Válvulas Industriales

ANSI GATE, GLOBE AND CHECK VALVES & STRAINERS

Válvulas Industriales

INDEX

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THE POWER OF EXPERIENCE

CVA has built up more than thirty years of professional and business specialisation in the industrial valve sector. It is an organisation fully oriented towards customer satisfaction, and the experience acquired in supplying more than 3,000 users with very different needs and levels of requirements makes CVA a highly efficient and competitive specialised partner.

Válvulas Industriales

COMERCIAL DE VÁLVULAS Y ACCESORIOS

THE STRENGHT OF THE ENGINEERING

The CVA's engineering department investigates and tests the valves at limit conditions to optimise their performance and to ensure that they are reliable and last as long as possible under operational conditions, qualities certified by the principal institutions and approved by companies providing a good representation of the industrial sector.

THE DYNAMIC OF THE SERVICE

CVA's technical/sales team, with a high level of technical qualifications, co-operates closely with customers, from advice and provision of specific solutions to the design of whole projects.

CAPACITY FOR RESPONSE

CVA guarantees to supply any valve, anywhere, as quickly as possible. More than 2,000m^2 of warehouses and 8,000 items in permanent stock ensure speed of delivery, maintaining safety stocks for each customer. In addition, CVA's latest generation computer network provides traceability and instant information in the course of each delivery.

THE POWER OF THE RANGE

CVA has an extensive range of industrial valves for multiple sectors and uses. The availability of all basic systems with many alternatives and options allows CVA to offer a specific valve for every need and working condition; from the smallest (1/8") up to largest diameters (48") and from the lowest pressure (20 mBar) to the highest (720 Bar), in various materials: iron, carbon steel, stainless steel, bronze, brass, steel alloys...

GATE VALVES

GLOBE VALVES

CHECK VALVES

STRAINERS

MANUFACTURERS

CVA has achieved important agreements with renowned manufacturers of high quality.

JC VALVES

JOY

ICP VALVES

For this reason, we can offer a wide range of ball valves of a higher quality and worldwide reputed.

CVA has commited to quality and service with the aim to meet our customers satisfaction, at the time that we have built up an international reputation.

CVA is certified ISO 9001:2008. All ball valves that we commercialize follow well known quality assurance standards that currently require main industries.

CERTIFICATES

MANUFACTURERS PRODUCTS APPROVALS

- ISO 9001 : 2008 certified
- API Q1 certified by the AMERICAN
- PETROLEUM INSTITUTE
- PED 97 / 23 / EC certified

MANUFACTURING PROGRAM

- API 6D certified by the AMERICAN PETROLEUM INSTITUTE
- CE Marking (Module H, Category III) in accordance with PED 97 / 23 / EC
- Fire Safe ISO 10947 : 2004
- API 607 3rd., 4th. and 5th. Edition
- BS 6755 Part 2 certified by Lloyd's Register and SGS
- GOST "R" certified for Russian market
- SIL 3 (Safety integrity level)
- Atex

ISO 9001

API 6D
API 6A
API 600

PED 97 / 23 / EC

FUGITIVE EMISSIONS
EN-ISO 15848-1

CERT

ISO 14001

II 2 G Dc
ATEX

GOST-R

FIRE SAFE
ISO 10497 : 2004
API 607: 3rd, 4th, 5th edition

RePro Registrado

SECTORS OF APPLICATION

SECTORS OF APPLICATION	TYPE OF VALVES				
	PROCESS			STRAINERS	
	Gate	Globe	Check	Y Type	Large Capacity
General Processes	●	●	●	●	
Agriculture / Fertiliser				●	
Automotive				●	
Chemical	●	●	●	●	●
Mining				●	
Nuclear	●	●	●	●	●
Onshore	●	●	●	●	●
Oil & Gas	●	●	●	●	●
Offshore	●	●	●	●	●
Petrochemical	●	●	●	●	●
Power generation	●	●	●	●	●
Shipbuilding / Marine	●	●	●	●	●
Waste incineration	●	●	●	●	●
HVAC- Climatization				●	
Refineries	●	●	●	●	●
(Waste) Water	●			●	

● Specific Application ● Optional Application

GENERAL HIGHLIGHTS

- **Cast or forged gate, globe & check valves (swing, piston or dual plate).**
- **Bellow sealed globe valve.**
- **Full or reduced bore.**
- **Flanged according ANSI, or threaded NPT or welded ends according SW, BW or with nipples.**
- **Sizes from 1/4" to 36".**
- **Rating from ANSI150 until ANSI2500 lbs.**
- **Bolted bonnet, welded bonnet or pressure seal.**
- **Strainers cast, forged or welded steel for big dimensions.**
- **Type "Y", basket, temporary or "T".**
- **Full traceability of shell components certificate EN 10204 3.1.**
- **NACE MR01.75 wetting parts and bolting under request.**

SERVICES

CAPACITY

The capacity of CVA is not just limited for the supply of all kinds of valves and accesories, but also it is capable to contribute a complement of services that, with total security, can be so useful in various existing requirements for new installations or as spares.

SPECIFICATIONS

Accordingly to the specifications and instructions, Heating jackets can be adapted to most types of valves.

ASSEMBLIES

Different kinds of special assemblies such as ellectric or pneumatic actuators (regulation and commisioning included), solenoid valves, regulation panels, limit switches, are jointly for the development of general drawings and operation diagrams.

MODIFICATIONS

We modify the ends connections in relation to the requirement in a short-term delivery, (Flanged RTJ, NPT to SW, RF to BW, SW to RF, RF to FF, etc.)

OPERATORS

Manouvering accesories (Handwheels, gearboxes, chains, hydraulic, etc.)

ELONGATIONS

Heat sinks, Stem elongations.








COATINGS

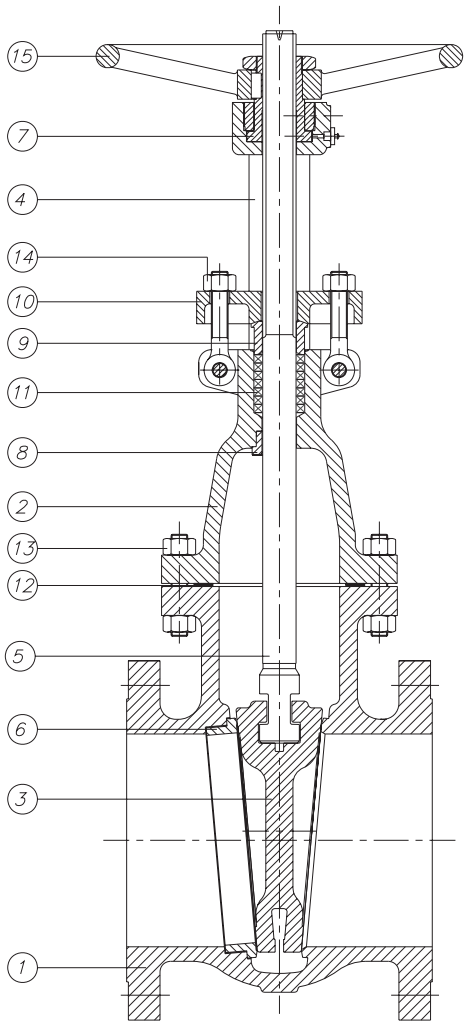
Paint finishes and special coatings and supply of components in exotic materials and high pressure valves.

REPAIR & ADVICE

We complement our support services for repair, modification and / or expansion of facillities with plant visits. External technical advice.

CAST GATE VALVES

2" - 36" | Class 150 - Class 2500



BILL OF MATERIALS		TRIM 8	TRIM 2	TRIM 8	TRIM 10
Item	Description	Carbon Steel	Carbon Steel (Low Temp.)	Alloy Steel	Stainless Steel
1	Body	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
2	Bonnet	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
3	Wedge	A 216 Gr. WCB + ER410	A 352 Gr. LCB + ER308	A 217 Gr.C5 + ER410	A 351 Gr. CF8M
4	Yoke	A 216 Gr. WCB	A 352 Gr.LCB	A 217 Gr. C5	A 351 Gr. CF8M
5	Stem	A 182 Gr. F6a	A 182 Graph. F304	A 182 Gr. F6a	A 182 Gr. F316
6	Seat Ring	A 105 + Stellite	A 182 Gr. F304	A 182 Gr. F6a + Stellite	-----
7	Stem Nut	B 148 / A 439 Gr. D2	B 148 / A 439 Gr. D2	B 148 / A 439 Gr. D2	B 148 / A 439 Gr. D2
8	Backseat	A182 Gr. F6a	A182 Gr. F304	A 182 Gr. F6a	-----
9	Gland	A 105	A 105	A 182 Gr. F6a	A 182 Gr. F316
10	Gland Flange	A 105	A 105	A 105	A 182 Gr. F304
11	Stem Packing	Graphite	Graphite	Graphite	Graphite
12	Gasket (Class 150)	SS304 / Graphite	SS304 / Graphite	SS304 / Graphite	SS316 / Graphite
12	Gasket (Class 300)	Spw SS304 / Graphite	Spw SS304 / Graphite	Spw SS304 / Graphite	Spw SS316 / Graphite
12	Gasket (Class 600)	Spw SS304 / Graphite	Spw SS304 / Graphite	Spw SS304 / Graphite	Spw SS316 / Graphite
12	Gasket (Class 900)	RJ SS304	RJ SS304	RJ SS304	RJ SS316
12	Gasket (Class 1500)	RJ SS304	RJ SS304	RJ SS304	RJ SS316
12	Gasket (Class 2500)	RJ SS304	RJ SS304	RJ SS304	RJ SS316
13	Bonnet Bolt & Nut	A 193 Gr.B7 / A 194 Gr.2H	A320 Gr. L7 / A194 Gr. 7	A 193 Gr.B7 / A 194 Gr.2H	A 193 Gr.B7 / A 194 Gr.2H(1)
14	Eye Bolt & Nut	A 193 Gr.B7 / A 194 Gr.2H	A 193 Gr.B7 / A 194 Gr.2H	A 193 Gr.B7 / A 194 Gr.2H	A 193 Gr.B7 / A 194 Gr.2H
15	Handwheel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel

* Standard construction with trim 8,2 and 10. Others constructions are available.
(1) Zinc coating.

PRESENTATION

Gate valves serve as efficient on-off valves with flow in either direction. In such a design, a wedge slides cross a general passageway in order to control fluid flow (like a sliding gate - hence, the name). One of the most significant characteristics of this type of valves is its straight-through, unobstructed passageway when set in the "full open" position. This is made possible by the wedge lifting entirely out of the passageway. As a result, gate valves are characterized by a minimum of turbulence and pressure drop in operation.

While gate valves are good for applications requiring these two factors, they are not recommended for installations in which throttling would be a function. They are designed for on/off service.

HIGHLIGHTS

Body and Bonnet

Bodies and bonnets are high quality cast and afterwards precisely machined, directing the attention to prevent stress concentration.

The bodies of gate valves consist of a straight through port that guarantees minimal turbulence and resistance to flow. In both designs, bolted bonnet and pressure seal, the bodies consist of guide slots to accommodate the wedge during opening or closing of the valve.

Bonnets are made either of one piece only –the yoke then being an integral part of it– or have two pieces, depending on the size of the valve. This ensures the perfect alignment with the body what leads to an accurate opening and closing.

Backseat

All JC gate and globe valves have backseat threaded in the bonnet, or for the pressure seal valves, welded to the bonnet. Into pressure seal the hard facing is stellite 6 or equivalent.

Stem

The stems of JC gate valves are forged from one piece and ACME threaded, then mechanized and finally provided with a smooth finishing in order to minimize friction.

In gate valves, the union of stem and wedge shall be in T form, designed to prevent the stem disengaging itself from the wedge while being in service. This design includes a conical raised surface that presses the seat against the bonnet backseat in the fully open position.

Body and Bonnet Gaskets

The design of the body-bonnet/gaskets varies depending on the class of the valve.

Class 150 gate valves consist of a square joint in 2" and an oval one for all other sizes. Depending on the valve service it can be supplied flat-face gasket with graphite or PTFE.

Class 300 and 600 valves consist of a circular spiral wound gasket.

Class 900 and above gate valves consist of a ring type joint.

In pressure seal designs the sealing is achieved through a gasket that takes advantage of the internal pressure of the line. The material most commonly used is high-purity graphite being located between the body and the body retainer ring.

Flexible Wedge

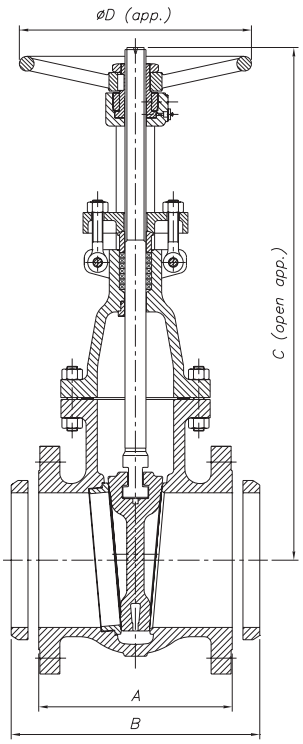
All Jc gate valves 3" and above valves feature a flexible wedge unless otherwise specified by the customer. The flexible wedge shifts along the body of the valve during opening and closing, being held in position by a guide slot that minimizes the friction between body seat and wedge. This design is especially suited to compensate slight thermal deformations produced by the pipe or the valve itself safeguarding a better sealing between body and wedge seats.

DESIGN STANDARDS	
Bolted Bonnet Gate Valve	API 600/ISO 10434 & ASME B16.34
Pressure Seal Gate Valve (Long & Short pattern)	ASME B16.34
API 603 Gate Valve	API 603
Through Conduit Gate Valve	API 6D
Cryogenic Gate	API 600 / BS 1873 & BS 6364
Face to Face / End to End Dimensions	ASME B16.10 / ISO 5752
End Flanged dimensions	ASME B16.5 / ISO 7005-1, ASME B16.47-A&B,MSS SP- 44 & API 605
Butt-weld End dimensions	ASME B16.25
Valve inspection & testing	API 600 / ISO 10434 & ISO 5208, EN 17266
Pressure - Temperature rating	ASME B16.34

TEST / INSPECTION METHODS & ACCEPTANCE CRITERIA		
TEST / INSPECTION	METHOD	ACCEPTANCE CRITERIA
Visual Inspection		MSS SP-55
Marking		MSS SP-25 & ISO5208
Dimensional Inspection		Aplicable valve
Chemical Analysis	ASTM E350	Aplicable Standard
Mechanical Properties	ASTM A370	Aplicable Standard
Liquid Penetrant Inspection	ASTM A165	ASME B16.34
Magnetic Particle Inspection	ASTM E709	ASME B16.34
Radiographic Inspection	ASME B16.34	ASME B16.34
Ultrasonic Inspection	ASTM A388	ASME B16.34
Pressure Testing	API 598 / ISO 5208	API 598 / ISO 5208

GATE VALVE API 600 / BS1414 BOLTED BONNET | Class 150 | VC150BB

Sizes 2" to 36"



Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

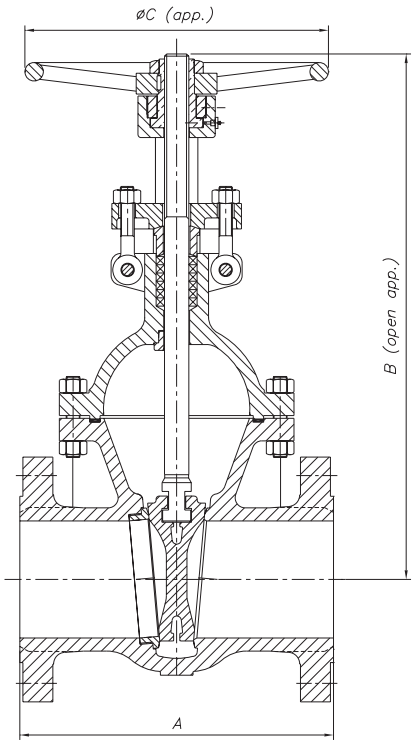
GENERAL DIMENSIONS

DN	A	B	C	ØD	WEIGHT (App.) (**)
50 (2")	178	216	386	200	17
65 (2 1/2")	190	241	435	200	27
80 (3")	203	282,5	483	250	33
100 (4")	229	305	587	250	48
125 (5")	254	381	673	300	65
150 (6")	267	403	767	300	78
200 (8")	292	419	955	350	120
250 (10")	330	457	1146	450	176
300 (12")	356	502	1328	500	260
350 (14")	381	572	1519	460 (*)	380 (*)
400 (16")	406	610	1721	460 (*)	530 (*)
450 (18")	432	660	1900	460 (*)	620 (*)
500 (20")	457	711	2116	610 (*)	810 (*)
550 (22")	483	762	2315	610 (*)	1050 (*)
600 (24")	508	813	2480	610 (*)	1150 (*)
650 (26")	559	-	2700	610 (*)	1380 (*)
700 (28")	610	-	2975	610 (*)	1980 (*)
750 (30")	610	-	3102	610 (*)	2200 (*)
900 (36")	711	-	3668	710 (*)	2800 (*)

(*) With Gear Operator.
(**) With flanges.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GATE VALVE API 600 / BS1414 BOLTED BONNET | Class 300 | VC300BB

Sizes 2" to 24"



Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

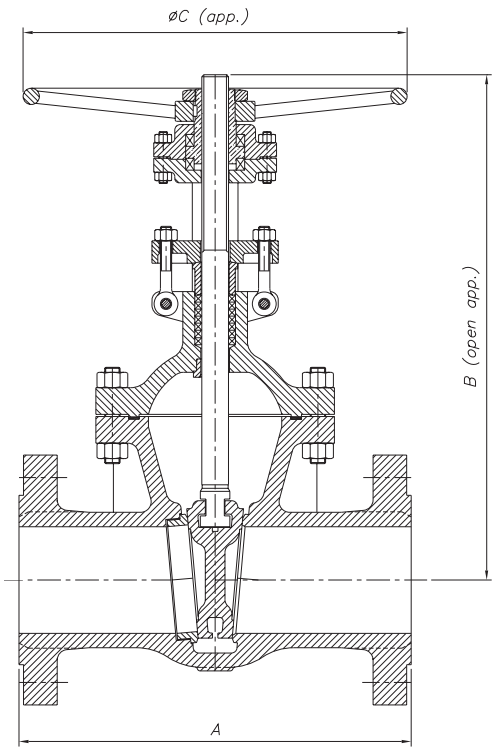
GENERAL DIMENSIONS

DN	A (RF / BW)	B	ØC	WEIGHT (App.)
50 (2")	216	417	200	24
65 (2 1/2")	241	460	250	35
80 (3")	282,5	526	250	49
100 (4")	305	650	250	69
125 (5")	381	694	300	92
150 (6")	403	824	350	130
200 (8")	419	987	450	208
250 (10")	457	1192	500	333
300 (12")	502	1431	560	536
350 (14")	762	1559	460 (*)	699 (*)
400 (16")	838	1758	460 (*)	1010 (*)
450 (18")	914	1942	610 (*)	1205 (*)
500 (20")	991	2145	610 (*)	1720 (*)
550 (22")	1092	2340	610 (*)	1920 (*)
600 (24")	1143	2526	610 (*)	2580 (*)

(*) With Gear Operator.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GATE VALVE API 600 / BS1414 BOLTED BONNET | Class 600 | VC600BB

Sizes 2" to 24"



Carbon and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

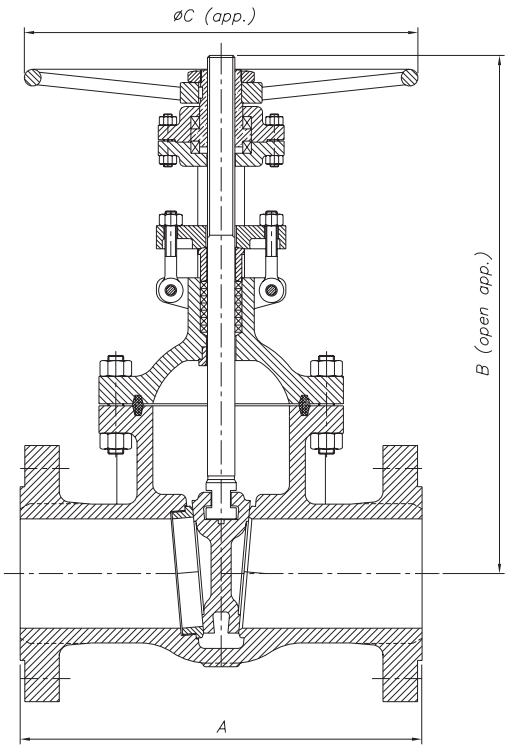
GENERAL DIMENSIONS

DN	A (RF/BW)	B	ØC	WEIGHT (App.)
50 (2")	292	427	250	33
65 (2 1/2")	330	473	250	58
80 (3")	356	538	300	63
100 (4")	432	657	350	131
125 (5")	508	770	400	182
150 (6")	559	872	500	253
200 (8")	660	1101	560	413
250 (10")	787	1279	720	623
300 (12")	838	1486	610 (*)	784 (*)
350 (14")	889	1643	610 (*)	1288 (*)
400 (16")	991	1798	610 (*)	1820 (*)
450 (18")	1092	2101	610 (*)	2150 (*)
500 (20")	1194	2259	710 (*)	2540 (*)
550 (22")	1295	2405	760 (*)	2800 (*)
600 (24")	1397	2545	760 (*)	3350 (*)

(*) With Gear Operator.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GATE VALVE API 600 / BS1414 BOLTED BONNET | Class 900 | VC900BB

Sizes 2" to 20"



Carbon and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

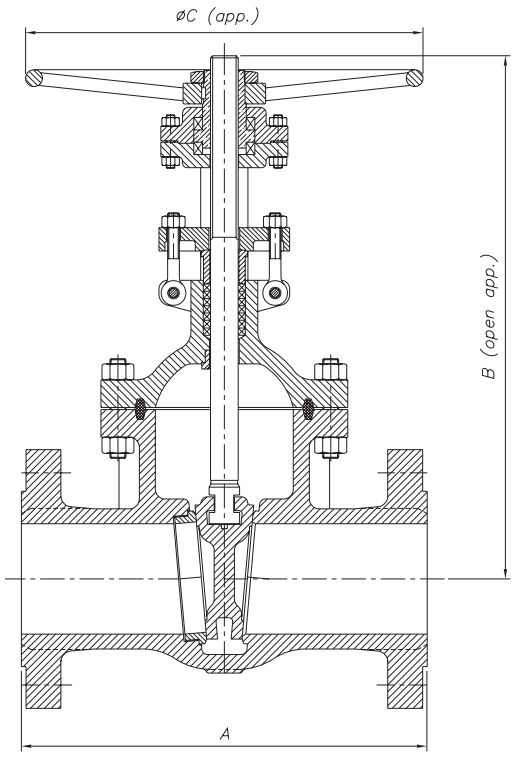
GENERAL DIMENSIONS

DN	A (RF/BW)	B	ØC	WEIGHT (App.)
50 (2")	368	547	300	90
65 (2 1/2")	419	700	350	110
80 (3")	381	648	400	123
100 (4")	457	729	450	148
125 (5")	559	890	500	280
150 (6")	610	1041	560	420
200 (8")	737	1260	460 (*)	650 (*)
250 (10")	838	1590	610 (*)	1160 (*)
300 (12")	965	1795	610 (*)	1700 (*)
350 (14")	1029	2025	760 (*)	2300 (*)
400 (16")	1130	2170	760 (*)	2750 (*)
450 (18")	1219	2345	760 (*)	3120 (*)
500 (20")	1321	2610	760 (*)	3550 (*)

(*) With Gear Operator.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GATE VALVE API 600 / BS1414 BOLTED BONNET | Class 1500 | VC1500BB

Sizes 2" to 16"



Carbon and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

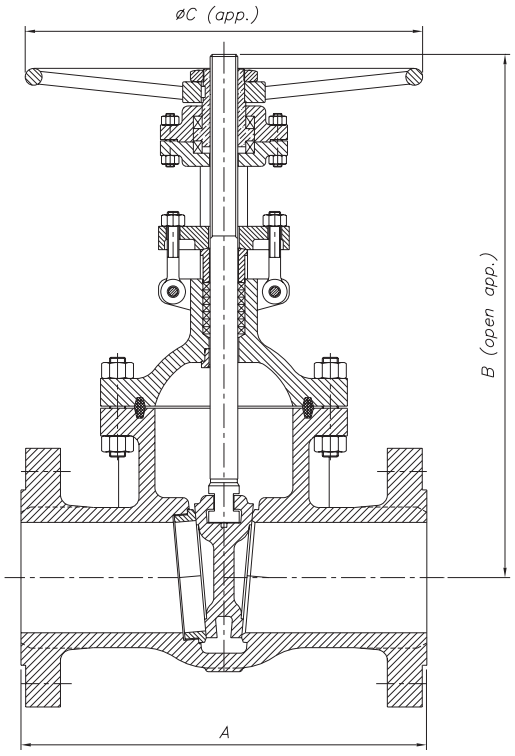
GENERAL DIMENSIONS

DN	A (RF/BW)	B	ØC	WEIGHT (App.)
50 (2")	368	574	350	117
65 (2 1/2")	419	700	400	175
80 (3")	470	806	450	240
100 (4")	546	887	560	337
125 (5")	673	995	560	485
150 (6")	705	1079	305 (*)	680
200 (8")	832	1370	610 (*)	1228 (*)
250 (10")	991	1520	760 (*)	2218 (*)
300 (12")	1130	1651	760 (*)	3260 (*)
350 (14")	1257	1825	760 (*)	3990 (*)
400 (16")	1384	1995	760 (*)	5420 (*)

(*) With Gear Operator.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GATE VALVE API 600 / BS1414 BOLTED BONNET | Class 2500 | VC2500BB

Sizes 2" to 14"



Carbon and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

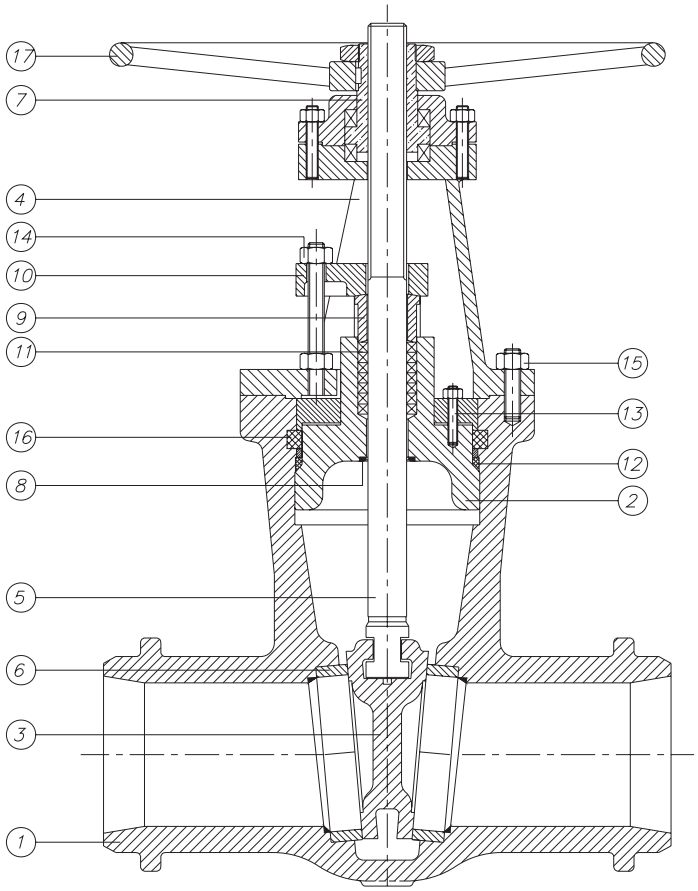
ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

GENERAL DIMENSIONS

DN	A (RF/BW)	B	ØC	WEIGHT (App.)
50 (2")	451	595	400	155
65 (2 1/2")	508	675	450	215
80 (3")	578	750	560	285
100 (4")	673	805	610	405
125 (5")	794	1010	610	715
150 (6")	914	1200	460 (*)	1050 (*)
200 (8")	1022	1346	610 (*)	1700 (*)
250 (10")	1270	1500	760 (*)	2950 (*)
300 (12")	1422	1700	760 (*)	4120 (*)
350 (14")	1575	1950	760 (*)	5790 (*)

(*) With Gear Operator.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CAST GATE VALVES
PRESSURE SEAL
2" - 20" | Class 900 - Class 2500

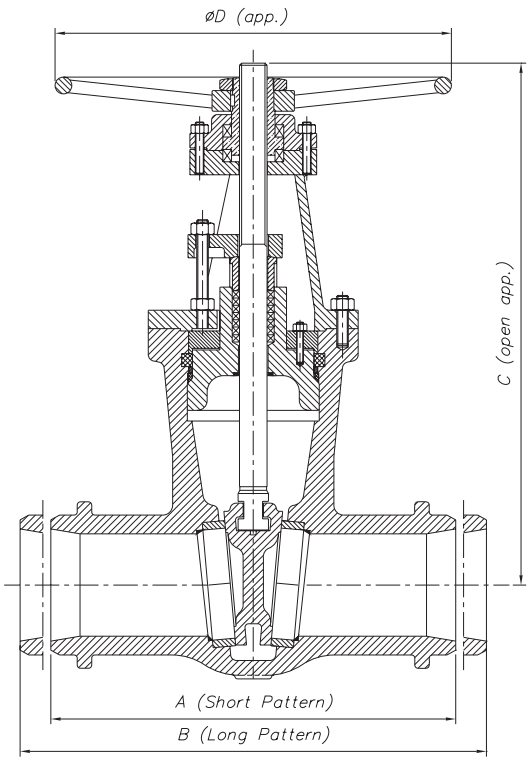


BILL OF MATERIALS		TRIM 8	TRIM 2	TRIM 8	TRIM 10
Item	Description	Carbon Steel	Carbon Steel (Low Temp.)	Alloy Steel	Stainless Steel
1	Body	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
2	Bonnet	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
3	Wedge	A 216 Gr. WCB + Stellite	A 352 Gr.e LCB + Stellite	A 217 Gr. C5 + Stellite	A 351 Gr. CF8M + Stellite
4	Yoke	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
5	Stem	A 182 Gr. F6a	A 182 Gr. F304	A 182 Gr. F6a	A 182 Gr. F316
6	Seat Ring	A 105 + Stellite	A 182 Gr. F304 + Stellite	A 182 Gr. F6a + Stellite	A 182 Gr. F316 + Stellite
7	Stem Nut	B 148 / A 439 Gr. D2	B 148 / A 439 Gr. D2	B 148 / A 439 Gr. D2	B 148 / A 439 Gr. D2
8	Backseat	Stellite	Stellite	Stellite	Stellite
9	Gland	A 105	A 105	A 182 Gr. F6a	A 182 Gr. F316
10	Gland Flange	A 105	A 105	A 105	A 182 Gr. F304
11	Stem Packing	Graphite	Graphite	Graphite	Graphite
12	Gasket (Class 900)	Graphite or SS304L	Graphite or SS304L	Graphite or SS304L	Graphite or SS316L
12	Gasket (Class 1500)	Graphite or SS304L	Graphite or SS304L	Graphite or SS304L	Graphite or SS316L
12	Gasket (Class 2500)	Graphite or SS304L	Graphite or SS304L	Graphite or SS304L	Graphite or SS316L
13	Bonnet Bolt & Nut	A 193 Gr. B7 / A 194 Gr. 2H	A320 Gr. L7 / A194 Gr. 7	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H (1)
14	Bolt & Nut	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H
15	Yoke Bolt & Nut	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H (1)
16	Segmental Ring	A 515 Gr. 70	A 182 Gr. F304	A 182 Gr. F304	A 182 Gr. F316
17	Handwheel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel

(1) Zinc coating.

GATE VALVE ASME B16.34 PRESSURE SEAL | Class 900 | VC900PS

Sizes 2" to 20"



* Long pattern available with flanges.

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

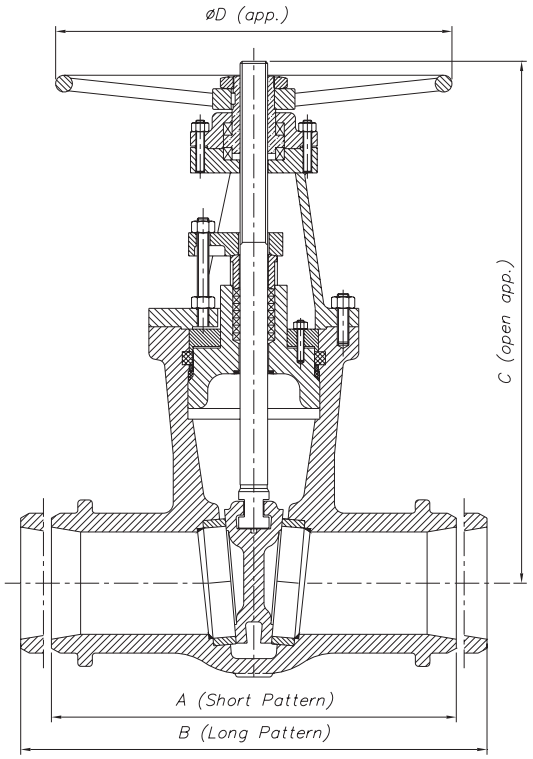
GENERAL DIMENSIONS

DN	A	B	C	ØD	WEIGHT (App.) (**)
50 (2")	216	368	570	250	55
65 (2 1/2")	254	419	680	250	65
80 (3")	305	381	795	350	80
100 (4")	356	457	870	350	215
125 (5")	432	559	975	400	275
150 (6")	508	610	1070	460	320
200 (8")	660	737	1360	400 (*)	580 (*)
250 (10")	787	838	1505	400 (*)	890 (*)
300 (12")	914	965	1630	460 (*)	1105 (*)
350 (14")	991	1029	1795	500 (*)	1370 (*)
400 (16")	1092	1130	1945	610 (*)	2050 (*)
450 (18")	-	1219	2155	610 (*)	2780 (*)
500 (20")	-	1321	2305	710 (*)	3420 (*)

(*) With Gear Operator.
(**) BW ends, short pattern.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GATE VALVE ASME B16.34 PRESSURE SEAL | Class 1500 | VC1500PS

Sizes 2" to 18"



* Long pattern available with flanges.

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

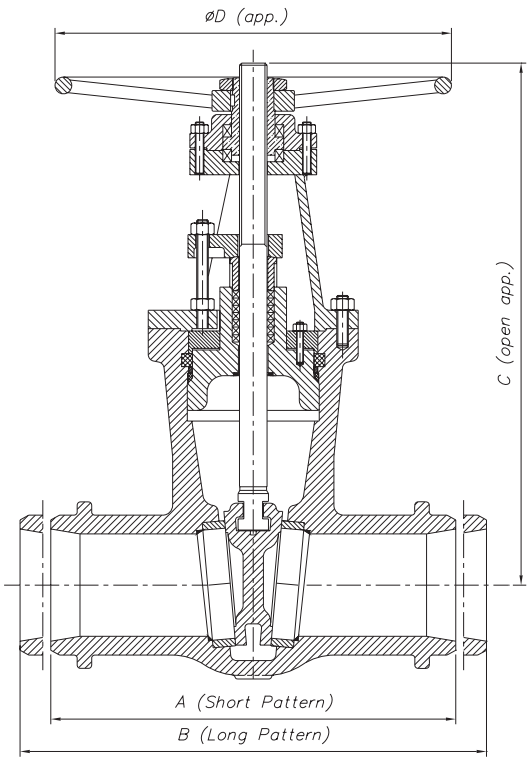
GENERAL DIMENSIONS

DN	A	B	C	ØD	WEIGHT (App.) (**)
50 (2")	216	368	574	250	67
65 (2 1/2")	254	419	700	350	95
80 (3")	305	470	806	350	119
100 (4")	406	546	887	400	280
125 (5")	483	673	990	460	370
150 (6")	559	705	1079	460 (*)	475 (*)
200 (8")	711	832	1370	710 (*)	855 (*)
250 (10")	863	991	1520	710 (*)	1222 (*)
300 (12")	991	1130	1650	710 (*)	1470 (*)
350 (14")	1067	1257	1820	710 (*)	1990 (*)
400 (16")	1194	1384	1990	760 (*)	2850 (*)
450 (18")	1346	1537	2180	760 (*)	3905 (*)

(*) With Gear Operator.
(**) BW ends, short pattern.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GATE VALVE ASME B16.34 PRESSURE SEAL | Class 2500 | VC2500PS

Sizes 2" to 12"



* Long pattern available with flanges.

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

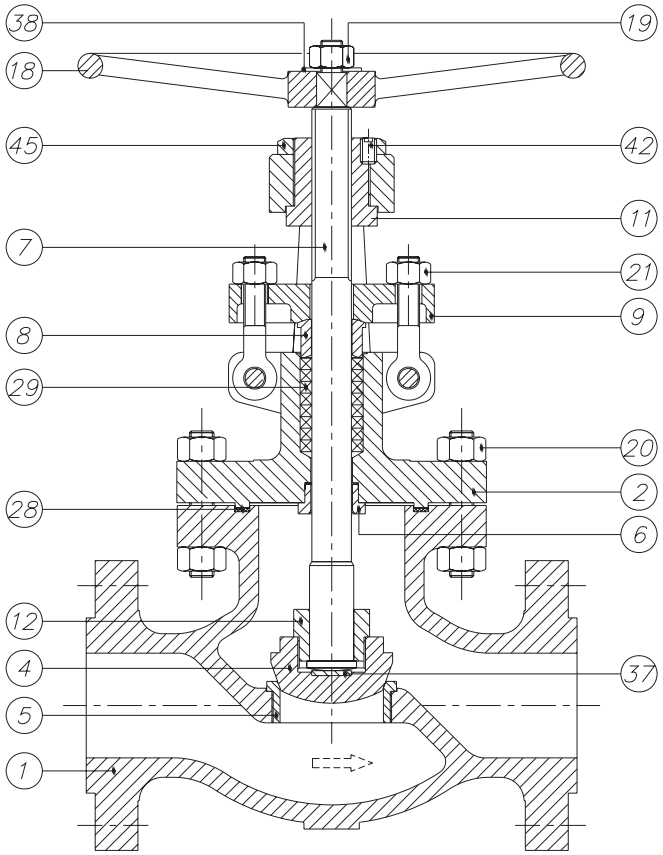
GENERAL DIMENSIONS

DN	A	B	C	ØD	WEIGHT (App.) (**)
50 (2")	279	451	585	250	90
65 (2 1/2")	330	508	710	350	120
80 (3")	368	578	820	350	155
100 (4")	457	673	895	400	315
125 (5")	533	794	980	500	395
150 (6")	610	914	1060	500 (*)	525 (*)
200 (8")	762	1022	1310	710 (*)	980 (*)
250 (10")	914	1270	1480	710 (*)	1315 (*)
300 (12")	1041	1422	1520	760 (*)	1850 (*)

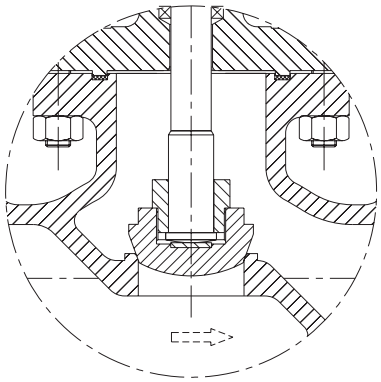
(*) With Gear Operator.
(**) BW ends, short pattern.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CAST GLOBE VALVES

2" - 16" | Class 150 - Class 2500



Stainless Steel
Construction



BILL OF MATERIALS		TRIM 8	TRIM 2	TRIM 8	TRIM 10
Item	Description	Carbon Steel	Carbon Steel (Low Temp.)	Alloy Steel	Stainless Steel
1	Body	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
2	Bonnet	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
4	Disc	A105 + ER 410	A 182 Gr. F304	A 217 Gr. C5 + ER 410	A 351 Gr. CF8M
5	Seat Ring	A105 + Stellite	A 182 Gr. F304	A182 Gr. F6a + Stellite	-----
6	Backseat	A182 Gr. F6a	A 182 Gr. F304	A182 Gr. F6a	-----
7	Stem	A182 Gr. F6a	A 182 Gr. F304	A182 Gr. F6a	A 182 Gr. F316
8	Gland	A 105	A 105	A182 Gr. F6a	A 182 Gr. F316
9	Gland Flange	A 105	A 105	A 105	A 182 Gr. F304
11	Stem Nut	B 148 / A 439 Gr. D2	B 148 / A 439 Gr. D2	B 148 / A 439 Gr. D2	B 148 / A 439 Gr. D2
12	Disc Nut	A 182 Gr. F6a	A 182 Gr. F304	A 182 Gr. F6a	A 182 Gr. F316
18	Handwheel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
19	Handwheel Nut	Steel	Steel	Steel	Steel
20	Bonnet Bolt & Nut	A 193 Gr.B7 / A 194 Gr.2H	A320 Gr. L7 / A194 Gr. 7	A 193 Gr.B7 / A 194 Gr.2H	A 193 Gr.B7 / A 194 Gr.2H(1)
21	Eye Bolt & Nut	A 193 Gr.B7 / A 194 Gr.2H	A 193 Gr.B7 / A 194 Gr.2H	A 193 Gr.B7 / A 194 Gr.2H	A 193 Gr.B7 / A 194 Gr.2H
28	Gasket (Class 150)	SS304 / Graphite	SS304 / Graphite	SS304 / Graphite	SS316 / Graphite
28	Gasket (Class 300)	Spw SS304 / Graphite	Spw SS304 / Graphite	Spw SS304 / Graphite	Spw SS316/Graphite
28	Gasket (Class 600)	Spw SS304 / Graphite	Spw SS304 / Grahite	Spw SS304 / Graphite	Spw SS316/Graphite
28	Gasket (Class 900)	RJ SS304	RJ SS304	RJ SS304	RJ SS316
28	Gasket (Class 1500)	RJ SS304	RJ SS304	RJ SS304	RJ SS316
28	Gasket (Class 2500)	RJ SS304	RJ SS304	RJ SS304	RJ SS316
29	Stem Packing	Graphite	Graphite	Graphite	Graphite
37	Thrust Washer	A 182 Gr. F6a	A 182 Gr. F304	A 182 Gr. F6a	A 182 Gr. F316
38	Washer	Steel	Steel	Steel	Steel
42	Grub Screw	A 193 Gr. B7	A 193 Gr. B7	A 193 Gr. B7	A 193 Gr. B7
45	Lock Nut	Steel	Steel	A 182 Gr. F6a	A 182 Gr. F316

* Standard construction with trim 8,2 and 10. Others constructions are available.
(1) Zinc coating.

PRESENTATION

All globe valves utilize the "port closure" concept of valves. By this it meant that fluid passes through a specific opening (rather than a general passageway, as in the case of gate valves), and the fluid is controlled by means of a stem-mounted disc or inserted plug in that area.

Despite of lacking the straight through, unobstructed passageway of the gate valve, these globe types are superior in two key aspects - throttling and serviceability under frequent use. They are better at the throttling function because they permit fluid to exit uniformly around the circumference of a seat, rather than "slicing" down to limit passage through a narrowly restricted area.

HIGHLIGHTS

Stem

The stems of JC globe valves are forged from one piece and ACME threaded, then mechanized and finally provided with a smooth finishing in order to minimize friction.

Body and Bonnet Gasket

The design of the body-bonnet gasket varies depending on the class of the valve.

Class 150 to 600 globe valves consist of a circular male-female connection with a graphite or spiral wound gasket.

Class 900 and above globe valves consist of a ring type joint.

In pressure seal designs the sealing is achieved through a gasket that takes advantage of the internal pressure of the line. The material most commonly used is high-purity graphite being located between the body and the body retainer ring.

Body and Bonnet

Bodies and bonnets are high quality cast and afterwards precisely machined, directing the attention to prevent stress concentration.

Bonnets are made either of one piece only –the yoke then being an integral part of it – or have two pieces, depending on the size of the valve. This ensures the perfect alignment with the body what leads to an accurate opening and closing.

Bodies of globe valves are designed considering the same characteristics as gate valves, which in this case means that the disc is guided in bigger valve sizes or high pressure service in order to avoid vibrations and better seat.

Backseat

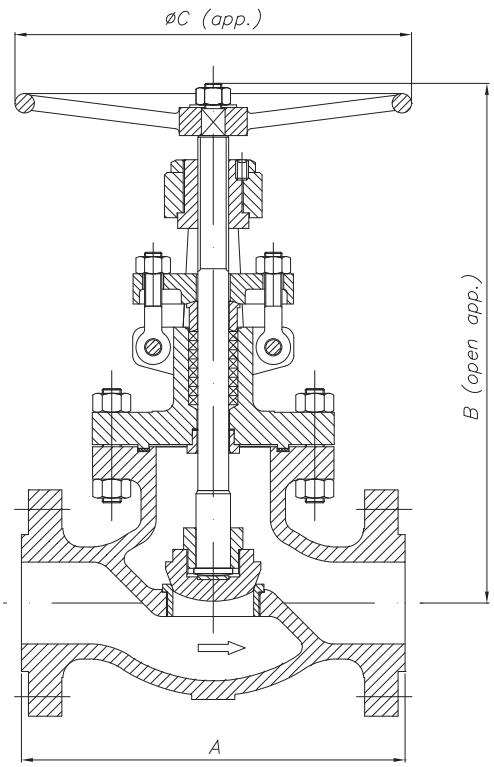
All JC gate and globe valves have backseat threaded in the bonnet, or for the pressure seal valves, welded to the bonnet.The hard facing is stellite 6 or equivalent.

DESIGN STANDARDS	
Bolted Bonnet Globe Valve	ASME B16.34
Bolted Bonnet Globe Valve	BS 1873 & ASME B16.34
Pressure Seal Globe Valve (Long & Short pattern)	ASME B16.34
Face to Face / End to End Dimensions	ASME B16.10 / ISO 5752
End Flanged dimensions	ASME B16.5 / ISO 7005-1, ASME B16.47-A&B MSS SP- 44 & API 605
Butt-weld End dimensions	ASME B16.25
Valve inspection & testing	BS1873, ISO 5208, BS 6755, EN 17266
Pressure - Temperature rating	ASME B16.34

TEST / INSPECTION METHODS & ACCEPTANCE CRITERIA		
TEST / INSPECTION	METHOD	ACCEPTANCE CRITERIA
Visual Inspection		MSS SP-55
Marking		MSS SP-25 & ISO5208
Dimensional Inspection		Aplicable valve
Chemical Analysis	ASTM E350	Aplicable Standard
Mechanical Properties	ASTM A370	Aplicable Standard
Liquid Penetrant Inspection	ASTM A165	ASME B16.34
Magnetic Particle Inspection	ASTM E709	ASME B16.34
Radiographic Inspection	ASME B16.34	ASME B16.34
Ultrasonic Inspection	ASTM A388	ASME B16.34
Pressure Testing	API 598 / ISO 5208	API 598 / ISO 5208

GLOBE VALVE BS1873 BOLTED BONNET | Class 150 | VG150BB

Sizes 2" to 16"



TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

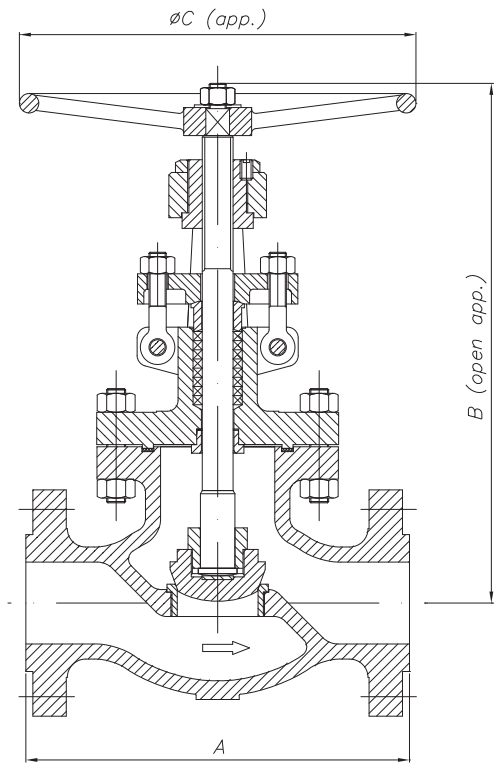
GENERAL DIMENSIONS

DN	A (RF / BW)	B	ØC	WEIGHT (App.)
50 (2")	203	341	200	22
65 (2 1/2")	216	367	250	29
80 (3")	241	375	250	40
100 (4")	292	483	300	64
125 (5")	356	537	300	77
150 (6")	406	517	350	105
200 (8")	495	590	400	154
250 (10")	622	754	450	288
300 (12")	698	941	640	507
350 (14")	787	1085	640	520
400 (16")	914	1250	460 (*)	810 (*)

(*) With Gear Operator.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GLOBE VALVE BS1873 BOLTED BONNET | Class 300 | VG300BB

Sizes 2" to 12"



TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

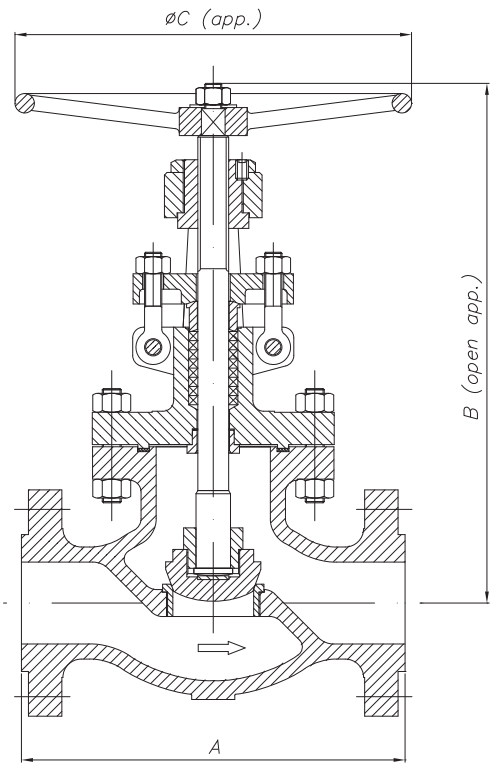
GENERAL DIMENSIONS

DN	A (RF / BW)	B	ØC	WEIGHT (App.)
50 (2")	267	349	200	31
65 (2 1/2")	292	376	250	43
80 (3")	318	430	250	57
100 (4")	356	486	350	86
125 (5")	400	560	400	130
150 (6")	444	618	450	168
200 (8")	559	937	560	280
250 (10")	622	949	640	385
300 (12")	711	995	460 (*)	671 (*)

(*) With Gear Operator.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GLOBE VALVE BS1873 BOLTED BONNET | Class 600 | VG600BB

Sizes 2" to 12"



TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

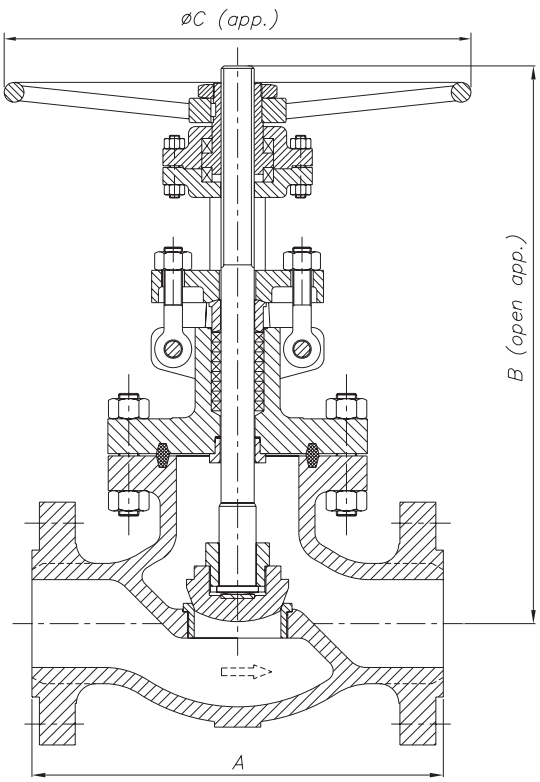
GENERAL DIMENSIONS

DN	A (RF / BW)	B	ØC	WEIGHT (App.)
50 (2")	292	425	250	35
65 (2 1/2")	330	502	300	48
80 (3")	356	521	350	73
100 (4")	432	620	450	117
125 (5")	508	756	500	245
150 (6")	559	886	560	327
200 (8")	660	932	460 (*)	482 (*)
250 (10")	787	1040	610 (*)	700 (*)
300 (12")	838	1280	760 (*)	900 (*)

(*) With Gear Operator.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GLOBE VALVE BS1873 BOLTED BONNET | Class 900 | VG900BB

Sizes 2" to 8"



TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

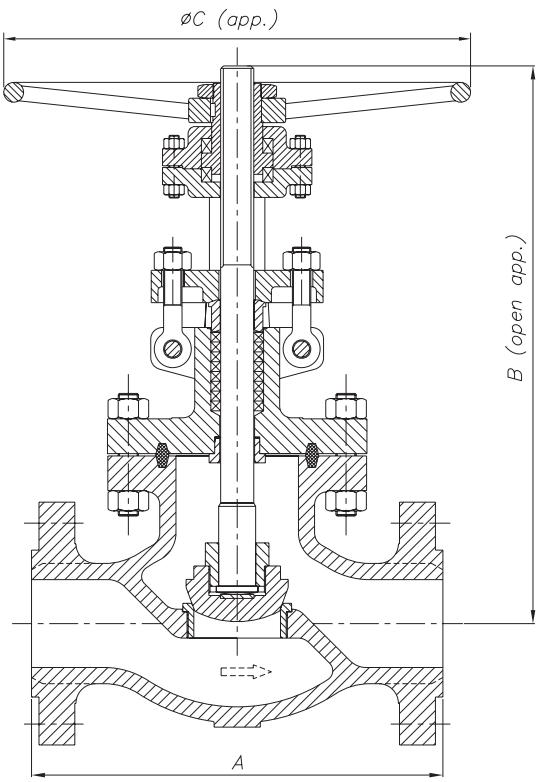
GENERAL DIMENSIONS

DN	A (RF / BW)	B	ØC	WEIGHT (App.)
50 (2")	368	478	350	105
65 (2 1/2")	419	550	350	120
80 (3")	381	614	450	131
100 (4")	457	789	560	218
125 (5")	559	825	560	235
150 (6")	610	886	460 (*)	452 (*)
200 (8")	737	932	610 (*)	710 (*)

(*) With Gear Operator.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GLOBE VALVE BS1873 BOLTED BONNET | Class 1500 | VG1500BB

Sizes 2" to 8"



TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

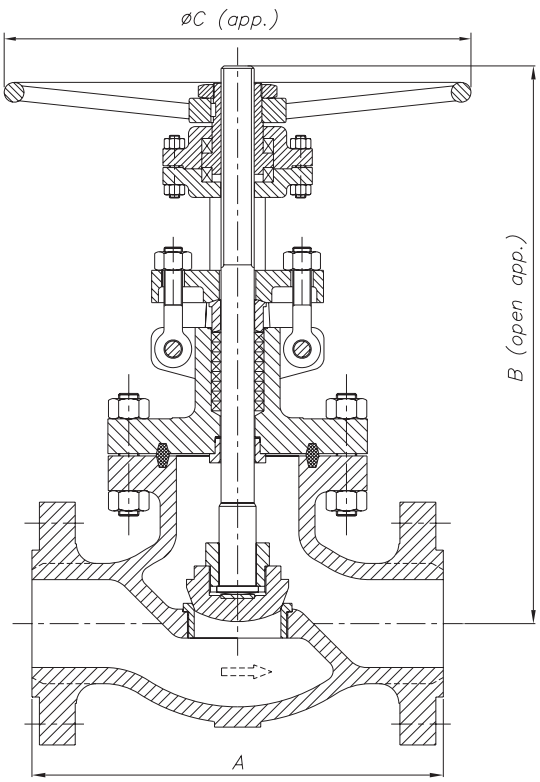
GENERAL DIMENSIONS

DN	A (RF / BW)	B	ØC	WEIGHT (App.)
50 (2")	368	592	350	112
65 (2 1/2")	419	605	450	175
80 (3")	470	692	450	228
100 (4")	546	907	460 (*)	336 (*)
125 (5")	673	965	560 (*)	585 (*)
150 (6")	705	1015	610 (*)	822 (*)
200 (8")	832	1145	610 (*)	960 (*)

(*) With Gear Operator.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GLOBE VALVE BS1873 BOLTED BONNET | Class 2500 | VG2500BB

Sizes 2" to 8"



TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

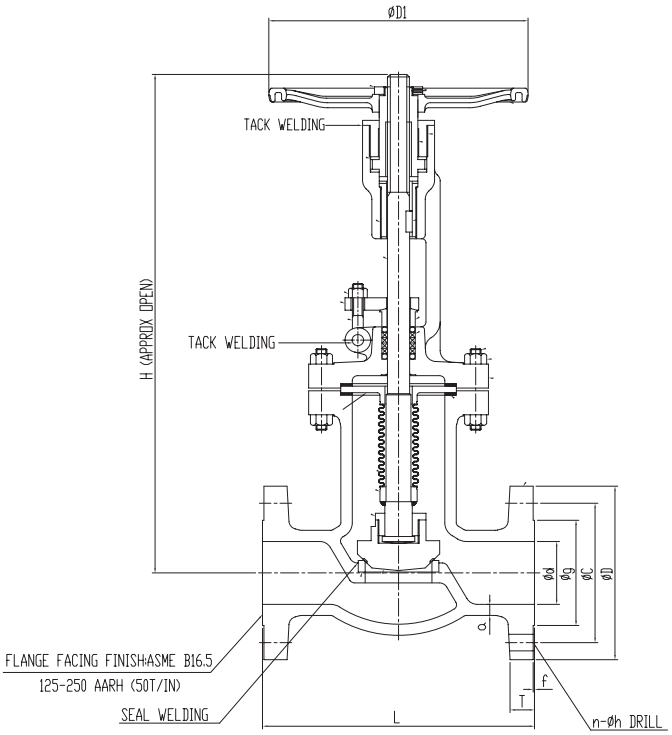
GENERAL DIMENSIONS

DN	A (RF / BW)	B	ØC	WEIGHT (App.)
50 (2")	451	635	350	135
65 (2 1/2")	508	690	450	270
80 (3")	578	745	460	335
100 (4")	673	975	560 (*)	510 (*)
125 (5")	794	1025	610 (*)	730 (*)
150 (6")	914	1105	610 (*)	995 (*)
200 (8")	1022	1225	610 (*)	1185 (*)

(*) With Gear Operator.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

BELLOWS GLOBE VALVE API 600 BOLTED BONNET | Class 150 | VGF150BB

Sizes 2" to 12"



Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

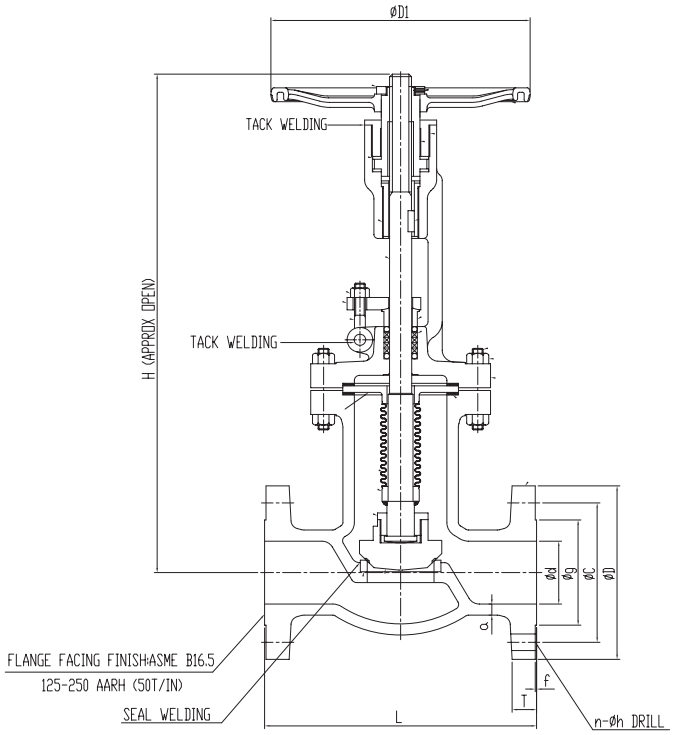
GENERAL DIMENSIONS

DN	d	g	C	D	L	T	f	a	D1	N-Øh
2"	50.8	91.9	120.7	152.4	203.2	15.5	1.6	8.6	180	4 – 19.1
2 1/2"	63.5	104.6	139.7	177.8	215.9	17.5	1.6	9.7	224	4 – 19.1
3"	76.2	127	152.4	190.5	241.3	19.1	1.6	10.4	224	4 – 19.1
4"	101.6	157.2	190.5	228.6	292.1	23.9	1.6	11.2	250	8 – 19.1
6"	152.4	215.9	241.3	279.4	406.4	25.4	1.6	11.9	355	8 – 22.2
8"	203.2	269.7	298.5	342.9	495.3	28.5	1.6	12.7	355	8 – 22.2
10"	254	323.9	362	406.4	622.3	30.2	1.6	14.2	450	12 – 25.4
12"	304.8	381	431.8	482.6	698.5	31.8	1.6	16	500	12 – 25.4

(*) With Gear Operator.
(**) With flanges.
Dimensions in mm.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

BELLOWS GLOBE VALVE API 600 BOLTED BONNET | Class 300 | VGF300BB

Sizes 2" to 12"



Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

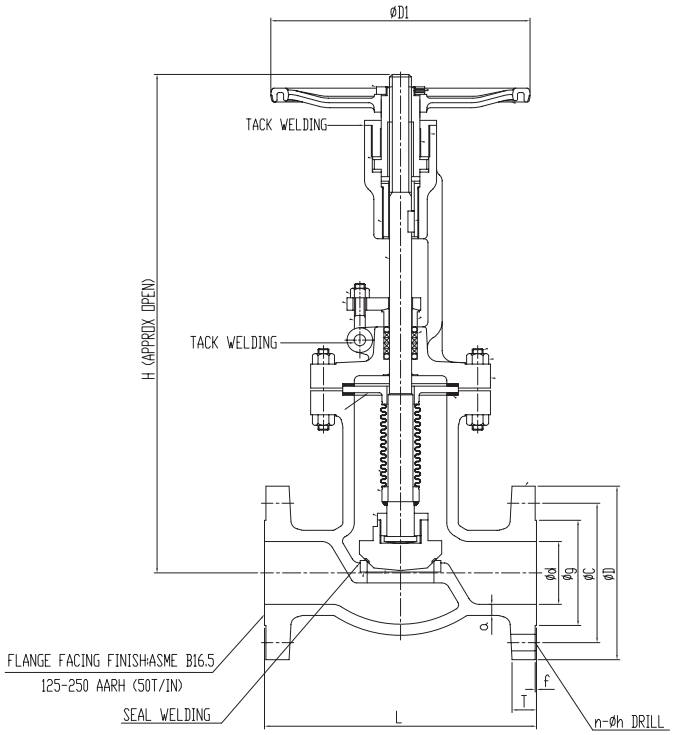
GENERAL DIMENSIONS

DN	d	g	C	D	L	T	f	a	D1	N-Øh
2"	50.8	91.9	127	165.1	266.7	22.4	1.6	9.7	180	8 – 19.1
2 1/2"	63.5	104.6	149.4	190.5	292.1	25.4	1.6	11.2	224	8 – 22.2
3"	76.2	127	168.1	209.6	317.5	28.4	1.6	11.9	250	8 – 22.2
4"	101.6	157.2	200.2	254	355.6	31.8	1.6	12.7	355	8 – 22.2
6"	152.4	215.9	269.7	317.5	444.5	36.6	1.6	16	450	12 – 22.2
8"	203.2	269.7	330.2	381	558.8	41.1	1.6	17.5	560	12 – 25.4
10"	254	323.9	387.4	444.5	622.3	47.8	1.6	19.1	560	12 – 28.6
12"	304.8	381	450.9	520.7	711.2	50.8	1.6	20.6	630	16 – 31.8

(*) With Gear Operator.
Dimensions in mm.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

BELLOWS GLOBE VALVE API 600 BOLTED BONNET | Class 600 | VGF600BB

Sizes 2" to 12"



Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM N°	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

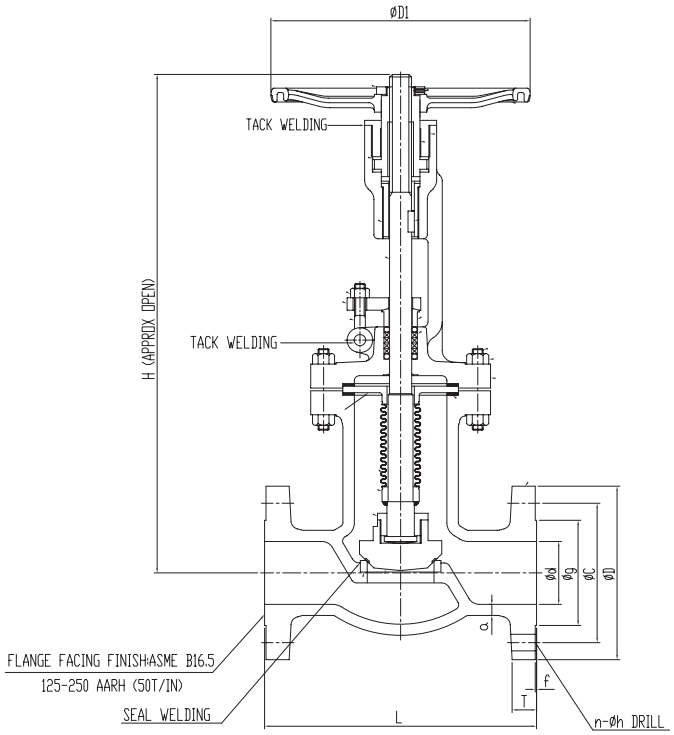
GENERAL DIMENSIONS

DN	d	g	C	D	L	T	f	a	D1	N-Øh
2"	50.8	91.9	127	165.1	292.1	25.4	6.4	11.2	50.8	8 – 19.1
2 1/2"	63.5	104.6	149.2	190.5	330.2	28.4	6.4	11.9	63.5	8 – 22.2
3"	76.2	127	168.3	209.6	355.6	31.8	6.4	12.7	76.2	8 – 22.2
4"	101.6	157.2	215.9	273.1	431.8	38.1	6.4	16	101.6	8 – 25.4
6"	152.4	215.9	292.1	355.6	558.8	47.8	6.4	19.1	152.4	12 – 28.6
8"	203.2	269.7	349.2	419.1	660.4	55.6	6.4	25.4	203.2	12 – 31.8
10"	254	323.9	431.8	508	787.4	63.5	6.4	28.7	254	16 – 34.9
12"	304.8	381	488.9	558.8	838.2	66.5	6.4	31.8	304.8	20 – 34.9

(*) With Gear Operator.
(**) With flanges.
Dimensions in mm.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

BELLOWS GLOBE VALVE API 600 BOLTED BONNET | Class 900 | VGF900BB

Sizes 2" to 12"



Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

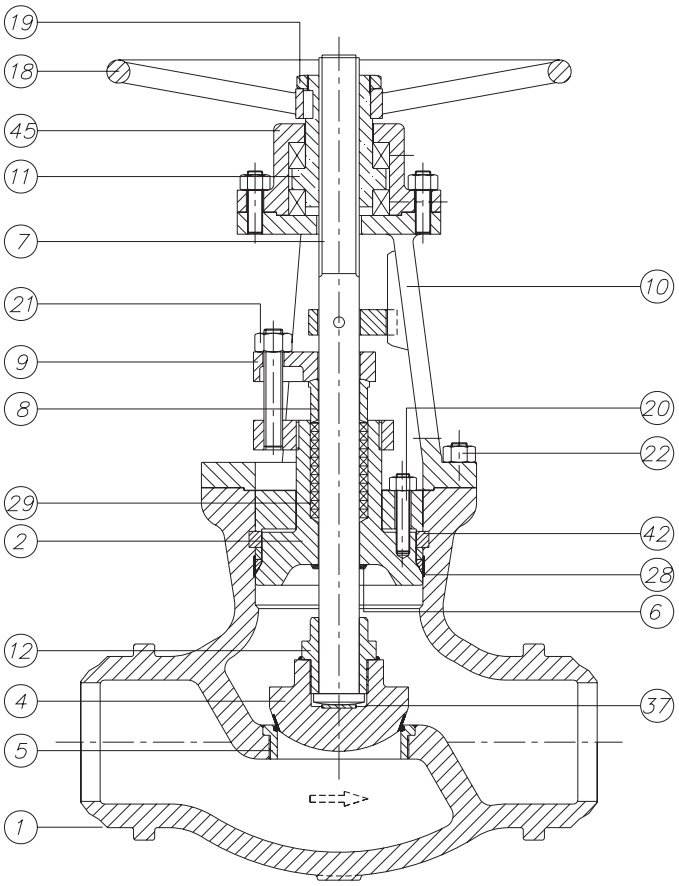
ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

GENERAL DIMENSIONS

DN	d	g	C	D	L	T	f	a	D1	N-Øh
2"	47.5	91.9	165.1	215.9	368	38.1	6.4	19.1	47.5	8 – 25.4
2 1/2"	57.2	104.6	190.5	244.3	419	41.1	6.4	23.4	57.2	8 – 28.6
3"	72.9	127	190.5	241.3	381	38.1	6.4	19.5	72.9	8 – 25.4
4"	98.3	157.2	235	292.1	457	44.5	6.4	21.3	98.3	8 – 31.8
6"	146.1	215.9	317.5	381	610	55.6	6.4	26.2	146.1	12 – 31.8
8"	190.5	269.7	393.7	469.9	737	63.5	6.4	31.8	190.5	12 – 31.8
10"	238	323.9	469.9	546.1	838	69.9	6.4	36.6	238	16 – 38.1
12"	282.4	381	533.4	609.6	965	79.2	6.4	42.2	282.4	20 – 38.1

(*) With Gear Operator.
Dimensions in mm.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CAST GLOBE VALVES
PRESSURE SEAL
2" - 16" | Class 900 - Class 2500

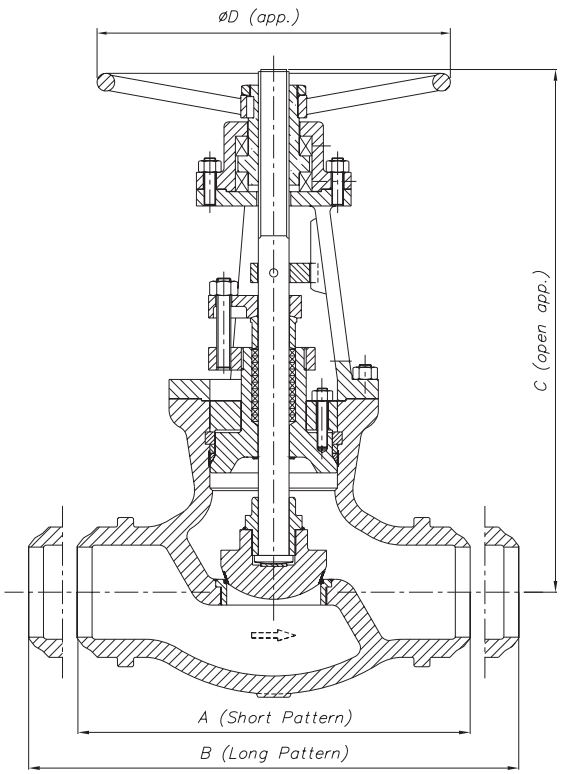


BILL OF MATERIALS		TRIM 8	TRIM 2	TRIM 8	TRIM 10
Item	Description	Carbon Steel	Carbon Steel (Low Temp.)	Alloy Steel	Stainless Steel
1	Body	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
2	Bonnet	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
4	Disc	A105 + Stellite	A182 Gr. F304 + Stellite	A 217 Gr. C5 + Stellite	A182 Gr. F316 + Stellite
5	Seat Ring	A105 + Stellite	A182 Gr. F304 + Stellite	A182 Gr. F6a + Stellite	A182F316 + Stellite
6	Backseat	Stellite	Stellite	Stellite	Stellite
7	Stem	A182 Gr. F6a	A182 Gr. F304	A182 Gr. F6a	A 182 Gr. F316
8	Gland	A105	A105	A182 Gr. F6a	A 182 Gr. F316
9	Gland Flange	A 105	A 105	A 105	A 182 Gr. F304
10	Yoke	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
11	Stem Nut	B148 / A 439 Gr. D2	B148 / A 439 Gr. D2	B148 / A 439 Gr. D2	B148 / A 439 Gr. D2
12	Disc Nut	A182 Gr. F6a	A182 Gr. F304	A182 Gr. F6a	A182 Gr. F316
18	Handwheel	Carbon Steel	Carbon Steel	Carbon Steel	Carbon Steel
19	Handwheel Nut	Steel	Steel	Steel	Steel
20	Bonnet Bolt & Nut	A 193 Gr. B7 / A 194 Gr. 2H	A320 Gr. L7 / A194 Gr. 7	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H (1)
21	Bolt & Nut	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H
22	Yoke Bolt & Nut	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H (1)
28	Gasket (Class 900)	Graphite or SS304L	Graphite or SS304L	Graphite or SS304L	Graphite or SS316L
28	Gasket (Class 1500)	Graphite or SS304L	Graphite or SS304L	Graphite or SS304L	Graphite or SS316L
28	Gasket (Class 2500)	Graphite or SS304L	Graphite or SS304L	Graphite or SS304L	Graphite or SS316L
29	Stem Packing	Graphite	Graphite	Graphite	Graphite
37	Thrust Washer	A182 Gr. F6a	A182 Gr. F304	A182 Gr. F6a	A182 Gr. F316
42	Segmental Ring	A 105	A182 Gr. F304	A182 Gr. F6a	A182 Gr. F316
45	Lock Nut	Steel	A182 Gr. F304	A182 Gr. F6a	A182 Gr. F316

(1) Zinc coating.

GLOBE VALVE ASME B16.34 PRESSURE SEAL | Class 900 | VG900PS

Sizes 2" to 16"



* Long pattern available with flanges.

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

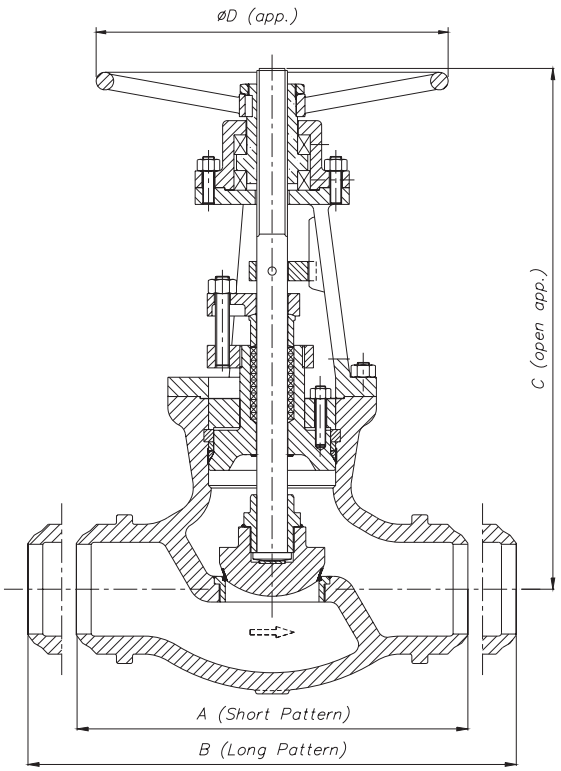
GENERAL DIMENSIONS

DN	A	B	C	ØD	WEIGHT (App.) (**)
50 (2")	216	368	460	350	90
65 (2 1/2")	254	419	535	350	105
80 (3")	305	381	605	400	120
100 (4")	356	457	750	450	195
125 (5")	432	559	815	450	230
150 (6")	508	610	875	500 (*)	355 (*)
200 (8")	660	737	930	500 (*)	630 (*)
250 (10")	787	838	1095	640 (*)	885 (*)
300 (12")	914	965	1205	640 (*)	1135 (*)
350 (14")	991	1029	1310	710 (*)	1580 (*)
400 (16")	1092	1130	1425	710 (*)	2295 (*)

(*) With Gear Operator.
(**) BW ends, short pattern.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GLOBE VALVE ASME B16.34 PRESSURE SEAL | Class 1500 | VG1500PS

Sizes 2" to 16"



* Long pattern available with flanges.

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

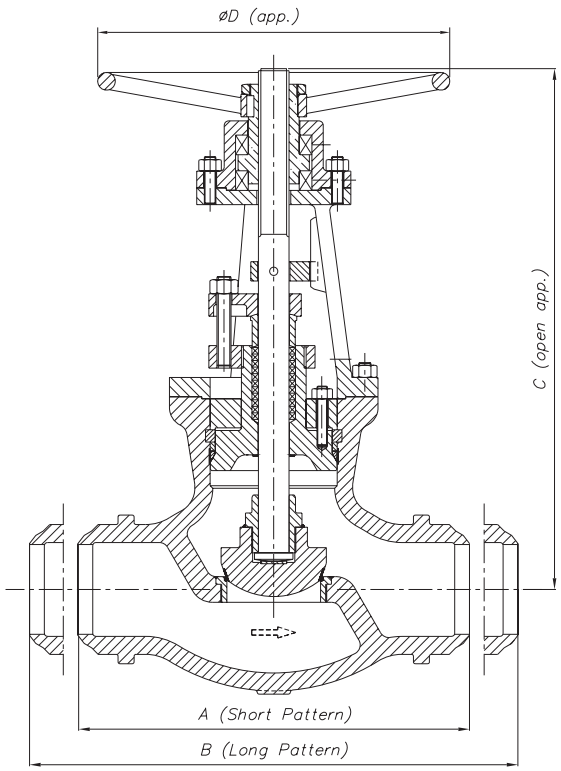
GENERAL DIMENSIONS

DN	A	B	C	ØD	WEIGHT (App.) (**)
50 (2")	216	368	592	350	82
65 (2 1/2")	254	419	660	400	135
80 (3")	305	470	692	450	192
100 (4")	406	546	907	500 (*)	307 (*)
125 (5")	483	673	960	500 (*)	485 (*)
150 (6")	559	705	1015	640 (*)	659 (*)
200 (8")	711	832	1150	640 (*)	945 (*)
250 (10")	864	991	1350	710 (*)	1080 (*)
300 (12")	991	1130	1740	710 (*)	1505 (*)
350 (14")	1067	1257	2095	760 (*)	2240 (*)
400 (16")	1194	1384	2490	760 (*)	3450 (*)

(*) With Gear Operator.
(**) BW ends, short pattern.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

GLOBE VALVE ASME B16.34 PRESSURE SEAL | Class 2500 | VG2500PS

Sizes 2" to 12"



* Long pattern available with flanges.

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

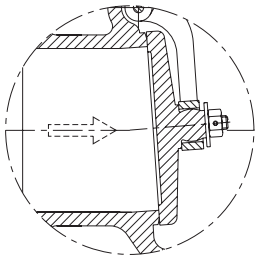
GENERAL DIMENSIONS

DN	A	B	C	ØD	WEIGHT (App.) (**)
50 (2")	279	451	620	350	95
65 (2 1/2")	330	508	705	400	175
80 (3")	368	578	750	450	265
100 (4")	457	673	980	500 (*)	385 (*)
125 (5")	533	794	1060	500 (*)	480 (*)
150 (6")	610	914	1130	640 (*)	685 (*)
200 (8")	762	1022	1285	710 (*)	870 (*)
250 (10")	914	1270	1490	710 (*)	1450 (*)
300 (12")	1041	1422	1680	760 (*)	2105 (*)

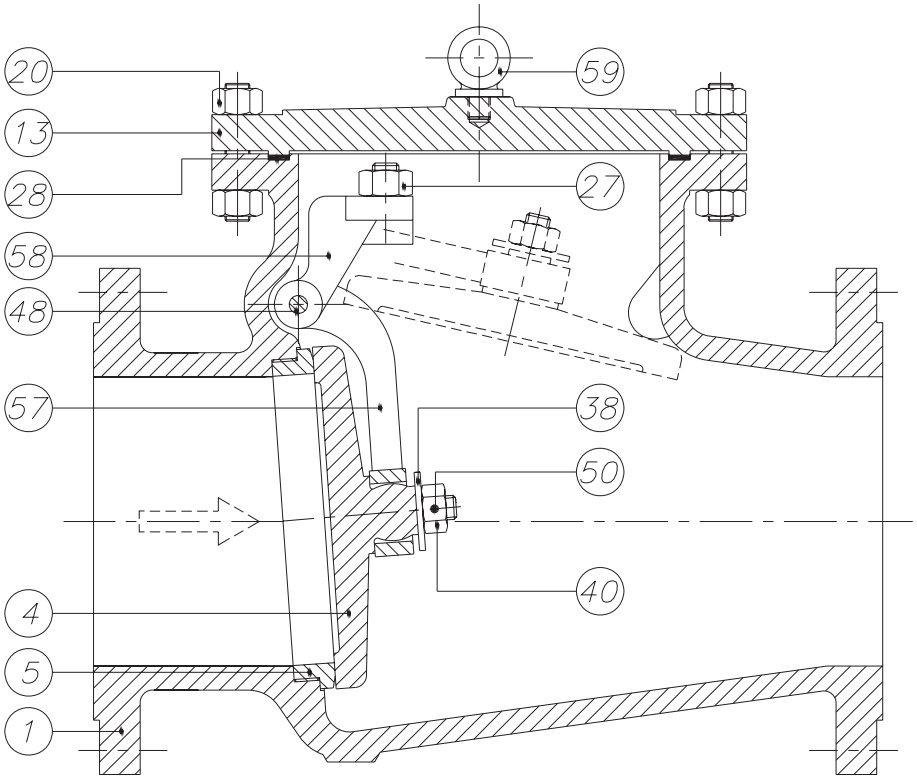
(*) With Gear Operator.
(**) BW ends, short pattern.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CAST CHECK VALVES

2" - 16" | Class 150 - Class 2500



Stainless Steel Construction



BILL OF MATERIALS		TRIM 8	TRIM 2	TRIM 8	TRIM 10
Item	Description	Carbon Steel	Carbon Steel (Low Temp.)	Alloy Steel	Stainless Steel
1	Body	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
4	Disc	A105 + ER 410	A 182 Gr. F304	A 182 Gr. F6a	A 182 Gr.F316
5	Seat Ring	A105 + Stellite	A 182 Gr. F304	A 182 Gr. F6a + Stellite	-----
13	Cover	A 216 Gr.WCB / A 515 Gr.70	A 352 Gr.LCB / A 182 Gr.F304	A 217 Gr. C5	A 351 Gr. CF8M
20	Cover Bolt & Nut	A 193 Gr.B7 / A 194 Gr.2H	A 320 Gr.L7 / A 194 Gr.7	A 193 Gr.B7 / A 194 Gr.2H	A 193 Gr.B7 / A 194 Gr.2H(1)
27	Bracket Stud & Nut	A 193 Gr.B8 / A 194 Gr.8	A 193 Gr.B8 / A 194 Gr.8	A 193 Gr.B8 / A 194 Gr.8	A 193 Gr.B8M / A 194 Gr.8M
28	Gasket	SPW S.S. 304 / Graphite	SPW S.S. 304 / Graphite	SPW S.S. 304 / Graphite	SPW S.S. 316 / Graphite
38	Washer	AISI 410	AISI 304	AISI 410	AISI 316
40	Disc Nut	AISI 304	AISI 304	AISI 304	AISI 316
48	Hinge Pin *	A182 Gr. F6a	A182 Gr. F304	A182 Gr. F6a	A 182 Gr. F316
50	Split Pin	AISI 304	AISI 304	AISI 304	AISI 316
57	Hinge	A 216 Gr.WCB / A 515 Gr.70	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
58	Hinge Bracket	A 216 Gr.WCB / A 515 Gr.70	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
59	Lifting Hook	A105	A105	A105	A105

* Standard construction with trim 8,2 and 10. Others constructions are available.
(1) Zinc coating.

PRESENTATION

While not a valve in the traditional sense, check valves serve an important application—namely to prevent flow in one direction while allowing it in the other.

A check valve is self-actuated and designed to prevent fluid from flowing back into the system (prevent reverse flow). Real-life applications include preventing backflow into an injection line or into a pump.

The fluid flow opens the valve by forcing a disk or ball in one direction. When the flow stops, the disk or ball is seated and closes the valve. They can be installed in horizontal or vertical upward flow piping.

HIGHLIGHTS

Body and Cover

Bodies and covers are high quality cast and afterwards precisely machined, directing the attention to prevent stress concentration.

The design characteristic of check valves is the unobstructed passageway, with a full-opening when required.

Body and Cover Gasket

The design of the body/cover gasket varies depending on the class of the valve.

Class 150 to 600 check valves consist of a male-female connection with a graphite or spiral wound gasket.

Class 900 and above check valves consist of a ring type joint.

In pressure seal designs the sealing is achieved through a gasket that takes advantage of the internal pressure of the line. The material most commonly used is high purity graphite being located between the body and the body retainer ring.

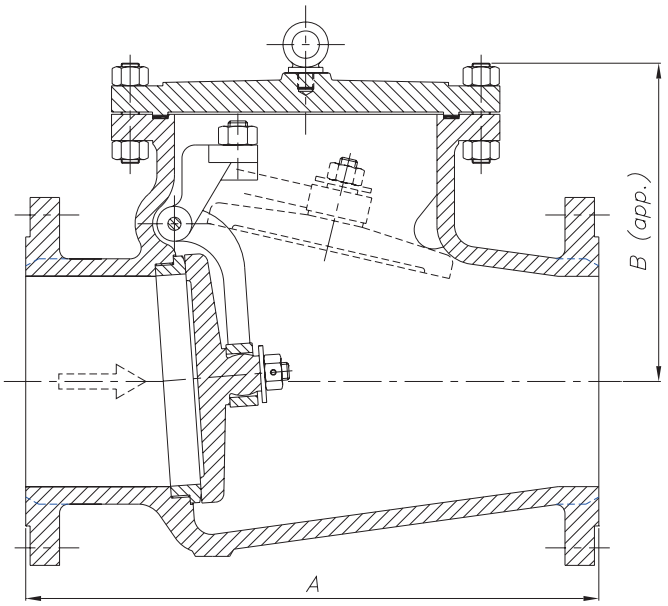
DESIGN STANDARDS	
Bolted Bonnet Swing Check Valve	BS1868 & ASME B16.34 & API 6D
Pressure Seal Swing Check Valve (Long & Short pattern)	ASME B16.34
Face to Face / End to End Dimensions	ASME B16.10 / ISO 5752
End Flanged dimensions	ASME B16.5 / ISO 7005-1, ASME B16.47-A&B MSS SP- 44 & API 605
Butt-weld End dimensions	ASME B16.25
Valve inspection & testing	BS1868 & ISO 5208 & BS6755
Pressure - Temperature rating	ASME B16.34

TEST / INSPECTION METHODS & ACCEPTANCE CRITERIA

TEST / INSPECTION	METHOD	ACCEPTANCE CRITERIA
Visual Inspection		MSS SP-55
Marking		MSS SP-25 & ISO5208
Dimensional Inspection		Aplicable valve
Chemical Analysis	ASTM E350	Aplicable Standard
Mechanical Properties	ASTM A370	Aplicable Standard
Liquid Penetrant Inspection	ASTM A165	ASME B16.34
Magnetic Particle Inspection	ASTM E709	ASME B16.34
Radiographic Inspection	ASME B16.34	ASME B16.34
Ultrasonic Inspection	ASTM A388	ASME B16.34
Pressure Testing	API 598 / ISO 5208	API 598 / ISO 5208

CHECK VALVE API 6D / BS 1868 BOLTED COVER | Class 150 | VR150BC

Sizes 2" to 36"



TRIM

API 600 TRIM N°	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

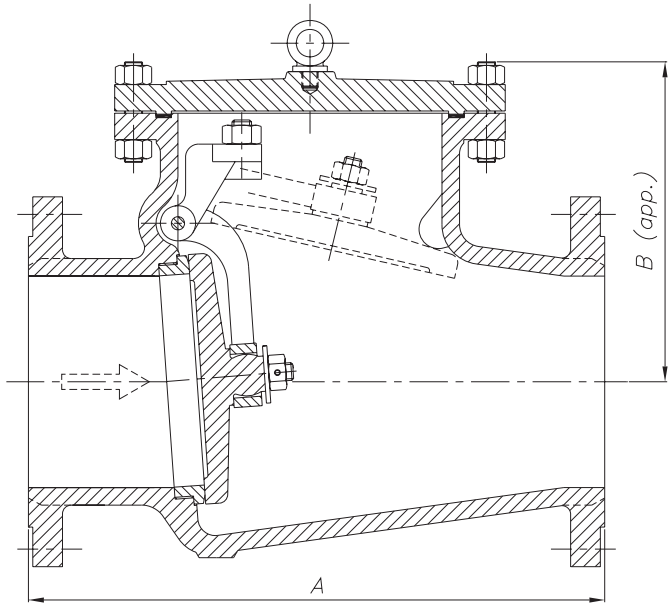
GENERAL DIMENSIONS

DN	A (RF / BW)	B	WEIGHT (App.)
50 (2")	203	135	17
65 (2 1/2")	216	155	21
80 (3")	241	168	29
100 (4")	292	235	42
125 (5")	330	249	59
150 (6")	356	277	68
200 (8")	495	339	118
250 (10")	622	398	197
300 (12")	698	525	302
350 (14")	787	553	372
400 (16")	864	584	570
450 (18")	978	668	665
500 (20")	978	712	900
550 (22")	1067	725	1100
600 (24")	1295	740	1359
650 (26")	1295	780	1850
700 (28")	1448	810	2000
750 (30")	1524	1050	2400
900 (36")	1956	1390	3380

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CHECK VALVE API 6D / BS 1868 BOLTED COVER | Class 300 | VR300BC

Sizes 2" to 20"



TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

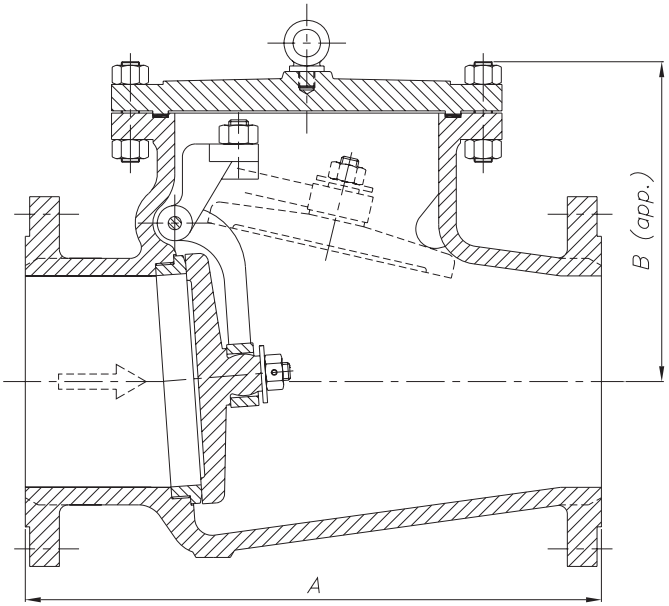
GENERAL DIMENSIONS

DN	A (RF / BW)	B	WEIGHT (App.)
50 (2")	267	158	21
65 (2 1/2")	292	167	35
80 (3")	318	188	43
100 (4")	356	259	60
125 (5")	400	281	85
150 (6")	444	319	131
200 (8")	533	401	213
250 (10")	622	483	384
300 (12")	711	555	449
350 (14")	838	585	680
400 (16")	864	615	840
450 (18")	978	643	1025
500 (20")	1016	681	1180

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CHECK VALVE API 6D / BS 1868 BOLTED COVER | Class 600 | VR600BC

Sizes 2" to 16"



TRIM

API 600 TRIM N°	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

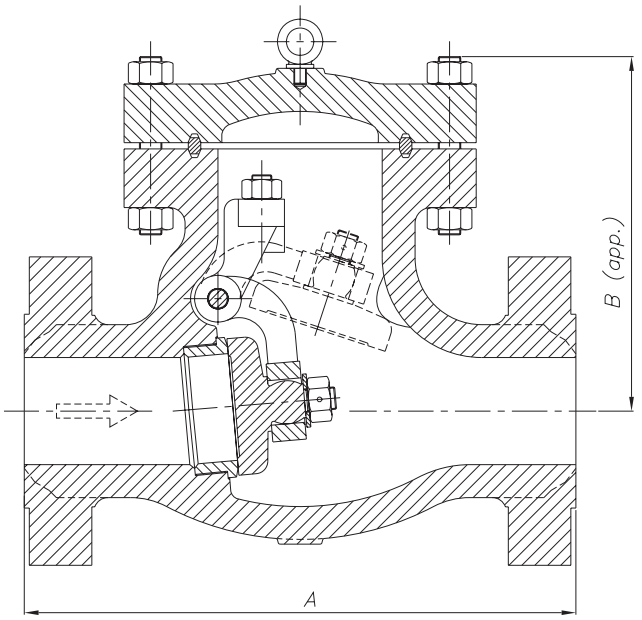
GENERAL DIMENSIONS

DN	A (RF / BW)	B	WEIGHT (App.)
50 (2")	292	197	26
65 (2 1/2")	330	207	45
80 (3")	356	231	68
100 (4")	432	281	90
125 (5")	508	319	140
150 (6")	559	362	200
200 (8")	660	437	360
250 (10")	787	490	673
300 (12")	838	528	875
350 (14")	889	572	944
400 (16")	991	660	1220

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CHECK VALVE API 6D / BS 1868 BOLTED COVER | Class 900 | VR900BC

Sizes 2" to 8"



TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

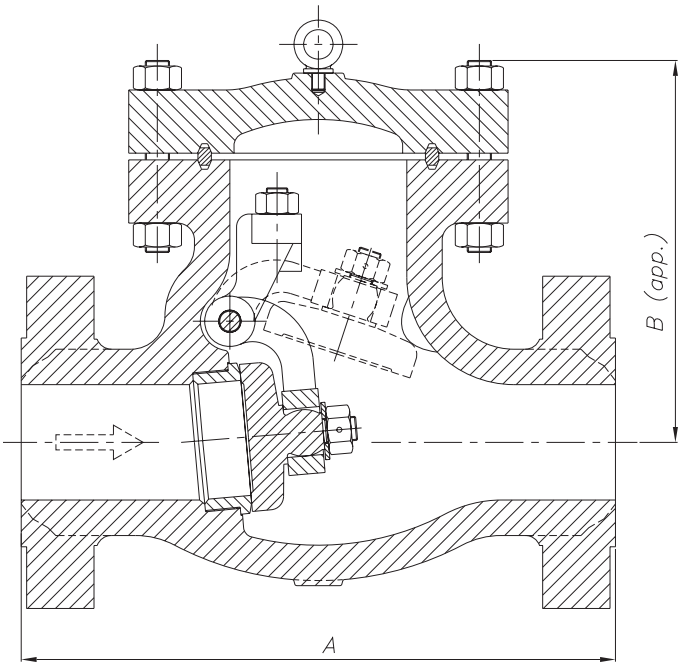
GENERAL DIMENSIONS

DN	A (RF / BW)	B	WEIGHT (App.)
50 (2")	368	240	76
65 (2 1/2")	419	250	86
80 (3")	381	260	98
100 (4")	457	320	145
125 (5")	559	350	175
150 (6")	610	382	259
200 (8")	737	530	565

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CHECK VALVE API 6D / BS 1868 BOLTED COVER | Class 1500 | VR1500BC

Sizes 2" to 8"



TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

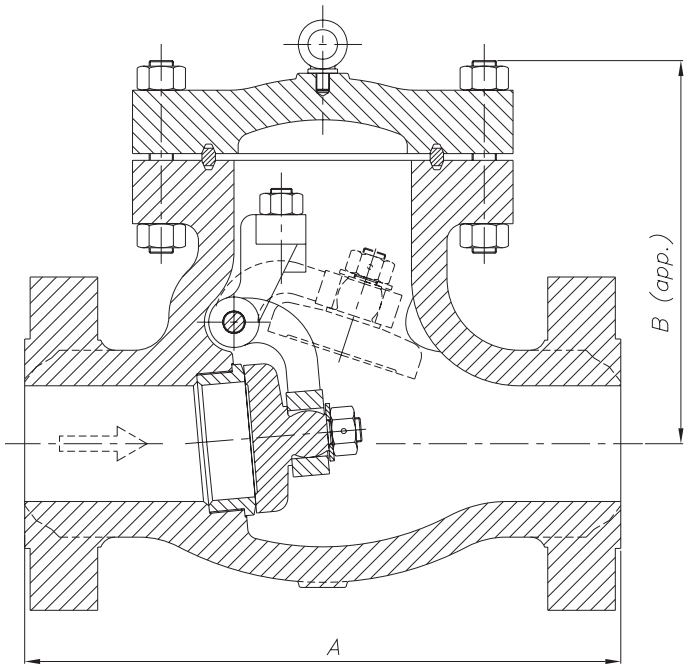
GENERAL DIMENSIONS

DN	A (RF / BW)	B	WEIGHT (App.)
50 (2")	368	265	76
65 (2 1/2")	419	275	93
80 (3")	470	290	140
100 (4")	546	385	232
125 (5")	673	430	362
150 (6")	705	470	490
200 (8")	832	625	990

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CHECK VALVE API 6D / BS 1868 BOLTED COVER | Class 2500 | VR2500BC

Sizes 2" to 8"



TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

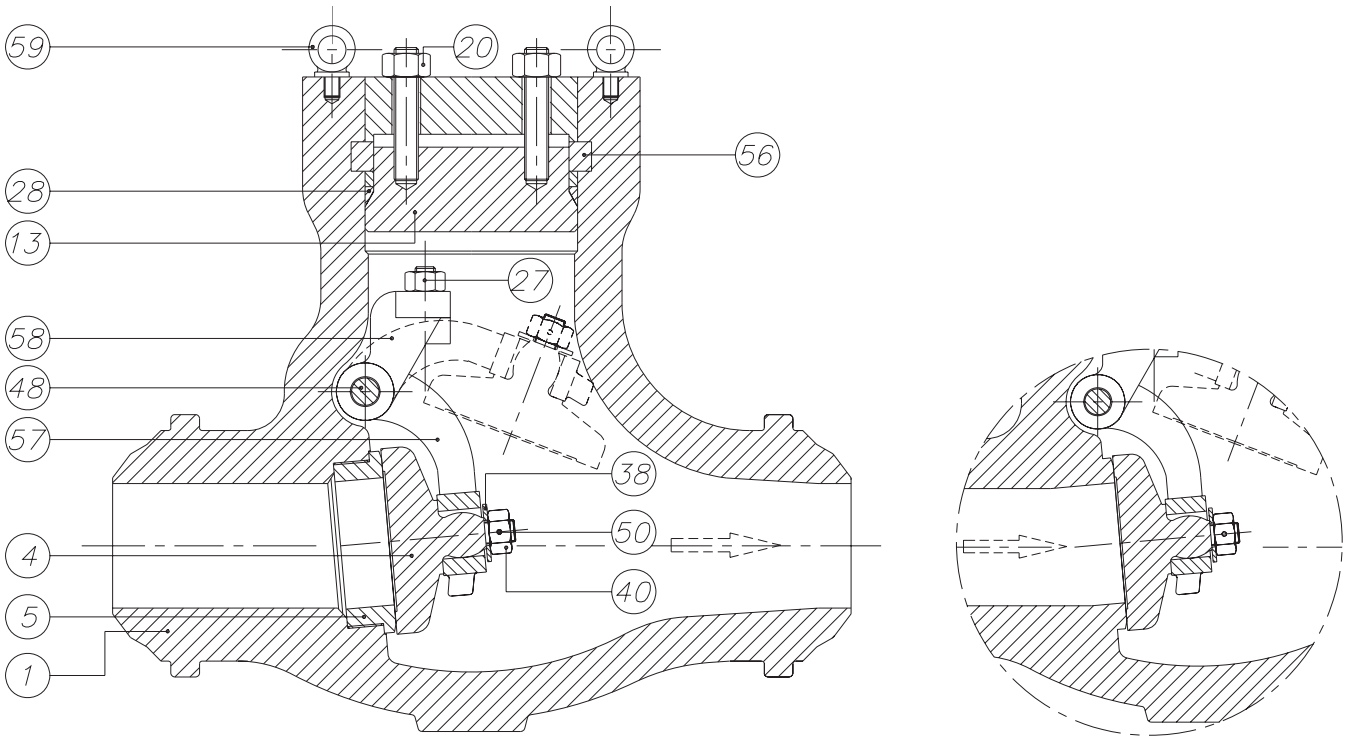
ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

GENERAL DIMENSIONS

DN	A (RF / BW)	B	WEIGHT (App.)
50 (2")	451	315	100
65 (2 1/2")	508	345	185
80 (3")	578	380	225
100 (4")	673	410	370
125 (5")	794	495	595
150 (6")	914	560	805
200 (8")	1022	695	1320

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CAST CHECK VALVES
PRESSURE SEAL
2" - 20" | Class 900 - Class 2500

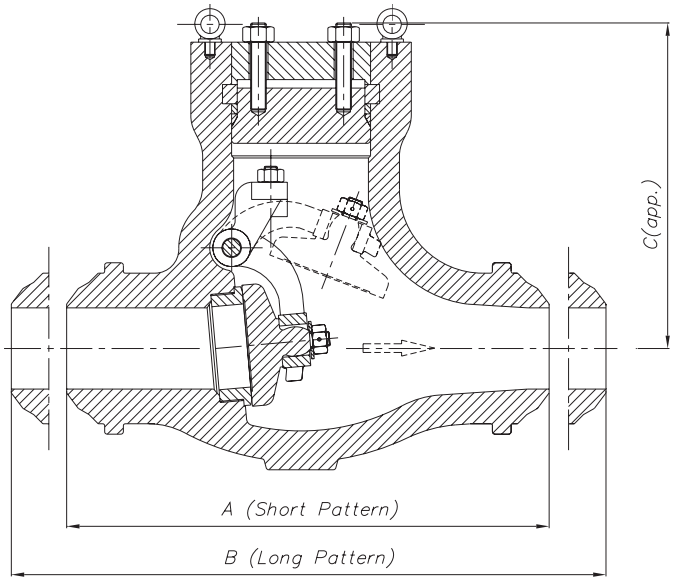


BILL OF MATERIALS		TRIM 8	TRIM 2	TRIM 8	TRIM 10
Item	Description	Carbon Steel	Carbon Steel (Low Temp.)	Alloy Steel	Stainless Steel
1	Body	A 216 Gr. WCB	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
4	Disc	A105 + ER 410	A 182 Gr. F304	A 182 Gr. F6a	A 182 Gr. F316
5	Seat Ring	A105 + Stellite	A 182 Gr. F304	A 182 Gr. F6a + Stellite	-----
13	Cover	A 216 Gr. WCB / A 515 Gr. 70	A 352 Gr. LCB / A 182 Gr. F304	A 217 Gr. C5	A 351 Gr. CF8M
20	Cover Bolt & Nut	A 193 Gr. B7 / A 194 Gr. 2H	A 320 Gr. L7 / A 194 Gr. 7	A 193 Gr. B7 / A 194 Gr. 2H	A 193 Gr. B7 / A 194 Gr. 2H (1)
27	Bracket Stud & Nut	A 193 Gr. B8 / A 194 Gr. 8	A 193 Gr. B8 / A 194 Gr. 8	A 193 Gr. B8 / A 194 Gr. 8	A 193 Gr. B8M / A 194 Gr. 8M
28	Gasket	SS304L or Graphite	SS304L or Graphite	SS304L or Graphite	SS316L or Graphite
38	Washer	AISI 410	AISI 304	AISI 410	AISI 316
40	Disc Nut	AISI 304	AISI 304	AISI 304	AISI 316
48	Hinge Pin *	A182 Gr. F6a	A182 Gr. F304	A182 Gr. F6a	A 182 Gr. F316
50	Split Pin	AISI 304	AISI 304	AISI 304	AISI 316
57	Hinge	A 216 Gr. WCB / A 515 Gr. 70	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
58	Hinge Bracket	A 216 Gr. WCB / A 515 Gr. 70	A 352 Gr. LCB	A 217 Gr. C5	A 351 Gr. CF8M
59	Lifting Hook	A105	A105	A105	A105

(1) Zinc coating.

CHECK VALVE ASME B16.34 PRESSURE SEAL | Class 900 | VR900PS

Sizes 2" to 16"



* Long pattern available with flanges.

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

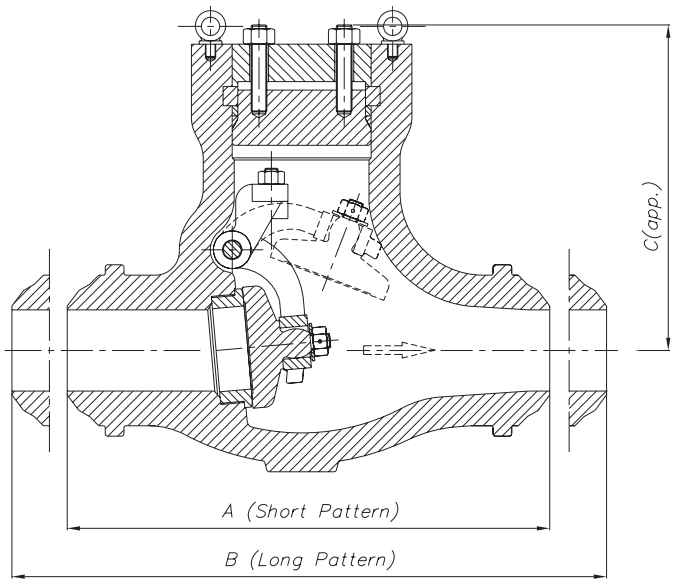
GENERAL DIMENSIONS

DN	A	B	ØC	WEIGHT (App.) (*)
50 (2")	216	368	255	40
65 (2 1/2")	254	419	275	55
80 (3")	305	381	295	70
100 (4")	356	457	335	95
125 (5")	432	559	395	125
150 (6")	508	610	435	195
200 (8")	660	737	530	290
250 (10")	787	838	605	425
300 (12")	914	965	700	680
350 (14")	991	1029	805	975
400 (16")	1092	1130	925	1405

(*) BW ends, short pattern.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CHECK VALVE ASME B16.34 PRESSURE SEAL | Class 1500 | VR1500PS

Sizes 2" to 16"



* Long pattern available with flanges.

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

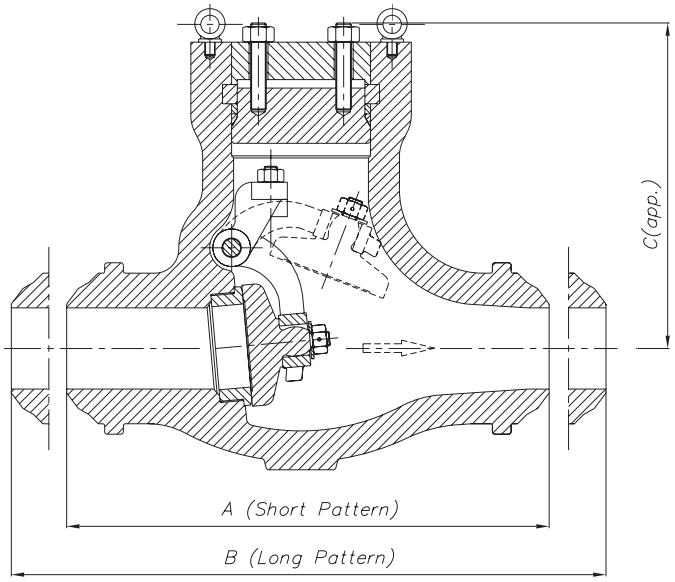
GENERAL DIMENSIONS

DN	A	B	ØC	WEIGHT (App.) (*)
50 (2")	216	368	310	45
65 (2 1/2")	254	419	310	65
80 (3")	305	470	330	80
100 (4")	406	546	355	140
125 (5")	483	673	380	205
150 (6")	559	705	400	407
200 (8")	711	832	530	605
250 (10")	864	991	560	1091
300 (12")	991	1130	650	1369
350 (14")	1067	1257	770	2015
400 (16")	1194	1384	915	2520

(*) BW ends, short pattern.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

CHECK VALVE ASME B16.34 PRESSURE SEAL | Class 2500 | VR2500PS

Sizes 2" to 12"



* Long pattern available with flanges.

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

Materials

ACC. / ASME B16.34
DI, WCB, WCC, WC1, WC6, WC9, C5, C12, LCB, LCC, CF8, CF8C, CF8M, CF3, CF3M, DUPLEX, SUPERDUPLEX, EXOTIC MATERIALS.

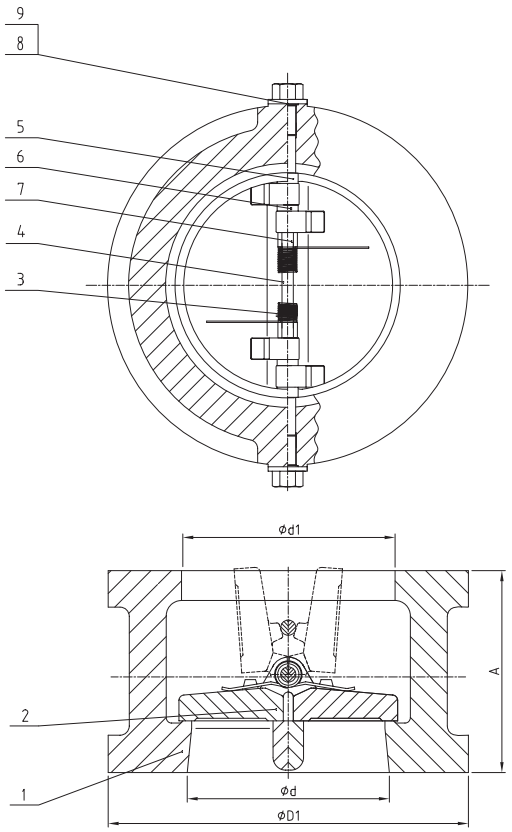
GENERAL DIMENSIONS

DN	A	B	ØC	WEIGHT (App.) (*)
50 (2")	279	451	335	75
65 (2 1/2")	330	508	350	95
80 (3")	368	578	390	120
100 (4")	457	673	435	165
125 (5")	533	794	505	245
150 (6")	610	914	570	425
200 (8")	762	1022	855	665
250 (10")	914	1270	945	1190
300 (12")	1041	1422	1015	1555

(*) BW ends, short pattern.
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

DUAL PLATE CHECK VALVE API594 DESIGN | Class 150/300/600 | VRRC WAFER series

Sizes 2" to 36"



Carbon steel and alloy steel construction

Stainless steel construction

MATERIALS

Item	Description	Carbon Steel		Stainless Steel
		WCB	LCB	CF8M
1	Body	WCB + ER410	LCB + 316	A351 CF8M
2	Disc	WCB + ER410	LCB + 316	A351 CF8M
3	Spring	Inconel	Inconel	Inconel
4	Hinge Pin	ASTM A182F6	ASTM A182F316	ASTM A182F316
5	End retainer ring	ASTM A276 410	ASTM A276 316	ASTM A276 316
6	Middle retainer ring	ASTM A276 410	ASTM A276 316	ASTM A276 316
7	Spring retainer	ASTM A182F6	ASTM A182F316	ASTM A182F316
8	Washer	ASTM A276 410	ASTM A276 316	ASTM A276 316
9	Screw	ASTM A276 410	ASTM A276 316	ASTM A276 316

BASIC DESIGN STANDARDS

Basic design	API594
Face to Face	API594
Flanges up to 24"	ANSI B16.5
Flanges from 26"	ANSI B16.47
Inspection & Testing	API598
Press. Temp	ASME B16.34

GENERAL DIMENSIONS

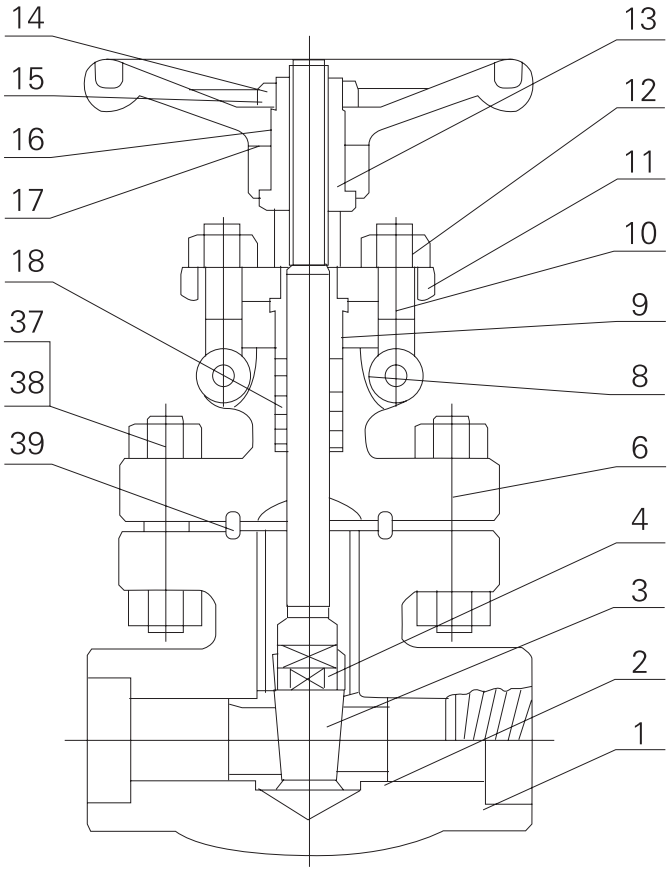
DN	150 lbs			300 lbs			600 lbs			900 lbs			1500 lbs		
	L	D	Kg	L	D	Kg	L	D	Kg	L	D	Kg	L	D	Kg
2" (DN 50)	60	103	3.2	60	111	3.2	60	111	3.2	70	143	8.2	70	143	8.2
2 1/2" (DN 65)	67	122	3.6	67	128	4	67	128	5	83	162	11	83	162	11
3" (DN 80)	73	136	6.4	73	149	7.7	73	149	7.7	83	168	11.8	83	175	12.7
4" (DN 100)	73	175	9.5	73	181	10.5	79	194	12.7	102	206	19.1	102	210	20.5
6" (DN 150)	98	220	16	98	251	20	136	267	36	159	289	54	159	283	56
8" (DN 200)	127	277	36	127	308	40	165	321	72	206	359	122	206	352	128
10" (DN 250)	146	340	52	146	362	56	213	400	118	248	435	196	248	435	205
12" (DN 300)	181	408	97	181	422	98	229	458	164	305	498	293	305	521	373
14" (DN 350)	184	451	123	222	485	176	273	492	186	356	521	396	356	578	484
16" (DN 400)	191	515	133	232	540	210	305	565	330	384	575	532	384	641	588
18" (DN 450)	203	549	141	264	597	295	362	613	394	468	638	611	468	705	791
20" (DN 400)	219	603	215	292	654	365	368	683	544	533	699	637	533	756	1275
24" (DN 600)	222	717	358	318	774	520	438	791	820	559	838	1230	559	902	2713
30" (DN 750)	305	883	662	368	953	950	505	972	1578	-	-	-	-	-	-
32" (DN 800)	318	940	685	394	1006	1270	559	1022	1743	-	-	-	-	-	-
36" (DN 900)	368	1048	710	483	1118	1635	635	1130	2120	-	-	-	-	-	-

Dimensions in mm and weight in kg.
Weight and dimensions can be changed without notice.
Bigger sizes available under customer request.

NOTES

FORGED GATE VALVES

1/4" - 3" | Class 800 - Class 1500



BILL OF MATERIALS

Item	Description	A105/F6a	LF2/304	F11/F6aHF	F22/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	LF2	F11	F22	F304(L)	F316(L)	F51
2	Seat	410	304	410HF	410HF	304(L)	316(L)	F51
3	Wedge	F6a	F304	F6aHF	F6aHF	F304(L)	F316(L)	F51
4	Stem	410	304	410	410	304(L)	316(L)	F51
6	Bonnet	A105	LF2	F11	F22	F304(L)	F316(L)	F51
8	Pin	410	410	410	410	304	304	340
9	Gland	410	304	410	410	304	316	F51
10	Gland eyebolt	B7	L7	B16	B16	B8(M)	B8(M)	B8M
11	Gland flange	A105	LF2	F11	F22	F304	F304	F304
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8M
13	Stem nut nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A197
17	Lubricating gasket	410	410	410	410	410	410	410
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
37	Screwed stud	B7	L7	B16	B16	B8(M)	B8(M)	B8(M)
38	Nut	2H	8	8	8	8(M)	8(M)	8(M)
39	Metal ring	304	304	304	304	304(L)	316(L)	F51

* Standard construction with trim 8,2 and 10. Others constructions are available.
(1) Zinc coating.

PRESENTATION

Gate valves are bi-directional valves ideally suited for on-off duties. JC produces various types both with parallel face gates or with wedge gates. These valves have a very low resistance to flow, which in the case of parallel gate valves approaches that of a straight pipe.

They are used for duties with high pressure fluids due to the fact that upstream pressure helps the sealing between gate and seat. JC takes great care to study finish of seating surfaces to guarantee their minimum wear under high pressures.

Gate valves are supplied in various models to cover the most different and delicate services.

HIGHLIGHTS

Body and Bonnet

Bodies and bonnets are high quality forged and afterwards precisely revised, directing the attention to prevent stress concentration.

As standard stock, the bodies of gate valves consist of a reduced bore Port. Under request we can delivery also Full bore port that guarantees minimal turbulence and resistance to flow. It is available the option with bolted bonnet or also welded bonnet.

Standards

Design and manufacture conform to API 602,BS5352 ANSI B16.34.

Connections ends conform to

1. Socket Weld ends acc. ANSI B16.11.
2. Threaded ends acc. ANSI B1.20.1.
3. Butt weld ends acc. ANSI B16.25.
4. Flanged ends acc. ANSI B16.5 or EN-DIN.

Test and inspection conform API598.

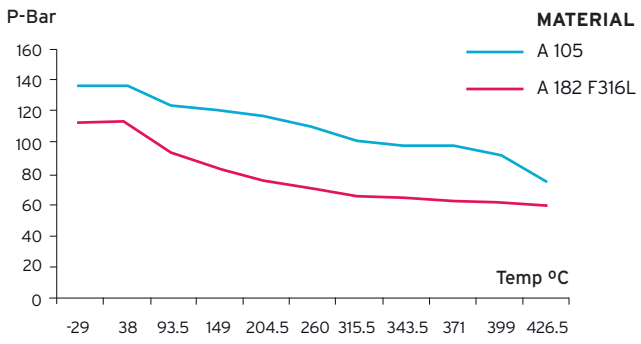
Structure features

1. Bolted bonnet outside screw and yoke (OS & Y).
2. Welded bonnet outside screw and yoke (OS & Y).

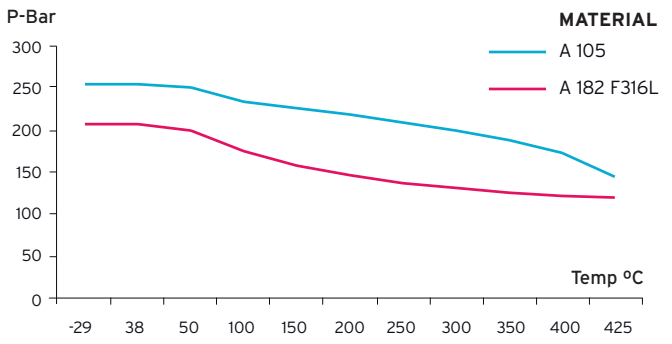
Material conform to ANSI / ASTM.

Main materials: A105, LF2, F5, F11, F22, 304(L) 316(L), F347, F321, F51. Also exotics materials as MONEL, ALLOY20.

PRESSURE & TEMPERATURE 800 lbs

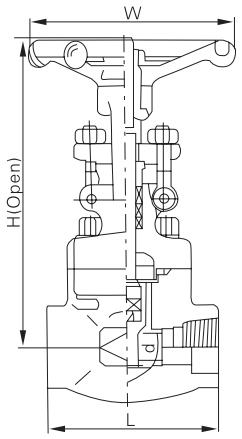


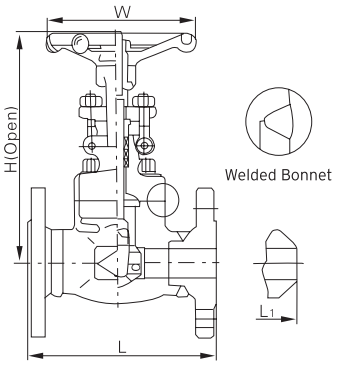
PRESSURE & TEMPERATURE 1500 lbs



FORGED GATE VALVE API602, MSSSP118 & ASME B16.34 | Class 800 | C800 Series

Sizes 3/8" to 3"





Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

GENERAL DIMENSIONS 800LB SW AND NPT ENDS

DN		L	H (OPEN)	W	WEIGHTS	
REDUCED BORE	FULL BORE				BOLTED BONNET	WELDED BONNET
3/8"	1/4"	79	158	100	2.1	1.8
1/2"	3/8"	79	158	100	2.0	1.7
3/4"	1/2"	92	169	100	2.3	2.0
1"	3/4"	111	197	125	4.3	3.8
1 1/4"	1"	120	236	160	5.9	5.1
1 1/2"	1 1/4"	120	246	160	6.9	6.1
2"	1 1/2"	140	283	180	11.1	10.2
2 1/2"	2"	178	330	200	15.2	14.2
3"	2 1/2"	180	370	220	24	23

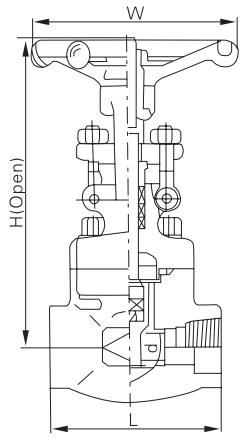
GENERAL DIMENSIONS 800LB 150/300 RF ENDS & PN40

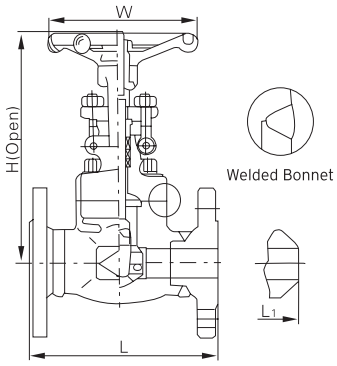
DN		L				WEIGHTS			
REDUCED BORE	FULL BORE	150#	300#	600#	PN40	150#	300#	600#	PN40
1/2"	1/2"	108	140	165	130	3.4	3.77	4.2	3.77
3/4"	3/4"	117	152	190	150	3.98	4.89	5.8	4.89
1"	1"	127	165	216	160	6.12	7.23	8.8	7.23
1 1/4"	1 1/4"	140	178	229	180	7.2	9.6	12.1	9.6
1 1/2"	1 1/2"	165	190	241	240	10.4	12.64	15.6	12.64
2"	2"	178	216	292	250	15.5	18	19.5	18

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

FORGED GATE VALVE API602, MSSP SP118 & ASME B16.34 | Class 1500 | C1500 Series

Sizes 1/4" to 3"





Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

GENERAL DIMENSIONS 1500LB SW AND NPT ENDS

DN		L	H (OPEN)	W	WEIGHTS	
REDUCED BORE	FULL BORE				BOLTED BONNET	WELDED BONNET
3/8"	1/4"	79	158	100	2.1	1.8
1/2"	3/8"	79	158	100	2.0	1.7
3/4"	1/2"	92	169	100	2.3	2.0
1"	3/4"	111	197	125	4.3	3.8
1 1/4"	1"	120	236	160	5.9	5.1
1 1/2"	1 1/4"	120	246	160	6.9	6.1
2"	1 1/2"	140	283	180	11.1	10.2
2 1/2"	2"	178	330	200	15.2	14.2
3"	2 1/2"	180	370	220	24	23

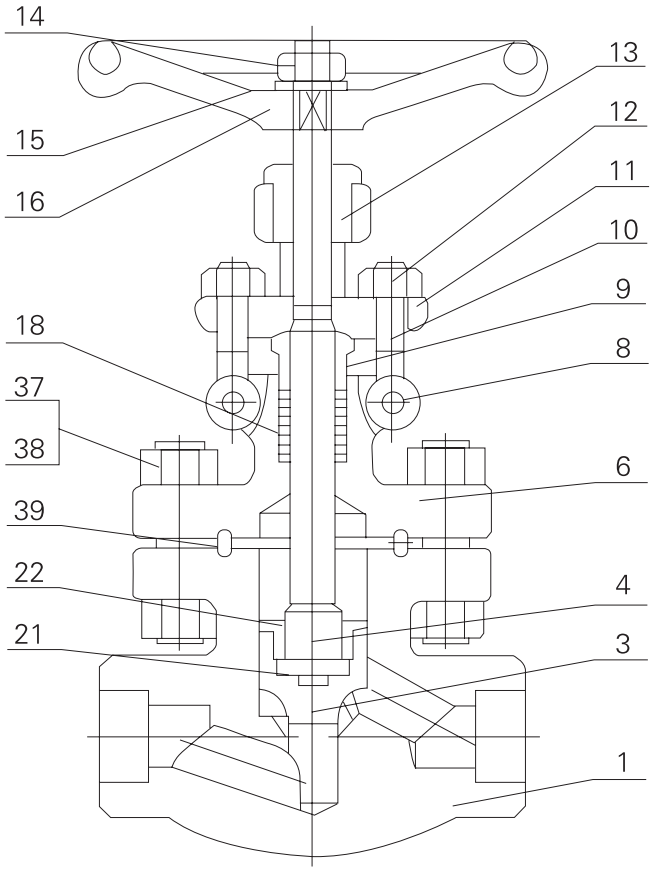
GENERAL DIMENSIONS 1500LB 1500 RF/RTJ ENDS & PN63/100

DN		L			WEIGHT
REDUCED BORE	FULL BORE	1500#RF	1500#RTJ	PN63/100	
1/2"	1/2"	216	216	140	7.2
3/4"	3/4"	229	229	150	11.5
1"	1"	254	254	160	15.6
1 1/4"	1 1/4"	279	279		16.2
1 1/2"	1 1/2"	305	305	240	22.6
2"	2"	368	371	250	28.2

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

FORGED GLOBE VALVES

1/4" - 3" | Class 800 - Class 1500



BILL OF MATERIALS

Item	Description	A105/F6a	LF2/304	F11/F6aHF	F22/F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	LF2	F11+HF	F22+HF	F304(L)	F316(L)	F51
3	Disc	F6a	F304	F6aHF	F6aHF	F304(L)	F316(L)	F51
4	Stem	410	304	410	410	304(L)	316(L)	F51
6	Bonnet	A105	LF2	F11	F22	F304(L)	F316(L)	F51
8	Pin	410	410	410	410	304	304	304
9	Gland	410	304	410	410	304	316	F51
10	Gland eyebolt	B7	L7	B16	B16	B8(M)	B8(M)	B8M
11	Gland Flange	A1 05	LF2	F11	F22	F304	F304	F304
12	Hex nut	2H	2H	2H	2H	8(M)	8(M)	8M
13	Stem nut	410	410	410	410	410	410	410
14	Locking nut	35	35	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197	A197	A197
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite	Graphite
21	Stem pad	420	420	420	420	316SH	316SH	316SH
22	Disc nut	410	410	410	410	410	410	410
37	Screwed stud	B7	L7	B16	B16	B8(M)	B8(M)	B8(M)
38	Nut	2H	8	8	8	8(M)	8(M)	8(M)
39	Metal ring	304	304	304	304	304(L)	316(L)	F51

* Standard construction with trim 8,2 and 10. Others constructions are available.
(1) Zinc coating.

PRESENTATION

Globe valve are closing-down valves in which the closure member is moved squarely on and off the seat. In this way the opening of the port is directly proportional to the travel of the disc. This proportional relationship is ideally suited for duties requiring regulation of flow rate. To have a further precision in regulation the disc element can be available in the parabolic, needle, veeport types.

Furthermore the short travel of the disc between the open and closed position makes these valves ideally suited for on-off duties when they must be opened and closed frequently. Globe valves are unidirectional valves and are installed so that fluid pressure is under the disc. They are supplied in various models to cover the different services. Among these valves the Bellows sealed combines the characteristics of total safety against leakages to the easy substitution of the most delicate components such as the bellows.

HIGHLIGHTS

Body and Bonnet

Bodies and bonnets are high quality forged and afterwards precisely revised, directing the attention to prevent stress concentration.

As standard stock, the bodies of globe valves consist of a reduced bore Port. Under request we can delivery also Full bore port that guarantees minimal turbulence and resistance to flow. It is available the option with bolted bonnet or also welded bonnet and also bellows sealed design.

Standards

Design and manufacture conform to BS5352 & ASME 16.34.

Connections ends conform to

1. Socket Weld ends acc. ANSI B16.11.
2. Threaded ends acc. ANSI B1.20.1.
3. Butt weld ends acc. ANSI B16.25.
4. Flanged ends acc. ANSI B16.5 or EN-DIN.

Test and inspection conform API598.

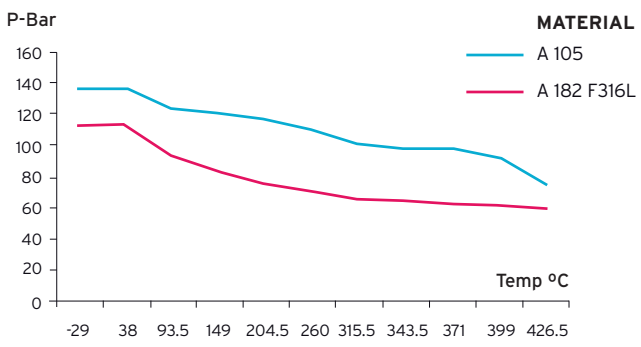
Structure features

1. Bolted bonnet outside screw and yoke (OS & Y).
2. Welded bonnet outside screw and yoke (OS & Y).

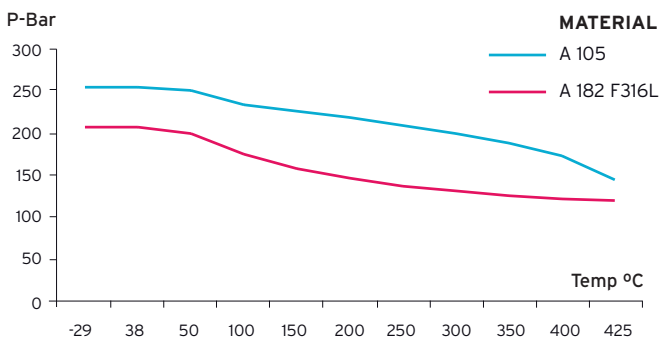
Material conform to ANSI / ASTM

Main materials: A105, LF2, F5, F11, F22, 304(L) 316(L), F347, F321, F51. Also exotics materials as MONEL, ALLOY20.

PRESSURE & TEMPERATURE 800 lbs

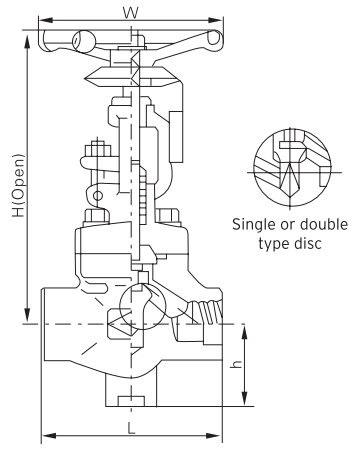


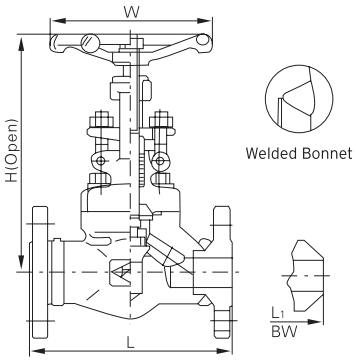
PRESSURE & TEMPERATURE 1500 lbs



FORGED GLOBE VALVE BS5352 & ASME B16.34 | Class 800 | G800 Series

Sizes 3/8" to 2"





Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

GENERAL DIMENSIONS 800LB SW AND NPT ENDS

DN		L	H (OPEN)	W	WEIGHTS	
REDUCED BORE	FULL BORE				BOLTED BONNET	WELDED BONNET
3/8"	-	79	166	100	1.9	1.7
1/2"	3/8"	79	166	100	1.9	1.7
3/4"	1/2"	92	171	100	2.1	1.9
1"	3/4"	111	207	125	3.5	3.3
1 1/4"	1"	120	240	160	6.0	5.2
1 1/2"	1 1/4"	152	258	160	7.5	6.8
2"	1 1/2"	172	330	180	11.4	10.6
-	2"	200	355	200	14.6	13.8

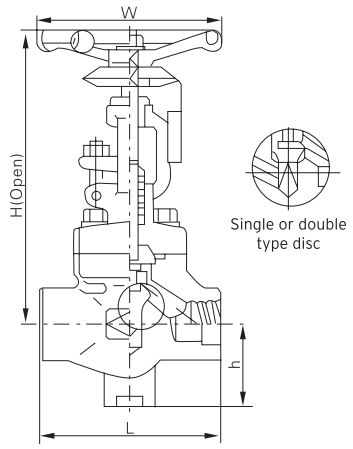
GENERAL DIMENSIONS 800LB 150/300 RF ENDS & PN40

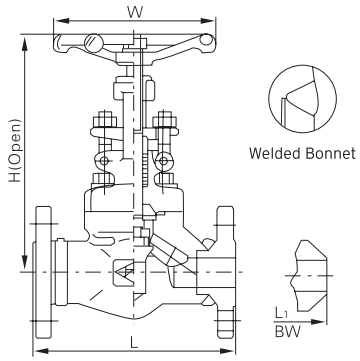
DN		L				WEIGHTS			
REDUCED BORE	FULL BORE	150#	300#	600#	PN40	150#	300#	600#	PN40
1/2"	1/2"	108	152	165	130	3.4	3.77	5.6	3.77
3/4"	3/4"	117	178	190	150	3.98	5.1	7.8	5.1
1"	1"	127	203	216	160	6.12	7.23	12.5	7.23
1 1/4"	1 1/4"	140	216	229	180	9.6	12	17	12
1 1/2"	1 1/2"	165	229	241	200	10.5	13.5	23.5	13.5
2"	2"	203	267	292	230	17	19.7	38.8	19.7

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

FORGED GLOBE VALVE BS5352 & ASME B16.34 | Class 1500 | G1500 Series

Sizes 1/2" to 2"





Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

GENERAL DIMENSIONS 1500LB SW AND NPT ENDS

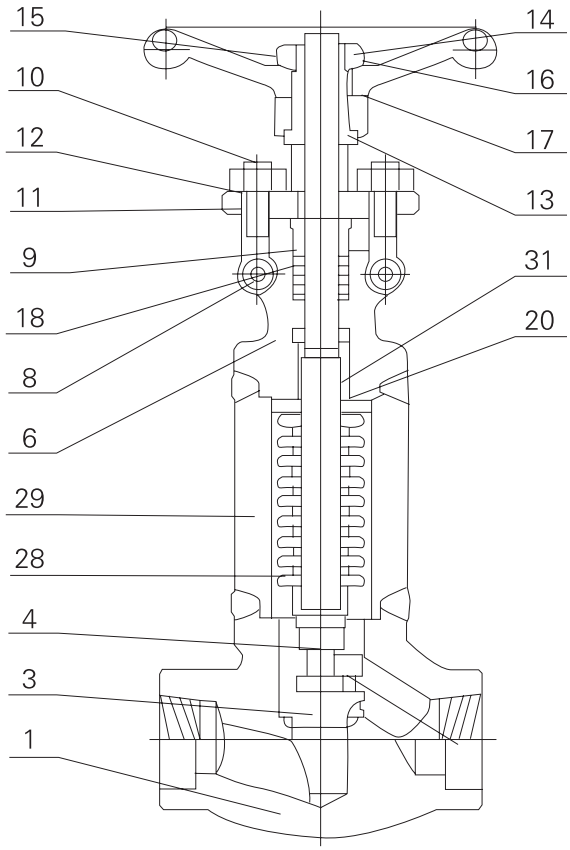
DN		L	H (OPEN)	W	WEIGHTS	
REDUCED BORE	FULL BORE				BOLTED BONNET	WELDED BONNET
3/8"	-	92	171	100	2.2	2.0
1/2"	3/8"	111	207	125	3.7	3.4
3/4"	1/2"	111	207	125	3.6	3.3
1"	3/4"	120	240	160	6.8	6.0
1 1/4"	1"	152	258	160	7.6	5.6
1 1/2"	1 1/4"	172	330	180	11.6	10.3
2"	1 1/2"	200	355	200	15.0	14.2
-	2"	220	370	240	21.9	18.0

GENERAL DIMENSIONS 1500LB 1500 RF/RTJ ENDS & PN63/100

DN		L		WEIGHT
REDUCED BORE	FULL BORE	1500 LB	PN63/100	
1/2"	-	216	130	15.5
3/4"	-	229	150	16.9
1"	-	254	160	18.9
1 1/4"	-	279	-	28.9
1 1/2"	-	305	200	34.3
2"	-	368	230	52.8

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

FORGED GLOBE VALVES
BELLOWS SEALED
1/4" - 2 1/2" | Class 800 - Class 1500



General Specifications

1. Design and manufacture conform to BS5352, MSS-SP-117
2. Connection ends conform to:
   - Socket welded ends conform to ANSI B16.11
   - Threaded ends conform to ANSI 20.1
   - Butt-welded ends conform to ANSI B16.25
   - Flanged ends conform to ANSI B16.5, J B79
3. Test and inspection conform to: API 598
4. Structure features: Bolted bonnet, outside screw and yoke Welded bonnet.
5. Materials conform to ANSI/ASTM
6. Main materials: A105, 304(L), 316(L), F347, F321
7. Bellow materials: 304, 321, 316, Inconel625, HastelloyC276, Monel

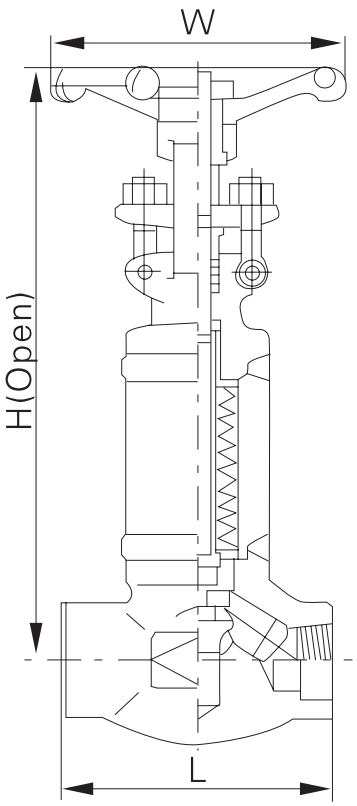
BILL OF MATERIALS

Item	Description	A105/F6a	A105/F6aHFS	A105/F6aHF	F304(L)/304(L)	F316(L)/316(L)
1	Body	A105	A105+HF	A105+HF	F304(L)	F316(L)
3	Disc	F6a	F6a	F6aHF	F304(L)	F316(L)
4	Stem	410	410	410	304(L)	316(L)
6	Bonnet	A105	A105	A105	F304(L)	F316(L)
8	Pin	410	410	410	304	304
9	Gland	410	410	410	304	316
10	Gland eyebolt	B7	B7	B7	B8(M)	B8(M)
11	Gland Flange	A105	A105	A105	F304	F304
12	Hex nut	2H	2H	2H	8(M)	8(M)
13	Stem nut	410	410	410	410	410
14	Locking nut	35	35	35	35	35
15	Nameplate	AL	AL	AL	AL	AL
16	Handwheel	A197	A197	A197	A197	A197
17	Lubricating gasket	410	410	410	410	410
18	Packing	Graphite	Graphite	Graphite	Graphite	Graphite
28	Bellow	F321	F321	F321	F316	F316(L)
29	Coupling pipe	A105	A105	A105	A304(L)	A316(L)
31	Pin	304	304	304	304	316

(1) Zinc coating.

FORGED BELLOWS GLOBE VALVE BS5352 & ASME B16.34 | Class 800 | F800 Series

Sizes 1/4" to 2 1/2"



Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

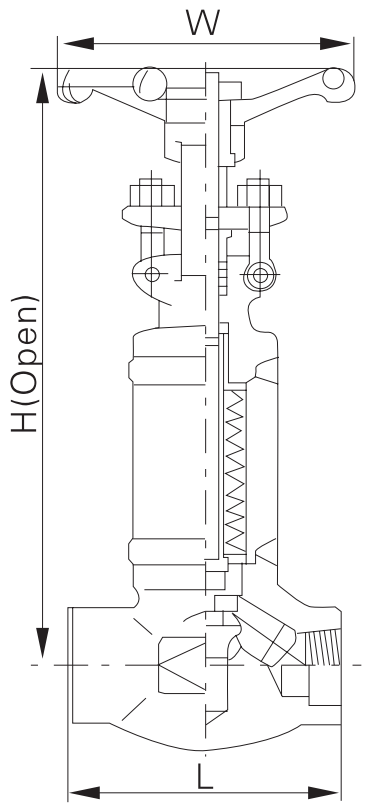
GENERAL DIMENSIONS 800LB SW AND NPT ENDS

DN						WEIGHT
REDUCED BORE	FULL BORE	L	H (OPEN)	W	H	WELDED BONNET
-	1/4"	79	166	100	237	2.6
1/2"	3/8"	79	166	100	237	2.5
3/4"	1/2"	92	171	100	239	2.7
1"	3/4"	111	207	125	270	4.4
1 1/4"	1"	120	240	160	298	6.7
1 1/2"	1 1/4"	152	258	160	340	8.8
2"	1 1/2"	172	330	180	395	15
2 1/2"	2"	200	355	200	470	18.8

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

FORGED BELLOWS GLOBE VALVE BS5352 & ASME B16.34 | Class 1500 | F1500 Series

Sizes 1/4" to 2 1/2"



Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

GENERAL DIMENSIONS 1500LB SW AND NPT ENDS

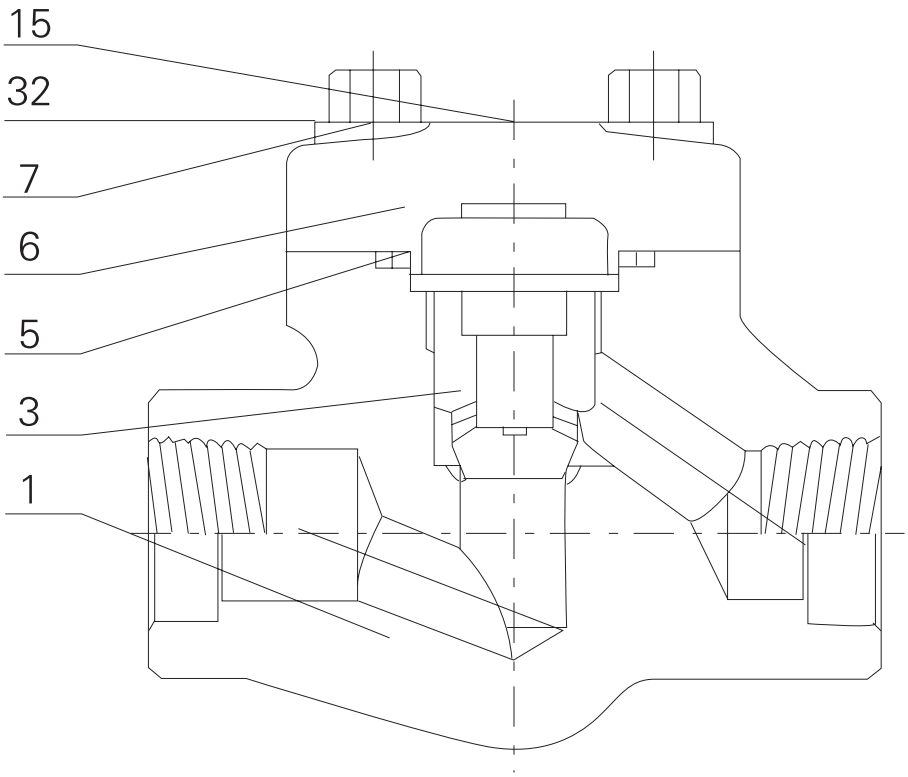
DN		L	H (OPEN)	W	WEIGHT
REDUCED BORE	FULL BORE				WELDED BONNET
-	1/4"	92	290	100	3.3
-	3/8"	92	330	100	3.5
-	1/2"	111	380	125	5
-	3/4"	111	380	125	7.5
-	1"	120	400	160	10
-	1 1/4"	152	450	160	16
-	1 1/2"	172	520	180	27
-	2"	200	650	200	30

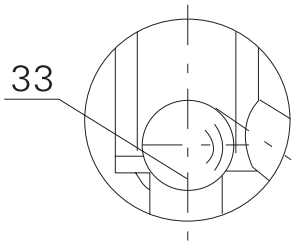
Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

NOTES

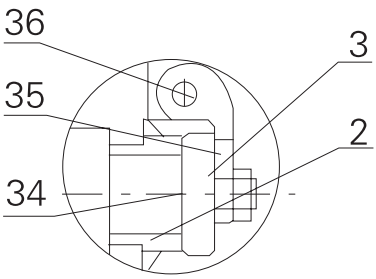
FORGED CHECK VALVES

1/4" - 3" | Class 800 - Class 1500





Ball type



Swing type

Please mark in your offer if you need load spring.

BILL OF MATERIALS

Item	Description	A105/F6a	LF2/304	F11F6aHF	F22F6aHF	F304(L)/304(L)	F316(L)/316(L)	F51/F51
1	Body	A105	LF2	F11	F22	F304(L)	F316(L)	F51
2	Seat ring	410	304	410HF	410HF	304(L)	316(L)	F51
3	Disc	F6a	F304	F6aHF	F6aHF	F304(L)	F316(L)	F51
5	Gasket	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite	304+ Flexible graphite
6	Bonnel	A105	LF2	F11	F22	F304(L)	F316(L)	F51
7	Bolt	B7	L7	B 16	B 16	B8(M)	B8(M)	B8M
15	Nameplate	AL	AL	AL	AL	AL	AL	AL
32	Revit	AL	AL	AL	AL	AL	AL	AL
33	Steel ball	430	304	STL	STL	316(L)	316(L)	STL
34	Disc nut	2H	8	8	8	8(M)	8(M)	8M
35	Hinge	410	304	410	410	316(L)	316(L)	F51
36	Pin	410	304	410	410	304(L)	316(L)	F51

* Standard construction with trim 8,2 and 10. Others constructions are available.
(1) Zinc coating.

PRESENTATION

Check valves are uni-directional valves which automatically open with forward flow and close against reverse flow.

They are supplied to meet a wide variety of applications with the closing element in the piston, ball or swing type.

Piston check valves are normally supplied by CVA with the addition of a spring which allows both the vertical and horizontal installation.

HIGHLIGHTS

Body and Cover

Bodies and covers are high quality forged and afterwards precisely revised, directing the attention to prevent stress concentration.

As standard stock, the bodies of Check valves consist of a reduced bore Port. Under request we can delivery also Full bore port that guarantees minimal turbulence and resistance to flow. It is available the option with bolted cover (standard) or also welded cover (under request).

Standards

Design and manufacture conform to BS5352, MSS SP118 & ANSI B16.34.

Connections ends conform to

1. Socket Weld ends acc. ANSI B16.11.
2. Threaded ends acc. ANSI B1.20.1.
3. Butt weld ends acc. ANSI B16.25.
4. Flanged ends acc. ANSI B16.5 or EN-DIN.

Test and inspection conform API598.

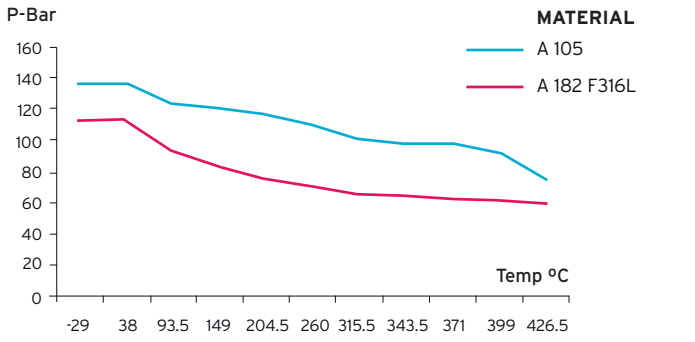
Structure features

1. Bolted cover
2. Welded cover

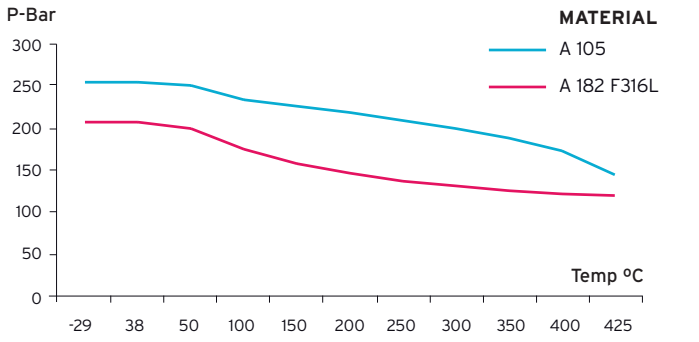
Material conform to ANSI / ASTM.

Main materials: A105, LF2, F5, F11, F22, 304(L) 316(L), F347, F321, F51. Also exotics materials as MONEL, ALLOY20.

PRESSURE & TEMPERATURE 800 lbs

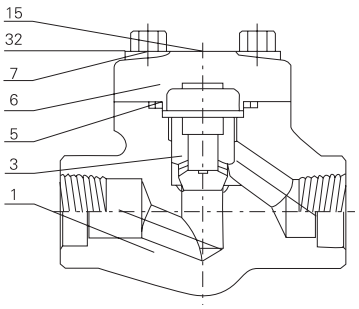


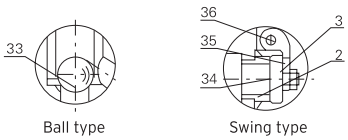
PRESSURE & TEMPERATURE 1500 lbs



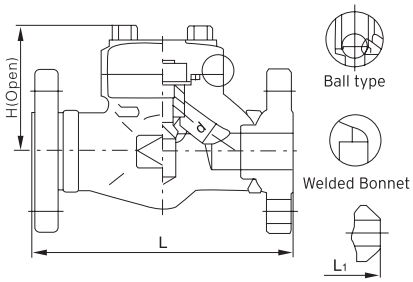
FORGED CHECK VALVE BS5352, MSS SP 118 & ASME B16.34 | Class 800 | R800 Series

Sizes 1/2" to 2"





Ball type | Swing type



Carbon steel and alloy steel construction | Stainless steel construction

TRIM

API 600 TRIM N°	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

GENERAL DIMENSIONS 800LB SW AND NPT ENDS

DN		L	H	WEIGHTS	
REDUCED BORE	FULL BORE			BOLTED BONNET	WELDED BONNET
3/8"	-	79	61	1.4	1.1
1/2"	3/8"	79	61	1.2	1.0
3/4"	1/2"	92	65	1.5	1.2
1"	3/4"	111	79	3.1	2.9
1 1/4"	1"	120	95	3.9	3.3
1 1/2 "	1 1/4"	152	103	5.6	4.9
2"	1 1/2"	172	118	8.9	8.1
-	2"	200	132	12.5	10.9

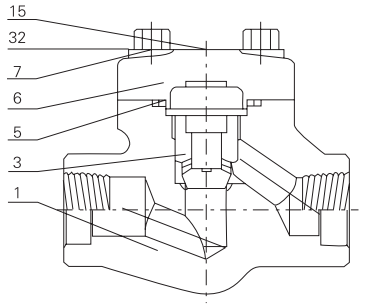
GENERAL DIMENSIONS 800LB 150/300 RF ENDS & PN40

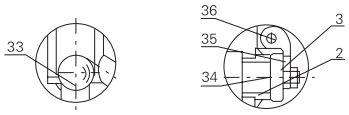
DN		L				WEIGHTS			
REDUCED BORE	FULL BORE	150#	300#	600#	PN40	150#	300#	600#	PN40
1/2"	-	108	152	165	130	3.2	4.6	4.8	4.6
3/4"	-	117	178	190	150	3.5	5.7	6.3	5.7
1"	-	127	203	216	160	4.6	8.4	9.3	8.4
1 1/4"	-	140	216	229	180	5.2	11.2	13	11.2
1 1/2""	-	165	229	241	200	7	14.5	16.5	14.5
2"	-	203	267	292	230	16	19.5	22	19.5

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

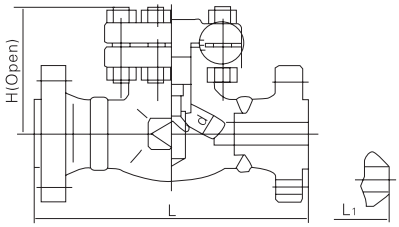
FORGED CHECK VALVE BS5352, MSS SP 118 & ASME B16.34 | Class 1500 | R1500 Series

Sizes 1/2" to 2"





Ball type Swing type



Ball type Swing type Welded Bonnet

Carbon steel and alloy steel construction

Stainless steel construction

TRIM

API 600 TRIM Nº	Nominal TRIM	Stem / Backseat	Seating Surface Body / Wedge
1	F6	13Cr	13Cr
2	304	18Cr-8Ni	18Cr-8Ni
3	F310	25Cr-20Ni	25Cr-20Ni
4	Hard F6	13Cr	Hard 13Cr
5	Hardfaced	13Cr	Co-Cr A
5A	Hardfaced	13Cr	Ni-Cr
6	F6 and Cu-Ni	13Cr	13Cr and Cu-Ni
7	F6 and Hard F6	13Cr	13Cr and Hard 13Cr
8	F6 and Hardfaced	13Cr	13Cr and Co-Cr A
8A	F6 and Hardfaced	13Cr	13Cr and Ni-Cr
9	Monel	Ni-Cu Alloy	Ni-Cu Alloy
10	316	18Cr-8Ni-Mo	18Cr-8Ni-Mo
11	Monel and Hardfaced	Ni-Cu Alloy	Ni-Cu Alloy and Trim 5 or 5A
12	316 and Hardfaced	18Cr-8Ni-Mo	18Cr-8Ni-Mo and Trim 5 or 5A
13	Alloy 20	19Cr-29Ni	19Cr-29Ni
14	Alloy 20 and Hardfaced	19Cr-29Ni	19Cr-29Ni and Trim 5 or 5A
15	Hardfaced	18Cr-8Ni	Co-CRr A
16	Hardfaced	18Cr-8Ni-Mo	Co-CRr A
17	Hardfaced	18Cr-10Ni-Cb	Co-CRr A
18	Hardfaced	19Cr-29Ni	Co-CRr A

HF: Hard Facing using CoCr welding alloy (Stellite)

GENERAL DIMENSIONS 800LB SW AND NPT ENDS

DN		L	H	WEIGHTS	
CONV. BORE	FULL BORE			BOLTED BONNET	WELDED BONNET
3/8"	-	92	65	1.6	1.3
1/2"	3/8"	111	79	3.4	3.2
3/4"	1/2"	111	79	3.3	3.1
1"	3/4"	120	97	5.5	4.8
1 1/4"	1"	152	104	6.0	5.4
1 1/2"	1 1/4"	172	120	9.2	8.5
2"	1 1/2"	200	139	12.9	11.2
-	2"	220	215	16.2	14.3

GENERAL DIMENSIONS 1500LB 1500 RF/RTJ ENDS & PN63/100

DN	L(RTJ)	PN63/100	H	WEIGHTS	
				RTJ	PN63/100
1/2"	216	210	79	8.5	6.5
3/4"	229	230	79	10.5	8
1"	254	230	95	15.7	12.7
1 1/4"	279	-	104	20.8	-
1 1/2"	305	260	120	27.2	18
2"	371	300	139	33.0	26

Dimensions in mm and weight in kg.
Weights and dimensions can be changed without notice.
Bigger sizes available under costumer request.

STRAINERS & SCREENS

1/4" - 24" | Class 150 - Class 4500

HIGHLIGHTS

STRAINERS

"Y" - type permanent strainers-forged/cast
Class 150# up to 24", large size upon request
Class 300# up to 24", large size upon request
Class 600# up to 24", large size upon request
Class 900# up to 16", large size upon request
Class 1500# up to 12", large size upon request
Class 2500-4500# up to 8", large size upon request

Strainers are designed bolted bonnet as standard, but, upon request, pressure seal design is available for Class 600# and over.

BASKET STRAINERS

Simplex or duplex type up to 96" body & 72" connections, size & class as per customer's request.

TEMPORARY CONE STRAINERS

Up to class 2500# from 2" up to 72". Large size upon request.

TEE - TYPE STRAINERS

Class 150# - 2" up to 24", large size upon request
Class 300# - 2" up to 24", large size upon request
Class 600# - 2" up to 24", large size upon request
Class 900# - 2" up to 24", large size upon request
Class 1500# - 2" up to 24", large size upon request
Class 2500# - 2" up to 24", large size upon request

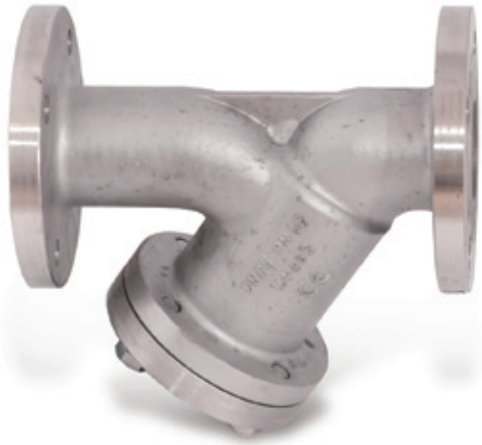
PRODUCTION MATERIALS

Carbon Steel
Low Carbon Steel
Alloy Steel
Stainless
Other materials under request.

Engineering for special construction & applications.
Sizes & materials upon customer's request.
Jacketed Strainers.
Over pressure connections.
Sampling.
Others.

APLICATIONS

Process industry
Power industry
Oil and gas industry
Mining industry
Pharmaceutical industry
Chemical industry
Pulp and paper industry
Water and waste management



STRAINER "Y"

STRAINER "Y"

TEE STRAINER

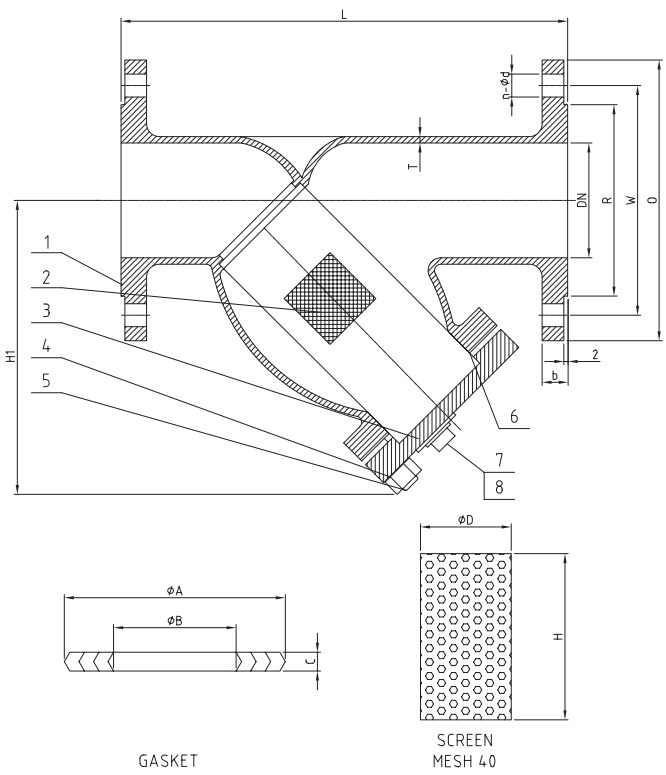
CONICAL TEMPORARY STRAINERS

DUPLEX BASQUET STRAINER QUICK OPENING

QUICK OPENING BASKET STRAINERS

CAST STEEL "Y" ASME B16.34 DESIGN | Class 150/300/600 | FIJCY Series

Sizes 2" to 12"



GASKET

SCREEN
MESH 40

Carbon steel and alloy steel construction

Stainless steel construction

Materials

Item	Description	Material
1	Body	ASTM A216 GR. WCB / CF8 / CF8M
2	Screen	ASTM A276 Type 316
3	Cover	ASTM A216 GR. WCB / CF8 / CF8M
4	Cover Bolts	ASTM A193 GR.B7 / 8M
5	Cover Bolts Nuts	ASTM A194 GR.2H / B8M
6	Gasket	316 + Graphite
7	Plug	ASTM A105 / 316
8	Gasket	316 + Graphite

Specifications

Design	ASME B16.34
Face to face	ASME B16.10
End Flange	ASME B16.5
Test	API 598

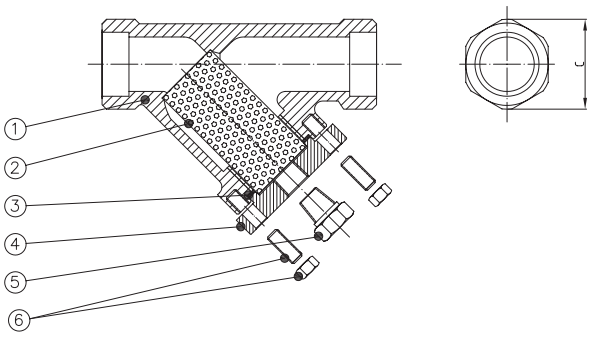
GENERAL DIMENSIONS

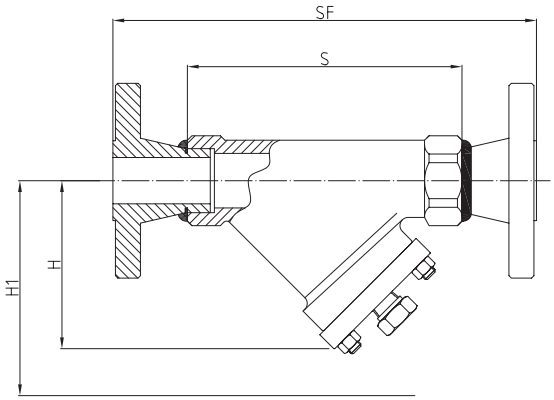
DN	150 lbs			300 lbs			600 lbs		
	L	H	Kg	L	H	Kg	L	H	Kg
2"	203	145	12	267	170	15	292	185	35
2 1/2"	216	183	18	292	185	18	330	200	40
3"	241	206	21	318	235	35	356	250	48
4"	292	228	32	356	290	51	432	300	90
6"	406	329	48	445	375	92	559	415	220
8"	495	440	105	559	450	182	660	490	360
10"	622	507	169	622	575	285	787	595	500
12"	699	594	215	711	665	307	838	680	781

Dimensions in mm and weight in kg.
Weight and dimensions can be changed without notice.
Bigger sizes available under customer request.

FORGED STEEL "Y" ANSI B16.34 DESIGN | Class 800 | FIOP Series

Sizes 3/8" to 2" NPT or SW - Flanged 150/300/600#





Carbon steel and alloy steel construction

Stainless steel construction

Materials

Item	Description	Material Carbon Steel	Material Stainless Steel
1	Body	ASTM A105	ASTM A182 F316
2	Screen	S.S.	S.S.
3	Plug	ASTM A105	AISI 316
4	Gasket	316 / GRAPHITE	316 / GRAPHITE
5	Drain plug	ASTM A105	ASTM A182 F316
6	Studs	ASTM A193 B7	ASTM A193 B8
6	Nuts	ASTM A194 2H	ASTM A194 2Gr.8
7	Flange	ASTM A105	ASTM A182 F316

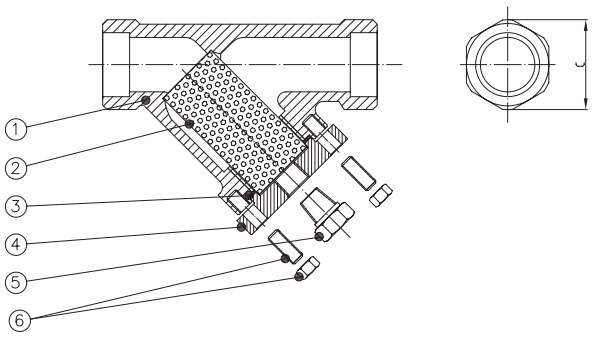
GENERAL DIMENSIONS

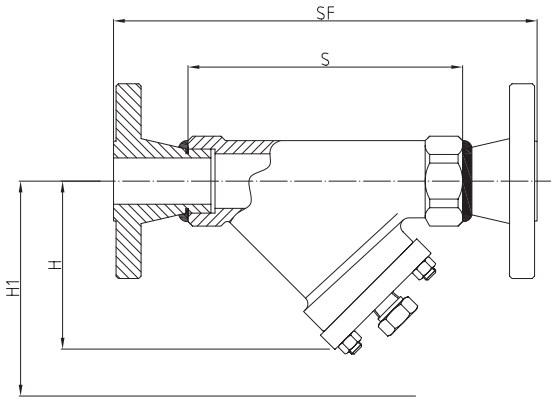
DN	DRAIN PLUG	S	H	H1	C	WEIGHT	UNI-DIN PN 16-25-40		150		300		600	
							SF	Kg	SF	Kg	SF	Kg	SF	Kg
3/8"	1/4"	90	60	85	41	1	-	-	-	-	-	-	-	-
1/2"	1/4"	90	60	85	41	1	150	2.6	165	2.3	165	2.8	165	3.2
3/4"	1/4"	110	75	100	46	1.2	170	4	191	3.2	191	4.3	191	4.7
1"	1/4"	130	93	140	56	2	200	4.4	216	4.2	216	5.3	216	5.8
1 1/2"	1/4"	180	144	200	85	6	240	11	241	9.7	241	15	241	12.9
2"	1/2"	185	140	200	100	7	230	13	292	12	292	15	292	16.3

Dimensions in mm and weight in kg.
Weight and dimensions can be changed without notice.
Bigger sizes available under customer request.
Standard perforations 0.8mm special perforations on request.

FORGED STEEL "Y" ANSI B16.34 DESIGN | Class 1500 | FIOP Series

Sizes 1/2" to 1 1/2" NPT or SW - Flanged 1500#





Carbon steel and alloy steel construction

Stainless steel construction

Materials

Item	Description	Material Carbon Steel	Material Stainless Steel
1	Body	ASTM A105	ASTM A182 F316
2	Screen	S.S.	S.S.
3	Plug	ASTM A105	AISI 316
4	Gasket	316 / GRAPHITE	316 / GRAPHITE
5	Drain plug	ASTM A105	ASTM A182 F316
6	Studs	ASTM A193 B7	ASTM A193 B8
6	Nuts	ASTM A194 2H	ASTM A194 2Gr.8
7	Flange	ASTM A105	ASTM A182 F316

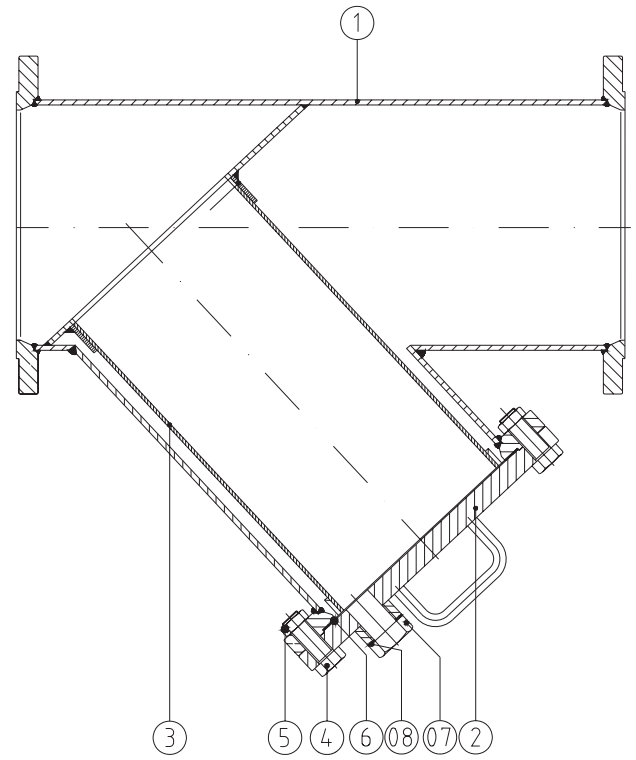
GENERAL DIMENSIONS

DN	DRAIN PLUG	S	H	H1	C	WEIGHT	1500	
							SF	KG
1/2"	1/4"	110	75	100	46	1.4	216	5.5
3/4"	1/4"	130	93	140	56	2.2	229	7
1"	1/4"	180	144	200	85	6.2	254	13
1 1/2"	1/2"	185	140	200	100	7.5	305	19

Dimensions in mm and weight in kg.
Weight and dimensions can be changed without notice.
Bigger sizes available under customer request.
Standard perforations 0.8mm special perforations on request.

WELDED STEEL "Y" STRAINER MANUFACTURER'S DESIGN | Class 150 - PN10/16 | FIJCYW Series

Sizes 10" to 24"



Carbon steel and alloy steel construction

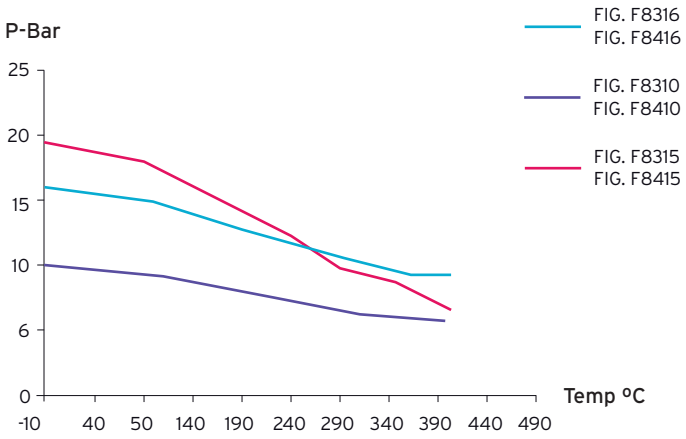
Stainless steel construction

Materials

Item	Description	Material Carbon Steel	Material Stainless Steel
1	Body	1.0570 (ST 52.3)	1.4401 (AISI 316)
2	Cap	1.0421 (ST.52)	1.4401 (AISI 316)
3	Strainer screen	14,301	(AISI 304)
4	Bolt	8.8	A2
5	Nut	8	A2
6	Cap Gasket	Syntethic Fiber	PTFE
7	Drain plug	1.0401 (C15)	1.4401 (AISI 316)
8	Drain plug gasket	Synthe c ber	PTFE

POS.6 (BOLTED COVER) : F800 1 1/2" ONLY.
Other materials under request.

PRESSURE & TEMPERATURE RATING



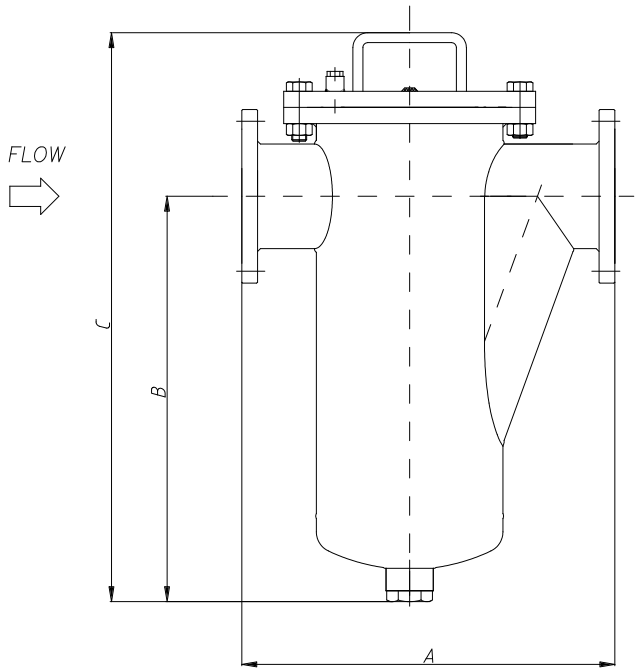
GENERAL DIMENSIONS

DN	A	ØB			C	D	WEIGHT		
		PN 10	PN 16	Class 150 (PN 20)			PN 10	PN 16	Class 150 (PN 20)
10"(DN 250)	730	395	405	406.4	530	920	130	190	192
12" (DN 300)	850	445	460	482.5	630	1020	190	240	243
14" (DN 350)	980	505	520	533.4	770	1200	250	340	342
16" (DN 400)	1100	565	580	596.9	830	1350	330	400	403
18" (DN 450)	1200	615	640	635	920	1500	450	490	492
20" (DN 500)	1250	670	715	698.5	1000	1650	520	550	553
24" (DN 600)	1450	780	840	812.8	1250	1800	670	700	702

Dimensions in mm and weight in kg.
Weight and dimensions can be changed without notice.
Bigger sizes available under customer request.
Standard perforations 0.8mm special perforations on request.

BOLTED COVER BASKET STRAINERS ANSI B16.34 DESIGN | Class 150 | BS Series

Sizes 2" to 16" Flanged 150 or DIN PN16



Carbon steel and alloy steel construction

Stainless steel construction

Materials

Description	Material Carbon Steel	Material Stainless Steel
Body	1.0570 (ST 52.3)	1.4401 (AISI 316)
Cover	1.0421 (ST.52)	1.4401 (AISI 316)
Strainer screen	1.4301	(AISI 304)
Bolt	8.8	A2
Nut	8	A2
Cap Gasket	Syntethic Fiber	PTFE
Drain plug	1.0401 (C15)	1.4401 (AISI 316)
Drain plug gasket	Synthe c ber	PTFE

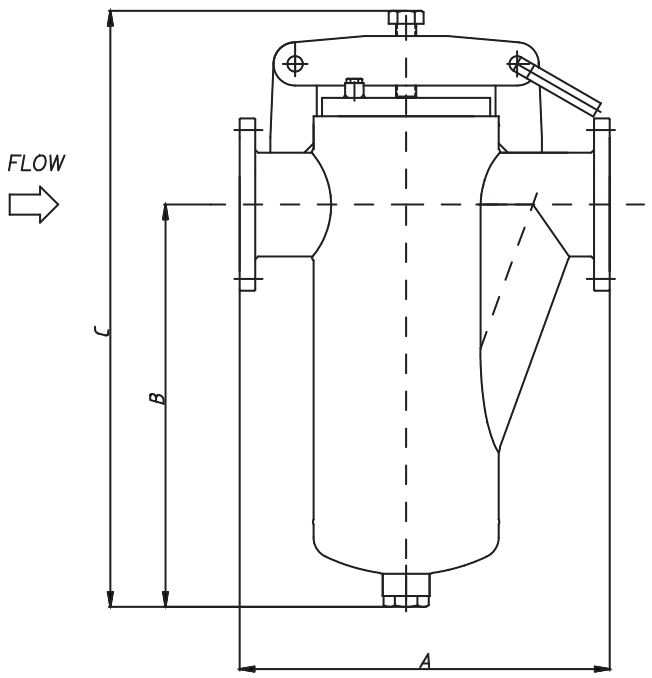
GENERAL DIMENSIONS

DN	A	B	C	DRAIN	VENT	REL. AREAS
50	300	340	545	1"	-	01:05.49
65	350	370	600	1"	-	01:04.33
80	375	409	671	1"	-	01:03.73
100	440	457	715	1"	-	01:03.31
125	525	580	785	1 1/2"	1/2"	01:02.61
150	600	670	915	1 1/2"	1/2"	01:02.83
200	800	810	1065	1 1/2"	1/2"	01:02.75
250	900	870	1225	2"	3/4"	01:02.67
300	950	930	1335	2"	3/4"	01:02.63
350	1050	1150	1575	2"	1"	01:02.60
400	1150	1180	1650	2"	1"	01:02.28

Dimensions in mm and weight in kg.
Weight and dimensions can be changed without notice.
Bigger sizes available under customer request.

QUICK OPENING BASKET STRAINERS ANSI B16.34 DESIGN | Class 150 | BSQ Series

Sizes DN 50 to 400



Carbon steel and alloy steel construction

Stainless steel construction

Materials

Description	Material Carbon Steel	Material Stainless Steel
Body	1.0570 (ST 52.3)	1.4401 (AISI 316)
Cover	1.0421 (ST.52)	1.4401 (AISI 316)
Strainer screen	1.4301	(AISI 304)
Bolt	8.8	A2
Nut	8	A2
Cap Gasket	Syntethic Fiber	PTFE
Drain plug	1.0401 (C15)	1.4401 (AISI 316)
Drain plug gasket	Synthe c ber	PTFE

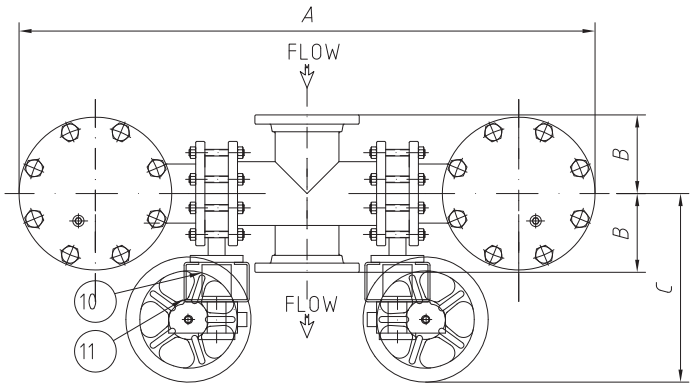
GENERAL DIMENSIONS

DN	A	B	C	DRAIN	VENT	REL. AREAS
50	300	340	490	1"	-	01:05.49
65	350	370	550	1"	-	01:04.33
80	375	409	625	1"	-	01:03.73
100	440	457	685	1"	-	01:03.31
125	525	580	730	1 1/2"	1/2"	01:02.61
150	600	670	910	1 1/2"	1/2"	01:02.83
200	800	810	1080	1 1/2"	1/2"	01:02.75
250	900	870	1250	2"	3/4"	01:02.67
300	950	930	1360	2"	3/4"	01:02.63
350	1050	1150	1600	2"	1"	01:02.60
400	1150	1180	1680	2"	1"	01:02.28

Dimensions in mm and weight in kg.
Weight and dimensions can be changed without notice.
Bigger sizes available under customer request.

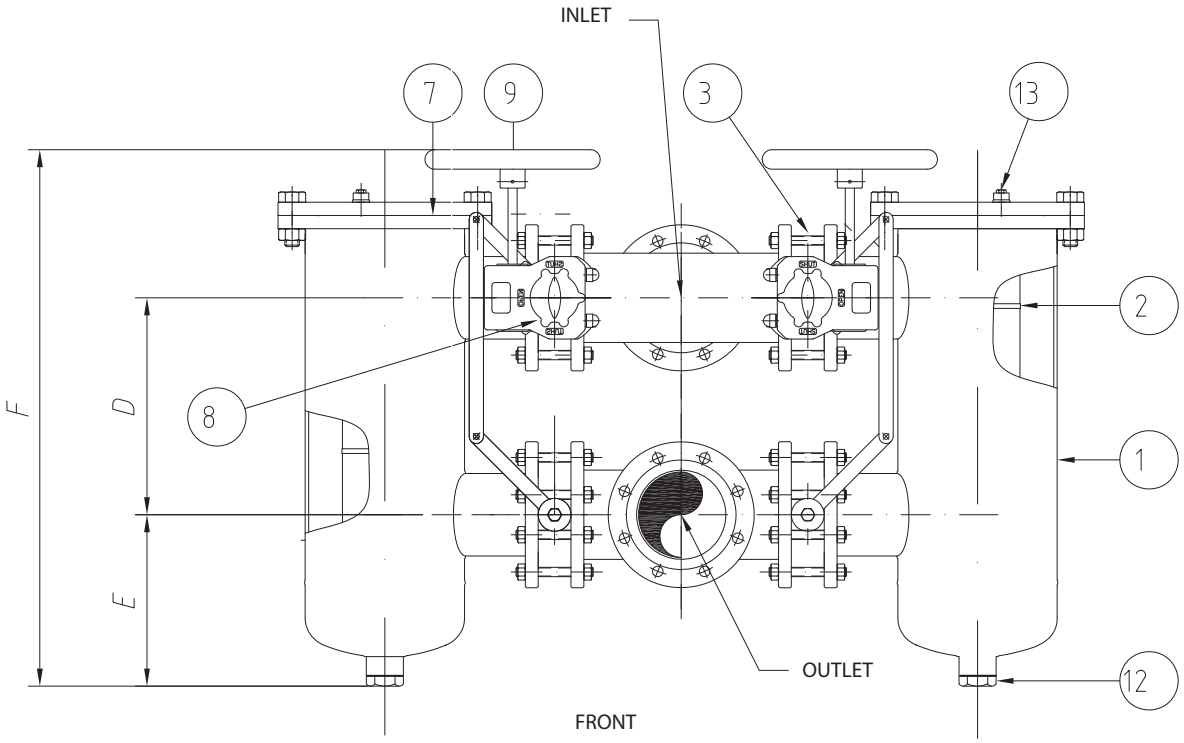
DUPLEX BASQUET STRAINER BOLTED COVER MFT DESIGN | Class 150 | DSC Series

Sizes 2" to 12" Flanged 150 or DIN PN16



Materials

Item	Description	Material Carbon Steel	Material Stainless Steel	Remarks
1	Body	A106 Gr.B / S235JR	AISI316	
2	Strainer screen	AISI316	AISI316	
3	Butterfly valve	Cast iron body, CF8M disc	Cast iron body, CF8M disc	Mesh under request
7	Seal	Viton	Viton	
8	Worm gear	Cast iron	Cast iron	
9	Handwheel	Cast steel	Cast steel	
10	Copupling	A105	AISI316	
11	Bracket	A105	AISI316	
12	Drain	A105	AISI316	1/2" BSP
13	Vent	A105	AISI316	1/2" BSP



Carbon steel and alloy steel construction

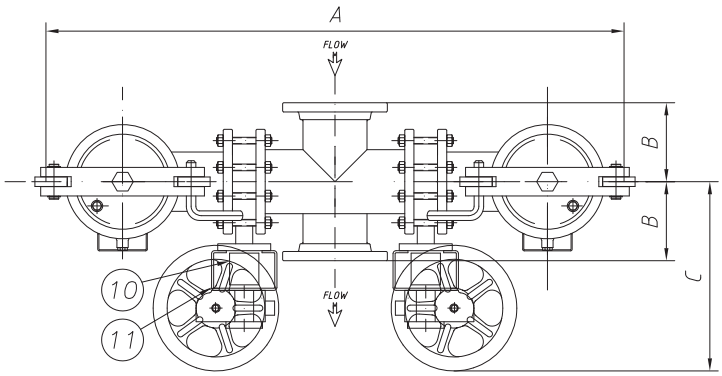
Stainless steel construction

GENERAL DIMENSIONS & DRAWING UNDER REQUEST

DN	A	C	F	D	E	DRAIN	VENT	WEIGHT	REL. AREAS
2" (DN 50)	-	-	-	-	-	-	-	-	-
2 1/2" (DN65)	-	-	-	-	-	-	-	-	-
3" (DN80)	-	-	-	-	-	-	-	-	-
4" (DN100)	-	-	-	-	-	-	-	-	-
5" (DN125)	-	-	-	-	-	-	-	-	-
6" (DN150)	-	-	-	-	-	-	-	-	-
8" (DN200)	-	-	-	-	-	-	-	-	-
10" (DN250)	-	-	-	-	-	-	-	-	-
12" (DN300)	-	-	-	-	-	-	-	-	-

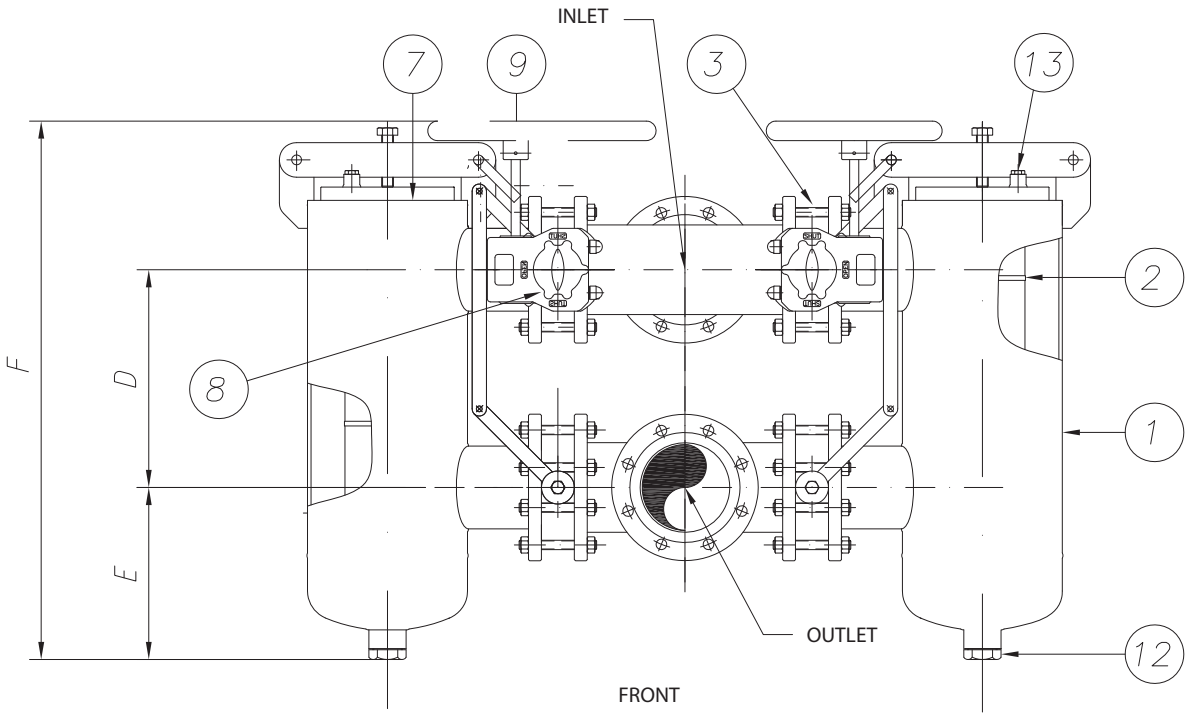
DUPLEX BASQUET STRAINER QUICK OPENING MFT DESIGN | Class 150 | DSQ Series

Sizes 2" to 12" Flanged 150 or DIN PN16



Materials

Item	Description	Material Carbon Steel	Material Stainless Steel	Remarks
1	Body	A106 Gr.B / S235JR	AISI316	
2	Strainer screen	AISI316	AISI316	Mesh under request
3	Butterfly valve	Cast iron body, CF8M disc	Cast iron body, CF8M disc	
7	Seal	VITON	VITON	
8	Worm Gear	Cast iron	Cast iron	
9	Handwheel	Cast steel	Cast steel	
10	Copupling	A105	AISI316	
11	Bracket	A105	AISI316	
12	Drain	A105	AISI316	1/2" BSP
13	Vent	A105	AISI316	1/2" BSP



Carbon steel and alloy steel construction

Stainless steel construction

GENERAL DIMENSIONS & DRAWING UNDER REQUEST

DN	A	C	F	D	E	DRAIN	VENT	WEIGHT	REL. AREAS
2" (DN 50)	-	-	-	-	-	-	-	-	-
2 1/2" (DN65)	-	-	-	-	-	-	-	-	-
3" (DN80)	-	-	-	-	-	-	-	-	-
4" (DN100)	-	-	-	-	-	-	-	-	-
5" (DN125)	-	-	-	-	-	-	-	-	-
6" (DN150)	-	-	-	-	-	-	-	-	-
8" (DN200)	-	-	-	-	-	-	-	-	-
10" (DN250)	-	-	-	-	-	-	-	-	-
12" (DN300)	-	-	-	-	-	-	-	-	-

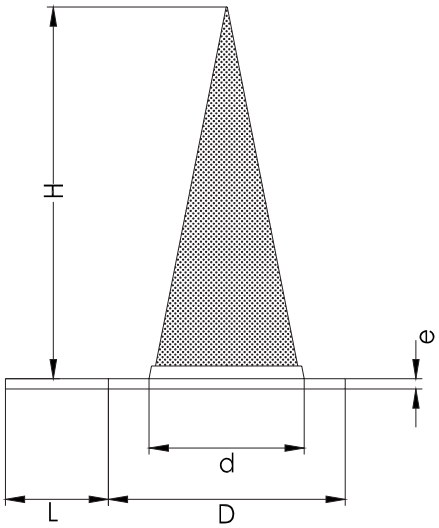
CONICAL TEMPORARY STRAINER ANSI B16.34 DESIGN | Class 150/300/600 | T415/430/460 Series

Sizes 1" to 12" for flanges 150/300/600#

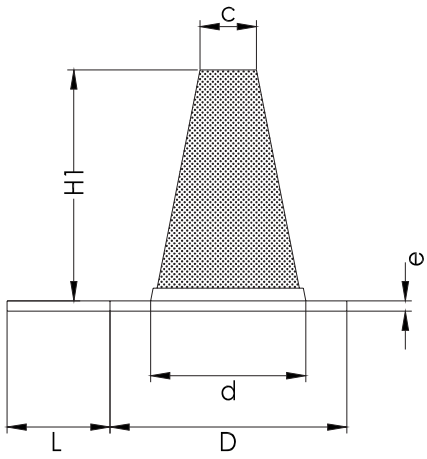
Materials

Item	Description	Material
1	Ring	ASTM A105 / AISI 304 / AISI 316
2	Perforated plate	AISI 304 / AISI 316
3	Screen	AISI 304 / AISI 316

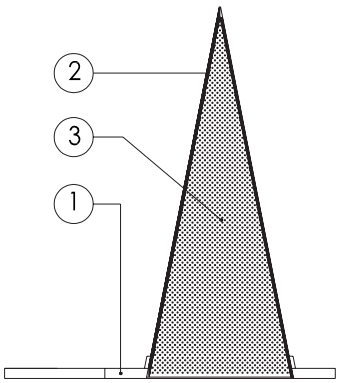
**Items 1,2 and 3 could be delivered in Monel, Hastelloy or Inconel (always under request).



Carbon steel and alloy steel construction



Stainless steel construction



GENERAL DIMENSIONS

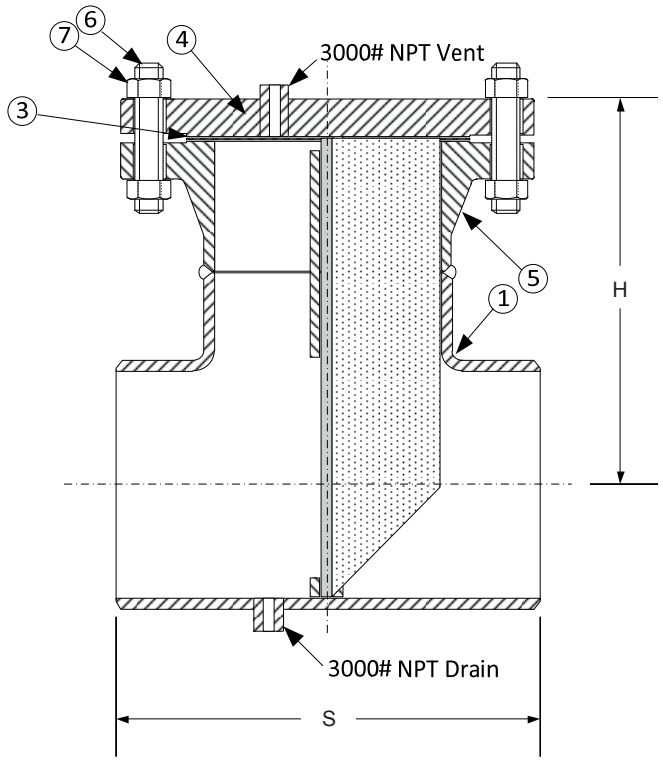
DN	ØD	Ød	Øc	e	H	H1	L		
							150 lbs	300 lbs	600 lbs
1" (DN 25)	51	22	20	3	80	60	100	110	110
1 1/4" (DN 32)	64	30	20	3	90	70	100	110	110
1 1/2" (DN 40)	73	35	20	3	100	80	100	110	110
2" (DN 50)	92	45	30	3	130	90	100	110	110
2 1/2" (DN65)	105	55	40	3	160	110	100	120	120
3" (DN80)	127	72	55	3	200	140	100	120	120
4" (DN100)	157	93	65	3	250	160	110	120	130
5" (DN125)	185	118	80	3	300	180	120	120	140
6" (DN150)	216	142	95	3	350	210	120	130	140
8" (DN200)	270	190	120	3	450	270	120	130	150
10" (DN250)	324	240	145	3	580	340	120	130	160
12" (DN300)	381	295	155	5	700	440	130	140	160
14" (DN350)	413	325	180	5	750	480	130	160	170
16" (DN400)	470	375	210	5	850	550	130	160	180
18" (DN450)	533	425	230	5	950	630	140	160	180
20" (DN500)	584	475	260	5	1100	700	150	170	190
24" (DN600)	692	575	310	5	1300	850	150	180	190

Dimensions in mm and weight in kg.
Weight and dimensions can be changed without notice.
Bigger sizes available under customer request.

**To be installed within flanges RF, FF, RTJ and ANSI.
**Ask for higher ratings.

BOLTED COVER TEE STRAINER ANSI B16.34 DESIGN | Class 150/300/600 | TST Series

Sizes 1" to 24"



Carbon steel and alloy steel construction

Stainless steel construction

Materials

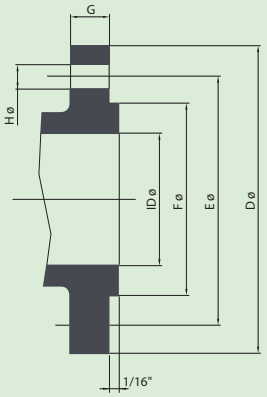
Item	Description	Material
1	Body	ASTM A234 WPB
2	Screen	ASTM A276 Type 304
3	Gasket	304 + Graphite
4	Cover	ASTM A105 Gr II
5	drain Plug	ASTM A105 / 316
6	Cover Bolts	ASTM A193 GR.B7
7	Cover Bolts Nuts	ASTM A194 GR.2H

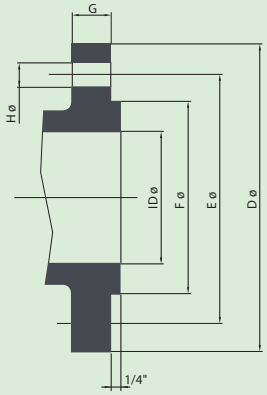
GENERAL DIMENSIONS

DN	150 lbs			300 lbs			600 lbs		
	H	S	KG SCH40	H	S	KG SCH40	H	S	KG SCH80
3"	182	172	15	197	172	19	216	172	23
4"	208	210	22	225	210	30	260	210	45
6"	260	286	42	281	286	62	324	286	90
8"	311	356	73	333	356	105	362	356	136
10"	351	432	108	385	432	153	447	432	232
12"	403	508	152	438	508	220	492	508	311
16"	472	610	308	511	610	424	574	610	596
18"	525	686	354	565	686	510	624	686	759
20"	571	752	450	609	752	644	676	752	994
24"	635	854	659	673	854	955	753	854	1450

Dimensions in mm and weight in kg.
Weight and dimensions can be changed without notice.
Bigger sizes available under customer request.

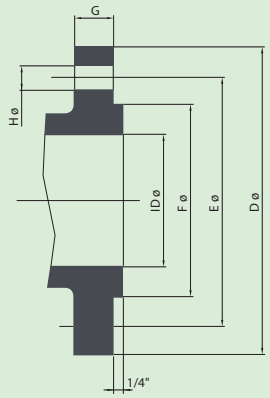
END FLANGE DIMENSIONS (Raised Face) | CLASS 150, 300 & 600





	SIZE	ID	D		E		F		G		H		N° of
	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	Holes
CLASS 150	2”	51	6	152,4	4,75	120,7	3,62	91,9	0,62	15,7	0,75	19,0	4
	3”	76	7,50	190,5	6	152,4	5	127,0	0,75	19,1	0,75	19,0	4
	4”	102	9	228,6	7,5	190,5	6,19	157,2	0,94	23,9	0,75	19,0	8
	6”	152	11	279,4	9,5	241,3	8,5	215,9	1	25,4	0,88	22,5	8
	8”	203	13,5	342,9	11,75	298,5	10,62	269,7	1,12	28,4	0,88	22,5	8
	10”	254	16	406,4	14,25	362,0	12,75	323,9	1,19	30,2	1	25,5	12
	12”	305	19	482,6	17	431,8	15	381,0	1,25	31,8	1	25,5	12
	14”	337	21	533,4	18,75	476,3	16,25	412,8	1,38	35,1	1,12		12
	16”	387	23,5	596,9	21,25	539,8	18,5	469,9	1,44	36,6	1,12	28,5	16
	18”	438	25	635,0	22,75	577,9	21	533,4	1,56	39,6	1,25	32,0	16
	20”	489	27,5	698,5	25	635,0	23	584,2	1,69	42,9	1,25	32,0	20
	24”	591	32	812,8	29,5	749,3	27,25	692,2	1,88	47,8	1,38	35,0	20
	30”	743	38,75	984,3	36	914,4	33,75	857,3	2,94	74,7	1,38	35,0	28
	36”	878	46	1168,4	42,75	1085,9	40,25	1022,4	3,56	90,4	1,62	41,5	32
	42”	1025	53	1346,2	49,5	1257,3	47	1193,8	3,81	96,8	1,62	41,5	36
	48”	1169	59,5	1511,3	56	1422,4	53,5	1358,9	4,25	108,0	1,62	41,5	44
	30”	743	34,94	887,5	33,31	846,1	32	812,8	1,75	44,5	0,88	22,5	44
	36”	878	41,62	1057,1	39,75	1009,7	38,25	971,6	2,06	52,3	1	25,5	44
	42”	1025	48,25	1225,6	46,12	1171,4	44,5	1130,3	2,31	58,7	1,12	28,5	48
	48”	1169	54,81	1392,2	52,56	1335,0	50,75	1289,1	2,56	65,0	1,25	32,0	44
CLASS 300	2”	51	6,5	165,1	5	127,0	3,62	91,9	0,88	22,4	0,75	19,0	8
	3”	76	8,25	209,6	6,62	168,1	5	127,0	1,12	28,4	0,88	22,5	8
	4”	102	10	254,0	7,88	200,2	6,19	157,2	1,25	31,8	0,88	22,5	8
	6”	152	12,5	317,5	10,62	269,7	8,5	215,9	1,44	36,6	0,88	22,5	12
	8”	203	15	381,0	13	330,2	10,62	269,7	1,62	41,1	1	25,5	12
	10”	254	17,5	444,5	15,25	387,4	12,75	323,9	1,88	47,8	1,12	28,5	16
	12”	305	20,5	520,7	17,75	450,9	15	381,0	2	50,8	1,25	32,0	16
	14”	337	23	584,2	20,25	514,4	16,25	412,8	2,12	53,8	1,25	32,0	20
	16”	387	25,5	647,7	22,5	571,5	18,5	469,9	2,25	57,2	1,38	35,0	20
	18”	432	28	711,2	24,75	628,7	21	533,4	2,38	60,5	1,38	35,0	24
	20”	483	30,5	774,7	27	685,8	23	584,2	2,5	63,5	1,38	35,0	24
	24”	584	36	914,4	32	812,8	27,25	692,2	2,75	69,9	1,62	41,5	24
	30”	737	43	1092,2	39,25	997,0	33,75	857,3	3,62	91,9	1,88	48,0	28
	36”	890	50	1270,0	46	1168,4	40,25	1022,4	4,12	104,6	2,12	54,0	32
	42”	1016	50,75	1289,1	47,5	1206,5	44,75	1136,7	4,69	119,1	1,75	44,5	32
	30”	737	39	990,6	36,25	920,8	33,25	844,6	3,69	93,7	1,5	38,5	36
	36”	890	46,12	1171,4	42,88	1089,2	39,75	1009,7	4,06	103,1	1,75	44,5	32
	42”	1016	52,5	1333,5	49	1244,6	46	1168,4	4,69	119,1	1,88	48,0	36
CLASS 600	2”	51	6,5	165,1	5	127,0	3,62	91,9	1	25,4	0,75	19,0	8
	3”	76	8,25	209,6	6,62	168,1	5	127,0	1,25	31,8	0,88	22,5	8
	4”	102	10,75	273,1	8,5	215,9	6,19	157,2	1,5	38,1	1	25,5	8
	6”	152	14	355,6	11,5	292,1	8,5	215,9	1,88	47,8	1,12	28,5	12
	8”	200	16,5	419,1	13,75	349,3	10,62	269,7	2,19	55,6	1,25	32,0	12
	10”	248	20	508,0	17	431,8	12,75	323,9	2,5	63,5	1,38	35,0	16
	12”	298	22	558,8	19,25	489,0	15	381,0	2,62	66,5	1,38	35,0	20
	14”	327	23,75	603,3	20,75	527,1	16,25	412,8	2,75	69,9	1,5	38,5	20
	16”	375	27	685,8	23,75	603,3	18,5	469,9	3	76,2	1,62	41,5	20
	18”	419	29,25	743,0	25,75	654,1	21	533,4	3,25	82,6	1,75	44,5	20
	20”	464	32	812,8	28,5	723,9	23	584,2	3,5	88,9	1,75	44,5	24
	24”	559	37	939,8	33	838,2	27,25	692,2	4	101,6	2	51,0	24
	30”	695	44,5	1130,3	40,25	1022,4	33,75	857,3	4,5	114,3	2,12	54,0	28
	36”	865	51,75	1314,5	47	1193,8	40,25	1022,4	4,88	124,0	2,62	66,5	28
	42”	992	55,25	1403,4	50,5	1282,7	46	1168,4	6,62	168,1	2,62	66,5	28
	30”	695	40,25	1022,4	36,5	927,1	33,12	841,2	4,94	125,5	2	51,0	28
	36”	865	47,75	1212,9	43,5	1104,9	39,75	1009,7	5,75	146,1	2,38	60,5	28
	42”	992	55,25	1403,4	50,5	1282,7	46	1168,4	6,62	168,1	2,62	66,5	28

BOLTED COVER BASKET STRAINER ANSI B16.34 DESIGN | CLASS 900, 1500 & 2500



	SIZE	ID	D		E		F		G		H		N° of
	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	Holes
CLASS 900	2”	48	8,5	215,9	6,5	165,1	3,62	91,9	1,5	38,1	1	25,5	8
	3”	73	9,5	241,3	7,5	190,5	5	127,0	1,5	38,1	1	25,5	8
	4”	99	11,5	292,1	9,25	235,0	6,19	157,2	1,75	44,5	1,25	32,0	8
	6”	146	15	381,0	12,5	317,5	8,5	215,9	2,19	55,6	1,25	32,0	12
	8”	191	18,5	469,9	15,5	393,7	10,62	269,7	2,5	63,5	1,5	38,5	12
	10”	238	21,5	546,1	18,5	469,9	12,75	323,9	2,75	69,9	1,5	38,5	16
	12”	283	24	609,6	21	533,4	15	381,0	3,12	79,2	1,5	38,5	20
	14”	311	25,25	641,4	22	558,8	16,25	412,8	3,38	85,9	1,62	41,5	20
	16”	356	27,75	704,9	24,25	616,0	18,5	469,9	3,5	88,9	1,75	44,5	20
	18”	400	31	787,4	27	685,8	21	533,4	4	101,6	2	51,0	20
	20”	445	33,75	857,3	29,5	749,3	23	584,2	4,25	108,0	2,12	54,0	20
CLASS 1500	2”	48	8,5	215,9	6,5	165,1	3,62	91,9	1,5	38,1	1	25,5	8
	3”	70	10,5	266,7	8	203,2	5	127,0	1,88	47,8	1,25	32,0	8
	4”	92	12,25	311,2	9,5	241,3	6,19	157,2	2,12	53,8	1,38	35,0	8
	6”	137	15,5	393,7	12,5	317,5	8,5	215,9	3,25	82,6	1,5	38,5	12
	8”	178	19	482,6	15,5	393,7	10,62	269,7	3,62	91,9	1,75	44,5	12
	10”	223	23	584,2	19	482,6	12,75	323,9	4,25	108,0	2	51,0	12
	12”	264	26,5	673,1	22,5	571,5	15	381,0	4,88	124,0	2,12	54,0	16
	14”	289	29,5	749,3	25	635,0	16,25	412,8	5,25	133,4	2,38	60,5	16
	16”	331	32,5	825,5	27,75	704,9	18,5	469,9	5,75	146,1	2,62	66,5	16
	18”	372	36	914,4	30,5	774,7	21	533,4	6,38	162,1	2,88	73,0	16
CLASS 2500	2”	38	9,25	235,0	6,75	171,5	3,62	91,9	2	50,8	1,12	28,5	8
	3”	57	12	304,8	9	228,6	5	127,0	2,62	66,5	1,38	35,0	8
	4”	73	14	355,6	10,75	273,1	6,19	157,2	3	76,2	1,62	41,5	8
	6”	111	19	482,6	14,5	368,3	8,5	215,9	4,25	108,0	2,12	54,0	8
	8”	146	21,75	552,5	17,25	438,2	10,62	269,7	5	127,0	2,12	54,0	12
	10”	184	26,5	673,1	21,25	539,8	12,75	323,9	6,5	165,1	2,62	66,5	12
	12”	219	30	762,0	24,38	619,3	15	381,0	7,25	184,2	2,88	73,0	12

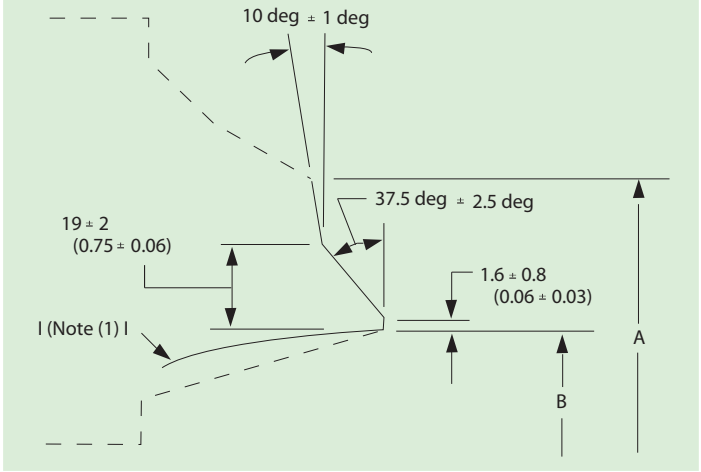
FLANGE STANDARDS

- Acording to ASME B16.5
- Acording to ASME B16.47 Serie A (MSS SP-44)
- Acording to ASME B16.47 Serie B (API 605)

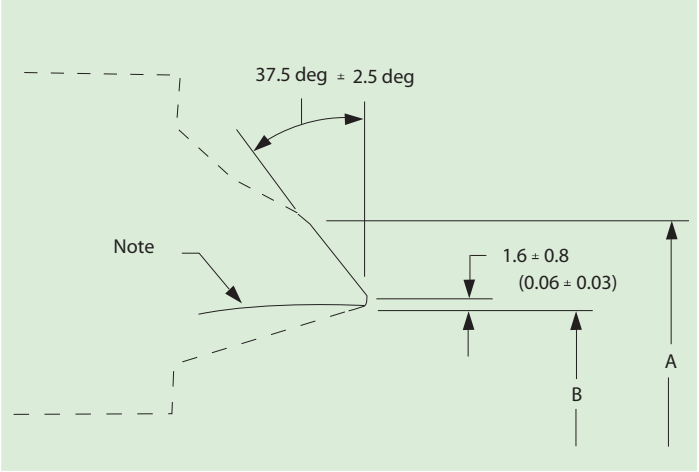
BUTTWELDING END DIMENSIONS ACCORDING TO ASME B16.25

Welding End Detail for Joint Without Backing Ring

WELD BEVEL DETAIL FOR WALL THICKNESS NOT OVER 22mm. (0,88in.)



WELD BEVEL DETAIL FOR WALL THICKNESS OVER 22mm. (0,88in.)



Note : Internal surface may be as-formed or mechaned for dimension B at root face. Contour within the envolope is manufacturer`s option, unless otherwise specifically purchase order for.

Nominal Pipe Size	A		B											
			10		20		30		STD		XS		40	
(NPS)	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.
3" (80)	3,59	91,2											3,068	77,9
4" (100)	4,62	117,3											4,026	102,3
6" (150)	6,78	172,2											6,065	154,1
8" (200)	8,78	223,0											7,981	202,7
10" (250)	10,94	277,9											10,020	254,5
12" (300)	12,97	329,4							12,000	304,8	11,750	298,5	11,938	303,2
14" (350)	14,25	362,0							13,250	336,6	13,000	330,2	13,124	333,3
16" (400)	16,25	412,8							15,250	387,4			15,000	381,0
18" (450)	18,28	464,3							17,250	438,2	17,000	431,8	16,876	428,7
20" (500)	20,31	515,9							19,250	489,0	19,000	482,6	18,812	477,8
24" (600)	24,38	619,3					22,876	581,1	23,250	590,6	23,000	584,2	22,624	574,6
30" (750)	30,38	771,7	29,376	746,2	29,000	736,6	28,750	730,3						
36" (900)	36,50	927,1	35,376	898,6	35,000	889,0	34,750	882,7					34,500	876,3

Nominal Pipe Size	B													
	60		80		100		120		140		160		XXS	
(NPS)	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.	inch.	mm.
3" (80)			2,900	73,7							2,624	66,6	2,300	58,4
4" (100)			3,826	97,2			3,624	92,0			3,438	87,3	3,152	80,1
6" (150)			5,761	146,3			5,501	139,7			5,187	131,7	4,897	124,4
8" (200)	7,813	198,5	7,625	193,7	7,437	188,9	7,187	182,5	7,001	177,8	6,813	173,1	6,875	174,6
10" (250)	9,750	247,7	9,562	242,9	9,312	236,5	9,062	230,2	8,750	222,3	8,500	215,9		
12" (300)	11,626	295,3	11,374	288,9	11,062	281,0	10,750	273,1	10,500	266,7	10,126	257,2		
14" (350)	12,812	325,4	12,500	317,5	12,124	307,9	11,812	300,0	11,500	292,1	11,188	284,2		
16" (400)	14,688	373,1	14,312	363,5	13,938	354,0	13,562	344,5	13,124	333,3	12,812	325,4		
18" (450)	16,500	419,1	16,124	409,5	15,688	398,5	15,250	387,4	14,876	377,9	14,438	366,7		
20" (500)	18,376	466,8	17,938	455,6	17,438	442,9	17,000	431,8	16,500	419,1	16,062	408,0		
24" (600)	22,062	560,4	21,562	547,7	20,938	531,8	20,376	517,6	19,876	504,9	19,312	490,5		

PRESSURE TEMPERATURE RATINGS

PRESSURE TEMPERATURE RATINGS FOR CARBON STEEL ASTM A216 WCB (According to ASME B16.34)

TEMPERATURE		WORKING PRESSURE - STANDARD CLASS VALVES																	
°F	°C	150 (PN20)			300 (PN50)			600 (PN100)			900 (PN150)			1500 (PN250)			2500 (PN420)		
		PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar
-20 to 100	-29 to 38	285	20,0	19,6	740	52,0	51,0	1480	104,04	102,0	2220	156,1	153,0	3705	260,5	255,3	6170	433,8	425,1
200	95	260	18,3	17,9	675	47,5	46,5	1350	94,91	93,0	2025	142,4	139,5	3375	237,3	232,5	5625	395,4	387,6
300	150	230	16,2	15,8	655	46,0	45,1	1315	92,44	90,6	1970	138,5	135,7	3280	230,6	226,0	5470	384,5	376,9
400	205	200	14,1	13,8	635	44,6	43,8	1270	89,28	87,5	1900	133,6	130,9	3170	222,9	218,4	5280	371,2	363,8
500	260	170	12,0	11,7	600	42,2	41,3	1200	84,36	82,7	1795	126,2	123,7	2995	210,5	206,4	4990	350,8	343,8
600	315	140	9,8	9,6	550	38,7	37,9	1095	76,98	75,4	1640	115,3	113,0	2735	192,3	188,4	4560	320,6	314,2
650	345	125	8,8	8,6	535	37,6	36,9	1075	75,57	74,1	1610	113,2	110,9	2685	188,8	185,0	4475	314,6	308,3
700	375	110	7,7	7,6	535	37,6	36,9	1065	74,87	73,4	1600	112,5	110,2	2665	187,3	183,6	4440	312,1	305,9
750	400	95	6,7	6,5	505	35,5	34,8	1010	71	69,6	1510	106,2	104,0	2520	177,2	173,6	4200	295,3	289,4
800	425	80	5,6	5,5	410	28,8	28,2	825	58	56,8	1235	86,8	85,1	2060	144,8	141,9	3430	241,1	236,3
850	450	65	4,6	4,5	270	19,0	18,6	535	37,61	36,9	805	56,6	55,5	1340	94,2	92,3	2230	156,8	153,6
900	485	50	3,5	3,4	170	12,0	11,7	345	24,25	23,8	515	36,2	35,5	860	60,5	59,3	1430	100,5	98,5
950	510	35	2,5	2,4	105	7,4	7,2	205	14,41	14,1	310	21,8	21,4	515	36,2	35,5	860	60,5	59,3
1000	540	20	1,4	1,4	50	3,5	3,4	105	7,38	7,2	155	10,9	10,7	260	18,3	17,9	430	30,2	29,6

TEMPERATURE		WORKING PRESSURE - SPECIAL CLASS VALVES																	
°F	°C	150 (PN20)			300 (PN50)			600 (PN100)			900 (PN150)			1500 (PN250)			2500 (PN420)		
		PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar
-20 to 100	-29 to 38	290	20,4	20,0	750	52,7	51,7	1500	105,5	103,4	2250	158,2	155,0	3750	263,6	258,4	6250	439,4	430,6
200	95	290	20,4	20,0	750	52,7	51,7	1500	105,5	103,4	2250	158,2	155,0	3750	263,6	258,4	6250	439,4	430,6
300	150	290	20,4	20,0	750	52,7	51,7	1500	105,5	103,4	2250	158,2	155,0	3750	263,6	258,4	6250	439,4	430,6
400	205	290	20,4	20,0	750	52,7	51,7	1500	105,5	103,4	2250	158,2	155,0	3750	263,6	258,4	6250	439,4	430,6
500	260	290	20,4	20,0	750	52,7	51,7	1500	105,5	103,4	2250	158,2	155,0	3750	263,6	258,4	6250	439,4	430,6
600	315	275	19,3	18,9	715	50,3	49,3	1425	100,2	98,2	2140	150,4	147,4	3565	250,6	245,6	5940	417,6	409,3
650	345	270	19,0	18,6	700	49,2	48,2	1400	98,4	96,5	2100	147,6	144,7	3495	245,7	240,8	5825	409,5	401,3
700	375	265	18,6	18,3	695	48,9	47,9	1390	97,7	95,8	2080	146,2	143,3	3470	243,9	239,1	5780	406,3	398,2
750	400	240	16,9	16,5	630	44,3	43,4	1260	88,6	86,8	1890	132,9	130,2	3150	221,4	217,0	5250	369,1	361,7
800	425	200	14,1	13,8	515	36,2	35,5	1030	72,4	71,0	1545	108,6	106,5	2570	180,7	177,1	4285	301,2	295,2
850	450	130	9,1	9,0	335	23,6	23,1	670	47,1	46,2	1005	70,7	69,2	1670	117,4	115,1	2785	195,8	191,9
900	485	85	6,0	5,9	215	15,1	14,8	430	30,2	29,6	645	45,3	44,4	1070	75,2	73,7	1785	125,5	123,0
950	510	50	3,5	3,4	130	9,1	9,0	260	18,3	17,9	385	27,1	26,5	645	45,3	44,4	1070	75,2	73,7
1000	540	25	1,8	1,7	65	4,6	4,5	130	9,1	9,0	195	13,7	13,4	320	22,5	22,0	535	37,6	36,9
1000	540	20	1,4	1,4	50	3,5	3,4	105	7,38	7,2	155	10,9	10,7	260	18,3	17,9	430	30,2	29,6

NOTE : Permissible, but not recommended for prolonged use above 800ºF (425ºC).

PRESSURE TEMPERATURE RATINGS FOR CARBON STEEL ASTM A352 LCB (According to ASME B16.34)

TEMPERATURE		WORKING PRESSURE - STANDARD CLASS VALVES																	
°F	°C	150 (PN20)			300 (PN50)			600 (PN100)			900 (PN150)			1500 (PN250)			2500 (PN420)		
		PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar
-20 to 100	-29 to 38	265	18,6	18,3	695	48,9	47,9	1390	97,7	95,8	2085	146,6	143,7	3470	243,9	239,1	5785	406,7	398,6
200	95	250	17,6	17,2	655	46,0	45,1	1315	92,4	90,6	1970	138,5	135,7	3280	230,6	226,0	5470	384,5	376,9
300	150	230	16,2	15,8	640	45,0	44,1	1275	89,6	87,8	1915	134,6	131,9	3190	224,3	219,8	5315	373,6	366,2
400	205	200	14,1	13,8	620	43,6	42,7	1235	86,8	85,1	1850	130,1	127,5	3085	216,9	212,6	5145	361,7	354,5
500	260	170	12,0	11,7	585	41,1	40,3	1165	81,9	80,3	1745	122,7	120,2	2910	204,6	200,5	4850	341,0	334,2
600	315	140	9,8	9,6	535	37,6	36,9	1065	74,9	73,4	1600	112,5	110,2	2665	187,3	183,6	4440	312,1	305,9
650	345	125	8,8	8,6	525	36,9	36,2	1045	73,5	72,0	1570	110,4	108,2	2615	183,8	180,2	4355	306,2	300,1

TEMPERATURE		WORKING PRESSURE - SPECIAL CLASS VALVES																	
°F	°C	150 (PN20)			300 (PN50)			600 (PN100)			900 (PN150)			1500 (PN250)			2500 (PN420)		
		PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar
-20 to 100	-29 to 38	265	18,6	18,3	695	48,9	47,9	1390	97,7	95,8	2085	146,6	143,7	3470	243,9	239,1	5785	406,7	398,6
200	95	265	18,6	18,3	695	48,9	47,9	1390	97,7	95,8	2085	146,6	143,7	3470	243,9	239,1	5785	406,7	398,6
300	150	265	18,6	18,3	695	48,9	47,9	1390	97,7	95,8	2085	146,6	143,7	3470	243,9	239,1	5785	406,7	398,6
400	205	265	18,6	18,3	695	48,9	47,9	1390	97,7	95,8	2085	146,6	143,7	3470	243,9	239,1	5785	406,7	398,6
500	260	265	18,6	18,3	695	48,9	47,9	1390	97,7	95,8	2085	146,6	143,7	3470	243,9	239,1	5785	406,7	398,6
600	315	265	18,6	18,3	695	48,9	47,9	1390	97,7	95,8	2085	146,6	143,7	3470	243,9	239,1	5780	406,3	398,2
650	345	260	18,3	17,9	680	47,8	46,9	1360	95,6	93,7	2040	143,4	140,6	3400	239,0	234,3	5670	398,6	390,7

PRESSURE TEMPERATURE RATINGS

PRESSURE TEMPERATURE RATINGS FOR ALLOY STEEL ASTM A217 C5 (According to ASME B16.34)

TEMPERATURE		WORKING PRESSURE - STANDARD CLASS VALVES																	
°F	°C	150 (PN20)			300 (PN50)			600 (PN100)			900 (PN150)			1500 (PN250)			2500 (PN420)		
		PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar
-20 to 100	-29 to 38	290	20,4	20,0	750	52,7	51,7	1500	105,5	103,4	2250	158,2	155,0	3750	263,6	258,4	6250	439,4	430,6
200	95	260	18,3	17,9	745	52,4	51,3	1490	104,7	102,7	2235	157,1	154,0	3725	261,9	256,7	6205	436,2	427,5
300	150	230	16,2	15,8	715	50,3	49,3	1430	100,5	98,5	2150	151,1	148,1	3580	251,7	246,7	5965	419,3	411,0
400	205	200	14,1	13,8	705	49,6	48,6	1410	99,1	97,1	2115	148,7	145,7	3530	248,2	243,2	5880	413,4	405,1
500	260	170	12,0	11,7	665	46,7	45,8	1330	93,5	91,6	1995	140,2	137,5	3325	233,7	229,1	5540	389,5	381,7
600	315	140	9,8	9,6	605	42,5	41,7	1210	85,1	83,4	1815	127,6	125,1	3025	212,7	208,4	5040	354,3	347,3
650	345	125	8,8	8,6	590	41,5	40,7	1175	82,6	81,0	1765	124,1	121,6	2940	206,7	202,6	4905	344,8	338,0
700	375	110	7,7	7,6	570	40,1	39,3	1135	79,8	78,2	1705	119,9	117,5	2840	199,7	195,7	4730	332,5	325,9
750	400	95	6,7	6,5	530	37,3	36,5	1055	74,2	72,7	1585	111,4	109,2	2640	185,6	181,9	4400	309,3	303,2
800	425	80	5,6	5,5	510	35,9	35,1	1015	71,4	69,9	1525	107,2	105,1	2540	178,6	175,0	4230	297,4	291,4
850	450	65	4,6	4,5	485	34,1	33,4	965	67,8	66,5	1450	101,9	99,9	2415	169,8	166,4	4030	283,3	277,7
900	485	50	3,5	3,4	370	26,0	25,5	740	52,0	51,0	1110	78,0	76,5	1850	130,1	127,5	3085	216,9	212,6
950	510	35	2,5	2,4	275	19,3	18,9	550	38,7	37,9	825	58,0	56,8	1370	96,3	94,4	2285	160,6	157,4
1000	540	20	1,4	1,4	200	14,1	13,8	400	28,1	27,6	595	41,8	41,0	995	69,9	68,6	1655	116,3	114,0
1050	565	20	1,4	1,4	145	10,2	10,0	290	20,4	20,0	430	30,2	29,6	720	50,6	49,6	1200	84,4	82,7
1100	595	20	1,4	1,4	100	7,0	6,9	200	14,1	13,8	300	21,1	20,7	495	34,8	34,1	830	58,3	57,2
1150	620	20	1,4	1,4	60	4,2	4,1	125	8,8	8,6	185	13,0	12,7	310	21,8	21,4	515	36,2	35,5
1200	650	20	1,4	1,4	35	2,5	2,4	70	4,9	4,8	105	7,4	7,2	170	12,0	11,7	285	20,0	19,6

TEMPERATURE		WORKING PRESSURE - SPECIAL CLASS VALVES																	
°F	°C	150 (PN20)			300 (PN50)			600 (PN100)			900 (PN150)			1500 (PN250)			2500 (PN420)		
		PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar
-20 to 100	-29 to 38	290	20,4	20,0	750	52,7	51,7	1500	105,5	103,4	2250	158,2	155,0	3750	263,6	258,4	6250	439,4	430,6
200	95	290	20,4	20,0	750	52,7	51,7	1500	105,5	103,4	2250	158,2	155,0	3750	263,6	258,4	6250	439,4	430,6
300	150	280	19,7	19,3	730	51,3	50,3	1455	102,3	100,2	2185	153,6	150,5	3645	256,2	251,1	6070	426,7	418,2
400	205	275	19,3	18,9	720	50,6	49,6	1440	101,2	99,2	2160	151,8	148,8	3600	253,1	248,0	6000	421,8	413,4
500	260	275	19,3	18,9	720	50,6	49,6	1440	101,2	99,2	2160	151,8	148,8	3600	253,1	248,0	6000	421,8	413,4
600	315	270	19,0	18,6	705	49,6	48,6	1415	99,5	97,5	2120	149,0	146,1	3535	248,5	243,6	5895	414,4	406,2
650	345	270	19,0	18,6	700	49,2	48,2	1395	98,1	96,1	2095	147,3	144,3	3495	245,7	240,8	5820	409,1	401,0
700	375	265	18,6	18,3	685	48,2	47,2	1370	96,3	94,4	2055	144,5	141,6	3430	241,1	236,3	5715	401,8	393,8
750	400	255	17,9	17,6	660	46,4	45,5	1320	92,8	90,9	1980	139,2	136,4	3300	232,0	227,4	5500	386,7	379,0
800	425	245	17,2	16,9	640	45,0	44,1	1275	89,6	87,8	1915	134,6	131,9	3195	224,6	220,1	5320	374,0	366,5
850	450	230	16,2	15,8	605	42,5	41,7	1210	85,1	83,4	1815	127,6	125,1	3020	212,3	208,1	5035	354,0	346,9
900	485	175	12,3	12,1	465	32,7	32,0	925	65,0	63,7	1390	97,7	95,8	2315	162,7	159,5	3855	271,0	265,6
950	510	130	9,1	9,0	345	24,3	23,8	685	48,2	47,2	1030	72,4	71,0	1715	120,6	118,2	2855	200,7	196,7
1000	540	95	6,7	6,5	250	17,6	17,2	495	34,8	34,1	745	52,4	51,3	1245	87,5	85,8	2070	145,5	142,6
1050	565	70	4,9	4,8	180	12,7	12,4	360	25,3	24,8	540	38,0	37,2	900	63,3	62,0	1500	105,5	103,4
1100	595	50	3,5	3,4	125	8,8	8,6	250	17,6	17,2	375	26,4	25,8	620	43,6	42,7	1035	72,8	71,3
1150	620	30	2,1	2,1	75	5,3	5,2	155	10,9	10,7	230	16,2	15,8	385	27,1	26,5	645	45,3	44,4
1200	650	15	1,1	1,0	45	3,2	3,1	85	6,0	5,9	130	9,1	9,0	215	15,1	14,8	355	25,0	24,5

For welding end valves only. Flanged end ratings terminate at 1000ºF.

PRESSURE TEMPERATURE RATINGS

PRESSURE TEMPERATURE RATINGS FOR STAINLESS STEEL ASTM A351 CF8M (According to ASME B16.34)

TEMPERATURE		WORKING PRESSURE - STANDARD CLASS VALVES																	
°F	°C	150 (PN20)			300 (PN50)			600 (PN100)			900 (PN150)			1500 (PN250)			2500 (PN420)		
		PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar
-20 to 100	-29 to 38	275	19,3	18,9	720	50,6	49,6	1440	101,2	99,2	2160	151,8	148,8	3600	253,1	248,0	6000	421,8	413,4
200	95	235	16,5	16,2	620	43,6	42,7	1240	87,2	85,4	1860	130,8	128,2	3095	217,6	213,2	5160	362,7	355,5
300	150	215	15,1	14,8	560	39,4	38,6	1120	78,7	77,2	1680	118,1	115,8	2795	196,5	192,6	4660	327,6	321,1
400	205	195	13,7	13,4	515	36,2	35,5	1025	72,1	70,6	1540	108,3	106,1	2570	180,7	177,1	4280	300,9	294,9
500	260	170	12,0	11,7	480	33,7	33,1	955	67,1	65,8	1435	100,9	98,9	2390	168,0	164,7	3980	279,8	274,2
600	315	140	9,8	9,6	450	31,6	31,0	900	63,3	62,0	1355	95,3	93,4	2255	158,5	155,4	3760	264,3	259,1
650	345	125	8,8	8,6	445	31,3	30,7	890	62,6	61,3	1330	93,5	91,6	2220	156,1	153,0	3700	260,1	254,9
700	375	110	7,7	7,6	430	30,2	29,6	870	61,2	59,9	1305	91,7	89,9	2170	152,6	149,5	3620	254,5	249,4
750	400	95	6,7	6,5	425	29,9	29,3	855	60,1	58,9	1280	90,0	88,2	2135	150,1	147,1	3560	250,3	245,3
800	425	80	5,6	5,5	420	29,5	28,9	845	59,4	58,2	1265	88,9	87,2	2110	148,3	145,4	3520	247,5	242,5
850	450	65	4,6	4,5	420	29,5	28,9	835	58,7	57,5	1255	88,2	86,5	2090	146,9	144,0	3480	244,6	239,8
900	485	50	3,5	3,4	415	29,2	28,6	830	58,3	57,2	1245	87,5	85,8	2075	145,9	143,0	3460	243,2	238,4
950	510	35	2,5	2,4	385	27,1	26,5	775	54,5	53,4	1160	81,5	79,9	1930	135,7	133,0	3220	226,4	221,9
1000	540	20	1,4	1,4	350	24,6	24,1	700	49,2	48,2	1050	73,8	72,3	1750	123,0	120,6	2915	204,9	200,8
1050	565	20	1,4	1,4	345	24,3	23,8	685	48,2	47,2	1030	72,4	71,0	1720	120,9	118,5	2865	201,4	197,4
1100	595	20	1,4	1,4	305	21,4	21,0	610	42,9	42,0	915	64,3	63,0	1525	107,2	105,1	2545	178,9	175,4
1150	620	20	1,4	1,4	235	16,5	16,2	475	33,4	32,7	710	49,9	48,9	1185	83,3	81,6	1970	138,5	135,7
1200	650	20	1,4	1,4	185	13,0	12,7	370	26,0	25,5	555	39,0	38,2	925	65,0	63,7	1545	108,6	106,5
1250	675	20	1,4	1,4	145	10,2	10,0	295	20,7	20,3	440	30,9	30,3	735	51,7	50,6	1230	86,5	84,7
1300	705	20	1,4	1,4	115	8,1	7,9	235	16,5	16,2	350	24,6	24,1	585	41,1	40,3	970	68,2	66,8
1350	735	20	1,4	1,4	95	6,7	6,5	190	13,4	13,1	290	20,4	20,0	480	33,7	33,1	800	56,2	55,1
1400	760	20	1,4	1,4	75	5,3	5,2	150	10,5	10,3	225	15,8	15,5	380	26,7	26,2	630	44,3	43,4
1450	790	20	1,4	1,4	60	4,2	4,1	115	8,1	7,9	175	12,3	12,1	290	20,4	20,0	485	34,1	33,4
1500	815	20	1,4	1,4	40	2,8	2,8	85	6,0	5,9	125	8,8	8,6	205	14,4	14,1	345	24,3	23,8

TEMPERATURE		WORKING PRESSURE - SPECIAL CLASS VALVES																	
°F	°C	150 (PN20)			300 (PN50)			600 (PN100)			900 (PN150)			1500 (PN250)			2500 (PN420)		
		PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar	PSig	Kg/cm²	Bar
-20 to 100	-29 to 38	290	20,4	20,0	750	52,7	51,7	1500	105,5	103,4	2250	158,2	155,0	3750	263,6	258,4	6250	439,4	430,6
200	95	265	18,6	18,3	690	48,5	47,5	1380	97,0	95,1	2070	145,5	142,6	3450	242,5	237,7	5750	404,2	396,2
300	150	240	16,9	16,5	625	43,9	43,1	1250	87,9	86,1	1870	131,5	128,8	3120	219,3	215,0	5200	365,6	358,3
400	205	220	15,5	15,2	570	40,1	39,3	1140	80,1	78,5	1710	120,2	117,8	2850	200,4	196,4	4750	333,9	327,3
500	260	205	14,4	14,1	530	37,3	36,5	1065	74,9	73,4	1595	112,1	109,9	2655	186,6	182,9	4430	311,4	305,2
600	315	195	13,7	13,4	505	35,5	34,8	1005	70,7	69,2	1510	106,2	104,0	2520	177,2	173,6	4195	294,9	289,0
650	345	190	13,4	13,1	495	34,8	34,1	985	69,2	67,9	1480	104,0	102,0	2465	173,3	169,8	4105	288,6	282,8
700	375	185	13,0	12,7	485	34,1	33,4	970	68,2	66,8	1455	102,3	100,2	2420	170,1	166,7	4035	283,7	278,0
750	400	180	12,7	12,4	475	33,4	32,7	950	66,8	65,5	1425	100,2	98,2	2380	167,3	164,0	3965	278,7	273,2
800	425	180	12,7	12,4	470	33,0	32,4	945	66,4	65,1	1415	99,5	97,5	2355	165,6	162,3	3930	276,3	270,8
850	450	180	12,7	12,4	465	32,7	32,0	930	65,4	64,1	1400	98,4	96,5	2330	163,8	160,5	3885	273,1	267,7
900	485	175	12,3	12,1	465	32,7	32,0	925	65,0	63,7	1390	97,7	95,8	2315	162,7	159,5	3855	271,0	265,6
950	510	175	12,3	12,1	460	32,3	31,7	915	64,3	63,0	1375	96,7	94,7	2290	161,0	157,8	3815	268,2	262,9
1000	540	160	11,2	11,0	420	29,5	28,9	840	59,1	57,9	1260	88,6	86,8	2105	148,0	145,0	3505	246,4	241,5
1050	565	160	11,2	11,0	420	29,5	28,9	840	59,1	57,9	1260	88,6	86,8	2105	148,0	145,0	3505	246,4	241,5
1100	595	145	10,2	10,0	380	26,7	26,2	765	53,8	52,7	1145	80,5	78,9	1905	133,9	131,3	3180	223,6	219,1
1150	620	115	8,1	7,9	295	20,7	20,3	590	41,5	40,7	885	62,2	61,0	1480	104,0	102,0	2465	173,3	169,8
1200	650	90	6,3	6,2	230	16,2	15,8	465	32,7	32,0	695	48,9	47,9	1155	81,2	79,6	1930	135,7	133,0
1250	675	70	4,9	4,8	185	13,0	12,7	370	26,0	25,5	555	39,0	38,2	920	64,7	63,4	1535	107,9	105,8
1300	705	55	3,9	3,8	145	10,2	10,0	290	20,4	20,0	435	30,6	30,0	730	51,3	50,3	1215	85,4	83,7
1350	735	45	3,2	3,1	120	8,4	8,3	240	16,9	16,5	360	25,3	24,8	600	42,2	41,3	1000	70,3	68,9
1400	760	35	2,5	2,4	95	6,7	6,5	190	13,4	13,1	285	20,0	19,6	470	33,0	32,4	785	55,2	54,1
1450	790	30	2,1	2,1	75	5,3	5,2	145	10,2	10,0	220	15,5	15,2	365	25,7	25,1	610	42,9	42,0
1500	815	20	1,4	1,4	50	3,5	3,4	105	7,4	7,2	155	10,9	10,7	260	18,3	17,9	430	30,2	29,6

NOTE : At temperature over 1000ºF, use only when the carbon content is 0,04% or higher.

For welding end valves only. Flanged end ratings terminate at 1000ºF.

ASTM MATERIAL LIST

VALVE MATERIALS SELECTION

VALVE TYPE	TYPE	CLASS	END CONNECTION	MATERIAL		OPERATION
				SHELL	TRIM	
GATE VALVE	BOLTED BONNET	150 300 600 900 1500 2500	FLAT FACE	ASTM A216 WCB ASTM A216 WCC ASTM A352 LCB ASTM A352 LCC ASTM A352 LC1 ASTM A352 LC2 ASTM A352 LC3 ASTM A217 WC1 ASTM A217 WC6 ASTM A217 WC9 ASTM A217 C5 ASTM A217 C12 ASTM A351 CF3 ASTM A351 CF3M ASTM A351 CF8 ASTM A351 CF8M ASTM A351 CF8C ASTM A351 CD4MCu ASTM A351 CKMCuN ASTM A351 CN7M	F6 a 304 & 304L 316 & 316L 321 347 F55 BRONZE MONEL HASTELLOY STELLITE	HANDWHEEL CHAIN BEVEL GEAR ELECTRIC HYDRAULIC PNEUMATIC
	PRESSURE SEAL	900 1500 2500				
GLOBE VALVE	BOLTED BONNET	150 300 600 900 1500 2500	RAISED FACE			
	PRESSURE SEAL	900 1500 2500	RING JOINT			
SWING CHECK VALVE	BOLTED COVER	150 300 600 900 1500 2500	BUTTWELDED ENDS			
	PRESSURE SEAL	900 1500 2500				

ASTM MATERIALS LIST

ASTM Material	Chemical Requirements											Mechanical Requirements			
	C	Mn	P	S	Sí	Cr	Ni	Mo	Cu	V	Other	T.E.	Y.S. Min.	E	R.A.
	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Kg/mm²	Kg/mm²	% Min.	% Min.
A216 WCB	0.30	1.00	0.04	0.045	0.60	0.50	0.50	0.20	0.30	0.03		49.2 / 66.8	25.3	22	35
A352 LCB	0.30	1.00	0.04	0.045	0.60	0.50	0.50	0.20	0.30	0.03		45.9 / 63.2	24.5	24	35
A217 C5	0.20	0.40 / 0.70	0.04	0.045	0.75	4.00 / 6.50	0.50	0.45 / 0.65	0.5		W: 0.10	63.2 / 81.1	42.3	18	35
A351 CF8M	0.08	1.50	0.040	0.040	1.50	18 / 21	9 / 12	2 / 3				49.5 min.	20.9	30	-
A217 CA15	0.15	1.00	0.04	0.040	1.50	11.5 / 14.0	1.00	0.50				63.3 min.	45.7	18	30
A105	0.35	0.60 / 1.05	0.035	0.040	0.10 / 0.35	0.30	0.40	0.12	0.40	0.05	Cb: 0.02	49.2 min.	25.3	22	30
A182 F6a	0.15	1.00	0.040	0.030	1.00	11.5 / 13.5	0.50					59.7	38.7	18	35
A182 F304	0.08	2.00	0.045	0.030	1.00	18.0 / 20.0	8.0 / 11.0				N: 0.10	52.5	20.9	30	50
A182 F304L	0.030	2.00	0.045	0.030	1.00	18.0 / 20.0	8.0 / 13.0				N: 0.10	49.5	17.3	30	50
A182 F316	0.08	2.00	0.045	0.030	1.00	16.0 / 18.0	10.0 / 14.0	2.00 / 3.00			N: 0.10	52.5	20.9	30	50
A182 F316L	0.030	2.00	0.045	0.030	1.00	16.0 / 18.0	10.0 / 15.0	2.00 / 3.00			N: 0.10	49.5	17.3	30	50
A182 F321	0.08	2.00	0.045	0.030	1.00	17 / 19	9.0 / 12.0				Ti ≥ 5C ≤ 0.70%	52.5	20.9	30	50
A182 F347	0.08	2.00	0.045	0.030	1.00	17.0 / 20.0	9.0 / 13.0				Cb+Ta 10xCmin	52.5	20.9	30	50
A193 B7	0.37 / 0.49	0.65 / 1.10	0.035	0.040	0.15 / 0.35	0.75 / 1.20		0.15 / 0.25				87.9 / 70.3	73.8 / 52.7	16 / 18	50
A194 2H	0.40 min.	1.00	0.040	0.050	0.40										
A439 D2 (Ni-Resist)	2.9	1.80 / 2.40	0.080		1.00 / 3.00	0.5	21.00 / 24.00					40.7	19.7	20	-
B148 Gr. B (Al. Bronze)									86.0 min.	Al: 9.0 / 11.0 Fe: 0.80 / 1.5		52.2 min.	28.1	12	-
AWS A5.13 CoCrA (Stellite)	0.70 / 1.40	2.00			2.00	25.0 / 32.0	3.0	1.00	W: 3.00 / 6.00 Fe: 5.0 Co: Remainder			105 / 162	45	53.4	5 / 8

CV FLOW COEFFICIENTS

	CLASS	150	300	600	900		1500		2500	
	SIZE	BB	BB	BB	BB	PS	BB	PS	BB	PS
GATE	2”	250	250	250	230	225	230	225	160	170
	3”	620	620	620	580	480	520	480	370	400
	4”	1160	1160	1160	1050	750	930	750	630	570
	6”	2700	2700	2700	2550	1850	2250	1700	1500	1550
	8”	5100	5100	5100	4400	4300	3800	3000	2650	2400
	10”	8050	8050	7800	7050	5450	6050	4750	4500	400
	12”	12050	12050	11500	10000	7450	9100	6500	6000	5900
	14”	15100	15100	14000	13100	9500	11500	8500	7050	
	16”	20300	20300	18500	18200	11900	15100	10200		
	18”	26100	25000	23000	21500	14500		13500		
	20”	33500	32500	28500	26500	18500				
	24”	50000	48500	43000						
	30”	79000								
	36”	115500								
GLOBE	2”	55	55	55	45	45	40	40	25	25
	3”	105	105	105	90	90	85	80	65	60
	4”	190	190	190	150	145	120	120	100	90
	6”	425	425	425	400	380	360	350	245	240
	8”	790	790	790	700	650	600	550	400	350
	10”	1250	1250	1200		850		700		500
	12”	1900	1900	1850		1000		950		850
	14”	2350				1400		1000		
	16”	3300				2100		1600		
SWING CHECK	2”	125	125	125	100	100	100	100	60	60
	3”	280	280	280	240	240	220	220	150	150
	4”	490	490	490	460	490	400	400	250	200
	6”	1150	1150	1150	1100	850	1050	800	600	450
	8”	2250	2250	2200	2000	1500	1650	1200	1050	850
	10”	3400	3400	3300		2200		1900		1600
	12”	4900	4900	4800		2900		2300		2050
	14”	6100	6100	5850		3700		3500		
	16”	8700	8700	8100		6950		4700		
	18”	11900	11550							
	20”	14800	14000							
	24”	21000								
	30”	31000								
	36”	52000								

TEST

SHELL, BACKSEAT & CLOSURE TEST PRESSURE in Kg/cm² (psig) STANDARD API 598/ISO 5208 (STANDARD CLASS)

	CLASS 150		CLASS 300		CLASS 600		CLASS 900		CLASS 1500		CLASS 2500	
Test of...	Shell	High-pressure Closure*	Shell	High-pressure Closure*	Shell	High-pressure Closure*	Shell	High-pressure Closure*	Shell	High-pressure Closure*	Shell	High-pressure Closure*
ASTM Materials		Backseat		Backseat		Backseat		Backseat		Backseat		Backseat
WCB	32	23	79	58	157	116	236	172	392	287	652	478
LF2,A105	(450)	(315)	(1125)	(815)	(2225)	(1650)	(3350)	(2445)	(5575)	(4080)	(9275)	(6800)
WC1	28	21	74	55	148	109	221	162	367	269	612	448
LC1-LCB	(400)	(300)	(1050)	(775)	(2100)	(1550)	(3150)	(2300)	(5225)	(3825)	(8700)	(6375)
WCC,F11cl.2												
WC4,F5												
WC5,F9												
WC6,C12A												
WC9-C5	32	23	79	58	158	116	237	174	396	290	659	483
C12-LCC	(450)	(315)	(1125)	(815)	(2250)	(1650)	(3375)	(2475)	(5625)	(4125)	(9375)	(6875)
LC2-LC3												
CK3MCuN												
CD4MCu												
CF3-CF8												
CF8C,F304												
CF8M,F316	30	23	77	56	153	113	229	167	380	280	633	464
CF3M,F347	(425)	(315)	(1100)	(800)	(2175)	(1600)	(3250)	(2375)	(5400)	(3975)	(9000)	(6600)
CF3A,CF8A												
CN7M	25	20	63	48	127	93	190	141	317	232	528	387
	(345)	(275)	(900)	(675)	(1800)	(1325)	(2700)	(2000)	(4500)	(3300)	(7500)	(5500)

* LOW-PRESSURE CLOSURE (Air) 4,2 - 7kg/cm2 (70-100psig).
Other standards as EN 17266 , API 6D y MSS SP-61, could be used at costumer request.

BODY AND BONNET MATERIALS (FOR FORGED VALVES ONLY)

Our valves are manufactured in a wide range of materials, supplied by the best available steel mills, forged by well known forgery with outstanding equipment and experience. All the material can be certified in the chemical composition and the mechanical characteristic.

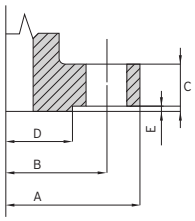
Materials Group	Common name	Nomial Type	UNS	Forging Spec.	Casting Spec.	DIN	DIN W. No	Application Notes
Carbon Steel	CS	C-Mn-Fe	K03504	A105N	A216-WCB	C22.8 DIN 17243	1.0460	General non-corrosive service from -20F(-29C) to 800F(427C)
Low temperature Carbon Steel	LTCS	C-Mn-Fe	K03011	A352-LCA A350-LF2 A352-LCC	A352-LCB	TSTE 355 DIN 18103	1.0566	General non-corrosive service from -50F(-46C) to 650F(340C), LF2 to 800F(427C).
	Nickel Steel	3 1/2Ni	K32025	A350-LF3	A352-LC3	10Ni14	1.5637	-150F(-101C) to 650F(340C)
Low Alloy Steel	Moly Steel	C-1/2Mo	K12822	A182-F1	A217-WC1	15MO3	1.5415	Up to 875F (468C)
	Alloy Steel Chrome Moly	1 1/4Cr-1/2Mo	K11572	A182-F11 cl2	A217-WC6	13CRMO44	1.7335	Up to 1100F (593C)
		2 1/4Cr-1Mo	K21590	A182-F22 cl3	A217-WC9	10CRMO910	1.7380	Up to 1100F(593C), HP steam
		5Cr-1/2Mo	K41545	A182-F5	A217-C5	12CRMO195	1.7362	High temp refinery service
		9Cr-1Mo	K90941	A182-F9	A217-C12	X 12 CrMo 9 1	1.7386	High temp erosive refinery service
		9Cr-1Mo-V		A182-F91	A217-C12A	X 10 CrMoVNb 9 1	1.4903	High pressure steam
Stainless Steel	Austenitic S.Steel 300 series S.Steel	304 : 18Cr-8Ni	S30400	A182-F304	A351-CF8	DIN X5CrNi 18 9	1.4301	0.04% min. carbon for temp.>1000F(538C)
		304L : 18Cr-8Ni	S30403	A182-F304L	A351-CF3	X 2 CrNi 19 11	1.4306	Up to 800F(427C)
		304H :	S30409	A182-F304H		n/a	n/a	
		316 : 16Cr-12Ni-2Mo	S31600	A182-F316	A351-CF8M	DIN X5CrNiMo 18 10	1.4401	0.04% min. carbon for temp.>1000F(538C)
		316L : 16Cr-12Ni-2Mo	S31603	A182-F316L	A351-CF3M	X 5 CrNiMo 17 12 2	1.4404	Up to 800F(427C)
		316H :	S31609	A182-F316H		n/a	n/a	
		316Ti:	S31635	A182-F316Ti		X 6 CrNiMoTi 17 12 2	1.4571	
		321: 18Cr-10Ni-Ti	S32100	A182-F321		X 6 CrNiTi 18 10	1.4541	0.04% min. carbon (grade F321H) and heat treat at 2000F(1100C) for service temps.>1000F(538C)
		321H	S32109	A182-F321H		n/a	n/a	
		347: 18Cr-10Ni-Cb(Nb)	S34700	A182-F347	A351-CF8C	DIN 8556	1.4550	0.04% min. carbon (grade F347H) and heat treat at 2000F(1100C) for service temps.>1000F(538C)
		347H	S34709	A182-F347H		n/a	n/a	
		317L	S31703	A182-F317L	A351-CG3M	X2CrNiMo18-16-4	1.4438	
	Alloy 20	28Ni-19Cr-Cu-Mo	N08020	A182-F20	A351-CN7M	DIN 1.4500	2.4660	Service to 600F(316C)
	Duplex 2205	22Cr-5Ni-3Mo-N	S31803 S32205	A182-F51	A890-J92205	X2CrNiMON22-5-3 DIN 10088-1 (95)	1.4462	Service to 600F(316C) -The original S31803 UNS designation has been supplemented by S32205 which has higher minimum N, Cr, and Mo.
	Super Duplex 2507	25Cr-7Ni-4Mo-N	S32750	A182-F53	A351-CD4MCu A890 5A	X2CrNiMoN25-7-4 DIN 10088-1 (95)	1.4462	Service to 600F(316C)
	Super Duplex F55	25Cr-7Ni-3.5Mo-N-Cu-W	S32760	A182 F55	CD3MWCuN			Service to 600F
	Super Austenitic 6Mo	20Cr-18Ni-6Mo	S31254	A182-F44	A351-CK3MCuN	X1CrNiMoCuN20-18-7 DIN 10088-1 (95)	1.4547	Service to 600F(316C)
Nickel-Iron Alloy	Incoloy 800	33Ni-42Fe-21Cr	N08800	B564-N08800		X10NiCrAlTi32-20	1.4876	Service to 1000F(538C)
	Incoloy 825	42Ni-21.5Cr-3Mo-2.3Cu	N08825	B564-N08825	A494-CU5MCuC	DIN 17744	2.4858	Service to 600F(316C) for N02200, 1200F(648C) for N02201
Nickel	Nickel	99/95Ni	N02200	B160-N02200 (bar)	A494-CZ-100	NW2200	1.7740	
Nickel-Copper	Monel 400	67Ni-30Cu	N04400	B564-N04400	A494-M35-1	DIN 17730	2.4360	
	Monel 500		N05500	B564-N05500			2.4375	
Nickel-Alloy	904L		N08904	904L	n/a	Z2 NCDU 25-20	1.4539	
Nickel Superalloys	Inconel 600	72Ni-15Cr-8Fe	N06600	B564-N06600	A494-CY40	DIN 17742	2.4816	
	Inconel 625	60Ni-22Cr-9Mo-3.5Cb	N06625	B564-N06625*	A494-CW-6MC		2.4856	*Difficult to forge in close dye
	Hastelloy C-276	54Ni-15Cr-16Mo	N10276	B564-N10276*	A494-CW-2M	NiMo 16 Cr 15 W	2.4819	*Difficult to forge in close dye
Titanium	Titanium	98Ti	R50400	B381-Gr2	B367-C2	Ti 2	3.7035	

Note: these charts are for reference only. we recommend customer engineers to analize service requirements and specify the materials they consider optimium.
CVA cannot be held liable for any damage occured due to the use of the tables.

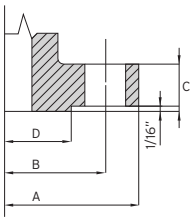
FORGED VALVES FLANGED: DIN & ANSI | CLASS PN25 / 40 / 64

FLANGES DIN 2544-45-46

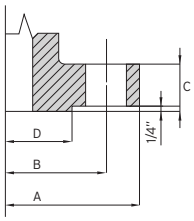
DN	PN	Size	A	B	C	D	E	Bolt holes	
								N	Ø
15	25 / 40	1/2	95	65	16	45	2	4	14
20		3/4	105	75	18	58	2	4	14
25		1	115	85	18	68	2	4	14
32		1 1/4	140	100	18	78	2	4	14
40		1 1/2	150	110	18	88	3	4	18
50		2	165	125	20	102	3	4	18
15	64	1/2	105	75	20	45	2	4	14
20		3/4	130	90	22	58	2	4	18
25		1	140	100	24	65	2	4	18
32		1 1/4	155	110	24	75	2	4	22
40		1 1/2	170	125	26	88	3	4	22
50		2	180	135	26	9	3	4	22



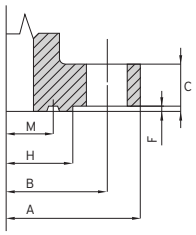
FLANGES DIN 2544-45-46



FLANGES ANSI - B16.5



RAISED FACE 600 & 1500 lb



RING JOINT FACE

FLANGES ASME - B16.5 | CLASS 150 / 300 / 600 /1500 / 2500

Class	Size	A		C		D		B		Bolt holes			Ring Joint Facing						Ring N.
										N	Size		H		M		F		
150	1/2	3.50	89.0	0.44	11.5	1.38	34.9	2.38	60.5	4	0.62	16	-	-	-	-	-	-	-
	3/4	3.88	98.5	0.50	13.0	1.69	42.9	2.75	70	4	0.62	16	-	-	-	-	-	-	-
	1	4.25	108.0	0.56	14.5	2	50.8	3.12	79.5	4	0.62	16	2.5	63.5	1.875	47.62	0.250	6.4	R15
	1 1/4	4.62	117.5	0.62	16.0	2.5	63.5	3.5	89	4	0.62	16	2.88	73	2.250	57.15	0.250	6.4	R17
	1 1/2	5.00	127.0	0.69	18.0	2.88	73	3.88	98.5	4	0.62	16	3.25	82.5	2.562	65.07	0.250	6.4	R19
	2	6.00	152.5	0.75	19.5	3.62	92.1	4.75	120.5	4	0.75	19	4	101.5	3.250	82.55	0.250	6.4	R22
300	1/2	3.75	95.5	0.56	14.5	1.38	34.9	2.62	66.5	4	0.62	16	2	50.8	1.34	34.14	0.22	5.6	R11
	3/4	4.62	117.5	0.62	16	1.69	42.9	3.25	82.5	4	0.75	19	2.5	63.5	1.69	42.88	0.25	6.4	R13
	1	4.88	124	0.69	18	2	50.8	3.5	89	4	0.75	19	2.75	69.9	2	50.8	0.25	6.4	R16
	1 1/4	5.25	133.5	0.75	19.5	2.5	63.5	3.88	98.5	4	0.75	19	3.12	79.2	2.38	60.32	0.25	6.4	R18
	1 1/2	6.12	156	0.81	21	2.88	73	4.5	114.5	4	0.88	22	3.56	90.4	2.69	68.28	0.25	6.4	R20
	2	6.50	165.5	0.88	22.5	3.62	92.1	5	127	8	0.75	19	4.25	108	3.25	82.55	0.31	7.9	R23
600	1/2	3.75	95.5	0.56	14.5	1.38	34.9	2.62	66.5	4	0.62	16	2	50.5	1.344	34.14	0.219	5.6	R11
	3/4	4.62	117.5	0.62	16.0	1.69	42.9	3.25	82.5	4	0.75	19	2.5	63.5	1.688	42.88	0.250	6.4	R13
	1	4.88	124.0	0.69	18.0	2	50.8	3.5	89	4	0.75	19	2.75	69.9	2.000	50.80	0.250	6.4	R16
	1 1/4	5.25	133.5	0.81	21.0	2.5	63.5	3.88	98.5	4	0.75	19	3.12	79.4	2.375	60.32	0.250	6.4	R18
	1 1/2	6.12	156.0	0.88	22.5	2.88	73	4.5	114.5	4	0.88	22	3.56	90.5	2.688	68.28	0.250	6.4	R20
	2	6.50	165.5	1.00	25.5	3.62	92.1	5	127	8	0.75	19	4.25	108	3.250	82.55	0.312	7.9	R23
1500	1/2	4.75	121.0	0.88	22.5	1.38	34.9	3.25	82.5	4	0.88	22	2.38	60.3	1.562	39.67	0.250	6.4	R12
	3/4	5.12	130.5	1.00	25.5	1.69	42.9	3.5	89	4	0.88	22	2.62	66.7	1.750	44.45	0.250	6.4	R14
	1	5.88	149.5	1.12	29.0	2	50.8	4	101.5	4	1	25.5	2.81	71.4	2.000	50.80	0.250	6.4	R16
	1 1/4	6.25	159.0	1.12	29.0	2.5	63.5	4.38	111	4	1	25.5	3.19	81	2.375	60.32	0.250	6.4	R18
	1 1/2	7.00	178.0	1.25	32.0	2.88	73	4.88	124	4	1.12	28.5	3.62	92.1	2.688	68.28	0.250	6.4	R20
	2	8.50	216.0	1.50	38.5	3.62	92.1	6.5	165	8	1	25.5	4.88	123.8	3.750	95.25	0.312	7.9	R24
2500	1/2	5.23	133.5	1.20	30.5	1.38	34.9	3.5	89	4	0.88	22	2.55	65.1	1.688	42.88	0.250	6.4	R13
	3/4	5.51	140.0	1.25	32.0	1.69	42.9	3.74	95	4	0.88	22	2.87	73	2.000	50.80	0.250	6.4	R16
	1	6.25	159.0	1.37	35.0	2	50.8	4.24	108	4	1	25.5	3.24	82.5	2.374	60.32	0.250	6.4	R18
	1 1/4	7.24	184.5	1.51	38.5	2.5	63.5	5.12	130	4	1.12	28.5	3.99	101.5	2.844	72.24	0.312	7.9	R21
	1 1/2	7.99	203.5	1.75	44.5	2.88	73	5.74	146	4	1.25	31.5	4.5	114.3	3.250	82.55	0.312	7.9	R23
	2	9.25	235.0	2.00	51.0	3.62	92.1	6.74	171.5	8	1.12	28.5	5.25	133.3	4.000	101.60	0.312	7.9	R26

BUTT WELD - ASME B16.25

Size	SCHEDULE 40		SCHEDULE 80		SCHEDULE 160		SCHEDULE XXS	
	ØA	T	ØA	T	ØA	T	ØA	T
1/2"	21.3	2.77	21.3	3.73	21.3	4.78	21.3	7.47
	0.840	0.190	0.840	0.147	0.840	0.188	0.840	0.294
3/4"	26.7	2.87	26.7	3.91	26.7	5.56	26.7	7.82
	1.050	0.113	1.050	0.154	1.050	0.219	1.050	0.308
1"	33.4	3.38	33.4	4.55	33.4	6.35	33.4	9.09
	1.315	0.133	1.315	0.179	1.315	0.250	1.315	0.358
1 1/4"	42.2	3.55	42.2	4.85	42.2	6.35	42.2	9.7
	1.660	0.140	1.660	0.191	1.660	0.250	1.660	0.382
1 1/2"	48.3	3.68	48.3	5.08	48.3	7.14	48.3	10.15
	1.900	0.145	1.900	0.200	1.900	0.281	1.900	0.400
2"	60.3	3.91	60.3	5.54	60.3	8.74	60.3	11.07
	2.375	0.154	2.375	0.218	2.375	0.344	2.375	0.436
2 1/2"	73	5.15	73	7.01	73	9.53	73	14.02
	2.875	0.203	2.875	0.276	2.875	0.375	2.875	0.552
3"	88.9	5.48	88.9	7.62	88.9	11.13	88.9	15.24
	3.500	0.216	3.500	0.300	3.500	0.438	3.500	0.600
4"	114.3	6.02	114.3	8.56	114.3	13.49	114.3	17.12
	4.500	0.237	4.500	0.337	4.500	0.531	4.500	0.674

Fig. a

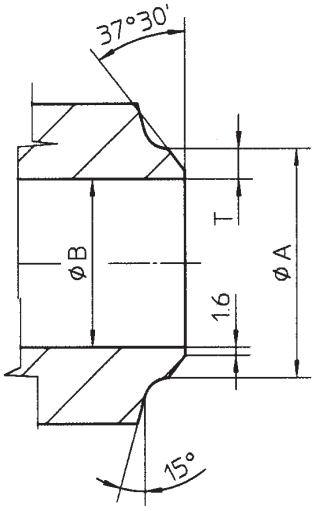


Fig. b

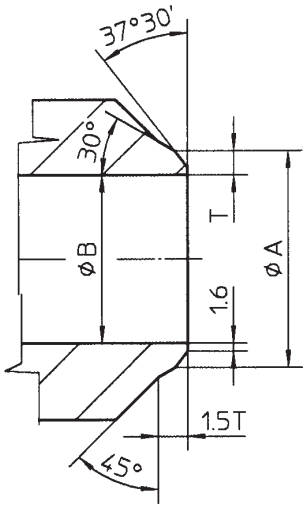


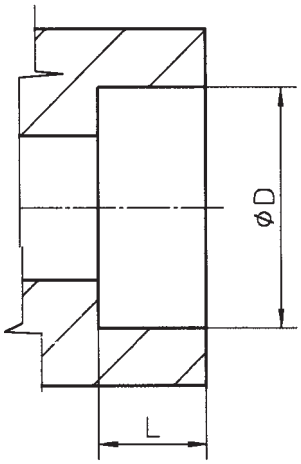
Fig. a ≤ 2"
Fig. b > 2"
B = A -2T

mm In

SOCKET WELD - API 602/ISO 15761

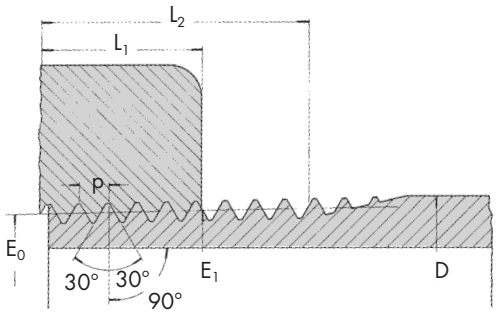
Size	ØD		L (min)	
	mm	inch	mm	inch
1/4"	14.20	0.557	9.53	0.38
3/8"	17.60	0.690	9.53	0.38
1/2"	21.80	0.855	9.53	0.38
3/4"	27.20	1.065	12.70	0.5
1"	33.90	1.330	12.70	0.5
1 1/4"	42.70	1.675	12.70	0.5
1 1/2"	48.80	1.915	12.70	0.5
2"	61.20	2.406	15.88	0.62

Socket wall thickness conform to ASME B16.34
"API table only for metric measure"



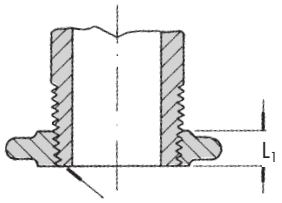
FORGED VALVES END CONECTIONS

THREADS - ASME B1.20.1

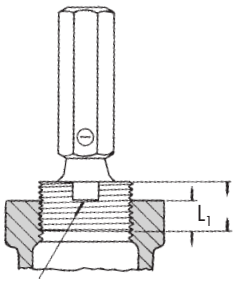


$E_0 = D -- (0.050D + 1.1)p$
$E_1 = E0 + 0.0625\ L_1$
$L_2 = (0.80D = 6.8)p$

p = Pitch
Depth of thread = 0.80p
Total Taper 3/4 -inch t



Flush by Hand
Tolerance on Product
One turn large or small from notch on plug gauge or face of ring gauge.



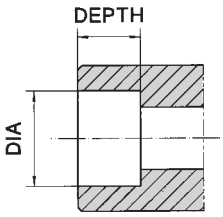
Notch flush with face of fitting. If chamfered, notch flush with bottom of chamfer.

Nominal pipe size	D Outside diameter of pipe	Number of threads per inch	p Pitch of thread	E_0 (*)1	E_1 (*)2	L_1 (*)3	L_2 (*)4	Height of thread
1/16"	0.3125	27	0.03704	0.27118	0.28118	0.160	0.26	0.02963
1/8"	0.405	27	0.03704	0.36351	0.37360	0.1615	0.2639	0.02963
1/4"	0.540	18	0.05556	0.47739	0.49163	0.2278	0.4018	0.04444
3/8"	0.675	18	0.05556	0.61201	0.62701	0.240	0.4078	0.04444
1/2"	0.840	14	0.07143	0.75843	0.77843	0.320	0.5337	0.05714
3/4"	1.050	14	0.07143	0.96768	0.98887	0.339	0.5457	0.05714
1"	1.315	11.5	0.08696	1.23863	1.23863	0.400	0.6828	0.06957
1 1/4"	1.660	11.5	0.08696	1.55713	1.58338	0.420	0.7068	0.06957
1 1/2"	1.900	11.5	0.08696	1.79609	1.82234	0.420	0.7235	0.06957
2"	2.375	11.5	0.08696	2.26902	2.29627	0.436	0.7565	0.06957

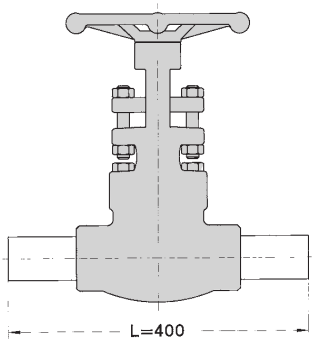
(*)1 Pitch diameter at end of external thread.
(*)2 Pitch diameter at end of external. Also pitch diameter at gauging notch.
(*)3 Normal engagement by and between external and internal threads. Also length of plug gauge.
(*)4 Length of effective external thread. Also length of ring gauge, and length from gauging notch to small end of plug gauge.
NOTE: For the 1/8-27 and 1/4-18 sizes... E1 approx. = D -- (0.05D + 0.827) p.

VALVES WITH NIPPLES LENGHTS

NOMINAL PIPE SIZE		SOCKET BORE DIA.		SOCKET DEPTH		S	
NPT	DN	mm	in.	mm	in.	mm	in.
1/4"	8	14.2	0.557	11.1	0.437	89	3.503
3/8"	10	17.6	0.690	11.1	0.437	89	3.503
1/2"	15	21.8	0.855	12.7	0.500	88	3.464
3/4"	20	27.2	1.065	14.5	0.570	86	3.385
1"	25	33.9	1.330	16	0.629	85	3.346
1 1/4"	32	42.57	1.675	17.5	0.688	83	3.267
1 1/2"	40	48.8	1.915	19	0.748	82	3.228
2"	50	61.2	2.406	22	0.866	79	3.110

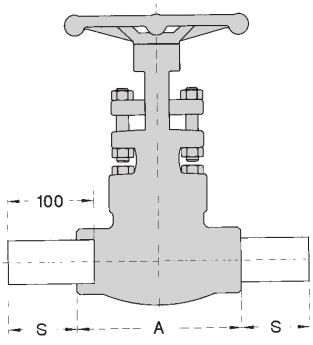


Type "L"



Lont Pattern Total length 400 mm.

Type "S"



A = See relevant Product/Size/Class table within this catalogue
S = See table Socket Weld

NOTES

NOTES

Válvulas Industriales

Comercial de Válvulas y Accesorios, S.A.

Pol. Industrial Polizur, c/ Bosc Tancat, 6 Nave 2 y 3
08290 Cerdanyola del Vallès (Barcelona) SPAIN
T. +34 93 586 36 00 | F. +34 93 586 36 04 | www.cva.es | info@cva.es
GPS: Longitude 2º 8' 6'' E | Latitude 41º 30' 3'' N