	0,03	0,19	4,75
		mm.		65	127,00	101,60	7,92	11,94	0,76	4,83	120,65
3"	80	inch.	R-31	3	5,75	4,88	0,31	0,47	0,03	0,19	5,00
		mm.		77	146,05	123,83	7,87	11,94	0,76	4,83	127,00
3 1/2"	90	inch.	R-34	3 1/2	6,25	5,19	0,31	0,47	0,03	0,19	5,75
		mm.		90	158,75	131,78	7,87	11,94	0,76	4,83	146,05
4"	100	inch.	R-37	4	6,88	5,88	0,31	0,47	0,03	0,19	5,75
		mm.		102	174,75	149,23	7,87	11,94	0,76	4,83	146,05
5"	125	inch.	R-41	5	8,25	7,13	0,31	0,47	0,03	0,19	6,50
		mm.		127	209,55	180,98	7,87	11,94	0,76	4,83	165,10
6"	150	inch.	R-45	6	9,50	8,31	0,31	0,47	0,03	0,19	6,75
		mm.		152	241,30	211,12	7,87	11,94	0,76	4,83	171,45
8"	200	inch.	R-49	7 7/8	11,88	10,63	0,31	0,47	0,03	0,19	7,75
		mm.		200	301,75	269,88	7,87	11,94	0,76	4,83	196,85
10"	250	inch.	R-53	9 3/4	14,00	12,75	0,31	0,47	0,03	0,19	8,50
		mm.		248	355,60	323,85	7,87	11,94	0,76	4,83	215,90
12"	300	inch.	R-57	11 3/4	16,25	15,00	0,31	0,47	0,03	0,19	8,75
		mm.		299	412,75	381,00	7,87	11,94	0,76	4,83	222,25
14"	350	inch.	R-61	12 7/8	18,00	16,50	0,31	0,47	0,03	0,19	9,25
		mm.		327	457,20	419,10	7,87	11,94	0,76	4,83	234,95
16"	400	inch.	R-65	14 3/4	20,00	18,50	0,31	0,47	0,03	0,19	10,00
		mm.		375	508,00	469,90	7,87	11,94	0,76	4,83	254,00
18"	450	inch.	R-69	16 1/2	22,62	21,00	0,31	0,47	0,03	0,19	10,75
		mm.		419	574,55	533,40	7,87	11,94	0,76	4,83	273,05
20"	500	inch.	R-73	18 1/4	25,00	23,00	0,38	0,53	0,06	0,19	11,50
		mm.		464	635,00	584,20	9,53	13,49	1,52	4,83	292,10
24"	600	inch.	R-77	22	29,50	27,75	0,44	0,66	0,06	0,22	13,25
		mm.		559	749,30	704,85	11,13	16,66	1,52	5,59	336,55

Class 900 lbs

Nominal size			Ring number	A	K	P	E	F	R	N	L1
NPS	DN			Size of port valve	Raised diameter	Pitch diameter	Depth	Width	Radius at bottom	Distance between flanges	Length stud bolts
3"	80	inch. mm.	R-31	2 7/8 73	6,12 155,45	4,88 123,83	0,31 7,87	0,47 11,91	0,03 0,76	0,16 4,06	5,75 146,05
4"	100	inch. mm.	R-37	3 7/8 99	7,12 180,85	5,88 149,23	0,31 7,87	0,47 11,94	0,03 0,76	0,16 4,06	6,75 171,45
5"	125	inch. mm.	R-41	4 3/4 121	8,50 215,90	7,13 180,98	0,31 7,87	0,47 11,94	0,03 0,76	0,16 4,06	7,50 190,50
6"	150	inch. mm.	R-45	5 3/4 146	9,50 241,30	8,31 211,12	0,31 7,87	0,47 11,94	0,03 0,76	0,16 4,06	7,75 196,85
8"	200	inch. mm.	R-49	7 1/2 191	12,11 307,64	10,63 269,88	0,31 7,87	0,47 11,94	0,03 0,76	0,16 4,06	8,75 222,25
10"	250	inch. mm.	R-53	9 3/8 238	14,25 361,95	12,75 323,85	0,31 7,87	0,47 11,94	0,03 0,76	0,16 4,06	9,25 234,95
12"	300	inch. mm.	R-57	11 1/8 283	16,50 419,10	15,00 381,00	0,31 7,87	0,47 11,94	0,03 0,76	0,16 4,06	10,00 254,00
14"	350	inch. mm.	R-62	12 1/4 311	18,38 466,85	16,50 419,10	0,44 11,13	0,66 16,66	0,06 1,52	0,16 4,06	11,00 279,40
16"	400	inch. mm.	R-66	14 356	20,62 523,75	18,50 469,90	0,44 11,18	0,66 16,66	0,06 1,52	0,16 4,06	11,50 292,10
18"	450	inch. mm.	R-70	15 3/4 400	23,38 593,85	21,00 533,40	0,50 12,70	0,78 19,84	0,06 1,52	0,19 4,83	13,25 336,55
20"	500	inch. mm.	R-74	17 1/2 445	25,50 647,70	23,00 584,20	0,50 12,70	0,78 19,84	0,06 1,52	0,19 4,83	14,25 361,95
24"	600	inch. mm.	R-78	21 534	30,38 771,65	27,25 692,15	0,63 15,88	1,06 26,97	0,09 2,29	0,22 5,59	18,00 457,20

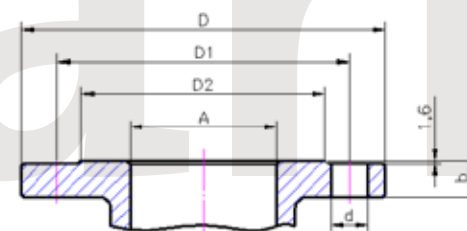
Class 2500 lbs

Nominal size			Ring number	A	K	P	E	F	R	N	L1
NPS	DN			Size of port valve	Raised diameter	Pitch diameter	Depth	Width	Radius at bottom	Distance between flanges	Length stud bolts
1/2"	15	inch. mm.	R-11	7/16 11	2,56 65,02	1,69 42,88	0,25 6,35	0,34 8,74	0,03 0,76	0,16 4,06	5,25 133,35
3/4"	20	inch. mm.	R-13	9/16 14,5	2,88 73,15	2,00 50,80	0,25 6,35	0,34 8,74	0,03 0,76	0,16 4,06	5,25 133,35
1"	25	inch. mm.	R-16	3/4 20	3,25 82,55	2,38 60,33	0,25 6,35	0,34 8,74	0,03 0,76	0,16 4,06	5,50 139,70
1 1/4"	32	inch. mm.	R-18	1 25,5	4,00 101,60	2,84 72,24	0,31 7,92	0,47 11,91	0,03 0,76	0,12 3,05	6,00 152,40
1 1/2"	40	inch. mm.	R-20	1 1/8 28,5	4,50 114,30	3,25 82,55	0,31 7,92	0,47 11,91	0,03 0,76	0,12 3,05	6,75 171,45
2"	50	inch. mm.	R-23	1 1/2 38	5,25 133,35	4,00 101,60	0,31 7,92	0,47 11,91	0,03 0,76	0,12 3,05	7,00 177,80
2 1/2"	65	inch. mm.	R-26	1 7/8 47,5	5,88 149,35	4,38 111,13	0,38 9,53	0,53 13,49	0,06 1,52	0,12 3,05	8,00 203,20
3"	80	inch. mm.	R-31	2 1/4 57	6,62 168,15	5,00 127,00	0,38 9,53	0,53 13,49	0,06 1,52	0,12 3,05	9,00 228,60
4"	100	inch. mm.	R-37	2 7/8 73	8,00 203,20	6,19 157,18	0,44 11,13	0,66 16,66	0,06 1,52	0,16 4,06	10,25 260,35
5"	125	inch. mm.	R-41	3 5/8 92	9,50 241,30	7,50 190,50	0,50 12,70	0,78 19,84	0,06 1,52	0,16 4,06	12,25 311,15
6"	150	inch. mm.	R-45	4 3/8 111	11,00 279,40	9,00 228,60	0,50 12,70	0,78 19,84	0,06 1,52	0,16 4,06	14,00 355,60
8"	200	inch. mm.	R-49	5 3/4 146	13,38 339,85	11,00 279,40	0,56 14,27	0,91 23,01	0,06 1,52	0,19 4,83	15,50 393,70
10"	250	inch. mm.	R-53	7 1/4 184	16,75 425,45	13,50 342,90	0,69 17,48	1,19 30,18	0,09 2,29	0,25 6,35	20,00 508,00
12"	300	inch. mm.	R-57	8 5/8 219	19,50 495,30	16,00 406,40	0,69 17,48	1,31 33,32	0,09 2,29	0,31 7,87	22,00 558,80

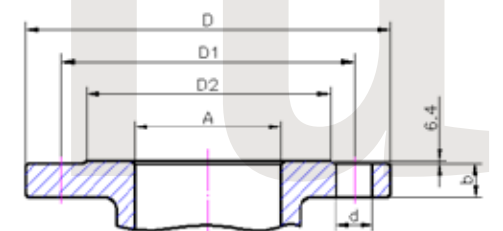
Flanges ASME B 16.47 Serie A

Class 1500 lbs

Nominal size			Ring number	A	K	P	E	F	R	N	L1
NPS	DN			Size of port valve	Raised diameter	Pitch diameter	Depth	Width	Radius at bottom	Distance between flanges	Length stud bolts
1/2"	15	inch. mm.	R-11	1/2 13	2,38 60,45	1,56 39,67	0,25 6,35	0,34 8,74	0,03 0,76	0,16 4,06	4,25 107,95
3/4"	20	inch. mm.	R-13	11/16 17,5	2,62 66,55	1,75 44,45	0,25 6,35	0,34 8,74	0,03 0,76	0,16 4,06	4,50 114,30
1"	25	inch. mm.	R-16	7/8 22	2,81 71,37	2,00 50,80	0,25 6,35	0,34 8,74	0,03 0,76	0,16 4,06	5,00 127,00
1 1/4"	32	inch. mm.	R-18	1 1/8 28,5	3,19 81,03	2,38 60,33	0,25 6,35	0,34 8,64	0,03 0,76	0,16 4,06	5,00 127,00
1 1/2"	40	inch. mm.	R-20	1 3/8 35	3,62 91,95	2,69 68,28	0,25 6,35	0,34 8,64	0,03 0,76	0,16 4,06	5,50 139,70
2"	50	inch. mm.	R-23	1 7/8 47,5	4,88 123,95	3,75 95,25	0,31 7,92	0,47 11,91	0,03 0,76	0,12 3,05	5,75 146,05
2 1/2"	65	inch. mm.	R-26	2 1/4 57	5,38 136,65	4,25 107,95	0,31 7,92	0,47 11,94	0,03 0,76	0,12 3,05	6,25 158,75
3"	80	inch. mm.	R-31	2 3/4 70	6,62 168,15	5,38 136,53	0,31 7,87	0,47 11,94	0,03 0,76	0,12 3,05	7,00 177,80
4"	100	inch. mm.	R-37	3 5/8 92	7,62 193,55	6,38 161,93	0,31 7,87	0,47 11,94	0,03 0,76	0,12 3,05	7,75 196,85
5"	125	inch. mm.	R-41	4 3/8 111	9,00 228,60	7,63 193,68	0,31 7,87	0,47 11,94	0,03 0,76	0,12 3,05	9,75 247,65
6"	150	inch. mm.	R-45	5 3/8 137	9,75 247,65	8,31 211,12	0,38 9,53	0,53 13,49	0,06 1,52	0,12 3,05	10,50 266,70
8"	200	inch. mm.	R-49	7 178	12,50 317,50	10,63 269,88	0,44 11,13	0,66 16,66	0,06 1,52	0,16 4,06	12,75 323,85
10"	250	inch. mm.	R-53	8 3/4 222	14,62 371,35	12,75 323,85	0,44 11,13	0,66 16,66	0,06 1,52	0,16 4,06	13,50 342,90
12"	300	inch. mm.	R-57	10 3/8 263	17,25 438,15	15,00 381,00	0,56 14,27	0,91 23,01	0,06 1,52	0,19 4,83	15,25 387,35
14"	350	inch. mm.	R-61	11 3/8 289	19,25 488,95	16,50 419,10	0,63 15,88	1,06 26,97	0,09 2,29	0,22 5,59	16,75 425,45
16"	400	inch. mm.	R-65	13 330	21,50 546,10	18,50 469,90	0,69 17,48	1,19 30,18	0,09 2,29	0,31 7,87	18,50 469,90
18"	450	inch. mm.	R-69	14 5/8 371	24,12 612,65	21,00 533,40	0,69 17,48	1,19 30,18	0,09 2,29	0,31 7,87	20,75 527,05
20"	500	inch. mm.	R-73	16 3/8 416	26,50 673,10	23,00 584,20	0,69 17,48	1,31 33,32	0,09 2,29	0,38 9,65	22,25 565,15
24"	600	inch. mm.	R-77	19 5/8 499	31,25 793,75	27,25 692,15	0,81 20,62	1,44 36,53	0,09 2,29	0,44 11,18	25,50 647,70



Class 150 & Class 300 RF Flanges



Class 600 & Class 900 RF Flanges

16.47

Class 150 lbs

Class	Nominal size			D	D1	D2	b	d	Bolt	
	NPS	DN		Flanges diameter	Holes circle diameter	Raised diameter	Flange thickness	Diameter of holes	Number of holes	Diameter of bolts
150	26"	650	inch. mm.	34,25 869,95	31,75 806,5	29,50 749,30	2,69 68,33	1,38 35	24	1 1/4"
	28"	700	inch. mm.	36,50 927,10	34,00 863,6	31,50 800,10	2,81 71,37	1,38 35	28	1 1/4"
	30"	750	inch. mm.	38,75 984,25	36,00 914,4	33,75 857,25	2,94 74,68	1,38 35	28	1 1/4"
	32"	800	inch. mm.	41,75 1.060,45	35,50 901,7	36,00 914,40	3,19 81,03	1,62 41	28	1 1/2"
	34"	850	inch. mm.	43,75 1.111,25	40,50 1028,7	38,00 965,20	3,25 82,55	1,62 41	32	1 1/2"
	36"	900	inch. mm.	46,00 1.168,40	42,75 1085,9	40,25 1.022,35	3,56 90,42	1,62 41	32	1 1/2"
	38"	950	inch. mm.	48,75 1.238,25	45,25 1149,4	42,25 1.073,15	3,44 87,38	1,62 41	32	1 1/2"
	40"	1000	inch. mm.	50,75 1.289,05	47,25 1200,2	44,25 1.123,95	3,56 90,42	1,62 41	36	1 1/2"
	42"	1050	inch. mm.	53,00 1.346,20	49,50 1257,3	47,00 1.193,80	3,81 96,77	1,62 41	36	1 1/2"
	44"	1100	inch. mm.	55,25 1.403,35	51,75 1314,5	49,00 1.244,60	4,00 101,60	1,62 41	40	1 1/2"
	46"	1150	inch. mm.	57,25 1.454,15	53,75 1365,3	51,00 1.295,40	4,06 103,12	1,62 41	40	1 1/2"
	48"	1200	inch. mm.	59,50 1.511,30	56,00 1422,4	53,50 1.358,90	4,25 107,95	1,62 41	44	1 1/2"
	50"	1250	inch. mm.	61,75 1.568,45	58,25 1479,6	55,50 1.409,70	4,38 111,25	1,88 48	44	1 3/4"
	52"	1300	inch. mm.	64,00 1.625,60	60,50 1536,7	57,50 1.460,50	4,56 115,82	1,88 48	44	1 3/4"
	54"	1350	inch. mm.	66,25 1.682,75	62,75 1593,9	59,50 1.511,30	4,75 120,65	1,88 48	44	1 3/4"
	56"	1400	inch. mm.	68,75 1.746,25	65,00 1651,0	62,00 1.574,80	4,88 123,95	1,88 48	48	1 3/4"
	58"	1450	inch. mm.	71,00 1.803,40	67,25 1708,2	64,00 1.625,60	5,06 128,52	1,88 48	48	1 3/4"
	60"	1500	inch. mm.	73,00 1.854,20	69,25 1759,0	66,00 1.676,40	5,19 131,83	1,88 48	52	1 3/4"

Class 300 lbs

Class	Nominal size			D	D1	D2	b	d	Bolt	
	NPS	DN		Flanges diameter	Holes circle diameter	Raised diameter	Flange thickness	Diameter of holes	Number of holes	Diameter of bolts
300	26"	650	inch. mm.	38,25 971,55	34,50 876,3	29,50 749,30	3,12 79,25	1,75 44	28	1 5/8"
	28"	700	inch. mm.	40,75 1.035,05	37,00 939,8	31,50 800,10	3,38 85,85	1,75 44	28	1 5/8"
	30"	750	inch. mm.	43,00 1.092,20	39,25 997,0	33,75 857,25	3,62 91,95	1,88 48	28	1 3/4"
	32"	800	inch. mm.	45,25 1.149,35	41,50 1.054,1	36,00 914,40	3,88 98,55	2,00 51	28	1 7/8"
	34"	850	inch. mm.	47,50 1.206,50	43,50 1.104,9	38,00 965,20	4,00 101,60	2,00 51	28	1 7/8"
	36"	900	inch. mm.	50,00 1.270,00	46,00 1.168,4	40,25 1.022,35	4,12 104,65	2,12 54	32	2"
	38"	950	inch. mm.	52,00 1.320,8	48,00 1.222,4	42,50 1.073,15	4,25 107,95	2,12 54	32	2"
	40"	1000	inch. mm.	54,25 1.382,75	50,25 1.276,35	44,25 1.123,95	4,38 111,25	2,12 54	32	2"
	42"	1050	inch. mm.	56,50 1.438,25	52,50 1.341,5	46,25 1.179,5	4,50 114,30	2,12 54	32	2"
	44"	1100	inch. mm.	58,75 1.494,75	54,75 1.393,7	48,25 1.233,5	4,62 117,35	2,12 54	32	2"
	46"	1150	inch. mm.	61,00 1.549,4	57,00 1.447,8	50,25 1.276,35	4,75 120,65	2,12 54	32	2"
	48"	1200	inch. mm.	63,25 1.608,25	59,25 1.505,2	52,50 1.330,8	4,88 123,95	2,12 54	32	2"
	50"	1250	inch. mm.	65,50 1.661,5	61,50 1.562,5	54,75 1.393,7	5,00 127,0	2,12 54	32	2"
	52"	1300	inch. mm.	67,75 1.718,75	63,75 1.628,7	57,00 1.447,8	5,12 130,8	2,12 54	32	2"
	54"	1350	inch. mm.	70,00 1.778,00	66,00 1.676,4	60,00 1.524,0	5,25 133,35	2,12 54	32	2"
	56"	1400	inch. mm.	72,25 1.834,25	68,25 1.732,5	62,50 1.588,25	5,38 136,6	2,12 54	32	2"
	58"	1450	inch. mm.	74,50 1.890,5	70,50 1.791,7	64,75 1.643,75	5,50 139,7	2,12 54	32	2"
	60"	1500	inch. mm.	76,75 1.946,75	72,75 1.848,7	67,00 1.701,8	5,62 142,9	2,12 54	32	2"

Class 600 lbs

Class	Nominal size			D	D1	D2	b	d	Bolt	
	NPS	DN		Flanges diameter	Holes circle diameter	Raised diameter	Flange thickness	Diameter of holes	Number of holes	Diameter of bolts
600	26"	650	inch. mm.	40,00 1.016,00	36,00 914,4	29,50 749,30	4,25 107,95	2,00 51	28	1 7/8"
	28"	700	inch. mm.	42,25 1.073,15	38,00 965,2	31,50 800,10	4,38 111,25	2,12 54	28	2"
	30"	750	inch. mm.	44,50 1.130,30	40,25 1.022,4	33,75 857,25	4,50 114,30	2,12 54	28	2"
	32"	800	inch. mm.	47,00 1.193,80	42,50 1.079,5	36,00 914,40	4,62 117,35	2,12 54	28	2"
	34"	850	inch. mm.	49,00 1.244,60	44,50 1.130,3	38,00 965,20	4,75 120,65	2,38 60	28	2 1/4"
	36"	900	inch. mm.	51,75 1.314,45	47,00 1.193,8	40,25 1.022,35	4,88 123,95	2,62 67	28	2 1/2"
	38"	950	inch. mm.	54,00 1.371,6	49,50 1.257,3	42,25 1.073,15	5,00 127,0	2,62 67	28	2 1/4"
	40"	1000	inch. mm.	56,25 1.431,25	51,75 1.314,45	44,25 1.123,95	5,12 130,8	2,62 67	32	2 1/4"
	42"	1050	inch. mm.	58,50 1.488,75	54,00 1.371,6	46,25 1.179,5	5,25 133,35	2,62 67	28	2 1/2"
	44"	1100	inch. mm.	60,75 1.542,75	56,25 1.431,25	48,25 1.233,5	5,38 136,6	2,62 67	32	2 1/2"
	46"	1150	inch. mm.	63,00 1.599,0	58,50 1.488,75	50,25 1.276,35	5,50 139,7	2,62 67	32	2 1/2"
	48"	1200	inch. mm.	65,25 1.656,25	60,75 1.542,75	52,50 1.330,8	5,62 142,9	2,88 73	32	2 3/4"
	50"	1250	inch. mm.	67,50 1.718,75	63,00 1.601,5	54,75 1.393,7	5,75 145,9	3,12 79	28	3"
	52"	1300	inch. mm.	69,75 1.778,00	65,25 1.661,5	56,50 1.438,25	5,88 149,35	3,12 79	32	3"
	54"	1350	inch. mm.	72,00 1.830,0	67,50 1.718,75	58,75 1.492,25	6,00 152,4	3,12 79	32	3"
	56"	1400	inch. mm.	74,25 1.889,25	69,75 1.778,00	60,75 1.542,75	6,12 155,8	3,38 86	32	3 3/8"
	58"	1450	inch. mm.	76,50 1.942,5	72,00 1.830,0	63,00 1.601,5	6,25 158,8	3,38 86	32	3 3/8"
	60"	1500	inch. mm.	78,75 1.998,75	74,25 1.889,25	65,25 1.661,5	6,38 162,9	3,62 92	28	3 5/8"

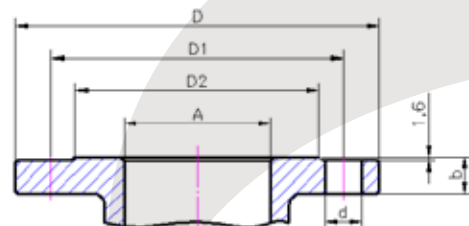
Class 900 lbs

Class	Nominal size			D	D1	D2	b	d	Bolt	
	NPS	DN		Flanges diameter	Holes circle diameter	Raised diameter	Flange thickness	Diameter of holes	Number of holes	Diameter of bolts
900	26"	650	inch. mm.	42,75 1.085,85	37,50 952,5	29,50 749,30	5,50 139,70	2,88 73	20	2 3/4"
	28"	700	inch. mm.	46,00 1.168,40	40,25 1.022,4	31,50 800,10	5,62 142,75	3,12 79	20	3"
	30"	750	inch. mm.	48,50 1.231,90	42,75 1.085,9	33,75 857,25	5,88 149,35	3,12 79	20	3"
	32"	800	inch. mm.	51,75 1.314,45	45,50 1.155,7	36,00 914,40	6,25 158,75	3,38 86	20	3 3/8"
	34"	850	inch. mm.	55,00 1.397,00	48,25 1.225,6	38,00 965,20	6,50 165,10	3,62 92	20	3 5/8"
	36"	900	inch. mm.	57,50 1.460,50	50,75 1.289,1	40,25 1.022,35	6,75 171,45	3,62 92	20	3 5/8"

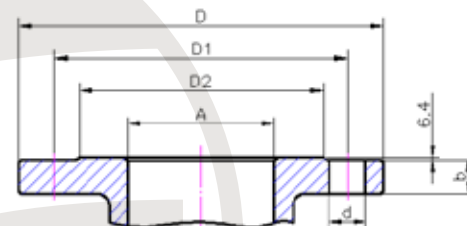
Technical data

Flanges ASME B 16.47 Serie B

Class 150 lbs | Class 300 lbs | Class 600 lbs | Class 900 lbs



Class 150 & Class 300 RF Flanges



Class 600 & Class 900 RF Flanges

Class 150 lbs

Class	Nominal size			D Flanges diameter	D1 Holes circle diameter	D2 Raised diameter	b Flange thickness	d Diameter of holes	Bolt	
	NPS	DN							Number of holes	Diameter of bolts
150	26"	650	inch. mm.	30.94 785.88	29.31 744.5	28.00 711.20	1.62 41.15	0.88 22	36	3/4"
	28"	700	inch. mm.	32.94 836.68	31.31 795.3	30.00 762.00	1.75 44.45	0.88 22	40	3/4"
	30"	750	inch. mm.	34.94 887.48	33.31 846.1	32.00 812.80	1.75 44.45	0.88 22	44	3/4"
	32"	800	inch. mm.	37.06 941.32	35.44 900.2	34.00 863.60	1.81 45.97	0.88 22	48	3/4"
	34"	850	inch. mm.	39.56 1.004,82	37.69 957.3	36.25 920.75	1.94 49.28	1.00 25	40	7/8"
	36"	900	inch. mm.	41.62 1.057,15	39.75 1.009,7	38.25 971.55	2.06 52.32	1.00 25	44	7/8"
	38"	950	inch. mm.	44.25 1.123,95	42.12 1.069,8	40.25 1.022,35	2.12 53.85	1.12 28	40	1"
	40"	1000	inch. mm.	46.25 1.174,75	44.12 1.120,6	42.25 1.073,15	2.19 55.63	1.12 28	44	1"
	42"	1050	inch. mm.	48.25 1.225,55	46.12 1.171,4	44.50 1.130,30	2.31 58.67	1.12 28	48	1"
	44"	1100	inch. mm.	50.25 1.276,35	48.12 1.222,2	46.50 1.181,10	2.38 60.45	1.12 28	52	1"
	46"	1150	inch. mm.	52.81 1.341,37	50.56 1.284,2	48.62 1.234,95	2.44 61.98	1.25 32	40	1 1/8"
	48"	1200	inch. mm.	54.81 1.392,17	52.56 1.335,0	50.75 1.289,05	2.56 65.02	1.25 32	44	1 1/8"
	50"	1250	inch. mm.	56.81 1.442,97	54.56 1.385,8	52.75 1.339,85	2.69 68.33	1.25 32	48	1 1/8"
	52"	1300	inch. mm.	58.81 1.493,77	56.56 1.436,6	54.75 1.390,65	2.75 69.85	1.25 32	52	1 1/8"
	54"	1350	inch. mm.	61.00 1.549,40	58.75 1.492,3	56.75 1.441,45	2.81 71.37	1.25 32	56	1 1/8"
	56"	1400	inch. mm.	63.00 1.600,20	60.75 1.543,1	58.75 1.492,25	2.88 73.15	1.25 32	60	1 1/8"
	58"	1450	inch. mm.	65.94 1.674,88	63.44 1.611,4	60.75 1.543,05	2.94 74.68	1.38 35	48	1 1/4"
	60"	1500	inch. mm.	67.94 1.725,68	65.44 1.662,2	63.00 1.600,20	3.00 76.20	1.38 35	52	1 1/4"

Class 300 lbs

Class	Nominal size			D Flanges diameter	D1 Holes circle diameter	D2 Raised diameter	b Flange thickness	d Diameter of holes	Bolt	
	NPS	DN							Number of holes	Diameter of bolts
300	26"	650	inch. mm.	34.12 866,65	31.62 803,1	29.00 736,60	3.50 88,90	1.38 35	32	1 1/4"
	28"	700	inch. mm.	36.25 920,75	33.75 857,3	31.00 787,40	3.50 88,90	1.38 35	36	1 1/4"
	30"	750	inch. mm.	39.00 990,60	36.25 920,8	33.25 844,55	3.69 93,73	1.50 38	36	1 3/8"
	32"	800	inch. mm.	41.50 1.054,10	38.50 977,9	35.50 901,70	4.06 103,12	1.62 41	32	1 1/2"
	34"	850	inch. mm.	43.62 1.107,95	40.62 1.031,7	37.50 952,50	4.06 103,12	1.62 41	36	1 1/2"
	36"	900	inch. mm.	46.12 1.171,45	42.88 1.089,2	39.75 1.009,65	4.06 103,12	1.75 44	32	1 5/8"
	38"	950	inch. mm.	48.12 1.222,25	44.88 1.140,0	41.75 1.060,45	4.38 111,25	1.75 44	36	1 5/8"
	40"	1000	inch. mm.	50.12 1.273,05	46.88 1.190,8	43.88 1.114,55	4.56 115,82	1.75 44	40	1 5/8"
	42"	1050	inch. mm.	52.50 1.333,50	49.00 1.244,6	46.00 1.168,40	4.69 119,13	1.88 48	36	1 3/4"
	44"	1100	inch. mm.	54.50 1.384,30	51.00 1.295,4	48.00 1.219,20	5.00 127,00	1.88 48	40	1 3/4"
	46"	1150	inch. mm.	57.50 1.460,50	53.75 1.365,3	50.00 1.270,00	5.06 128,52	2.00 51	36	1 7/8"
	48"	1200	inch. mm.	59.50 1.511,30	55.75 1.416,1	52.25 1.327,15	5.06 128,52	2.00 51	40	1 7/8"
	50"	1250	inch. mm.	61.50 1.562,10	57.75 1.466,9	54.25 1.377,95	5.44 138,18	2.00 51	44	1 7/8"
	52"	1300	inch. mm.	63.50 1.612,90	59.75 1.517,7	56.25 1.428,75	5.62 142,75	2.00 51	48	1 7/8"
	54"	1350	inch. mm.	65.88 1.673,35	62.12 1.577,8	58.25 1.479,55	5.38 136,65	2.00 51	48	1 7/8"
	56"	1400	inch. mm.	69.50 1.765,30	65.00 1.651,0	60.50 1.536,70	6.06 153,92	2.38 60	36	2 1/4"
	58"	1450	inch. mm.	71.94 1.827,28	67.44 1.713,0	62.75 1.593,85	6.06 153,92	2.38 60	40	2 1/4"
	60"	1500	inch. mm.	73.94 1.878,08	69.44 1.763,8	65.00 1.651,00	5.94 150,88	2.38 60	40	2 1/4"

Class 600 lbs

Class	Nominal size			D Flanges diameter	D1 Holes circle diameter	D2 Raised diameter	b Flange thickness	d Diameter of holes	Bolt	
	NPS	DN							Number of holes	Diameter of bolts
600	26"	650	inch. mm.	35.00 889,00	31.75 806,5	28.62 726,95	4.38 111,25	1.75 44	28	1 5/8"
	28"	700	inch. mm.	37.50 952,50	34.00 863,6	30.88 784,35	4.56 115,82	1.88 48	28	1 3/4"
	30"	750	inch. mm.	40.25 1.022,35	36.50 927,1	33.12 841,25	4.94 125,48	2.00 51	28	1 7/8"
	32"	800	inch. mm.	42.75 1.085,85	38.75 984,3	35.25 895,35	5.12 130,05	2.12 54	28	2"
	34"	850	inch. mm.	45.75 1.162,05	41.50 1.054,1	37.50 952,50	5.56 141,22	2.38 60	24	2 1/4"
	36"	900	inch. mm.	47.75 1.212,85	43.50 1.104,9	39.75 1.009,65	5.75 146,05	2.38 60	28	2 1/4"
	38"	950	inch. mm.	50.00 1.270,00	45.75 1.162,1	41.50 1.054,10	6.00 152,40	2.38 60	28	2 1/4"
	40"	1000	inch. mm.	52.00 1.320,80	47.75 1.212,9	43.75 1.111,25	6.25 158,75	2.38 60	32	2 1/4"
	42"	1050	inch. mm.	55.25 1.403,35	50.50 1.282,7	46.00 1.168,40	6.62 168,15	2.62 67	28	2 1/2"
	44"	1100	inch. mm.	57.25 1.454,15	52.50 1.333,5	48.25 1.225,55	6.81 172,97	2.62 67	32	2 1/2"
	46"	1150	inch. mm.	59.50 1.511,30	54.75 1.390,7	50.25 1.276,35	7.06 179,32	2.62 67	32	2 1/2"
	48"	1200	inch. mm.	62.75 1.593,85	57.50 1.460,5	52.50 1.333,50	7.44 188,98	2.88 73	32	2 3/4"
	50"	1250	inch. mm.	65.75 1.670,05	60.00 1.524,0	54.50 1.384,30	7.75 196,85	3.12 79	28	3"
	52"	1300	inch. mm.	67.75 1.720,85	62.00 1.574,8	56.50 1.435,10	8.00 203,20	3.12 79	32	3"
	54"	1350	inch. mm.	70.00 1.778,00	64.25 1.632,0	58.75 1.492,25	8.25 209,55	3.12 79	32	3"
	56"	1400	inch. mm.	73.00 1.854,20	66.75 1.695,5	60.75 1.543,05	8.56 217,42	3.38 86	32	3 3/8"
	58"	1450	inch. mm.	75.00 1.905,00	68.76 1.746,5	63.00 1.600,20	8.75 222,25	3.38 86	32	3 3/8"
	60"	1500	inch. mm.	78.50 1.993,90	71.75 1.822,5	65.25 1.657,35	9.19 233,43	3.62 92	28	3 5/8"

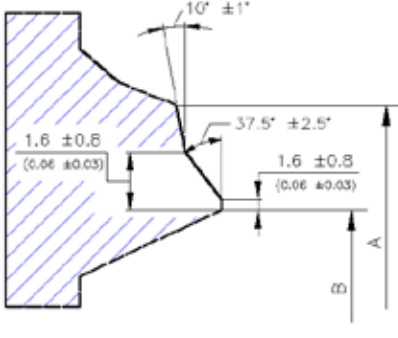
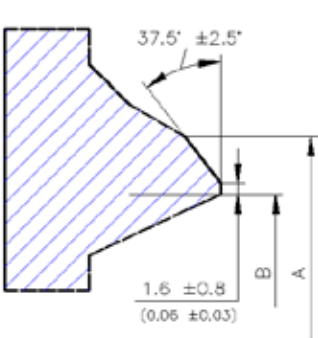
Class 900 lbs

Class	Nominal size			D Flanges diameter	D1 Holes circle diameter	D2 Raised diameter	b Flange thickness	d Diameter of holes	Bolt	
	NPS	DN							Number of holes	Diameter of bolts
900	26"	650	inch. mm.	40.25 1.022,35	35.50 901,7	30.00 762,00	5.31 134,87	2.62 67	20	2 1/2"
	28"	700	inch. mm.	43.50 1.104,90	38.25 971,6	32.25 819,15	5.81 147,57	2.88 73	20	2 3/4"
	30"	750	inch. mm.	46.50 1.181,10	40.75 1.035,1	34.50 876,30	6.12 155,45	3.12 79	20	3"
	32"	800	inch. mm.	48.75 1.238,25	43.00 1.092,2	36.50 927,10	6.31 160,27	3.12 79	20	3"
	34"	850	inch. mm.	51.75 1.314,45	45.50 1.155,7	39.00 990,60	6.75 171,45	3.38 85	20	3 3/8"
	36"	900	inch. mm.	53.00 1.346,20	47.25 1.200,2	40.50 1.028,70	6.81 172,97	3.12 79	24	3"

BUTT-WELDING ENDS ACC/ASME B16.25

BUTT-WELDING ENDS ACC/ASME B16.25

Nominal size		Schedule number	Outside Diameter				Nominal inside diameter		Machined inside diameter		Nominal wall thickness	
			A Wrought or fabricated components		A Cast steel valves		B		C		T	
NPS	DN		inch	mm	inch	mm	inch	mm	inch	mm	inch	mm
2 1/2	65	40					2,469	62,5	2,479	62,93	0,203	5,16
		80					2,323	59	2,351	59,69	0,276	7,01
		160	2,88	73	2,96	75	2,125	54	2,178	55,28	0,375	9,53
		XXS					1,771	45	1,868	47,43	0,552	14,02
		40					3,068	78	3,081	78,25	0,216	5,49
3	80	80					2,900	73,5	2,934	74,53	0,300	7,62
		160	3,50	88	3,59	91	2,624	66,5	2,692	68,38	0,438	11,13
		XXS					2,300	58,5	2,409	61,19	0,600	15,24
		40					4,026	102	4,044	102,73	0,237	6,02
		80					3,826	97	3,869	98,28	0,337	8,56
4	100	120					3,624	92	3,692	93,78	0,438	11,13
		160	4,50	114,3	4,62	117	3,438	87,5	3,530	89,65	0,531	13,49
		XXS					3,152	80	3,279	83,3	0,674	17,12
		40					5,047	128	5,070	128,8	0,258	6,55
		80					4,813	122	4,866	123,58	0,375	9,53
5	125	120					4,563	116	4,647	118,04	0,500	12,7
		160	5,56	141,3	5,69	144	4,313	109,5	4,428	112,47	0,625	15,88
		XXS					4,063	103	4,209	106,92	0,750	19,05
		40					6,065	154	6,094	154,82	0,280	7,11
		80					5,761	146,5	5,828	148,06	0,432	10,97
6	150	120					5,501	140	5,600	142,29	0,562	14,27
		160	6,62	168,3	6,78	172	5,187	132	5,326	135,31	0,719	18,26
		XXS					4,897	124,5	5,072	128,85	0,864	21,95
		40					7,981	203	8,020	203,75	0,322	8,18
		60					7,813	198,5	7,873	200,02	0,406	10,31
8	200	80					7,625	193,5	7,709	195,84	0,500	12,7
		100	8,62	219,1	8,78	223	7,437	189	7,544	191,65	0,594	15,09
		120					7,187	182,5	7,326	186,11	0,719	18,26
		140					7,001	178	7,163	181,98	0,812	20,62
		XXS					6,875	174,5	7,053	179,16	0,875	22,23
10	250	160					6,813	173	6,998	177,79	0,906	23,01
		40					10,020	254,5	10,070	255,74	0,365	9,27
		60					9,750	247,5	9,834	249,74	0,500	12,7
		80					9,562	243	9,670	245,55	0,594	15,09
		100	10,75	273	10,94	278	9,312	236,5	9,451	240,01	0,719	18,26
12	300	120					9,062	230	9,232	234,44	0,844	21,44
		140					8,750	222	8,959	227,51	1,000	25,4
		160					8,500	216	8,740	221,95	1,125	28,58
		STD					12,000	305	12,053	306,08	0,375	9,53
		40					11,938	303	11,999	304,72	0,406	10,31
14	350	XS					11,750	298,5	11,834	300,54	0,500	12,7
		60					11,626	295	11,725	297,79	0,562	14,27
		80	12,75	323,8	12,97	329	11,374	289	11,505	292,17	0,688	17,48
		100					11,062	281	11,232	285,24	0,844	21,44
		120					10,750	273	10,959	278,31	1,000	25,4
16	400	140					10,500	266,5	10,740	272,75	1,125	28,58
		160					10,126	257	10,413	264,45	1,312	33,32
		STD					13,250	336,5	13,303	337,88	0,375	9,53
		40					13,124	333,5	13,192	335,08	0,438	11,13
		XS					13,000	330	13,084	332,34	0,500	12,7
18	450	60	14,00	355,6	14,25	362	12,812	325,5	12,920	328,15	0,594	15,09
		80					12,500	317,5	12,646	321,22	0,750	19,05
		100					12,124	308	12,318	312,86	0,938	23,83
		120					11,812	300	12,044	305,93	1,094	27,79
		140					11,500	292	11,771	299	1,250	31,75
20	500	160					11,188	284	11,498	292,07	1,406	35,71
		STD					15,250	387,5	15,303	388,68	0,375	9,53
		40					15,000	381	15,084	383,14	0,500	12,7
		60	16,00	406,4	16,25	413	14,688	373	14,811	376,21	0,656	16,66
		80					14,312	363,5	14,482	367,84	0,844	21,44
22	550	100					13,938	354	14,155	359,53	1,031	26,19
		120					13,562	344,5	13,826	351,18	1,219	30,96
		140					13,124	333,5	13,442	341,43	1,438	36,53
		160					12,812	325,5	13,170	334,5	1,594	40,49
		STD					17,250	438	17,303	439,48	0,375	9,53
24	600	XS					17,000	432	17,084	433,94	0,500	12,7
		40					16,876	428,5	16,975	431,19	0,562	14,27
		60	18,00	457,2	18,28	464	16,500	419	16,646	422,82	0,750	19,05
		80					16,124	409,5	16,318	414,46	0,938	23,83
		100					15,688	398,5	15,936	404,78	1,156	29,36
26	650	120					15,250	387,5	16,553	395,03	1,375	34,93
		140					14,876	378	15,225	386,77	1,562	39,67
		160					14,438	366,5	14,842	376,99	1,781	45,24
		STD					19,250	489	19,303	490,28	0,375	9,53
		XS					19,000	482,5	19,084	484,74	0,500	12,7
28	700	40					18,812	478	18,920	480,55	0,594	15,09
		60					18,376	467	18,538	470,88	0,812	20,62
		80	20,00	508	20,31	516	17,938	455,5	18,155	461,13	1,031	26,19
		100					17,438	443	17,717	450,02	1,281	32,54
		120					17,000	432	17,334	440,29	1,500	38,1
30	750	140					16,500	419	16,896	429,17	1,750	44,45
		160					16,062	408	16,513	419,44	1,969	50,01
		STD					21,250	539	21,303	541,08	0,375	9,53
		XS					21,000	533	21,084	535,54	0,500	12,7
		60	22,00	558,8	22,34	567	20,250	514	20,428	518,86	0,875	22,23
32	800	80					19,750	501	19,990	507,75	1,125	28,58
		100					19,250	488,5	19,553	496,63	1,375	34,93
		120					18,750	476	19,115	485,52	1,625	41,28
		140					18,250	463	18,678	474,41	1,875	47,63
		160					17,750	450,5	18,240	463,3	2,125	53,98
34	850	STD					23,250	590,5	23,303	591,88	0,375	9,53
		XS					23,000	584	23,084	586,34	0,500	12,7
		30					22,876	581	22,975	583,59	0,562	14,27
		40					22,624	574,5	22,755	577,97	0,688	17,48
		60					22,062	560,5	22,263	565,49	0,969	24,61
36	900	80					21,562	547,5	21,826	554,38	1,219	30,96
		100					20,938	532	21,280	540,49	1,531	38,89
		120					20,376	517,5	20,788	528,03	1,812	46,02
		140					19,876	505	20,350	516,91	2,062	52,37
		160					19,312	490,5	19,857	504,37	2,344	59,54



TECHNICAL HELP



BUTT-WELDING ENDS ACC/ASME B16.25

FORGED STEEL STANDARDS COMPARISON

ASTM	UNS/AISI	DIN	AFNOR	BS	JIS
A105	AISI 1020	C22 1.0402	A48 XC18S	1503-221-490 (En 3A)	SF50 (SC30)-(S28C)
A182-F1	K12822	15 Mo 3 1.5415	-	1503-240-420	SFHV 12 B G 3213
A182-F5	K41545	12 CrMo 19.5 1.7733	Z 12 CD.5	1503-625-520	SFHV 25 -G 3213
A182-F11	K11572	24 CrMoV-55 1.7733	15 CD 5.05	1506-661-440	SFHV 23 B -G 3213
A182-F22	K21590	10 CrMo9.10 1.7380	12 CD 9.10	1503-622-490	SFHV 24 B -G3213
A182-F304	S30400	X5 CrNi 18.9 1.4301	Z6 CN 18.09	1503-304-S15	SUS 304 -G 4303
A182-F304H	S30409	X5 CrNi 18.9 1.4301	Z6 CN 18.09	1503-304-S49	SUS 304H -G 4303
A182-F304L	S30403	X2 CrNi 18.9 1.4306	Z2 CN 18.10	1503-304-S12	SUS 304L G 4303
A182-F316	S31600	X5 CrNiMo 18.9 1.4401	Z6 CND 17.11	1503-316-S16	SUS 316 -G 4303
A182-F316H	S31609	X5 CrNiMo 18.12	-	1503-316-S49	SUS 316H -G 4303
A182-F316L	S31603	X2 CrNiMo 18.10 1.4404	Z2 CND 17.12	1503-316-S12	SUS 316L -G 4303
A182-F321	S32100	X10 CrNiTi 18.9 1.4541	Z6 CNT 18.10	1503-321-S31	SUS 321
A182-F347	S34700	X10 CrNiNb 18.9 1.4550	Z6 CN Nb 18.10	1503-347-S17	SUS 347
A193-B6 (A276 - Type 410)	AISI 410 S41000	X10 Cr 13 1.4006	Z10 C 13	410-S21	SUS 410 -G 4303
A193-B7	AISI 4140	42 CrMo 4 1.7225	42 CD 4	1506-621-A	SNB 7 - G 4107 (SMC 4)
A193-B8	AISI 304	X5 CrNi 18.9 1.4301	Z6 CN 18.09	1506-801-B	SUS 304 -G 4303
A193-B8M	AISI 316	X5 CrNiMo 18.10 1.4401	Z6 CND 17.11	1506-845	SUS 316 -G 4303
A193-B16	-	24 CrMoV55 1.7733	38 CDV 4.05	1506-661	SNB 16 G4107
A194-2H	-	C45 1.0503	A60/CC45	1506-162	S45C - G4051
A194-Gr. 4	-	24 CrMo 5 1.7258	40 D2	1506-240	-
A194-Gr. 8	AISI 304	X5 CrNi 18.9 1.4301	Z6 CN 18.09	1506-801-B	SUS 304 - G 4303
A194-Gr. 8M	AISI 316	X5 CrNiMo 18.10 1.4401	Z6 CND 17.11	1506-845	SUS 316 - G 4303
A276-Type 420	AISI 420 S42000	X30 Cr 13 1.4028	Z30 C13	420-S45	SUS 420 J2
A320-L7	AISI 4140	42 CrMo 4 1.7225	42 CD 4	1506-621-A	SCM3 - G4105
A350-LF2	-	TT St E 36 1.0508	A48 FP1 36-208) (A	1503-223-410 (32A LT50)	-
A276-Type 420	AISI 303 S30300	X10 CrNiS 18.9 1.4305	Z10 CNF 18.09	303-S21	SUS 303
Type 416	AISI 416 S41600	X12 CrS 13 1.4005	Z12 CF13	416-S21	SUS 416

CAST IRON

CHEMICAL REQUIREMENTS (%)										MECHANICAL PROPERTIES					
	Carbon	Manga-nese	Phos-phorus	Sulfur	Silicon	Nickel	Chro-mium	Copper	Alloying Ele-ments	Tensile Strength		Transverse Test Load	Transverse Test Deflection	Center	at
										Ksi	Mpa	lbs	kN	in	mm.
HI-STRENGTH CAST IRON										UNS F12102	ASTM A126, Class B				
Min.										31	214	3300	14.65	0.12	3.0
Max.															
3% NICKEL IRON										31	214	3300	14.65	0.12	3.0
Min.						2.75	.....	.....	.....	.....	.....	.....	.....	.....	.....
Max.						3.25	.....	.....	.....	.....	.....	.....	.....	.....	.....
AUSTENITIC GRAY IRON. (Ni-Resist)															
Min.															
Max.															

CAST DUCTILE IRONS AND MALLEABLE IRONS

CHEMICAL REQUIREMENTS (%)							MECHANICAL PROPERTIES				
	Carbon	Manga-nese	Phos-phorus	Silicon	Nickel	Chro-mium	Tensile Strength		Yield Strength		Elongation in 2" (50 mm)
							Ksi	Mpa	Ksi	Mpa	
FERRITIC DUCTILE IRON							UNS F32800				ASTM A395
Min.							60	414	40	276	18%
Max.											
DUCTILE IRON *							UNS F33100				ASTM A536, Grade 65-45-12
Min.							65	448	45	310	12%
Max.											
AUSTENITIC NODULAR IRON *							UNS F43000				ASTM A439, Type D-2
Min.							58	400	30	207	8%
Max.											
FERRITIC MALLEABLE IRON *							UNS F22200				(ASTM A47, Grade 32510
Min.							50	345	32.5	224	10%
Max.											
MALLEABLE IRON *											ASTM A197
Min.							40	276	30	207	5%
Max.											

* Chemical requirements are subordinate to the mechanical properties.

FERRITIC STEELS

CHEMICAL REQUIREMENTS (%)									MECHANICAL PROPERTIES				
	Carbon	Manga-nese	Phos-phorus	Sulfur	Silicon	Nickel	Chro-mium	Molyb-denum	Tensile Strength		Yield Strength		Elongation in 2" (50 mm)
									Ksi	Mpa	lbs	kN	
CAST CARBON STEEL									UNS J03002				ASTM A216, Grade WCB
Min.									70	485	655	36	250
Max.									95	.....	.....	.....	.....
FORGED CARBON STEEL									UNS K03504				ASTM A105
Min.									70	485	.....	36	250
Max.									0.35	.....	.....	.....	.....
CAST CARBON STEEL FOR LOW TEMPERATURES									UNS J03003				ASTM A352, Grade LCB*
Min.									65	90	620	35	240
Max.									0.30	.....	.....	.....	.....
CAST 2 1/2% NICKEL STEEL FOR LOW TEMPERATURES									UNS J22500				ASTM A352, Grade LC2*
Min.									70	485	655	40	275
Max.									0.25	.....	.....	.....	.....
CAST 3 1/2% NICKEL STEEL FOR LOW TEMPERATURES									UNS J31550				ASTM A352, Grade LC3*
Min.									70	485	655	40	275
Max.									0.15	.....	.....	.....	.....
CAST 1 1/4% CR-1/2% MO ALLOY STEEL									UNS J12072				ASTM A217, Grade WC6
Min.									0.05	.....	.....	.....	.....
Max.									0.20	.....	.....	.....	.....
FORGED/ROLLED 1 1/4% CR-1/2% MO ALLOY STEEL									UNS K11572				ASTM A182, Grade F11
Min.									70	485	.....	40	275
Max.									0.10	.....	.....	.....	.....
CAST 2 1/4% CR-1% MO ALLOY STEEL									UNS K21890				ASTM A217, Grade WC9
Min.									70	485	655	40	276
Max.									0.18	.....	.....	.....	.....
FORGED / ROLLED 2 1/4% CR-1% MO ALLOY STEEL									UNS K21590				ASTM A182, Grade F22
Min.									75	515	.....	45	310
Max.									0.15	.....	.....	.....	.....
CAST 4-6% CR ALLOY STEEL									UNS J42045				ASTM A217, Grade C5
Min.									90	115	620	60	415
Max.									0.20	.....	.....	.....	.....
FORGED / ROLLED 4-6% CR ALLOY STEEL									UNS K42544				ASTM A182, Grade F5a
Min.									90	620	.....	65	450
Max.									0.25	.....	.....	.....	.....
CAST 12-14% CR STAINLESS STEEL									UNS J91150				ASTM A217, Grade CA15
Min.									90	115	620	65	450
Max.									0.15	.....	.....	.....	.....
FORGE/ROLLED 12-14% CR STAINLESS STEEL									110	760	.....	85	585
Min.									0.12	.....	.....	.....	.....
Max.									0.15	.....	.....	.....	.....
FEE-MACHINING 12-14% STAINLESS STEEL BARS									UNS S41600				ASTM A582, Type 416
Min.									75†	515†	40†	275†	30%†
Max.									0.15	.....	.....	.....	.....
RESULFURIZED STEEL BARS									UNS G11170				AISI Type C1117
Min.									0.14	.....	.....	.....	.....
Max.									0.20	.....	.....	.....	.....

* Usual minimum service temperatura:LCB at -50F (-45.6C). LC2 at -100 f (-73.3 C). LC3 at -150 F (-101.1C)
† Annealed representative mechanical properties.
‡ Tempraed representative mechanical properties.

COPPER ALLOYS

CHEMICAL REQUIREMTS (%)										MECHANICAL PROPERTIES				
Cooper	Tin	Lead	Iron	Nickel	Manga- nese	Alum- inum	Zinc	Silicon	Other	Tensile Strength		Yield	Strenght	Elongation in 2" (50 mm)
										Ksi	Mpa	Ksi	Mpa	
STEM OR VALVE BRONZE CASTINGS							UNS C92200			ASTM B61, Alloy 922				
Min.	86.0	5.5	1.0	****	****	****	3.0	****	****	34	235	16	110	24%
Max.	90.0	6.5	2.0	0.25	1.0	****	0.005	5.0	0.005	****	****	****	****	****
COMPSOTION BRONZE CASTINGS							UNS C83600			ASTM B62, Alloy 836				
Min.	84.0	4.0	4.0	****	****	****	4.0	****	****	30	205	14	95	20%
Max.	86.0	6.0	6.0	0.30	1.0	****	0.005	6.0	0.005	****	****	****	****	****
COMPOSITION CAST BRONZE ROD										ASTM B62, MODIFIED				
Min.	82.20	4.0	4.0	****	****	****	4.0	****	****	50	****	25	****	14%
Max.	83.50	6.0	6.0	0.30	1.0	****	6.0	****	1.5	****	****	****	****	****
SEMI-RED BRASS CASTINGS							UNS C84800			ASTM B584, Alloy 848				
Min.	75.0	2.0	5.5	****	****	****	13.0	****	****	28	193	12	83	16%
Max.	77.0	3.0	7.0	0.40	1.0	****	17.0	0.005	0.80**	****	****	****	****	****
SILICON BRONZE CASTINGS							UNS C87600			ASTM B584, Alloy 876				
Min.	88.0	****	****	****	****	****	4.0	3.5	****	60	414	30	207	16%
Max.	****	0.50	****	****	****	****	7.0	5.5	0.50**	****	****	****	****	****
LEADED MANGANESES BRONZE CATINGS							UNS C86400			ASTM B584, Alloy 864				
Min.	56.0	0.5	0.5	0.4	****	0.1	32.0	****	****	60	414	20	138	15%
Max.	62.0	1.5	1.5	2.0	1.0	1.0	427.0	****	1.0**	****	****	****	****	****
ALUMINUM BRONZE CASTINGS							UNS C95400			ASTM B148, Alloy 954				
Min.	Balance	****	****	3.0	****	0.5	10.0	****	****	75	515	30	205	12%
Max.	****	****	****	5.0	1.5	0.5	11.5	****	****	****	****	****	****	****
NAVAL BRASS ROD/BAR							UNS C48200			ASTM B21, Alloy 482, Hard Temper				
Min.	59.0	0.5	0.4	****	****	****	Balance	****	****	‡	‡	‡	‡	‡
Max.	62.0	1.0	1.0	0.15	****	****	****	****	1.0**	****	****	****	****	****
NAVAL BRASS ROD/BAR							UNS C46400			ASTM B21, Alloy 464				
Min.	59.0	0.5	****	****	****	****	Balance	****	****	‡	‡	‡	‡	‡
Max.	62.0	1.0	0.20	0.15	****	****	****	****	1.0**	****	****	****	****	****
FREE CUTTING BRASS ROD/BAR							UNS C36000			ASTM B16, Alloy 360				
Min.	60.0	****	2.5	****	****	****	Balance	****	****	‡	‡	‡	‡	‡
Max.	63.0	****	3.7	0.35	****	****	****	****	0.50**	****	****	****	****	****
FORGING BRASS							UNS C37700			ASTM B.124, Alloy 377				
Min.	58.0	****	1.5	****	****	****	Balance	****	****	****	****	****	****	****
Max.	61.0	****	2.5	0.30	****	****	****	****	0.50**	****	****	****	****	****
MANGANESE BRONZE ROD/BAR							UNS C67500			ASTM B124, ALLOY 675				
Min.	57.0	0.5	****	0.8	****	0.05	Balance	****	****	****	****	****	****	****
Max.	60.0	1.0	0.20	2.0	****	0.5	0.25	****	0.50**	****	****	****	****	****
LEADED RED BRASS ROD/BAR							UNS C32000			ASTM B140, Alloy 320				
Min.	83.5	****	1.5	****	****	****	Balance	****	****	‡	‡	‡	‡	‡
Max.	86.5	****	2.2	0.10	0.25	****	****	****	****	****	****	****	****	****
COPPER SILICON ALLOY WIRE							UNS C65100			ASTM B99, Alloy 651, eighth-Hard				
Min.	Balance	****	****	0.8	****	0.7	****	1.5	0.8	50	.344	****	****	20%
Max.	****	****	0.05	****	****	****	****	2.0 †	0.50**	65	448	****	****	****
COPPER-ZIN SILICON ALLY ROD							UNSC69400			ASTM B371, Alloy 694				
Min.	80.0	****	****	****	****	****	Balance	3.5	****	75	515	35	240	15%
Max.	83.0	****	0.30	0.20	****	****	****	4.5	****	****	****	****	****	****
LEADED SEMI-RED BRASS							UNS C84400			ASTM B584, Alloy 844				
Min.	78.0	2.3	6.0	****	****	****	7.0	****	****	29	200	13	90	18%
Max.	82.0	3.5	8.0	0.40	1.0	****	10.0	****	0.80**	****	****	****	****	****

* Also may include maximum of 0.05/phosphrus.

Also may include maximum of 0.25, antimony, 0.08% sulfur, and 0.02% phosphorus.

** Maximum percent of elements permissible other than those indicated.

† Maximum of 2.6% silicon permissible providing sum of all elements other than copper, iron, and silicon does not exceed 0.3%.

‡ Deppends on diameter of thickness (surface to surface) of material; data on request.

NICKEL ALLOYS

CHEMICAL REQUIREMTS (%)										MECHANICAL PROPERTIES				
Carbon	Manga- nese	Phos- phorus	Sulfur	Silicon	Nickel	Chro- mium	Molyb- denum	Iron		Tensile	Strength	Yield	Strenght	Elongation in 2" (5 0 mm)
										Ksi	Mpa	lbs	kN	
CAST NICKEL-MOLYBDENUM ALLOY (HASTELLOY B [*])										UNS N10001				
Min.	0.12	****	0.04	0.03	1.00	Balance	1.00	26.0	4.00	76	525	40	275	6%
Max.	****	1.00	****	****	****	****	****	30.0	6.00	****	****	****	****	*
CAST NICKEL-MOLYBDENUM-CHROMIUM ALLOY (HASTELLOY C [*])										ASTM A494, Grade CW-12MW				
Min.	0.12	****	0.04	0.03	1.00	Balance	15.5	16.0	4.50	72	495	40	275	4%
Max.	****	1.00	****	****	****	****	17.5	18.0	7.50	****	****	****	****	*
CAST NICKEL										UNS N02100				
Min.	1.00	1.50	0.03	0.03	2.00	95.0	****	****	3.00	50	345	18	125	10%
Max.	****	****	****	****	****	****	****	****	****	****	****	****	****	****
CAST NICKEL-CHROMIUM-IRON ALLY (Inconel ^{**})										UNS N06040				
Min.	0.40	****	0.03	0.03	0.03	Balance	14.0	****	11.00	70	485	28	195	30%
Max.	****	1.50	****	****	****	****	17.0	****	****	****	****	****	****	****

* Hastelloy is a trademark of Cabot Corporation.

** Inconel is a trademark of International Nickel Company.

AUSTENITIC STEELS

CHEMICAL REQUIREMTS (%)										MECHANICAL PROPERTIES						
Carbon	Manga- nese	Phos- phorus	Sulfur	Silicon	Nickel	Chro- mium	Molyb- denum	Copper and Colum- bium		Tensile Strength		Yield Strenght		Elongation in 2' 0 mm)	Reduction of Area	
										Ksi	Mpa	lbs	kN			
STAINLESS STEEL WITH MOLYBDENUM BAR										UNS S31600					ASTM A216, Type 316	
Min. Max	0.08 0.08	2.00 2.00	0.045 0.045	0.030 0.030	1.00 1.00	10.0 14.0	16.0 18.0	2.0 3.0	0.00 0.00	75 75	515 515	30 30	205 205	30% 30%	40% 40%	
STAINLESS STEEL WITH MOLYBDENUM BAR										UNS S31600					ASTM A479, Type 316	
Min. Max	0.08 0.08	2.00 2.00	0.045 0.045	0.030 0.030	1.00 1.00	10.0 14.0	16.0 18.0	2.0 3.0	0.00 0.00	75 75	515 515	30 30	205 205	30% 30%	40% 40%	
CAST STAINLESS STEEL										UNS J92600					ASTM A351, Grade CF8*	
Min. Max	0.08 0.08	1.50 1.50	0.040 0.040	0.040 0.040	2.00 2.00	8.0 11.0	18.0 21.0	0.50 0.50	0.00 0.00	70 70	485 485	30 30	205 205	35% 35%	0.00 0.00	
CAST STAINLESS STEEL										UNS J92710					ASTM A351, Grade CF8C	
Min. Max	0.08 0.08	1.50 1.50	0.040 0.040	0.040 0.040	2.00 2.00	9.0 12.0	18.0 21.0	0.50 0.50	0.00 0.00	70 70	485 485	30 30	205 205	30% 30%	0.00 0.00	
CAST STAINLESS STEEL WITH MOLYBDENUM										UNS J92900					ASTM A351, Grade CF8M	
Min. Max	0.08 0.08	1.50 1.50	0.040 0.040	0.040 0.040	1.50 1.50	9.0 12.0	18.0 21.0	2.0 3.0	0.00 0.00	70 70	485 485	30 30	205 205	30% 30%	0.00 0.00	
CAST LOW CARBON STAINLESS STEEL										UNS J92500					ASTM A351, Grade CF3	
Min. Max	0.03 0.03	1.50 1.50	0.040 0.040	0.040 0.040	2.00 2.00	8.0 12.0	17.0 21.0	0.50 0.50	0.00 0.00	70 70	485 485	30 30	205 205	35% 35%	0.00 0.00	
CAST LOW CARBON STAINLESS STEEL WITH MOLYBDENUM										UNS J92800					ASTM A351, Grade CF3M	
Min. Max	0.03 0.03	1.50 1.50	0.040 0.040	0.040 0.040	1.50 1.50	9.0 12.0	17.0 21.0	2.0 3.0	0.00 0.00	70 70	485 485	30 30	205 205	30% 30%	0.00 0.00	
CAST ALLOY 20 STAINLESS STEEL										UNS J95150					ASTM A351, Grade CN7M	
Min. Max	0.07 0.07	1.50 1.50	0.040 0.040	0.040 0.040	1.50 1.50	27.5 30.5	19.0 22.0	2.0 3.0	3.0 4.0	62 62	425 425	25 25	170 170	35% 35%	0.00 0.00	
ALLOY 20 STAINLESS STEEL BAR										UNS N08020					ASTM B473	
Min. Max	0.07 0.07	2.00 2.00	0.045 0.045	0.035 0.035	1.00 1.00	32.0 38.0	19.0 21.0	2.0 3.0	3.0*** 4.0	80 80	550 550	35 35	240 240	30% 30%	50% 50%	
CAST STAINLESS STEEL WITH MOLYBDENUM AND COPPER										UNS J93370					ASTM A351, Grade CD-4MCU	
Min. Max	0.04 0.04	1.00 1.00	0.04 0.04	0.04 0.04	1.00 1.00	4.75 6.00	24.5 26.5	1.75 2.25	2.75 3.25	100 100	690 690	70 70	485 485	16% 16%	0.00 0.00	
STAINLESS STEEL WITH FREE MACHINING BAR										UNS S30300					ASTM A582, Type 303	
	0.15	2.00	0.20	0.15	1.00	8.00 10.00	17.00 19.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	0.00 0.00	
CAST STAINLESS STEEL FREE MACHINING										UNS J92701					ASTM A743, Grade CF16F	
	0.16	1.50	0.04	0.040	2.00	9.00 12.00	18.00 21.00	0.00 0.00	0.00 0.00	70 70	485 485	30 30	205 205	25 25	0.00 0.00	

Technical data

PRESSURE - TEMPERATURE RATINGS

CLASS 150 -300- 600

Pressure - Temperature Ratings
(comply with ASME B16,34-1981- Standard Class)
STEEL, NICKEL ALLOY and OTHER SPECIAL ALLOYS

WORKING PRESSURE, PSIG

CLASS	TEMP °F	A216 WCB A105	A217 C5	A217 WC6 A182 F11	A217 WC9 A182 F22	A352 LCB	A352 LC3 A350 LF3	A351 CF8M A182 F316	A351 CF3M	A351 CF8 A182 F304	A351 CF3	A351 CF8C	A351 CN7M
CLASS 150	-20 to 100 °	285	290	290	290	265	290	275	275	275	275	275	230
	200	260	260	260	260	250	260	240	245	235	235	245	215
	300	230	230	230	230	230	230	215	215	205	205	225	200
	400	200	200	200	200	200	200	195	195	180	180	200	-
	500	170	170	170	170	170	170	170	170	170	170	170	-
	600	140	140	140	140	140	140	140	140	140	140	140	-
	650	125	125	125	125	125	125	125	125	125	125	125	-
	700	110	110	110	110	-	110	110	110	110	110	110	-
	750	95	95	95	95	-	95	95	95	95	95	95	-
	800	80	80	80	80	-	80	80	80	80	80	80	-
	850	65 ¹	65	65	65	-	65	65	65	-	65	-	-
	900	50 ¹	50	50	50	-	50	50	-	50	-	50	-
	950	35 ¹	35	35	35	-	35	-	35	-	35	-	-
	1000	20 ¹	20	20	20	-	20	-	20	-	20	-	-
	1050	-	20 ²	20 ²	20 ²	-	20 ²	-	20 ²	-	20 ²	-	-
	1100	-	20 ²	20 ²	20 ²	-	20 ²	-	20 ²	-	20 ²	-	-
	1150	-	20 ²	-	-	-	20 ²	-	20 ²	-	20 ²	-	-
	1200	-	20 ²	-	-	-	20 ²	-	20 ²	-	20 ²	-	-
	1250	-	-	-	-	-	20 ²	-	20 ²	-	20 ²	-	-
	1300	-	-	-	-	-	20 ²	-	20 ²	-	20 ²	-	-
	1350	-	-	-	-	-	20 ²	-	20 ²	-	20 ²	-	-
	1400	-	-	-	-	-	20 ²	-	20 ²	-	20 ²	-	-
	1450	-	-	-	-	-	20 ²	-	15 ²	-	20 ²	-	-
	1500	-	-	-	-	-	15 ²	-	10 ²	-	15 ²	-	-
CLASS 300	-20 to 100 °	740	750	750	750	695	750	720	720	720	720	720	600
	200	675	750	710	715	655	750	620	620	600	600	635	555
	300	655	730	675	675	640	730	560	530	530	530	590	525
	400	635	705	660	650	620	705	515	515	470	470	555	-
	500	600	665	640	640	585	665	480	435	435	435	520	-
	600	550	605	605	605	535	605	450	415	415	415	490	-
	650	535	590	590	590	525	590	445	445	410	410	480	-
	700	53	570	570	570	-	430	430	405	405	405	470	-
	750	505	530	530	530	-	425	425	400	400	400	460	-
	800	410	500	510	510	-	415	415	395	395	395	455	-
	850	270 ¹	440	485	485	-	405	405	390	-	445	-	-
	900	170 ¹	355	450	450	-	395	-	385	-	430	-	-
	950	105 ¹	260	380	380	-	385	-	375	-	385	-	-
	1000	50 ¹	190	225	270	-	365	-	325	-	365	-	-
	1050	-	140	140	200	-	360	-	310	-	360	-	-
	1100	-	105	95	115	-	325	-	260	-	325	-	-
	1150	-	70	-	-	-	275	-	195	-	275	-	-
	1200	-	45	-	-	-	205	-	170	-	205	-	-
	1250	-	-	-	-	-	180	-	110	-	125	-	-
	1300	-	-	-	-	-	140	-	85	-	95	-	-
	1350	-	-	-	-	-	105	-	60	-	70	-	-
	1400	-	-	-	-	-	75	-	50	-	50	-	-
	1450	-	-	-	-	-	60	-	35	-	40	-	-
	1500	-	-	-	-	-	40	-	25	-	35	-	-
CLASS 600	-20 to 100 °	1480	1500	1500	1500	1390	1500	1440	1440	1440	1440	1440	1200
	200	1350	1500	1425	1430	1315	1500	1240	1240	1200	1200	1270	1115
	300	1315	1455	1345	1355	1275	1455	1120	1120	1055	1055	1175	1045
	400	1270	1410	1315	1295	1235	1410	1030	1030	940	940	1110	-
	500	1200	1330	1285	1280	1165	1330	955	955	875	875	1035	-
	600	1095	1210	1210	1210	1065	1210	905	905	830	830	985	-
	650	1075	1175	1175	1175	1045	1175	890	890	815	815	960	-
	700	1065	1135	1135	1135	-	-	865	865	805	805	935	-
	750	1010	1065	1065	1065	-	-	845	845	795	795	920	-
	800	825	995	1015	1015	-	-	830	830	790	790	910	-
	850	535 ¹	880	975	975	-	-	810	810	780	-	890	-
	900	345 ¹	705	900	900	-	-	790	-	770	-	865	-
	950	205 ¹	520	755	755	-	-	775	-	750	-	775	-
	1000	105 ¹	385	445	535	-	-	725	-	645	-	725	-
	1050	-	280	275	400	-	-	720	-	620	-	720	-
	1100	-	205	190	225	-	-	645	-	515	-	645	-
	1150	-	140	-	-	-	-	550	-	390	-	550	-
	1200	-	90	-	-	-	-	410 ³	-	310 ³	-	345	-
	1250	-	-	-	-	-	-	365	-	220	-	245	-
	1300	-	-	-	-	-	-	275	-	165	-	185	-
	1350	-	-	-	-	-	-	205	-	125	-	135	-
	1400	-	-	-	-	-	-	150	-	95	-	105	-
	1450	-	-	-	-	-	-	112	-	70	-	80	-
	1500	-	-	-	-	-	-	85	-	50	-	70	-

1 Permissible, but not recommended for prolonged usage above about 800a C
2 For Welding End Valves only, flanged and ratings terminate at 1000 o C

PRESSURE - TEMPERATURE RATINGS

CLASS 900 - 1500 - 2500

Pressure - Temperature Ratings
(comply with ASME B16,34-1981- Standard Class)
STEEL, NICKEL ALLOY and OTHER SPECIAL ALLOYS

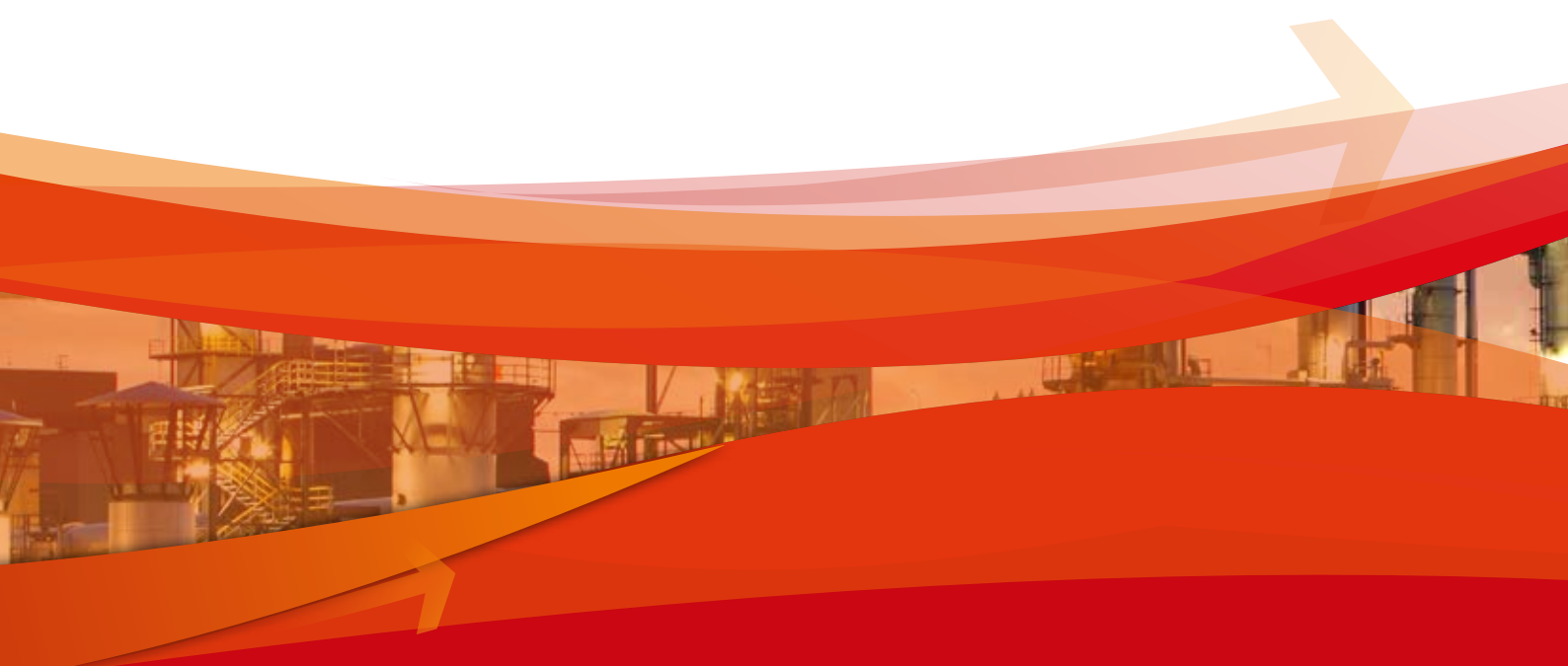
WORKING PRESSURE, PSIG

CLASS	TEMP °F	A216 WCB A105	A217 C5	A217 WC6 A182 F11	A217 WC9 A182 F22	A352 LCB	A352 LC3 A350 LF3	A351 CF8M A182 F316	A351 CF3M	A351 CF8 A182 F304	A351 CF3	A351 CF8C	A351 CN7M
CLASS 900	-20 to 100 °	2220	2250	2250	2250	2085	2250	2160	2160	2160	2160	2160	1800
	200	2025	2250	2135	2150	1970	2250	1860	1860	1800	1800	1910	1670
	300	1970	2185	2020	2030	1915	2185	1540	1540	1410	1410	1765	1570
	400	1900	2115	1975	1945	1850	2115	1540	1540	1410	1410	1665	-
	500	1795	1995	1925	1920	1745	1995	1435	1435	1310	1310	1555	-
	600	1640	1815	1815	1815	1600	1815	1355	1355	1245	1245	1475	-
	650	1610	1765	1765	1765	1570	1765	1330	1330	1225	1225	1440	-
	700	1600	1705	1705	1705	-	-	1295	1295	1210	1210	1405	-
	750	1510	1595	1595	1595	-	-	1270	1270	1195	1195	1385	-
	800	1235	1490	1525	1525	-	-	1245	1245	1180	1180	1370	-
	850	805 ¹	1315	1460	1460	-	-	1215	1215	1165	-	1330	-
	900	515 ¹	1060	1350	1350	-	-	1180	-	1150	-	1295	-
	950	310 ¹	780	1130	1130	-	-	1160	-	1125	-	1160	-
	1000	155 ¹	575	670	805	-	-	1090	-	965	-	1090	-
	1050	-	420	410	595	-	-	1080	-	925	-	1080	-
	1100	-	310	290	340	-	-	965	-	770	-	965	-
	1150	-	205	-	-	-	-	825	-	585	-	825	-
	1200	-	135	-	-	-	-	620 ³	-	465	-	515	-
	1250	-	-	-	-	-	-	545	-	330	-	370	-
	1300	-	-	-	-	-	-	410	-	245	-	280	-
	1350	-	-	-	-	-	-	310	-	185	-	205	-
	1400	-	-	-	-	-	-	225	-	145	-	155	-
	1450	-	-	-	-	-	-	175	-	105	-	125	-
	1500	-	-	-	-	-	-	125	-	70	-	105	-
CLASS 1500	-20 to 100 °	3705	3750	3750	3750	3470	3750	3600	3600	3600	3600	3600	3000
	200	3375	3750	3560	3580	3280	3750	3095	3095	3000	3000	3180	2785
	300	3280	3640	3365	3385	3190	3640	2795	2795	2640	2640	2940	2615
	400	3170	3530	3290	3240	3085	3530	2570	2570	2350	2350	2770	-
	500	2995	3325	3210	3200	2910	3325	2390	2390	2185	2185	2590	-
	600	2735	3025	3025	3025	2665	3025	2255	2255	2075	2075	2460	-
	650	2685	2940	2940	2940	2615	2940	2220	2220	2040	2040	2400	-
	700	2665	2840	2840	2840	-	-	2160	2160	2015	2015	2340	-
	750	2520	2660	2660	2660	-	-	2110	2110	1990	1990	2305	-
	800	2060	2485	2540	2540	-	-	2075	2075	1970	1970	2280	-
	850	1340 ¹	2195	2435	2435	-	-	2030	2030	1945	-	2220	-
	900	860 ¹	1765	2245	2245	-	-	1970	-	1920	-	2160	-
	950	515 ¹	1305	1885	1885	-	-	1930	-	1870	-	1930	-
	1000	260 ¹	960	1115	1340	-	-	1820	-	1610	-	1820	-
	1050	-	705	685	995	-	-	1800	-	1545	-	1800	-
	1100	-	515	480	565	-	-	1610	-	1285	-	1610	-
	1150	-	345	-	-	-	-	1370	-	980	-	1370	-
	1200	-	225	-	-	-	-	1030 ³	-	770	-	855	-
	1250	-	-	-	-	-	-	910	-	550	-	615	-
	1300	-	-	-	-	-	-	685	-	410	-	465	-
	1350	-	-	-	-	-	-	515	-	310	-	345	-
	1400	-	-	-	-	-	-	380	-	240	-	255	-
	1450	-	-	-	-	-	-	290	-	170	-	205	-
	1500	-	-	-	-	-	-	205	-	120	-	170	-
CLASS 2500	-20 to 100 °	6170	6250	6250	6250	5785	6250	6000	6000	6000	6000	6000	5000
	200	5625	6250	5930	5965	5470	6250	5160	5160	5000	5000	5300	4640
	300	5470	6070	5605	5640	5315	6070	4660	4660	4400	4400	4900	4360
	400	5280	5880	5485	5400	5145	5880	4280	4280	3920	3920	4620	-
	500	4990	5540	5350	5330	4850	5540	3980	3980	3640	3640	4320	-
	600	4560	5040	5040	5040	4440	5040	3760	3760	3460	3460	4160	-
	650	4475	4905	4905	4905	4355	4905	3700	3700	3400	3400	4000	-
	700	4440	4730	4730	4730	-	-	3600	3600	3360	3360	3900	-
	750	4200	4430	4430	4430	-	-	3520	3520	3320	3320	3840	-
	800	3430	4145	4230	4320	-	-	3460	3460	3280	3280	3800	-
	850	2230 ¹	3660	4060	4060	-	-	3320	3320	3240	-	3700	-
	900	1430 ¹	2945	3745	3745	-	-	3280	-	3200	-	3600	-
	950	860 ¹	2170	3145	3145	-	-	3220	-	3120	-	3220	-
	1000	430 ¹	1600	1860	2230	-	-	3330	-	2685	-	3330	-
	1050	-	1170	1145	1660	-	-	3000	-	2570	-	3000	-
	1100	-	860	800	945	-	-	2685	-	2145	-	2685	-
	1150	-	570	-	-	-	-	2285	-	1630	-	2285	-
	1200	-	370	-	-	-	-	1715	-	1285	-	1430	-
	1250	-	-	-	-	-	-	1515	-	915	-	1030	-
	1300	-	-	-	-	-	-	1145	-	685	-	770	-
	1350	-	-	-	-	-	-	860	-	515	-	570	-
	1400	-	-	-	-	-	-	630	-	400	-	430	-
	1450	-	-	-	-	-	-	485	-	285	-	345	-
	1500	-	-	-	-	-	-	345	-	200	-	285	-



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