



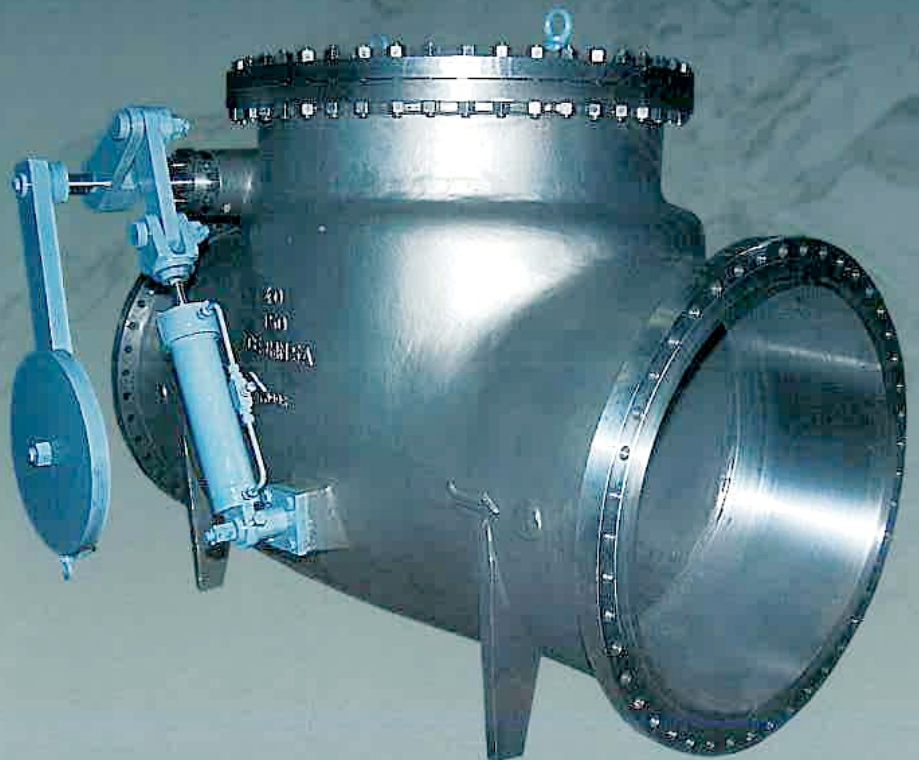
Alka-Tech

INDUSTRIAL VALVES & FITTINGS CO.

WE ARE THE BEST LEADING
MANUFACTURER OF
INDUSTRIAL VALVES

OFFERING **SOLUTIONS**
NOT JUST **PRODUCTS**

GGC VALVES



COMPANY PROFILE



Alka Tech Industrial Valves & Fittings Co. established to supply high performance valves to critical applications. Our team over decades of experience in valve design, manufacturing, quality control and deliveries understands the customer challenges in sourcing quality valves in the scheduled time.

In order to meet such demand company operates on sophisticated ERP system which includes project planning and management. Company has latest software for design and automated test benches of latest technology.

Our supplier control process ensured experienced suppliers and sub-vendors meet quality requirements of raw materials and accuracy of machined parts.

Company manufacture and supply below types of valves in soft and metal seated;

- **Process to Instrument and Piping Valves Double Block and Bleed (DBB)**
- **Ball valves Floating and Trunnion**
- **Butterfly valves Double and Triple offset**
- **Piston Valves**
- **GGC Valves**

Company management and employees have expertise in international standards and customer specifications with the past experience on working with a multinational valves manufacturing company engaged in supply of valves to various reputed EPCs and users like: Shell Global, Saudi Aramco, PDO, ADNOC, KOC, QP, Petrobras, Petronas, EIL, MECON, ONGC, HPCL, IOCL, BPCL.

We are focussed on manufacturing of valves for sectors like:

Oil, Gas, Power, Water, Chemical, Fertilisers, Nuclear, Mining LNG, Marine and Hydrogen sectors.

WHY US

IN HOUSE RESEARCH & DEVELOPMENT

Our Engineering, Research and Development facilities uses latest technology and software.

Design validation tests done in house as per MESC/SPE/77/300 series and API 6D. Fugitive emission test done as per ISO 15848, API 624 and API 641.

ERP FOR MANUFACTURING PROCESSES

ERP is implemented across all functions for effective process control. Specific project management module is implemented to ensure best quality valves are delivered on time.

IN HOUSE TESTING FACILITY

Production testing facility uses modern automated equipment and software.

QUALITY, HEALTH & ENVIRONMENT MANAGEMENT SYSTEM

We at Alka Tech valve strives to create a culture where we take personal responsibility for the health, safety and environment. We have QHSE maintained through our advanced ERP.

CERTIFICATES

Certificate of Registration

This is to Certify that
Quality Management System of

ALKA-TECH INDUSTRIAL VALVES & FITTINGS CO.
CTS 73 B, 701, CLASSIC VIEW ANNEEX CHSL, OFF LINE ROAD, KANDARPADA, DAHISAR WEST, MUMBAI CITY, MAHARASHTRA, 400064, INDIA.

has been assessed and found to conform to the requirements of
ISO 9001:2015
for the following scope:

DESIGN AND PROVIDE SERVICES, MANUFACTURE & SUPPLY OF INDUSTRIAL VALVE.

Certificate No : 22XQI0183
Initial Registration Date : 28/06/2022
Date of Expiry : 27/06/2025
1st Surve. Due : 28/05/2023
2nd Surve. Due : 28/05/2024

Director



BIC Ltd(UK) Certificate of Compliance

We hereby declare that the technical file of product complied with the requirement of Directive 97/23/EC Pressure Equipment Directive.

Manufacturer Name : **ALKA-TECH INDUSTRIAL VALVES & FITTINGS CO**
Office : CTS 73 B, 701, CLASSIC VIEW ANNEEX CHSL, OFF LINE ROAD, KANDARPADA, DAHISAR WEST, MUMBAI CITY, MAHARASHTRA, 400064, INDIA.
Scope : **DESIGN AND PROVIDE SERVICES, MANUFACTURE & SUPPLY OF INDUSTRIAL VALVE.**

Certificate Number: CE06/0022/749318
Date of Initial Registration: 29-06-2022
1st surveillance Audit Due : 28/05/2023
2nd surveillance Audit Due : 28-05-2024

Validity of this Certificate can be verified at www.biccert.co.uk



Declaration of Compliance

Name & Address of Manufacturer:
Alka-Tech Industrial Valves & Fittings Co.
Shop No. 5, Victor Sheth Rd., Mithagar Road, Kandarpada, Dahisar (W), Mumbai-400064, India.

Production Site:
15 & 16, Anjuman Industrial Estate, Dhumal Nagar Wally Road, Vasai (E), Thane-101208, India.

This is to certify that the manufacturer has been assessed as per
Applicable Regulations:
TR CU 012-2013 – Safety for Pressure Equipment

For following scope:
Manufacturer and Supply of Industrial Valves, Gate, Globe, Check, Butterfly, Ball and Control Valves.

The manufacturer fulfills necessary requirements of EAC Regulation for Supply and Exporting the Approved products.

Certificate No.: 2011-IAC-BA-06-2203-SAC-001490-IN
This certificate is valid from 09-Jun-2022 until 09-Jun-2025 and remain valid subject to satisfactory Annual surveillance audits. Certification expires on 08-Jun-2025.

The validity of this certificate is conditional to valid certificate evidence with the following conditions:
The certificate holder is bound to comply with the requirements as per IEC 61850-1:2014 standard.

Date of Issue: 19/06/2022
Place: Thane, India



GLIS FIRE SAFE TEST CERTIFICATE

This certificate is issued to
Alka-Tech Industrial Valves & Fittings Co.
Shop No. 5, Victor Sheth Rd., Mithagar Road, Kandarpada, Dahisar (W), Mumbai-400064, India.

to certify that at their request, the undersigned surveyed to GLIS (INDIA) PVT. LTD. attended at their designated work, 15 & 16, Anjuman Industrial Estate, Dhumal Nagar Wally Road, Vasai (E), Thane-101208, India, on 18th April 2022, for the purpose of witness of Fire safe test of Trunion Mounted Ball Valve.

The scope of inspection is approved as follows:-

STANDARD SPECIFICATION : API 607 7th EDITION, JUNE 2016 / ISO 15847 / 2010

TECHNICAL SPECIFICATION : API 607 / ASME B 16.34 / ASME B16.34

Construction : TRUNION MOUNTED BALL VALVE (EP) (FR)

Size : (DN 200 (8"))

Class : 6000

Value Serial No. : 1902

Value Dwg. No. : VCGA/8V/17/1000/187, REV.00

MATERIAL OF CONSTRUCTION

Body/End Piece : ASTM A216 GR. WCB / ASTM A515 GR. CB3A

Stem : A504 SS

Seat Ring : PEER

Gasket : AS16 SS 316 GRAPHITE FILLER

Gland Packing : AS16 SS 316 GRAPHITE

Stool & Nut : ASTM A193 GR. B7/ASTM A194 GR. B7M

Conclusion: BALL VALVE, SR. No. 1902 passed on being had successfully passed fire safe test as per procedure outlined in API 607 / ISO 15847. This test result conforming with the specification.

Other Sizes Qualified : 1/2" and Larger
Other Pressure Class Qualified : 1500, 3000, 6000

Date of Issue: 18-04-2022
Date of Expiry: 17-04-2025

Issued at: Ahmedabad, 18-04-2022
Place: Date: SR. Inspection Engineer



GLIS TYPE TEST CERTIFICATE

This certificate is issued to
Alka-Tech Industrial Valves & Fittings Co.
Shop No. 5, Victor Sheth Rd., Mithagar Road, Kandarpada, Dahisar (W), Mumbai-400064, India.

to certify that at their request the surveyor to GLIS attended at their designated work, 15 & 16, Anjuman Industrial Estate, Dhumal Nagar Wally Road, Vasai (E), Thane-101208, India, on 16-04-2022, for the purpose of witness of High Pressure Emission Type Test of Trunion Mounted Ball Valve.

The scope of inspection is approved as follows:-

STANDARD SPECIFICATION PER TEST : ISO 15848-1:2013-AS 2017

Manufacturer Name : Alka-Tech Industrial Valves & Fittings Co.

Value Type : TRUNION MOUNTED BALL VALVE (EP) (FR)

Design / Mfg. Standard : API 607 / ASME B16.34 / ISO 15848-1:2013

Class : 6000

Value Serial No. : 1902

Value Dwg. No. : AVTC/GA/7788/17/1000/192 Rev.02

Body / End Connection : ASTM A216 GR. WCB

Ball : ASTM A315 GR. CB3A

Stem : ASTM A504 GR. A504

Gasket : SPW 3016 Graphite Filler (Graphite / PTFE / Heparflon)

Gland Packing : G-6 to G-6 Mitron

Test Valve Stem Diameter : 120 mm

Test Requirements : ISO 15848-1, Endurance Class C02, Stem seal adjustment: S043, Temperature Range RT to 300°C, Helium Gas (1-37% Purty), Vacuum Method as per ISO 15848-1 Part 3 Annexure A

Test Result : As per attached test report, the test is qualified and the testing system can be certified according to ISO 15848-1 in ISO 15848-1:2013-AS 2017, CLASS - C02/S043.1

1) This specification is valid for valves having the same design and body seal design and material and the following:

- 1) Stem Diameter: 50 mm to 120 mm
- 2) Tightness Class: B
- 3) Pressure Class: 1500-6000

Conclusion: The test valve has successfully passed the qualification requirement as per the ISO 15848-1:2013.

Date of Issue: 16/04/2022
Date of Expiry: 15/04/2025
Issued at: Ahmedabad, India, 16-04-2022
Place: Date: Manager (Tech. Services)




Quality Management System Manual

ALKA-TECH INDUSTRIAL VALVES & FITTINGS CO.

ISO 9001:2015

Quality Management System Manual



GLIS CERTIFICATE

This certificate is issued to
Alka-Tech Industrial Valves & Fittings Co.
Shop No. 5, Victor Sheth Rd., Mithagar Road, Kandarpada, Dahisar (W), Mumbai-400064, India.

has been reviewed / assessed with respect to Functional Safety Standards
IEC 61508 Parts 1-7 : 2010
Systematic capability : SIL 3 Capable
(with HFT-1, SIL 2 Capable with HFT=0)

Date of Issue : May 25, 2022
Valid up to : May 24, 2025

Applications/Limitations: See para 2.

Issued at: Local HD
Place: Date: 25.05.2022
Head - Tech. Certification



GLIS CERTIFICATE

This certificate is issued to
Alka-Tech Industrial Valves & Fittings Co.
Shop No. 5, Victor Sheth Rd., Mithagar Road, Kandarpada, Dahisar (W), Mumbai-400064, India.

has been reviewed / assessed with respect to Functional Safety Standards
IEC 61508 Parts 1-7 : 2010
Systematic capability : SIL 3 Capable
(with HFT-1, SIL 2 Capable with HFT=0)

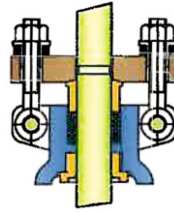
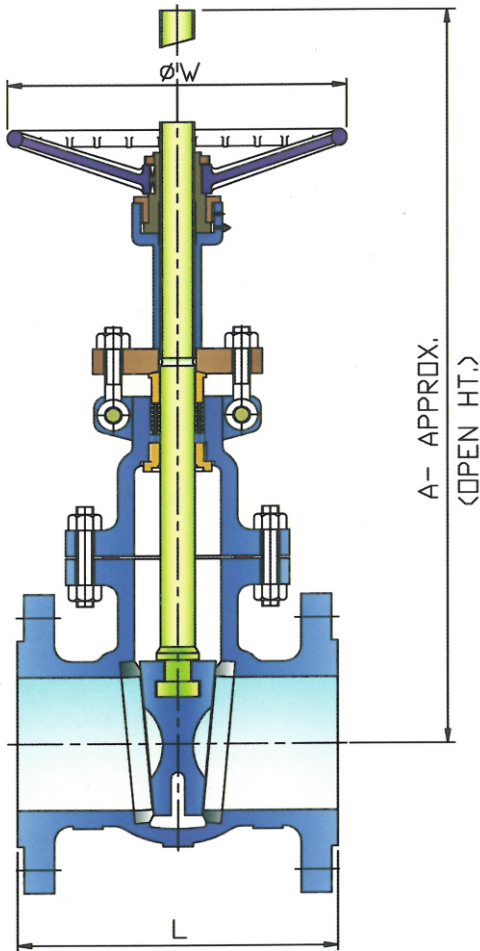
Date of Issue : May 25, 2022
Valid up to : May 24, 2025

Applications/Limitations: See para 2.

Issued at: Local HD
Place: Date: 25.05.2022
Head - Tech. Certification



Gate Valves



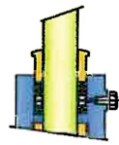
Live Loading Arrangement



Locking Arrangement



Limit Switch Arrangement



Vacuum Seal Arrangement



Gear Box Arrangement



Position Indicator Arrangement



RTJ Flange End



Butt-weld End



Electrical Actuator Arrangement



Pneumatic Cylinder Arrangement



DESIGN FEATURES

- Design and Manufacturing :
API 606 / ISO 10434 (2" ≤ 24") BS 1414 / ASME B 16.34 (For NPS ≥ 24) &
API 606 / ISO 15761 (For NPS < 2)
- Inspection and Testing : API 598, BSEN 12266 Part -1 & 2 MSS - SP - 61
- End Flanges Dimension:
ASME B 16.5 (For NPS < 24") , ASME B 16.47 Series
A & B (For NPS ≥ 24) , MSS SP - 44 (For ≥ 24)
- BW End Dimension : ASME V 16.25
- Face to Face & End to End Dimension : ASME B 16.10, BS 2080
- Gasket Design : ASME 16.20
- Wedge Design : Solid Wedge for NPS < 2" & Flexible For 2" ≥

SPECIAL FEATURES

- Gear Operation - applied
Force Exceeds 350 N
- Limit Switch Arrangement
- Electrical & Pneumatic Arrangement
- Lantern Ring Arrangement for
Vacuum Service
- IBR Certified
- NACE MR 0175 & MR 0103
- Position Indicator
- Locking Arrangement
- Extended Stem

TOLERANCE

Face to Face : ± 2.0mm for NPS < 10" & ± 3.0mm for NPS > 10"

Gate Valves Product Overview

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.

BODY & BONNET

Bodies and bonnet 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 lead to an accurate opening and closing.

BACKSEAT

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

STEM

The stems of Alka Tech 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 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 & 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

Alka Tech gate valves 2" 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 specially suited to compensate slight thermal deformations produced by the pipe or the valve itself safeguarding a better sealing between body and wedge seats.

MATERIALS OF CONSTRUCTION

PART NAME	CARBON STEEL		ALLOYSTEEL	STAINLESS STEEL
Body	A 216 WCB / WCC	A 352 LCB /LLC	A 217 WCB/ WC9/C5/C12	A 351 CF8/CF8M/CF3/CF3M/CF8C
Bonnet	A 216 WCB / WCC	A 352 LCB /LLC	A 217 WC6/WC9/C5/C12	A 351 CF8/CF8M/CF3/CF3M/CF8C
Seat Ring	A 216 WCB / WCC + 13% C	A 351 CF8	A 217 Wc6/ WC9/C5/C12/A 217 CA 15	A 351 CF8/CF8M/CF3/CF3M/CF8C
Wedge	A 216 WCB +13% Cr Facing	A 351 CF8	A 217 WC6/WC9/C5/C12 + 13% Cr.	A 351 CF8/CF8M/CF3/CF3M/CF8C
Stem	A 276 TP 410	A 276 TP 304	A 276 TP 410	A 276 TP 34/316/304L/316L/321
Gland Flange	A105 / CS /A216 WCB	A 105/ CS	A 105/CS	A1053/CS3/A351 CF8/CF8M/CF3
Back Seat	A 276 TO 410	A 276 TP 304	A 276 TP 410	A 276 TP 304/316/304L/316L/321
Gland	A 276 TP 410	A 276 TP 304	A 276 TP 410	A276 TP 304 / 316 /304L/316 L/321
Joint Sutd	A 193 B7	A 320 L7	A 193 B16	A 193 B7 ¹ / B8
Joint Stud Nuts	A 194 2H	A 194 7	A194 7	A 194 2H ¹ / 8
Gland Stud	A 193 B7	A 320 L7	A 193 B16	A 193 B7 ¹ / B8
Gland Stud Buts	A 194 2H	A194 7	A194 7	A 194 2H ¹ / 8
Gasket	Spiral Wounded ss 316 / 316/ 304L 321 with Grafoil filter			
Stem Packing	Braided graphite and Die Formed Graphite ring			
Yoke Sleeve	SG Iron/ A439 Gr. D2 / Bronze			
Hand Wheel	Below2"= Malleable Iron & Above 2" SG Iron / Fabricated Steel			

Also Available

- (1) Casting in DUPLEX ss, HASTE ALLOY, MONEL etc. also provided against requirement.
- (2) TRIM in different combination like TRIM = 1,2,5,8,9,10,11,12,13,14,16,17,18 & Bronze etc. Also provided against requirement.
- (3) Cold Galvanized (4) FRE. Corrocoat , Terrocoat, Rubber lined.

Face to Face/End to End Dimensions for Gate Valves

CLASS 150								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	108	108	108	110	172	4.5	4
3/4"	20	117	117	117	110	187	5.5	5
1"	25	127	140	127	165	258	7.5	7
1.1/2"	40	165	178	165	165	278	12	11
2"	50	178	191	216	203	365	22	19
2.1/2"	65	190	203	241	203	430	30	25
3"	80	203	216	282	254	470	38	32
4"	100	229	242	305	254	560	58	45
5"	125	254	267	381	305	700	73	69
6"	150	267	280	403	305	795	90	82
8"	200	292	305	419	354	995	140	132
10"	250	330	343	457	408	1178	220	200
12"	300	356	369	502	457	1375	305	290
14"	350	381	394	572	457	1600	454	415
16"	400	406	419	610	457	1790	540	510
18"	450	432	445	660	457	1970	682	650
20"	500	457	470	711	457	2140	900	870
22"	550	508	495.6	762	457	2450	1220	1180
24"	600	508	521	813	500	2610	1320	1230
26"	650	559	-	559	500	2890	1660	1620
28"	700	610	-	610	500	3000	1720	1650
30"	750	610	-	610	610	3260	2360	2320
32"	800	711	-	660	610	3300	2600	2550
34"	850	686	-	686	610	3400	3110	-
36"	900	711	-	711	610	3840	3500	-
38"	950	737	-	737	610	3910	4100	-
40"	1000	762	-	762	610	4385	4280	-
42"	1050	813	-	813	750	4370	5300	-
44"	1100	813	-	813	750	4790	6500	-
48"	1200	864	-	864	750	5050	7150	-
52"	1300	965	-	965	750	5500	8800	-

*14" & above gear box suggested.

CLASS 300								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	140	151	140	110	172	7	6
3/4"	20	152	165	152	110	187	8	7
1"	25	165	178	165	165	258	12	10
1.1/2"	40	190	203	190	165	278	19	17
2"	50	216	232	216	203	430	31	28
2.1/2"	65	241	257	241	203	455	52	42
3"	80	282	298	282	254	526	62	53
4"	100	305	321	305	300	605	91	75
5"	125	381	397	381	354	765	120	110
6"	150	403	419	403	354	820	162	140
8"	200	419	435	419	408	1040	263	245
10"	250	457	473	457	457	1240	410	380
12"	300	502	518	502	500	1465	554	445
14"	350	762	778	762	457	1640	840	720
16"	400	838	854	838	457	1765	1100	1050
18"	450	914	930	914	500	1970	1250	1101
20"	500	991	1010	991	610	2170	1602	1425
24"	550	1143	1165	1143	610	2550	2365	2250
26"	600	1245	1270	1245	610	3125	3150	3000
28"	650	1346	1371	1346	610	3260	3650	3480
30"	700	1397	1422	1397	750	3400	4465	4210
32"	750	1524	1552	1524	750	3450	4770	4320
34"	800	1626	1654	1626	750	3650	5100	4760
36"	850	1727	1755	1727	750	3800	5980	5650
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-	-	-	-	-	-	3910	-	-
-	-	-	-	-	-	4381	-	-
-	-	-	-	-	-	4370	-	-
-	-	-	-	-	-	4788	-	-
-	-	-	-	-	-	5015	-	-
-	-	-	-	-	-	5480	-	-

*12" & above gear box suggested.

CLASS 900								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	216	216	216	110	260	11	-
3/4"	20	229	229	229	165	300	16	-
1"	25	254	254	254	165	300	19	-
1.5"	40	305	305	305	250	390	35	-
2"	50	368	371	368	305	660	103	80
2.1/2"	65	419	422	419	354	705	145	120
3"	80	381	384	381	354	800	155	120
4"	100	457	460	457	408	902	210	170
6"	150	610	613	610	457	1137	485	390
8"	200	737	740	737	457	1438	855	700
10"	250	838	841	838	457	1556	1040	820
12"	300	965	968	965	610	1715	1590	1340

*6" & above gear box suggested.

CLASS 1500								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	216	216	216	110	260	11	-
3/4"	20	229	229	229	165	300	16	-
1"	25	254	254	254	165	300	19	-
1.1/2"	40	305	305	305	250	390	35	-
2"	50	368	371	368	305	660	103	80
2.5"	65	419	422	419	354	705	145	120
3"	80	470	473	470	457	860	185	150
4"	100	546	549	546	457	937	335	230
6"	150	705	711	705	457	1226	725	550
8"	200	832	842	832	457	1422	1170	930
10"	250	991	1001	991	610	1686	1925	1530
12"	300	1130	1146	1130	610	1997	3255	2650

*4" & above gear box suggested.

Face to Face/End to End Dimensions for Gate Valves

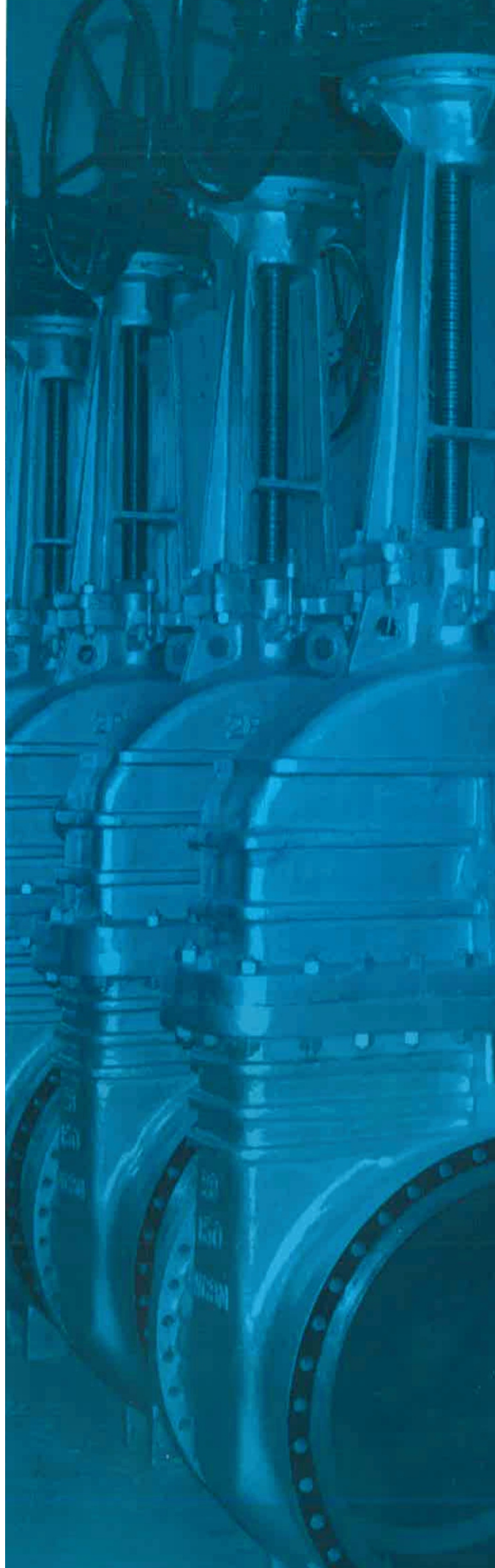
CLASS 600								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	165	163	165	110	172	9.5	8.5
3/4"	20	190	190	190	110	186	10.5	9
1"	25	216	216	216	110	262	16.5	15
1 1/2"	40	241	241	241	165	283	21	19
2"	50	292	295	292	200	440	48	43
2 1/2"	65	330	333	330	250	490	65	60
3"	80	356	359	356	300	570	72	68
4"	100	432	435	432	300	650	135	128
5"	125	508	511	508	457	775	225	205
6"	150	559	562	559	500	810	255	240
8"	200	660	663	660	457	1100	423	400
10"	250	787	790	787	457	1290	625	575
12"	300	838	840	838	500	1540	885	810
14"	350	899	892	889	500	1650	1190	1100
16"	400	991	994	991	500	1940	1850	1460
18"	450	1092	1095	1092	500	2100	2380	2285
20"	500	1194	1200	1194	600	2315	2766	2650
24"	550	1397	1407	1397	600	2725	4380	4260
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*8" & above gear box suggested.

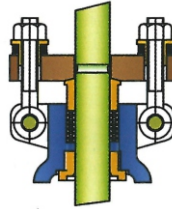
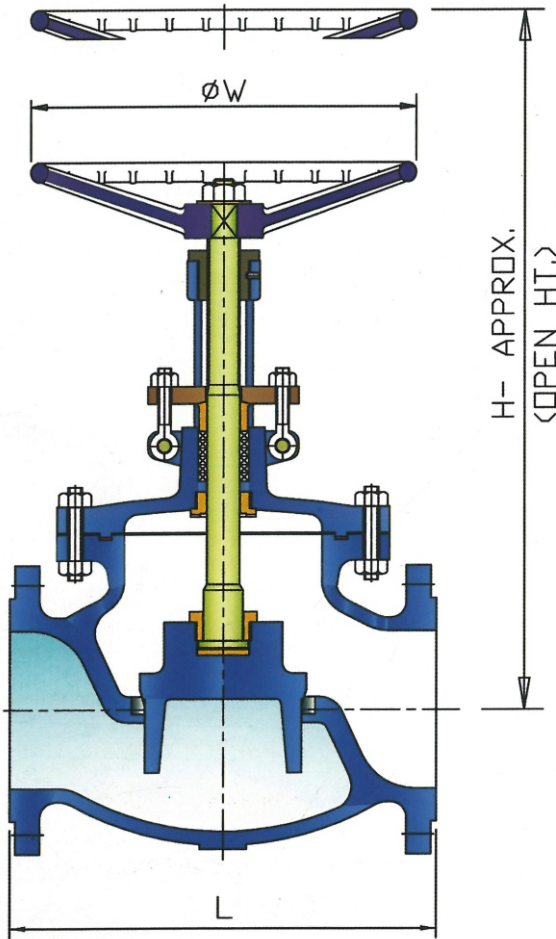
CLASS 2500								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	216	264	264	165	304	19	-
3/4"	20	273	273	273	165	315	21	-
1"	25	308	308	308	250	368	40	-
1.1/2"	40	384	387	384	300	445	62	-
2"	50	451	454	451	354	753	125	-
2.1/2"	65	508	514	508	408	870	200	-
3"	80	578	584	578	457	870	240	-
4"	100	673	683	673	457	1073	485	-
6"	150	914	927	914	610	1451	1580	-
8"	200	1022	1038	1022	610	1610	2430	-
10"	250	1270	1292	1270	610	2096	4564	-
12"	300	1422	1444	1422	610	2292	7170	-

*4" & above gear box suggested.

Sizes not covered in above standards are as per manufacture standard.



Globe Valves



Live Loading Arrangement



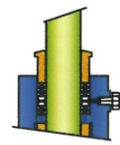
Locking Arrangement



Limit Switch Arrangement



Position Indicator Arrangement



Vacuum Seal Arrangement



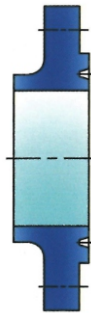
Gear Box Arrangement



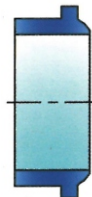
Electrical Actuator Arrangement



Pneumatic Cylinder Arrangement



RTJ Flange End



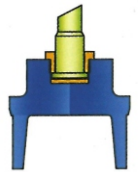
Buttweld End



Parabolic Plug



Regulating Plug



Guided Plug



DESIGN FEATURES

- Design and Manufacturing : BS 1873 / ASME B 16.34 (2" ≤ 24") & API 602 / ISO 15761 (FOR NPS < 2)
- Inspection and Testing : API 598, BSEN 12266 Part - 1 & 2
- End Flanges Dimension : ASNE B 16.2
- BW End Dimension : ASME 16.25
- Face to Face & End to End Dimension : ASME 16.10, BS 2080
- Gasket Design : ASME B 16.20
- Plug Design : Parabolic, Regulating, Soft seated Plug, Guided Plug.
- Handwheel Construction : Rising & Non rising Handwheel.

SPECIAL FEATURES

- Gear Operation - applied Force Exceeds 350 N
- Limit Switch Arrangement
- Electrical & Pneumatic Arrangement
- Lantern Ring Arrangement for Vacuum Service
- IBR Certified
- NACE MR 0175 & MR 0103
- Position Indicator
- Locking Arrangement
- Extended Stem

TOLERANCE

Face to Face : ± 2.0mm for NPS < 10" & ± 3.0mm for NPS > 10"

Gate Valves Product Overview

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 cade 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.

BODY & BONNET

Bodies and bonnet 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 lead to an accurate opening and closing. Bodies of globe valve are designed considering the same characteristics as gate valves, which in this cade means that the disc is bigger valve sizes or high pressure service in order to avoid vibrations and better seat.

BACKSEAT

Alka Tech 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.

STEM

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

BODY & BONNET GASKETS

The design of the body - bonnet / gaskets 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 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.

MATERIALS OF CONSTRUCTION

PART NAME	CARBON STEEL		ALLOYSTEEL	STAINLESS STEEL
Body	A 216 WCB / WCC	A 352 LCB /LLC	A 217 WC6/ WC9/C5/C12	A 351 CF8/CF8M/CF3/CF3M/CF8C
Bonnet	A 216 WCB / WCC	A 352 LCB /LLC	A 217 WC6/WC9/C5/C12	A 351 CF8/CF8M/CF3/CF3M/CF8C
Seat Ring	A 216 WCB / WCC + 13% Cr	A 351 CF8	A 217 WC6/ WC9/C5/C12 + 13% Cr/A 217 CA 15	A 351 CF8/CF8M/CF3/CF3M/CF8C
Plug	A 216 WCB +13% Cr	A 351 CF8	A 217 WC6/WC9/C5/C12 + 13% Cr.	A 351 CF8/CF8M/CF3/CF3M/CF8C
Spindle	A 276 TP 410	A 276 TP 304	A 276 TP 410	A 276 TP 304/316/304L/316L/321
Gland Flange	A 105 / CS	A 105/ CSA352/LCB/LCC	A 105/CS/217WC6/WC9/C5/C12	A105 ³ /CS ³ /A351 CF8/CF8M/CF3
Back Seat	A 276 TP 410	A 276 TP 304	A 276 TP 410	A 276 TP 304/316/304L/316L/321
Gland	A 276 TP 410	A 276 TP 304	A 276 TP 410	A276 TP 304 / 316 /304L/316 L/321
Joint Sutd	A 193 B7	A 320 L7	A 193 B16	A 193 B7 ⁷ / B8
Joint Stud Nuts	A 194 2H	A 194 7	A194 7	A 194 2H ³ / 8
Gland Studs	A 193 B7	A 320 L7	A 193 B16	A 193 B7 ⁷ / B8
Gland Stud nuts	A 194 2H	A194 7	A194 7	A 194 2H ⁷ / 8
Gasket	Spiral Wounded ss 316 / 316/ 304I 321 with Grafoil filter			
Stem packing	Braided graphite and Die Formed Graphite ring			
Yoke Sleeve	SG Iron/ A439 Gr. D2 / Bronze			
Hand wheel	Below2"= Malleable Iron & Above 2" SG Iron / Fabricated Steel			

Also Available

- (1) Casting in DUPLEX ss, HASTE ALLOY, MONEL etc. also provided against requirement.
- (2) TRIM in different combination like TRIM = 1,2,5,8,9,10,11,12,13,14,16,17,18 & Bronze etc. Also provided against requirement.
- (3) Cold Galvanized
- (4) FRE. Corrocoat , Terrocoat, Rubber lined.

Face to Face/End to End Dimensions for Globe Valves

CLASS 600								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	108	-	108	110	184	4.5	-
3/4"	20	117	-	117	110	185	5.5	-
1"	25	127	140	127	165	236	7.5	-
1.1/2"	40	165	178	165	165	282	17	-
2"	50	203	216	203	203	315	21	-
2.1/2"	65	216	229	216	203	380	30	21
3"	80	241	254	241	254	450	44	38
4"	100	292	305	292	305	480	72	61
5"	125	356	369	356	408	540	98	82
6"	150	406	419	406	408	575	130	117
8"	200	495	508	495	457	625	172	150
10"	250	622	635	622	457	760	337	310
12"	300	698	711	698	457	825	458	430
14"	350	787	800	787	457	1070	640	590
16"	400	914	927	914	500	1175	724	650
18"	450	978	991	978	610	1300	1240	1150
20"	500	978	991	978	650	1360	1400	1370
24"	600	1295	1308	1295	650	1520	1600	1490

*10" & above gear box suggested.

CLASS 600								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	152	163	152	110	184	7	-
3/4"	20	178	191	178	110	186	8	-
1"	25	203	216	203	165	237	12	-
1.1/2"	40	229	242	229	165	282	19	19
2"	50	267	283	267	254	340	28	24
2.1/2"	65	292	308	292	254	400	45	38
3"	80	318	334	318	305	440	60	51
4"	100	356	372	356	354	525	95	70
5"	125	400	416	400	457	560	110	98
6"	150	444	460	444	457	600	156	135
8"	200	559	575	559	354	780	280	236
10"	250	622	638	622	457	890	430	360
12"	300	711	727	711	457	1030	750	660
14"	350	838	854	838	500	1125	1180	1040
16"	400	864	880	864	610	1300	1700	1510
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-

*8" & above gear box suggested.

CLASS 900								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	216	216	216	110	-	-	-
3/4"	20	229	229	216	165	-	-	-
1"	25	254	254	254	165	-	-	-
1.1/2"	40	305	305	305	250	-	-	-
2"	50	368	371	368	305	590	110	80
2.1/2"	65	419	422	419	354	660	155	120
3"	80	381	384	381	354	700	190	155
4"	100	457	460	457	408	781	280	230
6"	150	610	613	610	457	1400	630	540
8"	200	737	740	737	457	1500	1350	1200
10"	250	838	841	838	610	1600	2050	1870
12"	300	965	968	965	610	1705	2650	2400

*6" & above gear box suggested.

CLASS 1500								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	216	216	216	110	260	11	-
3/4"	20	229	229	216	165	300	16	-
1"	25	254	254	254	165	300	19.5	-
1.1/2"	40	305	305	305	250	390	34	-
2"	50	368	371	368	305	590	110	80
2.1/2"	65	419	422	419	354	660	155	120
3"	80	470	473	470	457	850	230	185
4"	100	546	549	546	457	920	400	330
6"	150	705	711	705	457	1700	910	790
8"	200	832	842	832	457	1960	2100	1900
10"	250	991	1001	991	610	2310	3200	2800
12"	300	1130	1146	1130	610	2670	4400	3800

*4" & above gear box suggested.

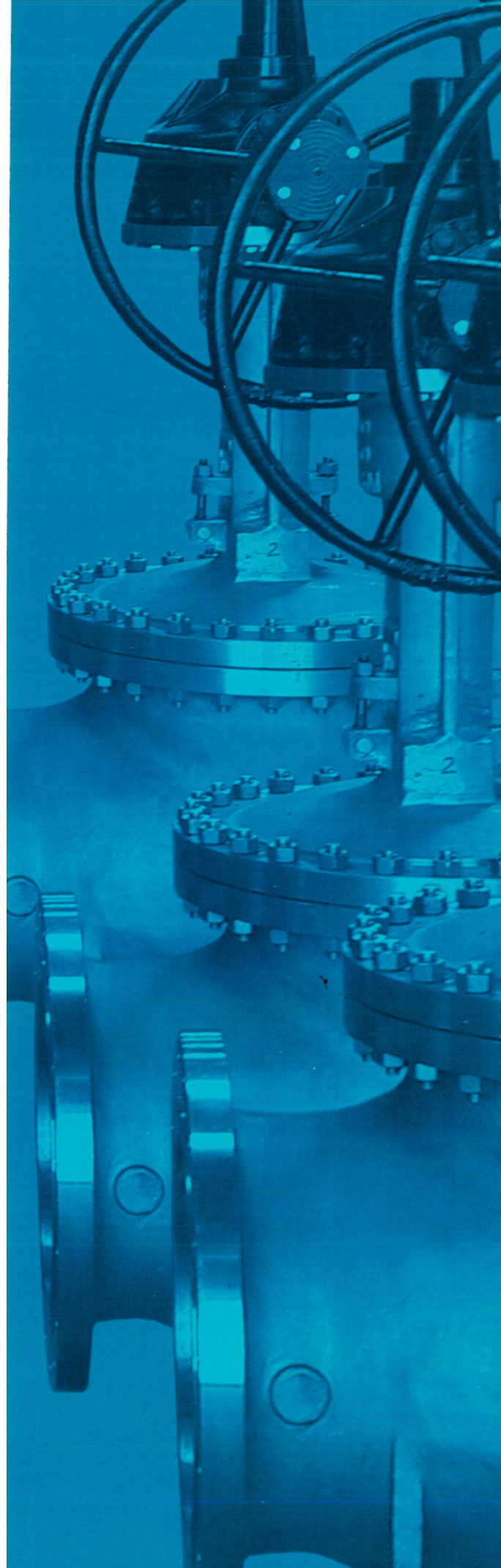
CLASS 600								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	165	163	165	110	184	10	-
3/4"	20	190	190	190	110	190	11	-
1"	25	216	216	216	165	236	17	-
1.1/2"	40	241	241	241	165	285	21	-
2"	50	292	295	292	305	350	40	34
2.1/2"	65	330	333	330	305	435	58	49
3"	80	356	359	356	354	475	80	72
4"	100	432	435	432	408	570	124	105
5"	125	508	511	508	350	650	210	185
6"	150	559	562	559	350	700	289	240
8"	200	660	663	660	457	900	600	515
10"	250	787	790	787	457	1050	740	630
12"	300	838	841	838	500	1300	970	815
14"	350	889	892	889	610	1420	1650	1350
16"	400	991	994	991	610	1580	2210	1820
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-

*5" & above gear box suggested.

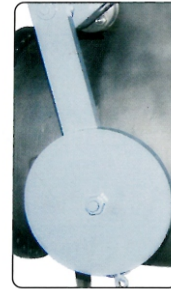
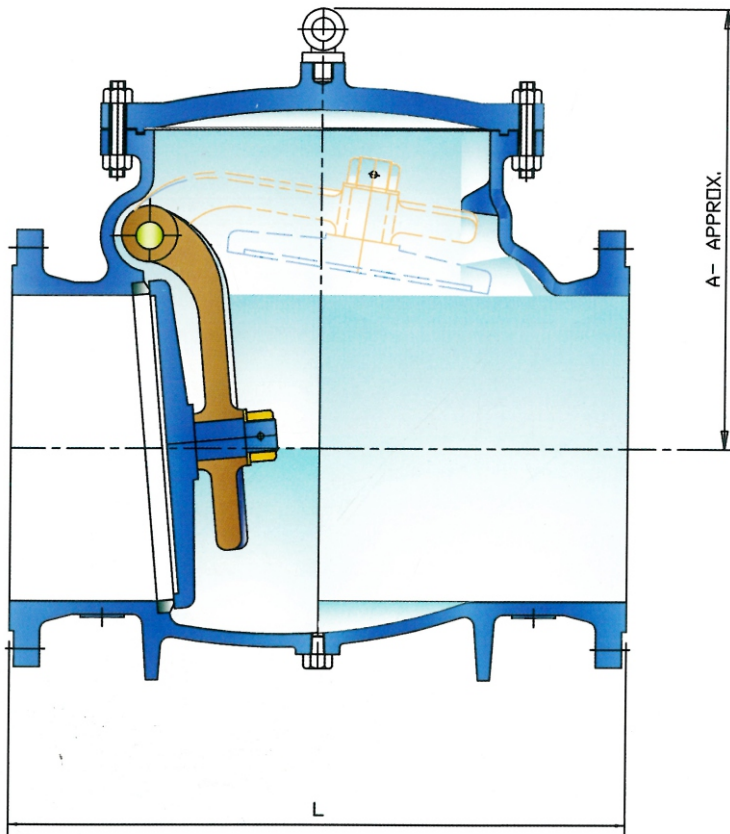
CLASS 2500								
Size		L (MM)			ØW	A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW
1/2"	15	264	264	264	165	332	19	-
3/4"	20	273	273	273	165	332	21	-
1"	25	308	308	308	250	370	40	-
1.1/2"	40	384	387	384	457	435	62	-
2"	50	451	454	451	457	720	190	160
2.1/2"	65	508	514	508	457	800	300	240
3"	80	578	584	578	457	885	350	280
4"	100	673	683	673	457	1260	840	690
6"	150	914	927	914	610	1905	2300	2000
8"	200	1022	1038	1022	610	2465	4800	4400
10"	250	1270	1292	1270	610	2800	6800	6000
12"	300	1422	1444	1422	610	3505	8500	7500

*3" & above gear box suggested.

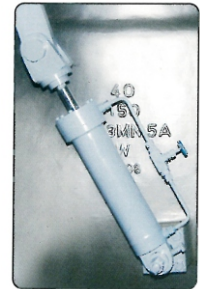
Sizes not covered in above standards are as per manufacture standard.



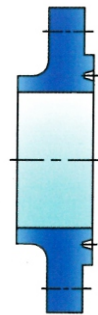
Swing Check Valves



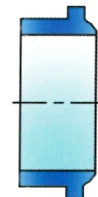
Counter Weight
Arrangement



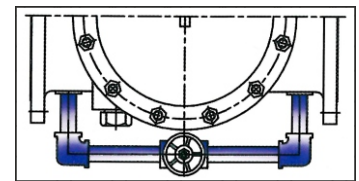
Dashpot Cylinder
Arrangement



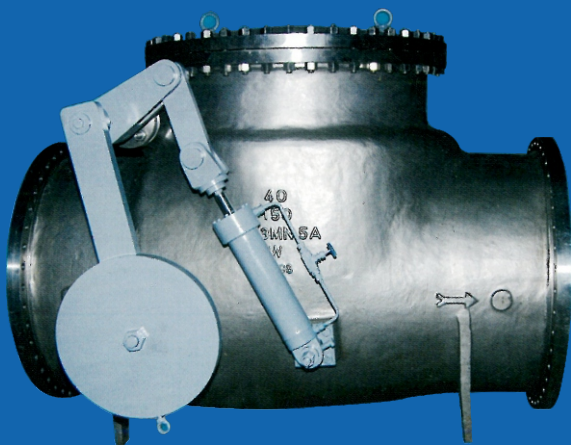
RTJ Flange End



Buttweld End



With By-Pass Arrangement



DESIGN FEATURES

- Design and Manufacturing : BS 1868
- Inspection and Testing : API 598, BSEN 12266 Part - 1 & 2
- End Flanges Dimension : ASNE B 16.5(FOR NPS ≤ 24) Series A & B (For NP2" ≥ 24 ") MSS SP - 44 (For NP2" ≥ 24 ")
- BW End Dimension : ASME 16.25
- Face to Face & End to End Dimension : ASME 16.10, BS 2080
- Gasket Design : ASME B 16.20
- Disk Design : Gravitational acceleration

SPECIAL FEATURES

- Counter Weight arrangement
- Hydraulic Cylinder Arrangement
- IBR Certified
- NACE MR 0175 & 1030
- Lift type check valves will be supplied for the sizes for NPS", < 2" Rest of the sizes are in swing type design.

TOLERANCE

Face to Face : $\pm 2.0\text{mm}$ for NPS $\leq 10"$ & $\pm 3.0\text{mm}$ for NPS $> 10"$

Swing Check Valves Product Overview

While not a valves 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 back flow 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.

BODY & COVER

Bodies and covers are high quality cast and afterward 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 & COVER GASKET

The design of the body/cover gaskets 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.

MATERIALS OF CONSTRUCTION

PART NAME	CARBON STEEL	ALLOYSTEEL	STAINLESS STEEL
Body	A 216 WCB / WCC	A 352 LCB /LLC	A 217 WC6/ WC9/C5/C12
Cover	A 216 WCB / WCC	A 352 LCB /LLC	A 217 WC6/ WC9/C5/C12
Seat Ring	A 216 WCB / WCC + 13% Cr/A 217 CA 15	A 351 CF8	A 217 WC6/ WC9/C5/C12 + 13% Cr/A 217 CA 15
Disc	A 216 WCB / WCC + 13% Cr	A 351 Cf8	A 217 WC6/ WC9/C5/C12 + 13% Cr.
Hinge	A 216 WCB / WCC	A 351 CF8	A 217 WC6/ WC9/C5/C12
Hinge Pin	A 276 TP 410	A 276 TP 304	A 276 TP 410
Side Plug	A 276 SS 304	A 276 SS 304	A 276 TP SS 304
Joint Stud	A 193 B7	A 320 L7	A 193 B16
Joint stud nuts	A 194 2H	A 194 7	A194 7
Gasket	Spiral Wounded SS316 / 316L/ 304L/321 with Grafoil filter		
Disc nut	Stainless Steel		

Also Available

- (1) Casting in DUPLEX ss, HASTE ALLOY, MONEL etc. also provided against requirement.
- (2) TRIM in different combination like TRIM = 1,2,5,8,9,10,11,12,13,14,16,17,18 & Bronze etc. Also provided against requirement.
- (3) Cold Galvanized
- (4) FRE. Corrocoat , Terrocoat, Rubber lined.

Face to Face/End to End Dimensions for SWING CHECK Valves

CLASS 150							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
1/2"	15	108	-	108	68	3.5	-
3/4"	20	117	-	117	72	4.5	-
1"	25	127	140	127	88	6.5	-
1.1/2"	40	165	178	165	105	12	-
2"	50	203	216	203	150	23	29
2.1/2"	65	216	229	216	210	32	28
3"	80	241	254	241	230	40	35
4"	100	292	305	292	260	65	58
5"	125	330	343	330	280	83	73
6"	150	356	369	356	335	105	96
8"	200	495	508	495	360	172	165
10"	250	622	635	622	430	263	245
12"	300	698	711	698	460	385	360
14"	350	787	800	787	510	590	570
16"	400	864	877	864	570	675	645
18"	450	978	991	978	700	770	740
20"	500-	978	991	978	740	1130	1095
24"	600	1295	1308	1295	785	1675	1655
26"	650	1295	-	1295	830	1940	-
28"	700	1448	-	1448	900	2450	-
30"	750	1524	-	1524	940	2800	-
32"	800	1594	-	1594	970	2950	-
34"	850	1752.6	-	1752.6	1025	3150	-
36"	900	1956	-	1956	1065	3300	-
38"	950	2083	-	2083	1150	3850	-
40"	1000	2168	-	2168	1225	4570	-

CLASS 300							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
1/2"	15	152	163	152	78	4.5	-
3/4"	20	178	191	178	78	6.5	-
1"	25	203	216	203	82	8.5	-
1.1/2"	40	229	242	229	108	18	-
2"	50	267	283	267	200	28	23
2.1/2"	65	292	308	292	225	39	32
3"	80	318	334	318	240	51	45
4"	100	356	372	356	275	85	73
5"	125	400	416	400	290	115	100
6"	150	444	460	444	320	145	123
8"	200	533	549	533	380	225	216
10"	250	622	638	622	450	375	354
12"	300	711	727	711	485	530	490
14"	350	838	854	838	560	760	720
16"	400	864	880	864	640	920	890
18"	450	978	994	978	690	1245	1210
20"	500-	1016	1035	1016	700	1440	1385
24"	600	1346	1368	1346	800	2630	2570
26"	650	1346	1391	1346	840	2780	2710
28"	700	1499	1524	1499	930	2850	2760
30"	750	1594	1619	1594	980	4500	4375
32"	800	1651	1679	1651	1050	4800	4670
34"	850	1778	1806	1778	1180	5800	5640
36"	900	2083	2111	2083	1375	7000	6800
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

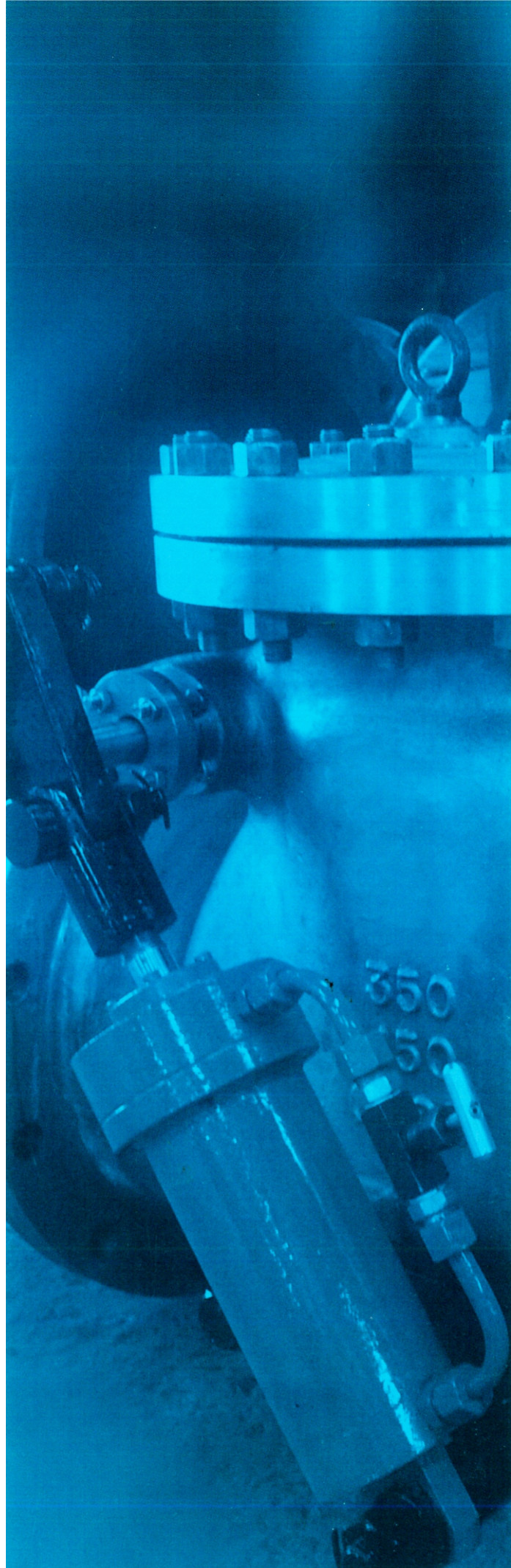
CLASS 900							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
1/2"	15	216	216	216	88	8	-
3/4"	20	229	229	229	95	14	-
1"	25	254	254	254	120	17	-
1.1/2"	40	305	305	305	154	28	-
2"	50	368	371	368	190	60	40
2.1/2"	65	419	422	419	205	100	65
3"	80	381	384	381	225	150	120
4"	100	457	460	457	240	190	150
6"	150	610	613	610	300	370	290
8"	200	737	740	737	360	640	510
10"	250	838	841	838	410	1140	940
12"	300	965	968	965	495	1440	1170

CLASS 1500							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
1/2"	15	216	216	216	88	8	-
3/4"	20	229	229	229	95	14	-
1"	25	254	254	254	120	17	-
1.1/2"	40	305	305	305	154	28	-
2"	50	368	371	368	200	60	40
2.1/2"	65	419	422	419	235	100	75
3"	80	470	473	470	260	160	125
4"	100	546	549	546	295	290	235
6"	150	705	711	705	395	685	550
8"	200	832	842	832	515	1180	955
10"	250	991	1001	991	640	1840	1470
12"	300	1130	1146	1130	680	2740	2170

CLASS 600							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
1/2"	15	165	163	165	88	5	-
3/4"	20	190	190	190	88	7.5	-
1"	25	216	216	216	95	11	-
1.1/2"	40	241	241	241	120	18	-
2"	50	292	295	292	225	41	28
2.1/2"	65	330	333	330	235	68	38
3"	80	356	359	356	230	73	52
4"	100	432	435	432	300	130	96
5"	125	508	511	508	425	220	140
6"	150	559	562	559	450	260	180
8"	200	660	663	660	480	390	258
10"	250	787	790	787	600	700	407
12"	300	838	841	838	640	950	690
14"	350	889	892	889	700	970	820
16"	400	991	994	991	730	1150	960
18"	450	1092	1095	1092	780	1970	1600
20"	500-	1194	1200	1194	810	2200	1780
24"	600	1397	1470	1397	1050	4100	1860
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

CLASS 2500							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
1/2"	15	264	264	264	95	17	-
3/4"	20	273	273	273	120	21	-
1"	25	308	308	308	154	28	-
1.1.5"	40	384	387	384	200	58	-
2"	50	451	454	451	220	140	110
2.1/2"	65	508	514	508	250	230	185
3"	80	578	584	578	280	340	270
4"	100	673	683	673	305	640	530
6"	150	914	927	914	412	1440	1190
8"	200	1022	1038	1022	540	2540	2190
10"	250	1270	1292	1270	680	3940	3140
12"	300	1422	1444	1422	730	5990	4540

Sizes not covered in above standards are as per manufacture standard.



FORGED STEEL GATE, GLOBE & LIFT CHECK VALVE

MATERIALS OF CONSTRUCTION FOR GATE VALVE

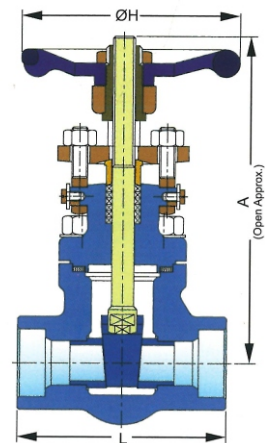
PART NAME	CARBON STEEL		ALLOYSTEEL	STAINLESS STEEL
Body	A 105	A350 LF 2	A 182 F11/F22/F5/F9	A 182 F 304/316/304L/316L/321
Seat Ring	A 276 TP 410	A 276 TP 304	A 276 TP 410	A 276 TP 304/316/304L/316L/321
Wedge	A 276 TP 410	A 276 TP 304	A 276 TP 410	A 276 TP 304/316/304L/316L/321
Stem	A 276 TP 410	A 276 TP 304	A 276 TP 410	A 276 TP 304/316/304L/316L/321
Bonnet	A 105	A 350 LF 2	A 182 F11/F22/F5/F9	A 182 F 304/316/304L/316L/321
Joints Bolts	A 193 B7	A 350 L7	A 193 B 16	A 193 B7 ⁹ / B8
Gland Flange	A 105	A 105 / A 350 LF 2	A 182 F11/F22/F5/F9	A 105 ⁹ /A182 F304/316/304L/316L
Back Seat integral	A 105	A 350 LF 2	A 182 F11/F22/F5/F9	A 182 F 304/316/304L/316L
Gland	A 276 TP 410	A 276 TP 304	A 276 TP 410	A 276 TP 304/316/304L/316L/321
Eye Bolt	A 307 Gr. B	A 307 Gr. B	A 307 Gr. B	A 307Gr. B ³
Eye Bolt nuts	A 563 Gr.A	A 563 Gr.A	A 563 Gr.A	A 563 Gr. A ³
Gasket	Spiral Wound SS 316 / 316L / 304L with Grafoil filter / PTFE			
Stem packing	Braided graphite and Die Formed Graphite ring / PTFE			
Yoke Sleeve / Yoke nut	A439 Gr. D2			
Handwheel	Malleable Iron			

MATERIALS OF CONSTRUCTION FOR GLOBE VALVE

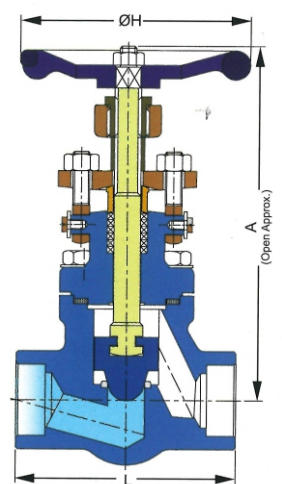
PART NAME	CARBON STEEL		ALLOYSTEEL	STAINLESS STEEL
Body	A 105	A350 LF 2	A 182 F11/F22/F5/F9	A 182 F 304/316/304L/316L/321
Seat Ring	A 105	A 276 TP 304	A 182 F11/F22/F5/F9	A 182 F 304/316/304L/316L/321
Plug	A 276 TP 410	A 276 TP 304	A 276 TP 410	A 276 TP 304/316/304L/316L/321
Stem	A 276 TP 410	A 276 TP 304	A 276 TP 410	A 276 TP 304/316/304L/316L/321
Bonnet	A 105	A 350 LF 2	A 182 F11/F22/F5/F9	A 182 F 304/316/304L/316L/321
Joints Bolts	A 193 B7	A 350 L7	A 193 B 16	A 193 B7 ⁹ / B8
Gland Flange	A 105	A 105 / A 350 LF 2	A 105/A 182 F11/F22/F5/F9	A 105 ⁹ /A182 F304/316/304L/316L
Back Seat integral	A 105	A 350 LF 2	A 182 F11/F22/F5/F9	A 182 F 304/316/316L/321
Gland	A 276 TP 410	A 276 TP 304	A 276 TP 410	A 276 TP 304/316/304L/316L/321
Eye Bolt	A 307 Gr. B	A 307 Gr. B	A 307 Gr. B	A 307Gr. B ³
Eye Bolt nuts	A 563 Gr.A	A 563 Gr.A	A 563 Gr.A	A 563 Gr. A ³
Gasket	Spiral Wound ss 316 / 316L / 304L with Grafoil filter / PTFE			
Stem packing	Braided graphite and Die Formed Graphite ring / PTFE			
Yoke Sleeve / Yoke nut	A439 Gr. D2			
Handwheel	Malleable Iron			

MATERIALS OF CONSTRUCTION FOR LIFT CHECK VALVE

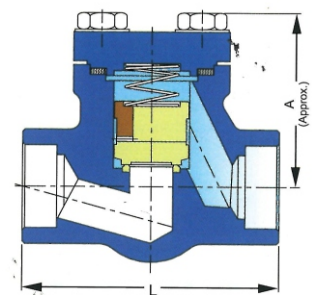
PART NAME	CARBON STEEL		ALLOYSTEEL	STAINLESS STEEL
Body	A 105	A350 LF 2	A 182 F11/F22/F5/F9	A 182 F 304/316/304L/316L/321
Seat Ring	A 105	A350 LF 2	A 182 F11/F22/F5/F9	A 182 F 304/316/304L/316L/321
Disc	A 276 TP 410	A 276 TP 304	A 276 TP 410	A 276 TP 304/316/304L/316L/321
Cover	A 105	A 350 LF 2	A 182 F11/F22/F5/F9	A 182 F 304/316/304L/316L/321
Joints Bolts	A 193 B7	A 320 L7	A 193 B 16	A 193 B7 ⁹ /B8
Gasket	Spiral Wound ss 316 / 316L / 304L with Grafoil filler / PTFE			



FORGED GATE VALVE



FORGED GLOBE VALVE



FORGED LIFT CHECK VALVE

ALSO AVAILABLE

- (1) Forged in DUPLEX SS, HASTE ALLOY, MONEL etc. also provided against requirement.
- (2) TRIM in different combination like TRIM = 1, 2, 5, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, & Bronze etc. also provided against requirement.
- (3) Cold Galvanized
- (4) For Standard & Full bore Globe & lift check valve, the bore dimension shall be 29.5mm only for sizes 1.5" & above.

DESIGN FEATURES

- Design and Manufacturing : API602/ISO 15761 for Class 800 & 1500, ASME B 16.34 for Class 2500
- Inspection and Testing : API 598, BSEN 12266 Part - 1 & 2
- End Dimension : ASME B 16.11 for Socket Weld & ASME B 1.20.1 for Screwed End
- BW End Dimension : ASME B 16.25
- Face to Face & End to End Dimension : Manufacturer Standard
- Gasket Design : ASME B 16.20
- Plug/Disc Design : Parabolic, Regulating, Soft seated
- Wedge Design : Solid wedge

SPECIAL FEATURES

- Limit Switch Arrangement
- Electrical and Pneumatic Arrangement
- Lantern ring arrangement for vacuum service
- IBR Certificate
- NACE MR 0175 & MR 1030
- Position Indicator
- Locking arrangement
- Extended Stem
- Cryogenic Service

TOLERANCE

Face to Face : ± 4 mm

FACE TO FACE/END TO END DIMENSIONS FOR GATE VALVES

CLASS 800 (STANDARD BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
3/8"	10	84	110	155	2.5
1/2"	15	84	110	155	2.5
3/4"	20	90	110	170	3.0
1"	25	105	110	190	5.0
1.1/4"	32	127	165	270	8.0
1.1/2"	40	127	165	270	8.0
2"	50	142	165	280	11.0

CLASS 1500 (STANDARD BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
3/8"	15	90	110	170	3.0
1/2"	20	105	110	190	5.0
3/4"	25	127	165	270	8.0
1"	32	142	165	280	11.0
1.1/4"	40	142	165	280	11.0
-	-	-	-	-	-
-	-	-	-	-	-

CLASS 2500 (STANDARD BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
1/2"	15	105	110	190	5.0
3/4"	20	127	165	270	8.0
1"	25	142	165	280	11.0
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

CLASS 800 (FULL BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
1/2"	15	90	110	170	3.0
3/4"	20	105	110	190	5.0
1"	25	127	165	270	8.0
1.1/4"	32	142	165	280	8.0
1.1/2"	40	142	165	280	11.0

CLASS 1500 (FULL BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
1/2"	15	105	110	190	5.0
3/4"	20	127	165	270	8.0
1"	25	142	165	280	11.0
-	-	-	-	-	-
-	-	-	-	-	-

CLASS 2500 (FULL BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
1/2"	15	127	165	270	8.0
3/4"	20	142	165	280	11.0
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

FACE TO FACE/END TO END DIMENSIONS FOR GLOBE VALVES

CLASS 800 (STANDARD BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
3/8"	10	84	110	155	2.5
1/2"	15	84	110	155	2.5
3/4"	20	90	110	170	3.0
1"	25	105	110	185	5.0
1.1/4"	32	127	165	255	8.0
1.1/2"	40	127	165	255	8.0
2"	50	142	165	260	11.0

CLASS 1500 (STANDARD BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
1/2"	15	90	110	170	3.0
3/4"	20	105	110	185	5.0
1"	25	127	165	255	8.0
1.1/4"	32	142	165	260	11.0
1.5"	40	142	165	260	11.0
-	-	-	-	-	-
-	-	-	-	-	-

CLASS 2500 (STANDARD BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
1/2"	15	105	110	185	5.0
3/4"	20	127	165	255	8.0
1"	25	142	165	260	11.0
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

CLASS 800 (FULL BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
1/2"	15	90	110	170	3.0
3/4"	20	105	110	185	5.0
1"	25	127	165	255	8.0
1.1/4"	32	142	165	260	11.0
1.1/2"	40	142	165	260	11.0

CLASS 1500 (FULL BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
1/2"	15	105	110	185	5.0
3/4"	20	127	165	255	8.0
1"	25	142	165	260	11.0
-	-	-	-	-	-
-	-	-	-	-	-

CLASS 2500 (FULL BORE)					
Size		L	ΦH	A	Weight
NPS	DN	MM	MM	MM	KG
1/2"	15	127	165	255	8.0
3/4"	20	142	165	260	11.0
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

FACE TO FACE/END TO END DIMENSIONS FOR LIFT CHECK VALVES

CLASS 800 (STANDARD BORE)				
Size		L	A	Weight
NPS	DN	MM	MM	KG
3/8"	10	84	55	0.75
1/2"	15	84	55	0.75
3/4"	20	90	65	0.9
1"	25	105	72	1
1.1/4"	32	127	100	3
1.1/2"	40	127	100	3
2"	50	142	105	6

CLASS 1500 (STANDARD BORE)				
Size		L	A	Weight
NPS	DN	MM	MM	KG
1/2"	15	90	65	0.9
3/4"	20	105	72	1.0
1"	25	127	100	3.0
1.1/4"	32	142	105	6.0
1.1/2"	40	142	105	6.0
-	-	-	-	-
-	-	-	-	-

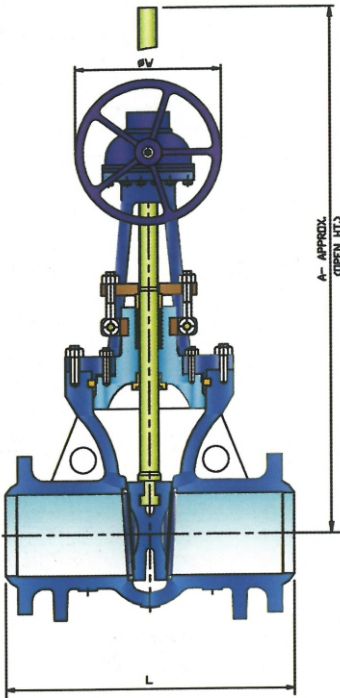
CLASS 2500 (STANDARD BORE)				
Size		L	A	Weight
NPS	DN	MM	MM	KG
1/2"	15	105	72	1
3/4"	20	127	100	3
1"	25	142	105	6
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

CLASS 800 (FULL BORE)				
Size		L	A	Weight
NPS	DN	MM	MM	KG
1/2"	15	90	65	0.9
3/4"	20	105	72	1
1"	25	127	100	3
1.1/4"	32	142	105	6
1.1/2"	40	142	105	6

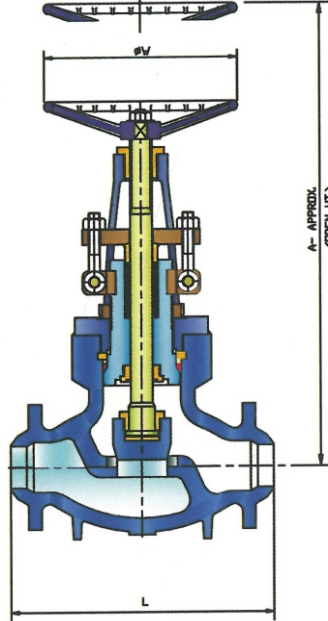
CLASS 1500 (FULL BORE)				
Size		L	A	Weight
NPS	DN	MM	MM	KG
1/2"	15	105	72	1.0
3/4"	20	127	100	3.0
1"	25	142	105	6.0
-	-	-	-	-
-	-	-	-	-

CLASS 2500 (FULL BORE)				
Size		L	A	Weight
NPS	DN	MM	MM	KG
1/2"	15	127	100	3.0
3/4"	20	142	105	6.0
-	-	-	-	-
-	-	-	-	-
-	-	-	-	-

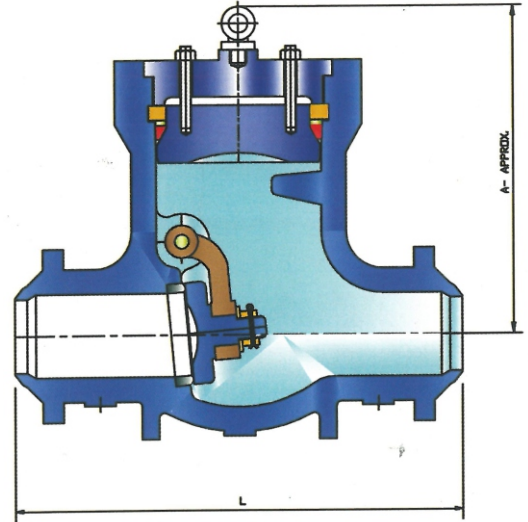
PRESSURE SEAL BONNET GATE, GLOBE & SWING CHECK VALVE



Pressure Seal Gate Valve



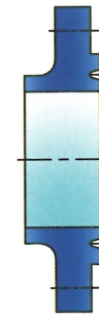
Pressure Seal Globe Valve



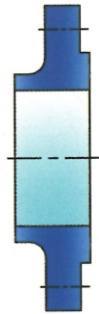
Gear Box Arrangement



Electrical Actuator Arrangement



RTJ Flange End



RF Flange End



DESIGN FEATURES

- Design and Manufacturing : ASME B 16.34
- Inspection and Testing : API 598, BSEN 12266 Part - 1 & 2
- End Flanges Dimension : ASNE B 16.5
- BW End Dimension : ASME 16.25
- Face to Face & End to End Dimension : ASME 16.10
- Wedge Design : Flexible Wedge
- Plug Design : Parabolic, Regulating
- Disc Design : Gravitational acceleration
- Bonnet Design : Pressure Seal

SPECIAL FEATURES

- Gear Operation - applied force exceed 350 N
- Limit Switch Arrangement
- Electrical & Pneumatic Arrangement
- Lantern ring arrangement for Vacuum service
- NACE MR 0175 & MR 1030
- Position indicator
- Locking Arrangement

TOLERANCE

Face to Face : $\pm 2.0\text{mm}$ for $\text{NPS} \leq 10''$ & $\pm 3.0\text{mm}$ for $\text{NPS} > 10''$

FACE TO FACE/END TO END DIMENSIONS FOR PRESSURE SEAL GATE VALVES

CLASS 900									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	368	371	216	305	460	60	50	
3"	80	381	384	305	354	550	85	70	
4"	100	457	460	356	408	670	150	120	
6"	150	610	613	508	450	840	275	245	
8"	200	737	740	660	450	1090	540	475	
10"	250	838	841	787	450	1180	870	760	
12"	300	965	968	914	610	1390	1210	1010	

CLASS 1500									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	368	371	216	305	490	60	50	
3"	80	470	473	305	450	580	95	70	
4"	100	546	549	406	450	700	205	175	
6"	150	705	711	559	450	840	440	390	
8"	200	832	842	711	450	1060	825	786	
10"	250	991	1001	864	610	1305	1240	1193	
12"	300	1130	1146	991	610	1520	2190	2105	

CLASS 2500									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	451	454	279	450	552	110	90	
3"	80	578	584	368	450	720	225	186	
4"	100	673	683	457	450	855	455	403	
6"	150	914	927	610	610	1083	839	795	
8"	200	1022	1038	762	610	1335	1256	1906	
10"	250	1270	1292	914	610	1568	2213	2156	
12"	300	1422	1444	1041	610	1932	2500	2435	

FACE TO FACE/END TO END DIMENSIONS FOR PRESSURE SEAL GLOBE VALVES

CLASS 900									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	368	371	216	305	460	60	50	
3"	80	381	384	305	354	550	85	70	
4"	100	457	460	356	408	670	150	120	
6"	150	610	613	508	450	840	275	245	
8"	200	737	740	660	450	1090	540	475	
10"	250	838	841	787	610	1180	870	760	
12"	300	965	968	914	610	1390	1210	1010	

CLASS 1500									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	368	371	216	305	460	60	50	
3"	80	470	473	305	450	550	95	70	
4"	100	546	549	406	450	610	300	260	
6"	150	705	711	559	450	1090	475	425	
8"	200	832	842	711	450	1510	800	745	
10"	250	991	1001	864	610	1760	1100	1062	
12"	300	1130	1146	991	610	2150	1875	1812	

CLASS 2500									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	451	454	279	450	580	95	65	
3"	80	578	584	368	450	660	320	290	
4"	100	673	683	457	450	1130	510	405	
6"	150	914	927	610	610	1586	873	730	
8"	200	1022	1038	762	610	1820	1165	1035	
10"	250	1270	1292	914	610	2210	1920	1810	
12"	300	1422	1444	1041	610	2615	2650	2510	

FACE TO FACE/END TO END DIMENSIONS FOR PRESSURE SEAL SWING CHECK VALVES

CLASS 900								
Size		L (MM)			A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	FE	BW	
2"	50	368	371	216	235	50	42	
3"	80	381	384	305	290	90	74	
4"	100	457	460	356	320	115	102	
6"	150	610	613	508	335	240	203	
8"	200	737	740	660	430	375	332	
10"	250	838	841	787	510	560	508	
12"	300	965	968	914	610	850	512	

CLASS 1500								
Size		L (MM)			A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	FE	BW	
2"	50	368	371	216	235	55	42	
3"	80	470	473	305	295	110	78	
4"	100	546	549	406	370	175	95	
6"	150	705	711	559	420	550	410	
8"	200	832	842	711	490	690	600	
10"	250	991	1001	864	620	1350	1250	
12"	300	1130	1146	991	650	2150	1840	

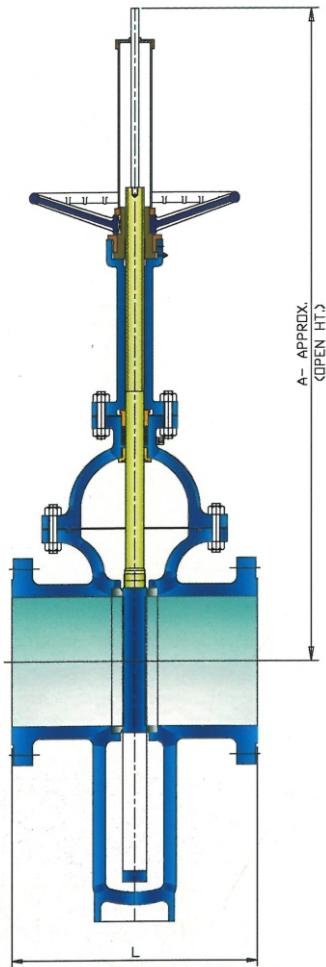
CLASS 2500								
Size		L (MM)			A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	FE	BW	
2"	50	451	454	279	416	145	110	
3"	80	578	584	368	441	330	260	
4"	100	673	683	457	479	650	535	
6"	150	914	927	610	511	1400	1110	
8"	200	1022	1038	762	711	2420	1980	
10"	250	1270	1292	914	851	3750	2980	
12"	300	1422	1444	1041	1000	5500	4350	

MATERIALS OF CONSTRUCTION

PART NAME	CARBON STEEL	ALLOYSTEEL	STAINLESS STEEL
Body	A 216 WCB / WCC	A 352 LCB /LLC	A 317 WC6/ WC9/C5/C12
Bonnet	A 216 WCB / WCC	A 352 LCB /LLC	A 317 WC6/ WC9/C5/C12
Yoke/Cover	A 216 WCB / WCC	A 352 LCB /LLC	A 317 WC6/ WC9/C5/C12
Seat Ring	A 216 WCB / WCC + 13% Cr	A 351 CF8	A 217 WC6/ WC9/C5/C12 + 13% Cr/A 217 CA 15
Wedge/Plug/Disc	A 216 WCB +13% Cr	A 351 CF8	A 217 WC6/ WC9/C5/C12 + 13% Cr.
Stem/Hinge pin	A 276 TP 410	A 276 TP 304	A 276 TP 410
Gland Flange	A 105 / CS	A 105/ CS	A 217 WC6/ WC9/C5/C12/A 105 / CS
Yoke/Cover Joints Stud	A 193 B7	A 320 L7	A 193 B 16
Yoke/Cover Joints Nuts	A 194 2H	A 194 7	A 194 7
Gland*	A 276 TP 410	A 276 TP 304	A 276 TP 410
Gland Stud*	A 193 B7	A 320 L7	A 193 B16
Gland Stud Nuts*	A 194 2H	A194 7	A194 7
Gasket	SS Reinforcement Graphite / SS 304 / 316 / 304L / 316L / 321		
Stem Packing *	Braided graphite and Die Formed Graphite ring		
Yoke Sleeve*	A439 Gr.D2		
Hand wheel*	2" = Ductile Iron & Above 2" SG Iron / Fabricated Steel		

- (1) Casting in DUPLEX ss, HASTE ALLOY, MONEL etc. also provided against requirement.
 - (2) TRIM in different combination like TRIM = 1,2,5,8,9,10,11,12,13,14,16,17,18 & Bronze etc. Also provided against requirement.
 - (3) Cold Galvanized
- *Not applicable in pressure seal check valve

API 6D GATE Valves



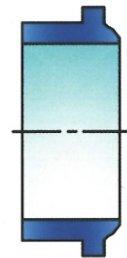
Gear Box
Arrangement



Electrical Actuator
Arrangement



RTJ Flange End



Buttweld End



DESIGN FEATURES

- Design and Manufacturing : API 6D
- Inspection and Testing : API 6D
- Inspection and Testing : API 6D
- End Flanges Dimension : ASME B 16.5
- BW End Dimension : ASME 16.25
- Face to Face & End to End Dimension : API 6D ASME B 16.10
- Design : SLAB Type, Through conduit passage - Piggable
- Anti-friction ball thrust bearing in yoke sleeve
- Drain & Vent Connection, Lifting Lugs & Support Legs,
- Double block & bleed, fire safe design.

SPECIAL FEATURES

- Gear Operation - applied force exceed 350 N
- Limit Switch Arrangement
- Electrical & Pneumatic Arrangement
- Position indicator
- Locking Arrangement
- Fugitive Emission test
- Resilient seal.
- NACE MR 0175 & MR 0103
- Pneumatic Acuator

TOLERANCE

Face to Face : $\pm 2.0\text{mm}$ for $\text{NPS} \leq 10''$ & $\pm 3.0\text{mm}$ for $\text{NPS} > 10''$

FACE TO FACE/END TO END DIMENSIONS FOR API 6D GATE VALVES

CLASS 150									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	178	191	216	203	375	31.5	27	
3"	80	203	216	283	254	473	51	42	
4"	100	229	241	305	254	570	86	67	
6"	150	267	279	403	305	765	147	135	
8"	200	292	305	419	305	995	220	202	
10"	250	330	343	457	408	1178	379	342	
12"	300	356	368	502	457	1375	534	510	
14"	350	381	394	572	457	1525	776	729	
16"	400	406	419	610	457	1735	948	897	
18"	450	432	445	660	457	1906	1207	1155	
20"	500	457	470	711	457	2095	1569	1509	
24"	600	508	521	813	610	2525	1950	1770	

CLASS 300									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	216	232	216	203	394	48	36	
3"	80	283	298	283	254	494	96	78	
4"	100	305	321	305	254	585	147	112	
6"	150	403	419	403	354	842	290	245	
8"	200	419	435	419	408	1034	455	227	
10"	250	457	473	457	457	1240	704	306	
12"	300	502	518	502	457	1424	1167	992	
14"	350	562	578	562	457	1605	1438	1225	
16"	400	610	626	610	457	1845	2112	2021	
18"	450	660	676	660	457	1970	2485	2187	
20"	500	711	727	711	610	2125	3330	2975	
24"	600	813	829	813	610	2580	4669	4284	

CLASS 600									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	292	295	292	254	428	72	63	
3"	80	356	359	356	254	534	150	138	
4"	100	432	435	432	305	680	261	243	
6"	150	559	562	559	457	918	549	504	
8"	200	660	664	660	457	1122	918	855	
10"	250	787	791	787	457	1252	1449	1368	
12"	300	838	841	838	457	1550	1945	1818	
14"	350	889	892	889	457	1735	2710	2556	
16"	400	991	994	991	610	1845	3330	2628	
18"	450	1092	1095	1092	610	2105	4284	4113	
20"	500	1194	1200	1194	610	2275	4978	4770	
24"	600	1397	1407	1397	610	2686	7884	7668	

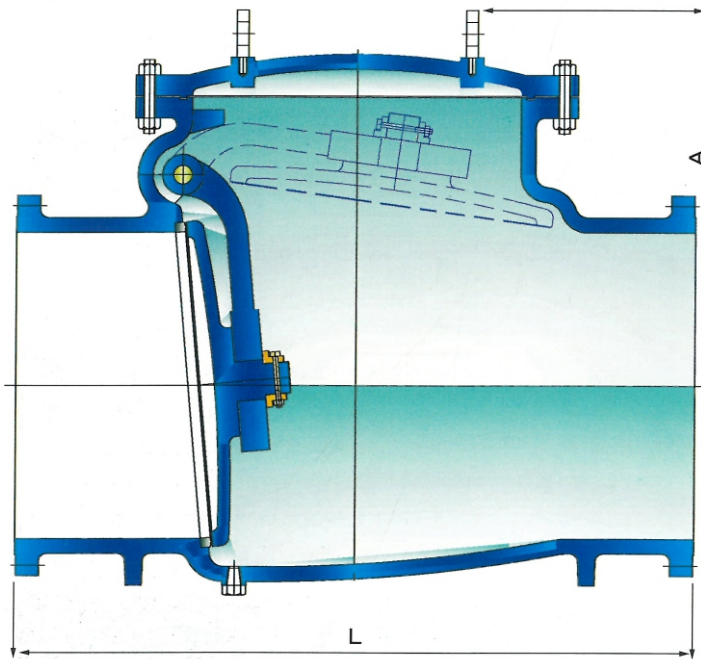
CLASS 900									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	368	371	368	302	480	138	104	
3"	80	381	384	381	354	570	188	146	
4"	100	457	460	457	408	670	323	234	
6"	150	610	613	610	457	880	579	532	
8"	200	737	740	737	457	1080	969	902	
10"	250	838	841	838	457	1295	1530	144	
12"	300	965	968	965	610	1490	2053	1919	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	
-	-	-	-	-	-	-	-	-	

CLASS 1500									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	368	371	368	305	490	160	116	
3"	80	470	473	470	457	575	220	164	
4"	100	546	549	546	457	590	420	320	
6"	150	705	711	705	457	950	660	620	
8"	200	832	840	832	457	1100	1020	1050	
10"	250	991	1000	991	610	1350	1700	1620	
12"	300	1130	1146	1130	610	1501	2300	2160	

CLASS 2500									
Size		L (MM)			ΦW	A	Weight (kg)		
NPS	DN	RF	RTJ	BW	MM	MM	FE	BW	
2"	50	451	454	451	457	550	231	184	
3"	80	578	584	578	457	580	315	256	
4"	100	673	683	673	457	850	525	420	
6"	150	914	927	914	610	1420	798	756	
8"	200	1022	1038	1022	610	1510	1281	1228	
10"	250	1270	1292	1270	610	1980	1932	1848	
12"	300	1422	1445	1422	610	2150	2520	2478	

MATERIALS OF CONSTRUCTION			
PART NAME	CARBON STEEL		STAINLESS STEEL
Body	A 216 WCB / WCC	A 352 LCB / LLC	A 351 CF8/CF8M/CF3/CF3M/CF8C
Bonnet	A 216 WCB / WCC	A 352 LCB / LLC	A 351 CF8/CF8M/CF3/CF3M/CF8C
Yoke	A 216 WCB / WCC	A 352 LCB / LLC	A 351 CF8/CF8M/CF3/CF3M/CF8C
Seat Ring	A 217 CA 15	A 351 CF8	A 351 CF8/CF8M/CF3/CF3M/CF8C
Seat Insert	PTFE	PTFE	PTFE
Gate	ASTM A 217 CA 15	A 351 CF 8	A 351 CF8/CF8M/CF3/CF3M/CF8C
Stem	A 276 TP 410	A 276 TP 304	A 276 TP 304/316/304 L/316 L/321
Joints Stud	A 193 B7	A 320 L7	A 193 B7* / B8
Joints Stud Nuts	A 194 2H	A 194 7	A 194 2H* / 8
Gland flange	A 216 WCB / A 105/CS	A 105 / CS	A 105*/CS*/A351 CF8/CF8M/CF3
Gland	A 276 TP 410	A 276 TP 304	A 276 TP 410
Gland Stud	A 193 B7	A 320 L7	A 193 B7* / B8
Gland Stud Nuts	A 194 2H	A194 7	A 194 2H* / 8
Gasket	Spiral Wound / SS 316 / 316L/304L / 321 with Grafoil filler		
Stem Packing	Braided graphite and Die Formed Graphite ring		
Yoke Sleeve	SG Iron / A 439 Gr. D2 / Bronze		
Hand wheel	Below 2" = Malleable Iron & Above 2" SG Iron / Fabricated Steel		

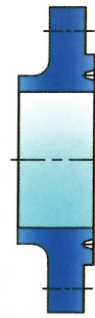
API 6D Swing Check Valves



Counter Weight
Arrangement



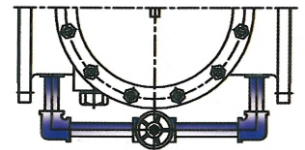
Dashpot Cylinder
Arrangement



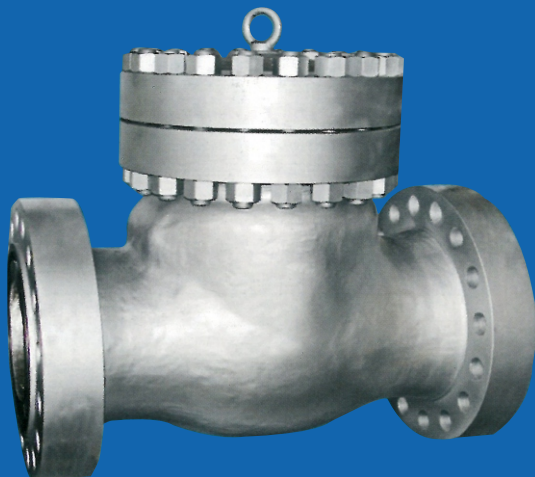
RTJ Flange End



Butt Weld End



With By-Pass Arrangement



DESIGN FEATURES

- Design and Manufacturing : API 6D
- Inspection and Testing : API 6D
- End Flanges Dimension : ASME B 16.5
- BW End Dimension : ASME 16.25
- Face to Face & End to End Dimension : API 6D ASME B16.10
- Disc Design : Gravitational acceleration
- Design : Capability of a valve to permit the unrestricted passes of Piggability
- Drain & Vent Connection, Lifting Lugs & Support Legs,

SPECIAL FEATURES

- Counter Weight arrangement
- Hydraulic Cylinder Arrangement
- NACE MR 0175 & MR 0103
- Drain & Vent Connection, Lifting Lugs & Support Legs,

TOLERANCE

Face to Face : $\pm 2.0\text{mm}$ for NPS < 10" & $\pm 3.0\text{mm}$ for NPS > 10"

FACE TO FACE/END TO END DIMENSIONS FOR API 6D SWING CHECK VALVES

CLASS 150							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
2"	50	203	216	203	160	17	14
3"	80	241	254	241	180	25	21
4"	100	292	305	292	205	48	42
6"	150	356	368	356	250	90	72
8"	200	495	508	495	305	140	120
10"	250	622	635	622	336	245	230
12"	300	699	711	699	395	310	280
14"	350	787	800	787	435	540	520
16"	400	864	876	864	498	625	605
18"	450	978	991	978	540	850	810
20"	500	978	991	978	625	960	924
24"	600	1295	1308	1295	715	1290	1270

CLASS 300							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
2"	50	267	283	267	145	27	21
3"	80	318	333	318	160	58	49
4"	100	356	371	356	200	74	63
6"	150	445	460	445	250	128	115
8"	200	533	549	533	300	240	226
10"	250	622	638	622	356	335	319
12"	300	711	727	711	416	549	510
14"	350	838	854	838	440	670	640
16"	400	864	879	864	500	830	801
18"	450	978	994	978	538	990	960
20"	500	1016	1035	1016	630	1375	1310
24"	600	1346	1368	1346	712	2230	2180

CLASS 600							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
2"	50	292	295	292	145	40	35
3"	80	356	359	356	160	70	59
4"	100	432	435	432	200	126	104
6"	150	559	562	559	250	235	195
8"	200	660	664	660	365	404	310
10"	250	787	791	787	380	490	430
12"	300	838	841	838	445	755	705
14"	350	889	892	889	465	909	845
16"	400	991	994	991	528	1120	980
18"	450	1092	1095	1092	572	1740	1660
20"	500	1194	1200	1194	649	1920	1810
24"	600	1397	1407	1397	735	1990	1860

CLASS 900							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
2"	50	368	371	368	210	70	50
3"	80	381	384	381	240	170	130
4"	100	457	460	457	270	215	175
6"	150	610	613	610	330	390	310
8"	200	737	740	737	390	665	538
10"	250	838	841	838	435	1165	965
12"	300	965	968	965	525	1455	1185
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-

CLASS 1500							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
2"	50	368	371	368	210	70	50
3"	80	470	473	470	280	170	130
4"	100	546	549	546	310	310	255
6"	150	705	711	705	405	700	570
8"	200	832	840	832	530	1195	970
10"	250	991	1000	991	670	1870	1480
12"	300	1130	1146	1130	698	2800	2205

CLASS 2500							
Size		L (MM)			A	Weight (kg)	
NPS	DN	RF	RTJ	BW	MM	FE	BW
2"	50	451	454	451	230	160	130
3"	80	578	584	578	300	360	290
4"	100	673	683	673	320	665	555
6"	150	914	927	914	430	1465	1205
8"	200	1022	1038	1022	565	2567	2210
10"	250	1270	1292	1270	700	3960	3165
12"	300	1422	1445	1422	750	5710	4565

MATERIALS OF CONSTRUCTION			
PART NAME	CARBON STEEL		STAINLESS STEEL
Body	A 216 WCB / WCC	A 352 LCB /LLC	A 351 CF8/CF8M/CF3/CF3M/CF8C
Bonnet	A 216 WCB / WCC	A 352 LCB /LLC	A 351 CF8/CF8M/CF3/CF3M/CF8C
Seat Ring	A 216 WCB+13%Cr./ASTM A 217 CA 15	A 351 CF8	A 351 CF8/CF8M/CF3/CF3M/CF8C
Seat Insert	VITON GF	VITON GF	VITON GF
Disc	A 216 WCB / WCC + 13% Cr.	A 351 CF 8	A 351 CF8/CF8M/CF3/CF3M/CF8C
Hinge	A 216 WCB / WCC	A 351 CF 8	A 351 CF8/CF8M/CF3/CF3M/CF8C
Side Plug	A 276 TP 304	A 276 TP 304	A 276 TP 304/316/304 L/316 L 321
Hinge Pin	A 276 TP 410	A 276 TP 304	A 276 TP 304/316/304 L/316 L 321
Joints Stud	A 193 B7	A 320 L7	A 193 B7 ² / B8
Joints Stud Nuts	A 194 2H	A 194 7	A 194 2H ² / 8
Gasket	Spiral Wound / SS 316 / 316L/304L / 321 with Grafoil filler		
Disc nut	A 276 TP 304/316/304L/316L/321		

Also Available

- (1) TRIM in different combination like TRIM = 1,2,5,8,9,10,11,12,13,14,16,17,18 & Bronze etc. Also provided against requirement.
- (2) Cold Galvanized

DESCRIPTION	CLASS	DESIGN STANDARD	SIZES
Gate	150	API 600 (ISO 10434) BS 1414	2" (50 DN TO 52" (1300 DN)
	300		2" (50 DN TO 36" (900 DN)
	600		2" (50 DN TO 24" (600 DN)
	900		2" (50 DN TO 16" (300 DN)
	1500		2" (50 DN TO 12" (300 DN)
	2500		2" (50 DN TO 12" (300 DN)
Globe	150	BS 1873	2" (50 DN TO 24" (600 DN)
	300		2" (50 DN TO 16" (400 DN)
	600		2" (50 DN TO 12" (300 DN)
	900		2" (50 DN TO 12" (300 DN)
	1500		2" (50 DN TO 12" (300 DN)
	2500		2" (50 DN TO 10" (300 DN)
Swing Check	150	BS 1868	2" (50 DN TO 40" (1000 DN)
	300		2" (50 DN TO 36" (900 DN)
	600		2" (50 DN TO 24" (600 DN)
	900		2" (50 DN TO 16" (300 DN)
	1500		2" (50 DN TO 12" (300 DN)
	2500		2" (50 DN TO 12" (300 DN)
Forged Steel Gate	800	API 602 / ISO 15761	1/2 " (15 DN TO 2" (50 DN)
	1500		1/2 " (15 DN TO 1.2" (40 DN)
	2500	ASME B 16.34	1/2 " (15 DN TO 1" (25 DN)
Forged Steel Globe	800	API 602 / ISO 15761	1/2 " (15 DN TO 2" (50 DN)
	1500		1/2 " (15 DN TO 1.1/2" (40 DN)
	2500	ASME B 16.34	1/2 " (15 DN TO 1" (25 DN)
Forged Steel Lift Check	800	API 602 / ISO 15761	1/2 " (15 DN TO 2" (50 DN)
	1500		1/2 " (15 DN TO 1.1/2" (40 DN)
	2500	ASME B 16.34	1/2 " (15 DN TO 1" (25 DN)
API 6D Gate	150	API 6D	2" (50 DN TO 24" (600 DN)
	300		2" (50 DN TO 24" (600 DN)
	600		2" (50 DN TO 24" (600 DN)
	900		2" (50 DN TO 12" (300 DN)
	1500		2" (50 DN TO 12" (300 DN)
	2500		2" (50 DN TO 12" (300 DN)
API 6D Swing Check	150	API 6D	2" (50 DN TO 24" (600 DN)
	300		2" (50 DN TO 24" (600 DN)
	600		2" (50 DN TO 24" (600 DN)
	900		2" (50 DN TO 12" (300 DN)
	1500		2" (50 DN TO 12" (300 DN)
	2500		2" (50 DN TO 12" (300 DN)

(A) Additional Product Range / Special Products

- Ball Valve : Soft Seated and Metal seated Floating Design & Trunnion Mounted Design from 1/2" to 24" in Various Pressure rating up to 2500#.
- Valve for Cryogenic Service as Per BS 6364
- Dual Plate Check Valves and wafer Check Valves
- Double Disc / Slab type conduit gate Valve as per API 6D.
- Interlocking system can be Provided on request.
- Valves are also design as per customer requirements.

(B) In House Facilities available as Alka Tech Valves works.

- Cryogenic Testing Facilities.
- Fire safe Testing Facilities
- Fugitive Emission Testing Facilities.
- Elevated Temperature Testing Facilities

ASM SPEC. GRADE	NOMINAL DESIGNATION	SERVICE RECOMMENDATION	MIN. TEMP		MAX. TEMP		
			F	C	F	C	
A 216-WCB	Cast Carbon Steel	Water, Oil & Gas, Steam and General Service	-20	-29	800	425	
A 352-LCB	Cast Carbon Steel	Low Temperature and General Service	-50	-46	650	343	
A 352-LCC	Cast Carbon Steel		-50	-46	650	343	
A 217-WC 6	Chrome - molybdenum steel (1.1/4 Cr. 1/2Mo)	High Temperature Steam oil vapour and general service	-20	-29	1100	593	
A 217-WC 9	Chrome - molybdenum steel (2.1/4 Cr. - 1Mo)		-20	-29	1100	593	
A 217-C 5	Chrome - molybdenum steel (5 Cr. - 1/2Mo)	Corrosive erosive oil refinery service	-20	-29	1200	649	
A 217-C12	Chrome - molybdenum steel (9 Cr. - 1Mo)		-20	-29	1200	649	
A 351-CF 8	Cast Stainless Steel 18 Cr. - 10 Ni. SS 304	Corrosive or Extremely high temperature non - corrosive services between - 450°F (-268°C) and 1200°F (+649C) above + 800°F (+425C) Specially carbon content to 0.04% of greater	-20	-29	1100	593	
A 351-CF8M	Cast Stainless Steel 18 Cr. - 10 Ni - 2 Mo. Ss316		-20	-29	1100	593	
A351-CF 3	Cast Stainless Steel 18 Cr. - 10 Ni. SS 304 L	Corrosive or Non - Corrosive service to + 800°F (425C)	-20	-29	800	425	
A351-CF3M	Cast Stainless Steel 18 Cr. - 10 Ni - 2 Mo. Ss316L		-20	-29	850	454	
A351-CN7M	Cast Stainless Steel 19 Cr. - 29Ni,Alloy -20	Corrosive resistance	-20	-29	800	425	
A 494 M-35-1	Cast Ni alloy Steel Monel	Weldable grade. Good resistance to corrosion by all common organic acid and salt water	-20	-29	750	400	
A105	Forged Carbon Steel	Water, Oil and Gas, Steam and General Service	-20	-29	800	425	
A350-LF2	Forged Carbon Steel	Low temperature and General Service	-50	-46	650	343	
A 182-F11	Chrome - Molybdenum Steel 1.1/4 Cr. - 1/2 SI	High temperature steam oil Vapour and general service	-40	-40	1100	593	
A 182-F304	Forged Stainless Steel 18 Cr. - 10 Ni. 2Mo, SS 304	Corrosive or Extremely high temperature non - corrosive services between - 450°F (-268°C) and 1200°F (+649C) above + 800°F (+425C) Specially carbon content to 0.04% of greater	-20	-29	1100	593	
A 182-F316	Forged Stainless Steel 18 Cr. - 10 Ni. 2Mo, SS 316		-20	-29	1100	593	
A 182-F304L	Forged Stainless Steel 18 Cr. - 10 Ni. 2Mo, SS 304L	Corrosive or Non - Corrosive service to + 800°F (+425C)	-20	-29	800	425	
A 182-F316L	Forged Stainless Steel 18 Cr. - 10 Ni. 2Mo, SS 316L		-20	-29	850	425	
Note : The soft seal valve maximum working temperature depending upon the seat material		Seat Material	R.PTFE	-320	-196	250	121
			Nylon	-58	-50	176	80
			Peek	-185	-120	483	250

TRIM MATERIAL EQUIVALENT GRADES

TRIM	UNS	TYPE	GRADE (Forged)	ASTM (Wrought)	DIN	DINW No.
F6	UNS S41000	13Cr	ASTM A182 F6a	A276-410	DIN X12Cr.13	1.4006
304	UNS S30400	18-8 Cr-Ni	ASTM A182 F304	A276-304	DIN X5CrNi 18 10	1.4301
316	UNS S31600	18-8 Cr-Ni (18-10-2)	ASTM A182 F316	A276-316	DIN X5CrNiMo 18 10	1.4401
321	UNS S32100	18 Cr-10 Ni-Ti	ASTM A182 F321	A276-321	DIN X6CrNiTi 18 10	1.4541
347	UNS S34700	18 Cr-10 Ni-Cb	ASTM A182 F347	A276-347	DIN X6CrNiTiB 18 10	1.455
MONEL®	UNS N04400	67 Ni-30Cu	ASTM B564-N04400	B164-N04400	DIN 17743	2.436
ALLOY 20	UNS N08020	28Ni-19Cr-Cu-Mo	ASTM A182-F20*	ASTM B473	DIN 14500	2.466
ALLOY 625	UNS N06625	60Ni-22Cr-9Mo-3.5Cb	ASTM B564-N06625	ASTM B564-N06625	DIN 17361	2.4865
C276	UNS N10276	54Ni-15Cr-16Mo	ASTM B564-N10276	ASTM B574-N10276	DIN NiMo 16 Cr 15 W	2.4819
17/4PH	UNS S17400	0Cr17Ni4Cu4Nb	ASTM A4705 UNS S17400	ASTM A4705 UNS S17400	X5CrNiCuNb 17-4-4	1.4548
St. Gr6	UNS R30006	Co Cr-A	ASTM 5894	Stellite Gr6		

*No longer listed in ASME B16.34 - 2009

API 600 TRIM NUMBER CHART - Standard Trim Configuration



API TRIM NO.	NOMINAL TRIM	TRIM CODE	STEM & OTHER TRIM PARTS	DISC/WEDGE	SEAT SURFACE	TRIM MATERIAL GRADE	SERVICE
1	410	F6	410 13Cr (200-275 HBN)	F6 (13Cr) (200 HBN)	410 (13Cr) (250 HBN min)	13Cr-0.75Ni-1Mn	For oil and oil vapors and general services with heat treated seats and wedges. General very low erosive or non-corrosive service between - 100°C and 320°C. This stainless steel material lends itself ready to hardening by heat treatment and is excellent for contacting parts such as stems, gates and discs. Steam, gas & general service to 370°C. Oil & Oil vapor 480°C.
2	304	304	304	304 (18Cr-8Ni)	304 (18Cr-8Ni)	19Cr-9.5Ni-2Mn-0.08C	For moderate pressure in corrosive, low erosive service between - 265°C and 450°C
3	310	310	(25Cr-20Ni)	310(25Cr-20Ni)	310(25Cr-20Ni)	25Cr-20.5Ni-2Mn	For moderate pressure in corrosive, or non corrosive service between - 265°C and 450°C
4	410-Hard	F6H	410 (13Cr) (200-275 HBN)	F6 (13Cr) (200-275 HBN)	F6 (13Cr) (275 HBN min)	13Cr-0.75Ni-1Mn	Seats 275 BHN min. As trim 1 but for medium pressure and more corrosive service.
5	410-Full Hard Faced	F6HF	410 (13Cr) (200-275 HBN)	F6+St Gr6 (CoCr.Alloy) (350 HBN min)	410+St Gr6 (CoCr.Alloy) (350 HBN min)	13Cr-0.5Ni-1Mn/ Co-Cr-A	High pressure slightly erosive and corrosive service between - 265°C and 650°C and higher pressure. Premium trim service to 650°C. Excellent for high pressure water and steam service.
5a	410-Full Hard Faced	F6HF	410 (13Cr) (200-275 HBN)	F6+Hardf. (NiCr.Alloy) (350 HBN min)	410+Hardf. (NiCr.Alloy) (350 HBN min)	13Cr-0.5Ni-1Mn/ Co-Cr-A	As trim 5 where Co is not allowed
6	410 and Ni-Cu	F6HFS	410 (13Cr) (200-275 HBN)	Monel 400® (NiCu Alloy) (250 HBN min)	Monel 400® (NiCu Alloy) (175 HBN min)	13Cr-0.5Ni-1Mn/ Ni-Cu	As trim 1 and more corrosive service.
7	410-Very Hard	F6HF+	410 (13Cr) (200-275 HBN)	F6 (13Cr) (250 HBN min)	F6 (13Cr) (750 HBN)	13Cr-0.5Ni-1Mo/ 13Cr-0.5Ni-1Mo	Seats 750 BHN min. As trim 1 but for higher pressure and more corrosive/erosive service.
8	410Hard Faced	F6HFS	410 (13Cr) (200-275 HBN)	410 (13Cr) (250 HBN min)	410+St Gr6 (CoCr.Alloy) (350 HBN min)	13Cr-0.75Ni-1Mn01/ 2Co-Cr-A	Universal trim for general service requiring long service life up to 593°C. As trim 5 for moderate pressure and more corrosive service Steam, gas & general service to 540°C. Standard trim for gate valves.
8a	410Hard Faced	F6HFS	410 (13Cr) (200-275 HBN)	F6 (13Cr) (250 HBN min)	410+Hardf. (NiCr Alloy) (350 HBN min)	13Cr-0.75Ni-1Mn/ 2Co-Cr-A	As trim 5a for moderate pressure and more corrosive service.
9	Monel	Monel	Monel® (NiCu Alloy)	Monel 400® (NiCu Alloy)	Monel 400® (NiCu Alloy)	70Ni-30Cu	For corrosive service to 450°C such as acids, alkalis, salt solutions, etc. Very corrosive fluids. Erosive-corrosive service between - 240°C and 480°C. Resistant to sea water, acids, alkalis. Has excellent corrosion resistance in chlorine and alkylation service.
10	316	316	316 (18Cr-8Ni-Mo)	316 (18Cr-8Ni-Mo)	316 (18Cr-8Ni-Mo)	18Cr-12Ni-2.5Mo-2Mn	For superior resistance to corrosion for liquids and gases which are corrosive to 410 stainless steel up to 455°C. As trim 2 but a higher level of corrosive service. Provides excellent resistance to corrosive media at high temperatures and toughness for service at low temperatures. Low temperature service standard for 316SS valves.

API 600 TRIM NUMBER CHART - Standard Trim Configuration

API TRIM NO.	NOMINAL TRIM	TRIM CODE	STEM & OTHER TRIM PARTS	DISC/WEDGE	SEAT SURFACE	TRIM MATERIAL GRADE	SERVICE
11	Monel-Hard Faced	MonelHFS	Monel® (NiCu Alloy)	Monel 400® (NiCu Alloy)	Monel 400®+St Gr6 (350 HBN min)	70Ni-30cu/1/2Co-Cr-A	As trim 9 but for medium pressure and more corrosive service,
11a	Monel-Hard Faced	MonelHFS	Monel® (NiCu Alloy)	Monel 400® (NiCu Alloy)	Monel 400®+HF NiCr Alloy (350 HBN min)	70Ni-30cu/1/2Co-Cr-A	As trim 9 but for medium pressure and more corrosive service,
12	316-Hard Faced	316HFS	316 (18Cr-Ni-Mo)	316 (18Cr-8Ni-Mo)	316+St Gr6 (350 HBN min)	18Cr-12Ni-2.5Mo-2Mn/1/2Co-Cr-A	As trim 10 but for medium pressure and more corrosive service.
12a	316-Hard Faced	316HFS	316 (18Cr-Ni-Mo)	316 (18Cr-8Ni-Mo)	316+Hardf. NiCr Alloy (350 HBN min)	18Cr-12Ni-2.5Mo-2Mn/1/2Co0Cr-A	As trim 10 but for medium pressure and more corrosive service.
13	Alloy 20	Alloy 20	Alloy 20 (19Cr-29Ni)	Alloy 20 (19Cr-29Ni)	Alloy 20 (19Cr-29Ni)	29Ni-19Cr-2.5Mo-0.75C	Very corrosive service. For moderate pressure between -45°C and 320°C
14	Alloy 20-Hard Faced	Alloy 20-HFS	Alloy 20 (19Cr-29Ni)	Alloy 20 (19Cr-29Ni)	Alloy 20 St Gr6 (350 HBN min)	29Ni-19Cr-2.5Mo-0.7C/1/2Co-Cr-A	As trim 13 but for medium pressure and more corrosive service.
14a	Alloy 20-Hard Faced	Alloy 20-HFS	Alloy 20 (19Cr-29Ni)	Alloy 20 (19Cr-29Ni)	Alloy 20 Hardf. NiCr Alloy (350 HBN min)	29Ni-19Cr-2.5Mo-0.7C/1/2Co-Cr-A	As trim 13 but for medium pressure and more corrosive service.
15	304-full Hard Faced	304-HF	304 (18Cr-8Ni-Mo)	304St Gr6	304+St Gr6 (350 HBN min)	19Cr-9.5Ni-2Mn-0.8C/1/2Co-Cr-A	As trim 2 but more erosive service & higher pressure.
16	316-FullHard Faced	316-HF	316 HF (18Cr-8Ni-Cb)	316+St Gr6 (350 HBN min)	304+St Gr6 (350 HBN min)	18Cr-12Ni-2.5Mo-2Mn/Co-Cr-Mo	As trim10 but more erosive service & higher pressure.
17	347-Full Hard Faced	347-HF	347 HF (18Cr-10Ni-Cb)	347+St Gr6 (350 HBN min)	347+St Gr6 (350 HBN min)	18Cr-10Ni-Cb/Cr-A	As trim13 but more corrosive service & higher pressure Combines good corrosion resistance with high temperature resistance up to 800°C
18	Alloy 20-Full Hard Faced	Alloy 20 HF	Alloy 20 (19Cr-29Ni)	Alloy 20+St Gr6 (350 HBN min)	Alloy 20+St Gr6 (350 HBN min)	19Cr-19Ni/Co-Cr-A	As trim13 but more corrosive service & higher pressure Water, gas or low pressure steam to 230°C
Special	Bronze	Bronze	410 (CR13)	Bronze	Bronze		Water, oil, gas, or low pressure steam to 232°C
Special	Alloy 625	Alloy 625	Alloy 625	Alloy 625	Alloy 625		
NACE	Specially treated 316 or 410 trim combined optionally with B7M bolts and 2HM nuts to meet NACE MR-01-75 requirements.						
Full Stellite	Full hardfaced trim, suitable for abrasive & severe services up to 1200°F (650°C)						

The following table details standard trim materials available. Special trims are available upon request.

Note : Data provided in this chart is for informational purpose only. Always consult current API publication to verify information and trim data.

Alka Tech Valves recommends that customer's engineers analyze service requirements and specify the materials they consider optimum for their service conditions.

Temperatures shown will vary depending on service applications, pressure and media type.

FLANGES DIMENSIONS AS PER ASME B 16.5 RF



NOTE

2mm for Class 150 & 300
7 mm for Class 600 & above

TOLERANCE

T = + 3.0, -0.0 mm for NPS ≤ 18 & +5.0, -0.0 mm for NPS ≥ 20

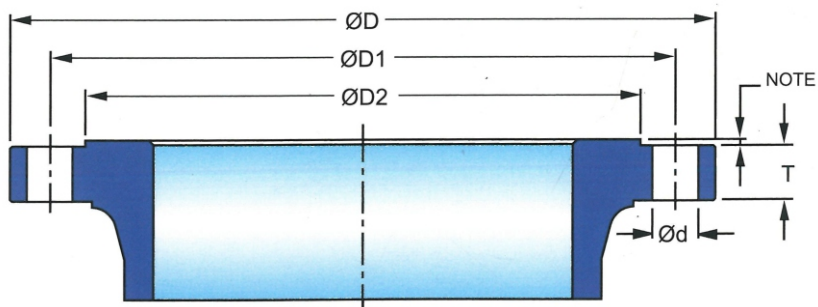
D1 : ± 1.5 mm for all

D2 : ± 1.0 mm for 2 mm raised face &
± 0.5 mm for 7 mm raised face.

Center to center of adjacent bolt holes : ± 0.8 mm

Concentricity between PCD & Facing diameter : 0.8 mm NPS ≤ 2.5

: 1.5 mm NPS ≥ 3



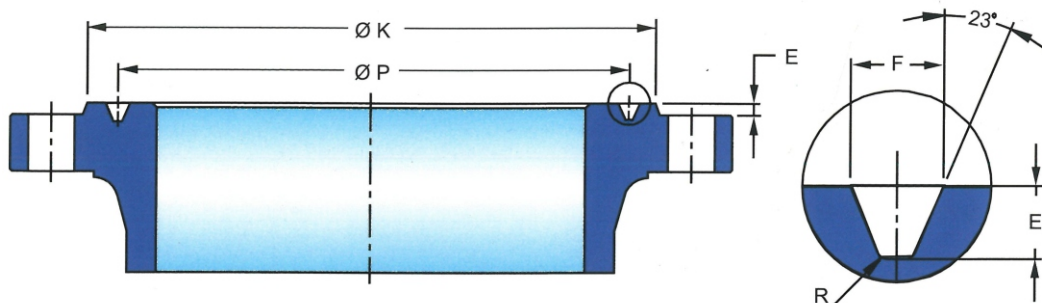
CLASS	NOMINAL		D	D1	D2	T	D	NO. OF HOLES
	NPS	DN	MM	MM	MM	MM	MM	
150	1/2"	15	90	60.3	34.9	8.0	15.88	4
	3/4"	20	100	69.9	42.9	8.9	15.88	4
	1"	25	110	79.4	50.8	9.6	15.88	4
	1.5"	40	125	98.4	73.0	12.7	15.88	4
	2"	50	150	120.7	92.1	14.3	19.05	4
	2.5"	65	180	139.7	104.8	15.9	19.05	4
	3"	80	190	152.4	127.0	17.5	19.05	4
	4"	100	230	190.5	157.2	22.3	19.05	8
	5"	125	255	215.9	185.7	22.3	22.23	8
	6"	150	280	241.3	215.9	23.9	22.23	8
	8"	200	345	298.5	269.9	27.0	22.23	8
	10"	250	405	362.0	323.8	28.6	25.40	12
	12"	300	485	431.8	381.0	30.2	25.40	12
	14"	350	535	476.3	412.8	33.4	28.58	12
16"	400	595	539.8	469.9	35.0	28.58	16	
18"	450	635	577.9	533.4	38.1	31.75	16	
20"	500	700	635.0	584.2	41.3	31.75	20	
24"	600	815	749.3	692.2	46.1	34.93	20	
600	1/2"	15	95	66.7	34.9	14.3	15.88	4
	3/4"	20	115	82.6	42.9	15.9	19.05	4
	1"	25	125	88.9	50.8	17.5	19.5	4
	1.5"	40	155	114.3	73.0	22.3	22.23	4
	2"	50	165	127.0	92.1	25.4	19.05	8
	2.5"	65	190	149.2	104.8	28.6	22.23	8
	3"	80	210	168.3	127.0	31.8	22.23	8
	4"	100	275	215.9	157.2	38.1	25.40	8
	5"	125	330	266.7	185.7	44.5	28.58	8
	6"	150	355	292.1	215.9	47.7	28.58	12
	8"	200	420	349.2	269.9	55.6	31.75	12
	10"	250	510	431.8	323.8	63.5	34.93	16
	12"	300	560	489.0	381.0	66.7	34.93	20
	14"	350	605	527.0	412.8	69.9	38.10	20
16"	400	685	603.2	469.9	76.2	41.28	20	
18"	450	745	654.0	533.4	82.6	44.45	20	
20"	500	815	723.9	584.2	88.9	44.45	24	
24"	600	940	838.2	692.2	101.6	50.80	24	
1500	1/2"	15	120	82.6	34.9	22.3	22.23	4
	3/4"	20	130	88.9	42.9	25.4	22.23	4
	1"	25	150	101.6	50.8	28.6	25.40	4
	1.5"	40	180	123.8	73.0	31.8	28.58	4
	2"	50	215	165.1	92.1	38.1	25.40	8
	2.5"	65	245	190.5	104.8	41.3	28.58	8
	3"	80	265	203.2	127.0	47.7	31.75	8
	4"	100	310	241.3	157.2	54.0	34.93	8
	5"	125	375	292.1	185.7	73.1	41.28	8
	6"	150	395	317.5	215.9	82.6	38.10	12
	8"	200	485	393.7	269.9	92.1	44.45	12
	10"	250	585	482.6	323.8	108.0	50.80	12
12"	300	675	571.5	381.0	123.9	53.98	16	

CLASS	NOMINAL		D	D1	D2	T	D	NO. OF HOLES
	NPS	DN	MM	MM	MM	MM	MM	
300	1/2"	15	95	66.7	34.9	12.7	15.88	4
	3/4"	20	115	82.6	42.9	14.3	19.05	4
	1"	25	125	88.9	50.8	15.9	19.05	4
	1.5"	40	155	114.3	73.0	19.1	22.23	4
	2"	50	165	127.0	92.1	20.7	19.05	8
	2.5"	65	190	149.2	104.8	23.9	22.23	8
	3"	80	210	168.3	127.0	27.0	22.23	8
	4"	100	255	200.0	157.2	30.2	22.23	8
	5"	125	280	235.0	185.7	33.4	22.23	8
	6"	150	320	269.9	215.9	35.0	22.23	12
	8"	200	380	330.2	269.9	39.7	25.40	12
	10"	250	445	387.4	323.8	46.1	28.58	16
	12"	300	520	450.8	381.0	49.3	31.75	16
	14"	350	585	514.4	412.8	52.4	31.75	20
16"	400	650	571.5	469.9	55.6	34.93	20	
18"	450	710	628.6	533.4	58.8	34.93	24	
20"	500	775	685.6	584.2	62.0	34.93	24	
24"	600	915	812.8	692.2	68.3	41.28	24	
900	1/2"	15	120	82.6	34.9	22.3	22.23	4
	3/4"	20	130	88.9	42.9	25.4	22.23	4
	1"	25	150	101.6	50.8	28.6	25.40	4
	1.5"	40	180	123.8	73.0	31.8	28.58	4
	2"	50	215	165.1	92.1	38.1	25.40	8
	2.5"	65	245	190.5	104.8	41.3	28.58	8
	3"	80	240	190.5	127.0	38.1	25.40	8
	4"	100	290	235.0	157.2	44.5	31.75	8
	5"	125	350	279.4	185.7	50.8	34.93	8
	6"	150	380	317.5	215.9	55.6	31.75	12
	8"	200	470	393.7	269.9	63.5	38.10	12
	10"	250	545	469.9	323.8	69.9	38.10	16
	12"	300	610	533.4	381.0	79.4	38.10	20
	14"	350	640	558.8	412.8	85.8	41.28	20
16"	400	705	616.0	469.9	88.9	44.45	20	
18"	450	785	685.8	533.4	101.6	50.80	20	
20"	500	855	749.3	584.2	108.0	53.98	20	
24"	600	1040	901.7	692.2	139.7	66.68	20	
2500	1/2"	15	135	88.9	34.9	30.2	22.23	4
	3/4"	20	140	95.2	42.9	31.8	22.23	4
	1"	25	160	108.0	50.8	35.0	25.40	4
	1.5"	40	205	146.0	73.0	44.5	31.75	4
	2"	50	235	171.4	92.1	50.9	28.58	8
	2.5"	65	265	196.8	104.8	57.2	31.75	8
	3"	80	305	228.6	127.0	66.7	34.93	8
	4"	100	355	273.0	157.2	76.2	41.28	8
	5"	125	420	323.8	185.7	92.1	47.93	8
	6"	150	485	368.3	215.9	108.0	53.98	8
	8"	200	550	438.2	269.9	127.0	53.98	12
	10"	250	675	539.8	323.8	165.0	66.68	12
12"	300	760	619.1	381.0	184.2	73.03	12	

FLANGES DIMENSIONS AS PER ASME B 16.5 RTJ

TOLERANCE

- E (Depth) : +0.4, -0.0mm
- F (Width) : ± 0.20mm
- P (Pitch dia) : ± 0.13 mm
- R (Radius at bottom) :
 $R \leq 2 = +0.8, -0.0\text{mm}$ & $R \geq 2 = \pm 0.8\text{mm}$ • 23 deg. (angle) : ± 1/2 deg.



CLASS	NOMINAL		RING NO.	K	P	E	F	R
	NPS	DN						
150	1"	25	15	63.5	47.6	6.4	8.74	0.8
	1.5"	40	19	82.5	65.1	6.4	8.74	0.8
	2"	50	22	102.0	82.6	6.4	8.74	0.8
	2.5"	65	25	121.0	101.6	6.4	8.74	0.8
	3"	80	29	133.0	114.3	6.4	8.74	0.8
	4"	100	36	171.0	149.2	6.4	8.74	0.8
	5"	125	40	194.0	171.5	6.4	8.74	0.8
	6"	150	43	219.0	193.7	6.4	8.74	0.8
	8"	200	48	273.0	247.7	6.4	8.74	0.8
	10"	250	52	330.0	304.8	6.4	8.74	0.8
	12"	300	56	406.0	381.0	6.4	8.74	0.8
	14"	350	59	425.0	369.9	6.4	8.74	0.8
	16"	400	64	483.0	454.0	6.4	8.74	0.8
	18"	450	68	546.0	517.5	6.4	8.74	0.8
20"	500	72	597.0	558.8	6.4	8.74	0.8	
24"	600	76	711.0	673.1	6.4	8.74	0.8	
600	1"	25	16	70	50.8	6.4	8.7	0.8
	1.5"	40	20	90.5	68.3	6.4	8.7	0.8
	2"	50	23	108	82.6	7.9	11.9	0.8
	2.5"	65	26	127	101.6	7.9	11.9	0.8
	3"	80	31	146	123.8	7.9	11.9	0.8
	4"	100	37	175	149.2	7.9	11.9	0.8
	5"	125	41	210	181.0	7.9	11.9	0.8
	6"	150	45	241	211.1	7.9	11.9	0.8
	8"	200	49	302	269.9	7.9	11.9	0.8
	10"	250	53	356	323.9	7.9	11.9	0.8
	12"	300	57	413	381.0	7.9	11.9	0.8
	14"	350	61	457	419.1	7.9	11.9	0.8
	16"	400	65	508	469.9	7.9	11.9	0.8
	18"	450	69	575	533.4	7.9	11.9	0.8
20"	500	73	635	584.2	9.5	13.5	1.5	
24"	600	77	749	692.2	11.1	16.7	1.5	
1500	1"	25	16	71.5	50.8	6.4	8.74	0.8
	1.5"	40	20	92.0	68.3	6.4	8.74	0.8
	2"	50	24	124.0	95.3	7.9	11.91	0.8
	2.5"	65	27	137.0	108.0	7.9	11.91	0.8
	3"	80	35	168.0	136.5	7.9	11.91	0.8
	4"	100	39	194.0	161.9	7.9	11.91	0.8
	5"	125	44	229.0	193.7	7.9	11.91	0.8
	6"	150	46	248.0	211.1	9.5	13.49	1.5
	8"	200	50	318.0	269.9	11.1	16.66	1.5
	10"	250	54	371.0	323.9	11.1	16.66	1.5
	12"	300	58	438.0	381.0	14.3	23.01	1.5

CLASS	NOMINAL		RING NO.	K	P	E	F	R
	NPS	DN						
330	1"	25	16	70.0	50.8	6.4	8.74	0.8
	1.5"	40	20	90.5	68.3	6.4	8.74	0.8
	2"	50	23	108.0	82.6	7.9	11.91	0.8
	2.5"	65	26	127.0	101.6	7.9	11.91	0.8
	3"	80	31	146.0	123.8	7.9	11.91	0.8
	4"	100	37	175.0	149.2	7.9	11.91	0.8
	5"	125	41	210.0	181.0	7.9	11.91	0.8
	6"	150	45	241.0	211.0	7.9	11.91	0.8
	8"	200	49	302.0	269.9	7.9	11.91	0.8
	10"	250	53	356.0	323.9	7.9	11.91	0.8
	12"	300	57	413.0	381.0	7.9	11.91	0.8
	14"	350	61	457.0	419.1	7.9	11.91	0.8
	16"	400	65	508.0	469.9	7.9	11.91	0.8
	18"	450	69	575.0	533.4	7.9	11.91	0.8
20"	500	73	635.0	584.2	9.5	13.49	1.5	
24"	600	77	749.0	692.2	11.1	16.66	1.5	
900	1"	25	16	71.5	50.8	6.4	8.7	0.8
	1.5"	40	20	92	68.3	6.4	8.7	0.8
	2"	50	24	124	95.3	7.9	11.9	0.8
	2.5"	65	27	137	108.0	7.9	11.9	0.8
	3"	80	31	156	123.8	7.9	11.9	0.8
	4"	100	37	181	149.2	7.9	11.9	0.8
	5"	125	41	216	181.0	7.9	11.9	0.8
	6"	150	45	241	211.1	7.9	11.9	0.8
	8"	200	49	308	269.9	7.9	11.9	0.8
	10"	250	53	362	323.9	7.9	11.9	0.8
	12"	300	57	419	381.0	7.9	11.9	0.8
	14"	350	62	467	419.1	11.1	16.7	1.5
	16"	400	66	521	469.9	11.1	16.7	1.5
	18"	450	70	594	533.4	12.7	19.8	1.5
20"	500	74	648	584.2	12.7	19.8	1.5	
24"	600	78	772	692.2	15.9	27.0	2.4	
2500	1"	25	18	82.5	60.3	6.4	8.74	0.8
	1.5"	40	23	114.0	82.6	7.9	11.91	0.8
	2"	50	26	133.0	101.6	7.9	11.91	0.8
	2.5"	65	28	149.0	111.1	9.5	13.49	1.5
	3"	80	32	168.0	127.0	9.5	13.49	1.5
	4"	100	38	203.0	157.2	11.1	16.66	1.5
	5"	125	42	241.0	190.5	12.7	19.84	1.5
	6"	150	47	279.0	228.6	12.7	19.84	1.5
	8"	200	51	340.0	279.4	14.3	23.01	1.5
	10"	250	55	425.0	342.9	17.5	30.18	2.4
	12"	300	60	495.0	406.4	17.5	33.32	2.4

BUTT WELDING ENDS AS PER ASME B 16.25



Nominal Pipe Size	Schedule No.	Wrought or Fabricated Component O. D. A. (mm)	Cast Component O. D. A. (mm)	Nominal Inside Diameter B (mm)	Nominal Wall Thickness T (mm)
2.5"	30	73	75	63.5	4.78
	40	73	75	62.5	5.16
	80	73	75	59	7.01
	160	73	75	54	9.53
3"	xxs	73	75	45	14.02
	30	88.9	91	79.5	4.78
	40	88.9	91	78	5.49
	80	88.9	91	73.5	7.62
3.5"	160	88.9	91	66.5	11.13
	xxs	88.9	91	58.5	15.24
	30	101.6	105	92	4.78
	40	101.6	105	90	5.74
4"	80	101.6	105	85.5	8.08
	30	114.3	117	104.5	4.78
	40	114.3	117	102	6.02
	80	114.3	117	97	8.56
5"	120	114.3	117	92	11.13
	160	114.3	117	87.5	13.49
	xxs	114.3	117	80	17.12
	40	141.3	144	128	6.55
6"	80	141.3	144	122	9.53
	120	141.3	144	116	12.7
	160	141.3	144	109.5	15.88
	xxs	141.3	144	103	19.05
8"	40	168.3	172	154	7.11
	80	168.3	172	146.5	10.97
	120	168.3	172	140	14.27
	160	168.3	172	132	18.26
10"	xxs	168.3	172	124.5	21.95
	20	219.1	223	206.5	6.35
	30	219.1	223	205	7.04
	40	219.1	223	203	8.18
12"	60	219.1	223	198.5	10.31
	80	219.1	223	193.5	12.7
	100	219.1	223	189	15.09
	120	219.1	223	182.5	18.26
14"	140	219.1	223	178	20.62
	xxs	219.1	223	174.5	22.23
	160	219.1	223	173	23.01
	20	273	278	260.5	6.35
16"	30	273	278	257.5	7.8
	40	273	278	254.5	9.27
	60	273	278	247.5	12.7
	80	273	278	243	15.09
18"	100	273	278	236.5	18.26
	120	273	278	230	21.44
	140	273	278	222	25.4
	160	273	278	216	28.58
20"	20	323.8	329	311	6.35
	30	323.8	329	307	8.38
	std	323.8	329	305	9.53
	40	323.8	329	303	10.31
22"	xs	323.8	329	298.5	12.7
	60	323.8	329	295	14.27
	80	323.8	329	289	17.48
	100	323.8	329	281	21.44
24"	120	323.8	329	273	25.4
	140	323.8	329	266.5	28.58
	160	323.8	329	257	33.32
	20	355.6	362	340	7.92
26"	std	355.6	362	336.5	9.53
	40	355.6	362	333.5	11.13
	xs	355.6	362	330	12.7
	60	355.6	362	325.5	15.09
28"	80	355.6	362	317.5	19.05
	100	355.6	362	308	23.83
	120	355.6	362	300	27.79
	140	355.6	362	292	31.75
30"	160	355.6	362	284	35.71
	20	406.4	413	390.5	7.92
	std	406.4	413	387.5	9.53
	40	406.4	413	381	12.7
32"	60	406.4	413	373	16.66
	80	406.4	413	363.5	21.44
	100	406.4	413	354	26.19
	120	406.4	413	344.5	30.96
34"	140	406.4	413	333.5	36.53
	160	406.4	413	325.5	40.49

Nominal Pipe Size	Schedule No.	Wrought or Fabricated Component O. D. A. (mm)	Cast Component O. D. A. (mm)	Nominal Inside Diameter B (mm)	Nominal Wall Thickness T (mm)	
18"	20	457.2	464	441.5	7.92	
	30	457.2	464	435	11.13	
	STD	457.2	464	438	9.53	
	XS	457.2	464	432	12.7	
20"	40	457.2	464	428.5	14.27	
	60	457.2	464	419	19.5	
	80	457.2	464	409.5	23.83	
	100	457.2	464	398.5	29.36	
22"	120	457.2	464	387.5	34.93	
	140	457.2	464	378	39.67	
	160	457.2	464	366.5	45.24	
	STD	508	516	489	9.53	
24"	XS	508	516	482.5	12.7	
	40	508	516	478	15.09	
	60	508	516	467	20.62	
	80	508	516	455.5	26.19	
26"	100	508	516	443	32.54	
	120	508	516	432	38.1	
	140	508	516	419	44.45	
	160	508	516	408	50.01	
28"	STD	555.8	567	539	9.53	
	XS	555.8	567	533	12.7	
	60	555.8	567	514	22.23	
	80	555.8	567	501	28.58	
30"	100	555.8	567	488.5	31.93	
	120	555.8	567	476	41.28	
	140	555.8	567	463	47.63	
	160	555.8	567	450.5	53.98	
32"	STD	609.6	619	590.5	9.53	
	XS	609.6	619	584	12.7	
	30	609.6	619	581	14.27	
	40	609.6	619	574.5	17.48	
34"	60	609.6	619	560.5	24.61	
	80	609.6	619	547.5	30.96	
	100	609.6	619	532	38.89	
	120	609.6	619	517.5	46.02	
36"	140	609.6	619	505	52.37	
	160	609.6	619	490.5	59.54	
	10	660.4	670	645.5	7.92	
	STD	660.4	670	641.34	9.53	
38"	20	660.4	670	635	12.7	
	10	711.2	721	695.5	7.92	
	STD	711.2	721	692.14	9.53	
	20	711.2	721	686	12.7	
40"	30	711.2	721	679.5	15.88	
	10	762	772	746	7.92	
	STD	762	772	742.94	9.53	
	20	762	772	736.5	12.7	
42"	30	762	772	730	15.88	
	10	812.8	825	797	7.92	
	STD	812.8	825	793.74	9.53	
	20	812.8	825	787.5	12.7	
44"	30	812.8	825	781	15.88	
	40	812.8	825	778	17.48	
	10	863.6	876	848	7.92	
	STD	863.6	876	844.54	9.53	
46"	20	863.6	876	838	12.7	
	30	863.6	876	832	15.88	
	40	863.6	876	828.5	17.48	
	10	914.4	927	898.5	7.92	
48"	STD	914.4	927	895.34	9.53	
	20	914.4	927	889	12.7	
	30	914.4	927	882.5	15.88	
	40	914.4	927	876.5	19.05	
50"	STD	965.2	978	946	9.53	
	XS	965.2	978	940	12.7	
	40"	STD	1016	1029	997	9.53
	XS	1016	1029	990.5	12.7	
52"	42"	STD	1066.8	1079	1047.5	9.53
	XS	1066.8	1079	1041.5	12.7	
	44"	STD	1117.6	1130	1098.5	9.53
	XS	1117.6	1130	1092	12.7	
54"	46"	STD	1168.4	1181	1149.5	9.53
	XS	1168.4	1181	1143	12.7	
	48"	STD	1219.2	1232	1200	9.53
	XS	1219.2	1232	1194	12.7	

CORROSIVE	CAST IRON	CARBON STEEL	BRONZE	SS F 304	SS F 316	SS 12% Cr.	Monet
Acetic Acid - Pure	C	C	C	B	A	A	A
Acetic Acid - 10%	C	C	C	B	A	A	A
Acetic Anhydride	C	C	C	B	B	B	B
Alcohol methyl (Methanol)	B	B	B	A	A	A	A
Alcohol Methyl 1500F	B	B	B	B	A	B	B
Ammonia - Conc % Aq.sol	A	A	D	A	A	A	B
Ammonia - Gas	A	A	D	A	A	A	B
Ammonium Chloride - still	D	D	D	B	A	C	A
Ammonium Sulphate 1% & 5% Agit. & Aer.	C	C	C	B	A	C	B
Ammonium - Saturated	C	C	C	C	A	C	B
Amyl Acetate	C	C	B	B	B	C	B
Aniline	C	C	C	B	B	C	B
Arsemoc Acid - 1500f	D	D	D	B	B	C	D
Asphalt	B	B	A	A	A	A	A
Barium chloride - sat	C	C	C	A	A	C	B
Barium - Aqueous sol	C	C	C	B	A	C	B
Benzoic acid	D	D	B	A	A	C	B
Benzol	B	B	A	A	A	A	A
Boric acid	D	D	B	A	A	B	A
Butane Gas	B	B	A	B	B	B	B
Butyric Acid	D	D	C	A	A	A	B
calcium Bisulphate	D	D	D	B	A	C	D
calcium carbonate	D	D	C	B	A	C	A
Calcium chloride	C	C	B	C	B	C	A
Calcium hydrochloride	D	D	D	C	C	D	D
Carbonic acid	B	B	B	A	A	A	B
Chlorine - dry gas	D	D	D	B	A	C	A
Chromic acid	B	B	C	B	B	B	B
Chlorine - moist	D	D	D	D	D	D	C
Chromic acid	C	C	D	B	A	C	B
Citric acid - 5% - still	D	D	C	A	A	A	A
Citric acid -sat	D	D	C	B	A	B	A
Copper nitrate	D	D	D	A	A	A	C
Copper Sulphate	D	D	D	A	A	A	B
Creosote -crude	A	A	C	A	A	A	A
Dowtherms	B	B	A	A	A	A	A
Ethers	B	A	B	A	A	B	D
Ethyl Alcohol	B	B	B	A	A	B	B
Ethylene Glycol	A	A	A	A	A	A	A
Ferric Sulphate	D	D	D	D	D	D	D
Ferrous Chloride	D	D	D	B	A	C	D
Ferrous chloride	D	D	D	D	D	D	C
Ferrous Sulphate	D	D	B	B	B	B	B
Fluorine	D	D	D	D	D	D	D
Formaldehyde -Cold	B	A	A	A	A	A	A
Formic acid	D	D	B	C	A	C	B
Furfural	B	A	A	A	A	A	A
Gasoline sour	B	B	C	A	A	B	B
Gasoline refined	B	A	A	A	A	A	A
Gelatine	D	D	B	B	A	C	A
Glucose	B	B	S	A	B	B	A
Glue - dry	D	A	A	A	A	A	A
Glycerine	B	B	B	A	A	A	A
Hydrochloric acid (muriatic)	D	D	D	D	D	D	C
Hydrocyanic acid	C	C	D	A	D	D	B
Hydrofluoric acid	D	D	C	D	A	D	B
Hydrogen - Gas	B	B	B	A	A	A	A
Hydrogen peroxide	C	C	D	A	A	B	B
Hydrogen sulphate - wet	B	B	D	A	A	B	C
Iodine - dry - wet	C	C	D	A	A	B	D
Kerosene	D	D	D	D	D	D	D
Laquer solvents	B	B	A	A	A	A	A
Lactic acid - 1%	B	B	B	A	A	B	B
Lactic acid - 5%	D	D	D	A	A	B	B
Lactic acid - 5% boiling	D	D	D	A	A	B	C
Lactic acid - 10% - 1500F	D	D	D	A	B	D	C
Lactic acid - Cone - 700 F	D	D	D	B	C	D	D
Lime sulphur	D	D	D	B	C	D	D
Linseed oil	A	A	D	A	A	A	D
Lubricating Oil - Sour	A	A	B	B	B	B	B
Water (fresh)	C	C	D	A	A	B	B
Water distilled (Labour grade)	C	C	A	A	A	A	C
Water distilled (Return cond.)	D	D	C	A	A	D	A

CORROSIVE	CAST IRON	CARBON STEEL	BRONZE	SS F 304	SS F 316	SS 12% Cr.	Monet
Lubrication oil - Refined	A	A	B	A	A	A	B
Magnesium chloride	C	C	B	B	B	B	B
Magnesium Hydroxide	C	C	C	A	A	B	A
Magnesium Sulphate	C	B	B	B	B	C	B
Mercuric chloride	D	D	D	D	C	D	C
Mercury	A	A	D	A	A	A	B
Methane Gas	B	B	A	B	B	B	B
Methylethylketone	A	A	A	A	A	A	A
Milk (fresh / Sour)	D	D	B	A	A	B	A
Naphtha (crude or pure)	B	B	B	A	A	B	B
Natural Gas	B	B	B	A	A	A	A
Nickel chloride	D	D	D	B	B	C	B
Nickel Sulphate	D	D	B	B	B	D	B
Nitric acid - crude	D	D	D	C	B	D	D
Nitric acid -5% + 50%	D	D	D	A	A	A	D
Nitric acid - conc. 700f	D	D	D	A	A	A	D
Nitric acid - conc. Boiling	D	D	D	C	B	D	D
Nitric acid - fuming conc. 1100f	D	D	D	A	A	B	D
Nitric acid - fuming boiling	D	D	D	D	D	D	D
Nitrobenzene	B	B	D	B	A	B	B
Oils - miner & veg	B	B	B	A	A	B	B
Oxalic acid - 10% - 700F	D	D	B	D	C	D	D
Oxalic acid - 10% - Boiling	D	D	B	D	C	D	D
Oxygen	B	B	A	A	A	A	A
Petroleum oils - crude	B	B	C	A	A	A	A
Phosphoric acid - crude	C	C	D	D	D	D	D
Phosphoric acid 5% & boiling	D	D	D	A	A	B	C
Phosphoric acid 10% still	D	D	D	B	A	C	C
Phosphoric acid 10% agifated	D	D	D	C	D	D	D
Phosphoric acid 10% Aer - Boil	D	D	D	D	A	D	D
Picric acid	C	C	D	A	A	C	C
Potassium chloride	B	B	B	C	C	B	B
Potassium cyanide	B	B	D	A	A	B	B
Potassium Hydroxide - 5%- still	A	A	D	A	A	A	A
Potassium Hydroxide - 50% - Boil	B	A	D	A	A	A	A
Potassium Nitrate	B	B	B	A	A	A	B
Propane Gas	B	B	A	A	A	A	A
Sea water	D	D	B	B	A	D	A
Soap Solution	B	A	A	A	A	A	A
Sodium bicarbonate	C	C	B	A	A	A	B
Sodium Bicarbonate - 5% + 50%	B	B	B	A	A	A	B
Sodium chloride	C	C	B	B	A	C	A
Sodium cyanide	B	B	D	B	B	A	B
Sodium Hydroxide	B	C	B	B	A	C	A
Sodium Hypochlorite	D	D	D	C	B	D	C
Sodium nitrate	B	B	B	B	A	B	B
Sodium Phosphate (di-basic)	C	C	C	B	B	C	B
Sodium Phosphate (Tri-Basic)	B	B	D	B	B	C	B
Sodium Sulphate	B	B	B	B	A	B	A
SodiumSulphide	B	B	D	B	A	B	A
Steam	A	A	C	A	A	A	A
Stearic acid - corc.	C	C	C	A	A	C	B
Sulphur - 5000F - Molten	C	C	D	A	A	B	B
Sulphur dioxide	B	B	B	A	A	B	A
Sulphuric acid - 10%	D	D	C	C	B	D	A
Sulphuric acid - 50% + 700F	B	B	A	A	A	B	A
Sulphuric Acid - 50% Boil	D	D	D	D	D	D	C
Sulphuric acid conc. 700F	B	B	A	A	A	B	A
Sulphuric acid- 3000F	D	D	C	D	D	D	C
Sulphuric acid - Fuming	D	D	C	C	B	D	C
Sulphuric acid sat.	D	D	C	C	B	D	C
Sulphuric acid - spray	D	D	D	C	C	D	D
Tannic acid - 10%	C	C	B	A	A	C	B
Tannic acid - 10% - Boil	D	D	C	C	C	D	C
Tar	A	A	A	A	A	A	A
Tartaric acid - 700F	D	D	B	A	A	C	A
Tannic acid - 1500F	D	D	B	B	A	D	B
Trichloroethylene	C	C	B	B	B	C	A
Turpentine	B	B	B	A	A	B	A
Tomato juice	C	C	C	A	A	B	A
Vinegar	D	D	B	A	A	A	A
Zinc chloride	C	D	D	D	D	C	B
Zinc sulphate	D	D	B	B	B	C	B

A : GOOD RESISTANCE • B : SATISFACTORY • C : POOR • D : NOT RECOMMEND

ASME B 16.34 & API 602 FOR 800# (MAXIMUM ALLOWABLE NON - SHOCK PRESSURE IN BAR)

A 105(1)(2)

TEMP C	WORKING PRESSURE BY GLASS, BAR						
	150	150	600	800	900	1500	2500
- 29 to 38	19.6	51.1	102.1	136.2	153.2	255.3	425.5
50	19.2	50.1	100.2	133.7	150.4	250.6	417.7
100	17.7	46.6	93.2	124.3	139.8	233	388.3
150	15.8	45.1	90.2	120.2	135.2	225.4	375.6
200	13.8	43.8	87.6	116.8	131.4	219	365
250	12.1	41.9	83.9	111.8	125.8	209.7	349.5
300	10.2	39.8	79.6	106.2	119.5	199.1	331.8
325	9.3	38.7	77.4	103.2	116.1	193.6	322.6
350	8.4	37.6	75.1	100.2	112.7	187.8	313
375	7.4	36.4	72.7	97	109.1	181.8	303.1
400	6.5	34.7	69.4	92.6	104.2	173.6	289.3
425	5.5	28.8	57.5	76.7	86.3	143.8	239.7
450	4.6	23	46	61.3	69	115	191.7
475	3.7	17.4	34.9	46.5	52.3	87.2	145.3

TEMP C	WORKING PRESSURE BY GLASS, BAR						
	150	150	600	800	900	1500	2500
- 29 to 38	18.4	48	96	-	144.1	240.1	400.1
50	18.2	47.5	94.9	-	142.4	237.3	395.6
100	17.4	45.3	90.7	-	136	226.7	377.8
150	15.8	43.9	87.9	-	131.8	219.7	366.1
200	13.8	42.5	85.1	-	127.6	212.7	354.4
250	12.1	40.8	81.6	-	122.3	203.9	339.8
300	10.2	38.7	77.4	-	116.1	193.4	322.4
325	9.3	37.6	75.2	-	112.7	187.9	313.1
350	8.4	36.4	72.8	-	109.2	182	303.3
375	7.4	35	69.9	-	104.9	174.9	291.4
400	6.5	32.6	65.2	-	97.9	163.1	271.9
425	5.5	27.3	54.6	-	81.9	13.5	227.5
450	4.6	21.6	43.2	-	64.8	107.9	179.9
475	3.7	15.7	31.3	-	47	78.3	130.6

Note :

1. Upon Prolonged exposure to temperatures above 425°C, the carbide phase of steel may be converted to the graphite.
Permissible, but not recommended for prolonged usage above 425°C
2. Only killed steel shall be used above 455°C
3. Not to be used over 345°C
4. Upon Prolonged exposure to temperatures above 470°C, the carbide phase of steel of carbon -molybdenum steel may be converted to graphite.
Permissible, but not recommended for prolonged usage above 470°C
5. Use normalized and tempered material only.
6. The deliberate addition of any element not listed in ASTM A 217, Table 1 is prohibited , except that ca and Mg may be added for deoxidation.

A217 Gr.WC6(1)(3)(4)

A 182Gr. F11Cl.2(1)(2)

TEMP C	WORKING PRESSURE BY GLASS, BAR						
	150	600	800	900	1500	2500	
- 29 to 38	19.8	51.7	103.4	137.9	155.1	258.6	430.9
50	19.5	51.7	103.4	137.9	155.1	258.6	430.9
100	17.7	51.5	103	137.3	154.4	257.4	429
150	15.8	49.7	99.5	132.6	149.2	248.7	414.5
200	13.8	48	95.9	127.9	143.9	239.8	399.6
250	12.1	46.3	92.7	123.6	139	231.8	386.2
300	10.2	42.9	85.7	114.3	128.6	214.4	357.1
325	9.3	41.4	82.6	110.2	124	206.6	344.3
350	8.4	40.3	8.4	107.3	120.7	201.1	335.3
375	7.4	38.9	77.6	103.5	116.5	194.1	323.2
400	6.5	36.5	73.3	97.6	109.8	183.1	304.9
425	5.5	35.2	70	93.4	105.1	175.1	291.6
450	4.6	33.7	67.7	90.2	101.4	169	281.8
475	3.7	31.7	63.4	84.5	95.1	158.2	263.9
500	2.8	25.7	51.5	68.6	77.2	128.6	214.4
538	1.4	14.9	29.8	39.7	44.7	74.5	124.1
550	1.4	12.7	25.4	33.9	38.1	63.5	105.9
575	1.4	8.8	17.6	23.5	26.4	44	73.4
600	1.4	6.1	12.2	16.3	18.3	30.5	50.9

A217 Gr.WC9(2)(4)

A 182Gr. F22Cl.3(1)

TEMP C	WORKING PRESSURE BY GLASS, BAR						
	150	600	800	900	1500	2500	
- 29 to 38	19.8	51.7	103.4	137.9	155.1	258.6	430.9
50	19.5	51.7	103.4	137.9	155.1	258.6	430.9
100	17.7	51.5	103	137.4	154.6	257.6	429.4
150	15.8	50.3	100.3	133.8	150.6	250.8	418.2
200	13.8	48.6	97.2	129.6	145.8	243.4	405.4
250	12.1	46.3	92.7	123.6	139	231.8	386.2
300	10.2	42.9	85.7	114.3	128.6	214.4	357.1
325	9.3	41.4	82.6	110.2	124	206.6	344.3
350	8.4	40.3	80.4	107.3	120.7	201.1	335.3
375	7.4	38.9	77.6	103.5	116.5	194.1	323.2
400	6.5	36.5	73.3	97.6	109.8	183.1	304.9
425	5.5	35.2	70	93.4	105.1	175.1	291.6
450	4.6	33.7	67.7	90.2	101.4	169	281.8
475	3.7	31.7	63.4	84.5	95.1	158.2	263.9
500	2.8	28.2	56.5	75.3	84.7	140.9	235
538	1.4	18.4	36.9	49.2	55.3	92.2	153.7
550	1.4	15.6	31.3	41.7	46.9	78.2	130.3
572	1.4	10.5	21.1	28.1	31.6	52.6	87.7
600	1.4	6.9	13.8	18.4	20.7	34.4	57.4

Note :

1. Use normalized and tempered material only.
2. Permissible, But not recommended for Prolonged use above 595 C.
3. Not to be used over 595 C
4. The deliberate addition of any element not listed in ASTM A 217, Table 1 is prohibited , except that Ca and Mg may be added for deoxidation

A 217 Gr. C5 (1) (2)

A 182 Gr. F5a

TEMP °C	WORKING PRESSURE BY CLASS, BAR						
	150	300	600	800	900	1500	2500
-29 to 38	20	51.7	103.4	137.9	155.1	258.6	430.9
50	19.5	51.7	103.4	137.9	155.1	258.6	430.9
100	17.7	51.5	103	137.4	154.6	257.6	429.4
150	15.8	50.3	100.3	133.8	150.6	250.8	418.2
200	13.8	48.6	97.2	129.6	145.8	243.4	405.4
250	12.1	46.3	92.7	123.6	139	231.8	386.2
300	10.2	42.9	85.7	114.3	128.6	214.4	357.1
325	9.3	41.4	82.6	110.2	124	206.6	344.3
350	8.4	40.3	80.4	107.3	120.7	201.1	335.3
375	7.4	38.9	77.6	103.5	116.5	194.1	323.2
400	6.5	36.5	73.3	97.6	109.8	183.1	304.9
425	5.5	35.2	70	93.4	105.1	175.1	291.6
450	4.6	33.7	67.7	90.2	101.4	169	281.8
475	3.7	27.9	55.7	74.3	83.6	139.3	232.1
500	2.8	21.4	42.8	57	64.1	106.9	178.2
538	1.4	13.7	27.4	36.5	41.1	68.6	114.3
550	1.4	12	24.1	32.1	36.1	60.2	100.4
575	1.4	8.9	17.8	21.7	26.7	44.4	74
600	1.4	6.2	12.5	16.6	18.7	31.2	51.9

Note : 1 Use normalized and tempered material only

2. The deliberate addition of any element not listed in ASTM A 217, Table 1 is prohibited, except that Ca and Mg may be added for deoxidation.

A 217 Gr. C12(1)(2)

A 182 Gr. F9

TEMP °C	WORKING PRESSURE BY CLASS, BAR						
	150	300	600	800	900	1500	2500
-29to38	19.8	51.7	103.4	137.9	155.1	258.6	430.9
50	19.5	51.7	103.4	137.9	155.1	258.6	430.9
100	17.7	51.5	103	137.4	154.6	257.6	429.4
150	15.8	50.3	100.3	133.8	150.6	250.8	418.2
200	13.8	48.6	97.2	129.6	145.8	243.4	405.4
250	12.1	46.3	92.7	123.6	139	231.8	386.2
300	10.2	42.9	85.7	114.3	128.6	214.4	357.1
325	9.3	41.4	82.6	110.2	124	206.6	344.3
350	8.4	40.3	80.4	107.3	120.7	201.1	335.3
375	7.4	38.9	77.6	103.5	116.5	194.1	323.2
400	6.5	36.5	73.3	97.6	109.8	183.1	304.9
425	5.5	35.2	70	93.4	105.1	175.1	291.6
450	4.6	33.7	67.7	90.2	101.4	169	281.8
475	3.7	31.7	63.4	84.5	95.1	158.2	263.9
500	2.8	28.2	56.5	75.3	84.7	140.9	235
538	1.4	17.5	35	46.7	52.5	87.5	145.8
550	1.4	15	30	40	45	75	125
575	1.4	10.5	20.9	27.9	31.4	52.3	87.1
600	1.4	7.2	14.4	19.1	21.5	35.9	59.8

A 315 Gr. CF8 (1)

A 182 Gr. F304 (1)

TEMP °C	WORKING PRESSURE BY CLASS, BAR						
	150	300	600	800	900	1500	2500
-29to38	19	49.6	99.3	132.4	148.9	248.2	413.7
50	18.3	47.8	95.6	127.5	143.5	239.1	398.5
100	15.7	40.9	81.7	109	122.6	204.3	340.4
150	14.2	37	74	98.7	111	185	308.4
200	13.2	34.5	69	91.9	103.4	172.4	287.3
250	12.1	32.5	65	86.7	97.5	162.4	270.7
300	10.2	30.9	61.8	82.4	92.7	154.6	257.6
325	9.3	30.2	60.4	80.6	90.7	151.1	251.9
350	8.4	29.6	59.3	79	88.9	148.1	246.9
375	7.4	29	58.1	77.4	87.1	145.2	241.9
400	6.5	28.4	56.9	75.8	85.3	142.2	237
425	5.5	28	56	74.7	84	10	233.3
450	4.6	27.4	54.8	73.1	82.2	137	228.4
475	3.7	26.9	53.9	71.8	80.8	134.7	224.5
500	2.8	26.5	53	70.7	79.5	132.4	220.7
538	1.4	24.4	48.9	65.2	73.3	122.1	203.6
550	1.4	23.6	47.1	62.8	70.7	117.8	196.3
575	1.4	20.8	41.7	55.6	62.5	104.2	137.7
600	1.4	16.9	33.8	45	50.6	84.4	140.7

Note : At Temperatures above 538°C, use only when the carbon content is 0.04 or higher.

A 315 Gr. CF8 (1)

A 182 Gr. F316 (1)

TEMP °C	WORKING PRESSURE BY CLASS, BAR						
	150	300	600	800	900	1500	2500
-29to38	19	49.6	99.3	132.4	148.9	248.2	413.7
50	18.4	48.1	96.2	128.3	144.3	240.6	400.9
100	16.2	42.2	84.4	112.5	126.6	211	351.6
150	14.8	38.5	77	102.7	115.5	192.5	320.8
200	13.7	35.7	71.3	95.1	107	178.3	297.2
250	12.1	33.4	66.8	89	100.1	166.9	278.1
300	10.2	31.6	63.2	84.3	94.9	158.1	263.5
325	9.3	30.9	61.8	82.4	92.7	154.4	257.4
350	8.4	30.3	60.7	80.9	91	151.6	252.7
375	7.4	29.9	59.8	79.7	89.6	149.4	249
400	6.5	29.4	59.9	78.5	88.3	147.2	245.3
425	5.5	29.1	58.3	77.7	87.4	145.7	242.9
450	4.6	28.8	57.7	76.9	86.5	144.2	240.4
475	3.7	28.7	57.3	76.4	86	143.4	238.9
500	2.8	28.2	56.5	75.3	84.7	140.9	235
538	1.4	25.2	50	66.8	75.2	125.5	208.9
550	1.4	25	49.8	66.5	74.8	124.9	208
575	1.4	24	47.9	63.8	71.8	119.7	199.5
600	1.4	19.9	39.8	53.1	59.7	99.5	165.9

A 182 F304L (1)

A 182 Gr. F316L (1)

Temp C	WORKING PRESSURE BY CLASS, BAR						
	150	300	600	800	900	1500	2500
-29 TO 38	15.9	41.4	82.7	132.4	124.1	206.8	344.7
50	15.3	40	80	127.5	120.1	200.1	333.5
100	13.3	34.8	69.6	109	104.4	173.9	289.9
150	12.0	31.4	62.8	98.7	94.2	157	261.6
200	11.2	29.2	58.3	91.9	87.5	145.8	243
250	10.5	27.5	54.9	86.7	82.4	137.3	228.9
300	10.0	26.1	52.1	82.4	78.2	130.3	217.2
325	9.3	25.5	51	80.6	76.4	127.4	212.3
350	8.4	25.1	50.1	79	75.2	125.4	208.9
375	7.4	24.8	49.5	77.4	74.3	123.8	206.3
400	6.5	24.3	48.6	75.8	72.9	121.5	202.5
425	5.5	23.9	47.7	74.7	71.6	119.3	198.8
450	4.6	23.4	46.8	73.1	70.2	117.1	195.1

Note : Not to be used over 425°C

TEMP °C	WORKING PRESSURE BY CLASS, BAR 800, BAR	
	A182 Gr. F304L & F 316L	A182 Gr. F21
-29 to 38	110.3	132.4
50	106.7	129.5
100	92.8	18
150	83.7	109.3
200	77.8	102.1
250	73.2	96.1
300	69.5	91
325	67.9	88.8
350	66.8	86.9
375	66	85.4
400	64.8	84.3
425	63.6	83
450	62.4	82.2
500	-	81.4
538	-	75.3

Note : Not to be used over 538°C

MATERIALS CHARACTERISTIC

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
ASTM Specification		CHEMICAL REQUIREMENTS										TENSILE REQUIREMENTS					
		C	Mn	Si	P	S	Cr	Ni	Mo	Cu	V	Tensile	Yield	Elongation	Reduction of Area %	Hardness	
		Carbon	Manganese	Silicon	Phosphorus	Sulphur	Chromium	Nickel	Molybdenum	Copper	Vanadium	Mpa	Mpa	%		HB	
																	MAX
CARBON STEEL	A 216 - WCA	0.25	0.70	0.60	0.040	0.045	0.50	0.50	0.20	0.30	0.03	415-585	205	24	35	-	
	A 216 - WCB	0.30	1.00	0.60	0.040	0.045	0.50	0.50	0.20	0.30	0.03	485-655	250	22	35	-	
	A 216 - WCC	0.25	1.20	0.60	0.040	0.045	0.50	0.50	0.20	0.30	0.03	485-655	275	22	35	-	
CAST STEEL																	
CHROME MOLYBDENUM STEEL	A 217-WC1	0.25	0.50-0.80	0.60	0.040	0.045	0.35	0.045-0.65	0.45-0.65	0.50	-	450-620	240	24	35	-	
	A 217-WC 6	0.60-0.20	0.50-0.80	0.60	0.040	0.045	1.00-1.50	0.50	0.45-0.65	0.50	-	485-655	295	20	35	-	
	A 217 - WC 9	0.06-0.18	0.40-0.70	0.60	0.040	0.045	2.00-2.25	0.50	0.90-1.20	0.50	-	485-655	295	20	35	-	
	A 217 - C5	0.20	0.40-0.70	0.75	0.040	0.045	4.0-6.50	0.50	0.45-0.65	0.50	-	620-795	415	18	35	-	
	A-217 - C12	0.20	0.65-0.65	1.00	0.040	0.045	8.00-10.0	0.50	0.90-1.20	0.50	-	620-795	415	18	35	-	
CAST STEEL																	
NI-ALLOY STEEL	A 494 M-35-1	0.35	1.50	1.25	0.030	0.030	-	Allowance	-	26.0-33.0	Fe<3.50	450	170	25	-	-	
	A 494 CW - 6M	0.07	1.00	1.00	0.040	0.030	17.0 -20.0	allowance	17.0-20.0	-	Fe<3.00	495	275	25	-	-	
	A 494 CY -40	0.40	1.50	3.00	0.030	0.030	14.0-17.0	Allowance	-	-	Fe<11.0	185	195	.30	-	-	
CAST STEEL																	
STAINLESS STEEL	351-CF8	0.08	1.50	2.00	0.040	0.040	18.0-21.0	2.0-11.0	0.5	-	-	485	205	35	35	-	
	A 351-CF8M	0.08	1.50	1.50	0.040	0.040	18.0-21.0	9.0-12.0	2.0-3.0	-	-	485	205	30	30	-	
	A351-CF3	0.03	1.50	2.00	0.040	0.040	17.0-21.0	8.0-12.0	0.50	-	-	485	205	35	35	-	
	A351-CF3M	0.03	1.50	1.50	0.040	0.040	17.0-21.0	9.0-13.0	2.0-3.0	-	-	485	205	30	30	-	
	A351-CN7M	0.07	1.50	1.50	0.040	0.040	19.0-22.0	27.5-30.5	2.0-3.0	3.0-4.0	-	450	170	35	35	-	
CAST STEEL																	
CARBON STEEL	A 352 - LCB	0.30	1.00	0.60	0.040	0.045	0.50	0.50	2.00	0.30	0.03	450-650	240	24	35	-	
	A 352 - LCC	0.25	1.20	0.60	0.040	0.045	0.50	0.50	0.20	0.30	0.03	485-655	275	22	35	-	
	A 352 - LC 1	0.25	0.50-0.80	0.60	0.040	0.045	-	-	0.45-D.65	-	-	450-620	240	24	35	-	
	A 352 - LC 2	0.25	0.50-0.80	0.60	0.040	0.045	-	2.00-3.00	-	-	-	485-655	275	24	35	-	
	A 352 - LC 3	0.15	0.50-0.80	0.60	0.040	0.045	-	3.00-4.00	-	-	-	485-655	275	24	35	-	
FORGED STEEL																	
CARBON STEEL	A 105 (N)	0.35	0.60-1.05	0.35	0.040	0.50	0.30	0.40	0.12	0.40	0.03	485	250	30	30	187	
	A350-LF 1	0.30	1.35	0.15-0.30	0.035	0.040	0.30	0.40	0.12	0.40	0.03	415-585	205	25	38	-	
	A350-LF2	0.30	1.35	0.15-0.30	0.035	0.040	0.30	0.40	0.12	0.40	0.03	485-655	250	22	3	-	
	A350-LF3	0.25	1.35	0.20-0.356	0.035	0.040	0.30	3.25-3.7	0.12	0.40	0.03	485-655	260	22	35	-	
	A350 - LF9	0.20	0.40-1.06		0.035	0.040	0.30	1.50-2.24	0.12	0.75-1.25	0.03	435-605	315	25	38	-	
FORGED STEEL																	
STAINLESS STEEL	A 182-F304	0.08	2.00	1.00	0.040	0.030	18.0-20.0	8.0-11.0	-	-	-	515	205	30	50	-	
	A182-F316	0.08	2.00	1.00	0.040	0.030	16.0-18.0	10.0-14.0	2.0-3.0	-	-	151	205	30	50	-	
	A182-F304	0.03	2.00	1.00	0.045	0.030	18.0-20.0	8.0-13.0	-	-	-	485	170	30	50	-	
	A182-F316L	0.0.	2.00	1.00	0.045	0.030	16.0-18.0	10.0-15.0	2.0-3.0	-	-	485	170	30	50	-	
COMPONENT PART																	
TRIM	A276-304	0.08	2.00	1.00	0.045	0.030	18.0-20.0	8.0-10.5	-	-	-	515	205	40	50	-	
	A276-316	0.08	2.00	1.00	0.045	0.030	16.0-18.0	10.0-14.0	2.0-3.0	-	-	485	170	40	50	-	
	A276-410	0.15	1.00	1.00	0.040	0.030	12.5-13.5	-	-	-	-	480	275	20	45	-	
	A276-420	0.15	1.00	1.00	0.040	0.030	12.0-14.0	-	-	-	-	-	-	-	-	241	
	A182-F6A	0.15	1.00	1.00	0.040	0.030	11.5-13.5	0.50	-	-	-	585	380	18	35	167-229	
FASTENING PIECE																	
STUD	A193 B7	0.37-0.49	0.65-1.10	0.15-0.35	0.035	0.040	0.75-1.20	-	0.15-0.25	-	-	860	720	16	50	-	
	A193 B7M	0.37-0.49	0.65-1.10	0.15-0.35	0.035	0.040	0.75-1.20	-	0.15-0.25	-	-	690	550	18	50	235	
	A193 B8	0.08	2.00	1.00	0.045	0.030	18.0-20.0	8.0-10.50	-	-	-	515	205	30	50	223	
	A 193 BBA	0.08	2.00	1.00	0.045	0.030	18.0-20.0	8.0-10.50	-	-	-	515	205	30	50	192	
	A193 BBM	0.08	2.00	1.00	0.045	0.030	16.0-14.0	10-14.0	-	2.0-3.0	-	515	205	30	50	192	
	A320-L7	0.38-0.48	0.75-1.00	0.15-0.35	0.035	0.040	0.80-1.10	-	0.15-0.25	-	-	860	725	16	50	-	
NUT	A194-2H	>0.40	1.00	0.40	0.040	0.050	-	-	-	-	-	-	-	-	-	248-352	
	A 194-2HM	>0.40	1.00	0.40	0.040	0.050	-	-	-	-	-	-	-	-	-	159-232	
	A 194-7	0.37-0.49	0.65-1.10	0.15-0.35	0.040	0.040	0.75-1.20	-	0.15-0.25	-	-	-	-	-	-	248-352	
	A 194-8	0.08	2.00	1.00	0.045	0.030	18.0-20.0	8.0-0.25	-	-	-	-	-	-	-	126-300	
	A 194 - 8M	0.08	2.00	1.00	0.045	0.030	16.0-18.0	10.0-14.0	2.0-3.0	-	-	-	-	-	-	126-300	

METRIC CONVERSION FACTOR

MULTIPLY	BY	TO OBTAIN
LENGTH		
centimetre	0.03281	foot (ft)
centimetre	0.39370	inch
foot	0.3048	metre (m)
foot	304.8	millimetre (mm)
inch	25.4	millimetre
microinch	0.0254	micron (/m)
micron (micrometre)	39.37008	microinch
millimetre	0.039370	inch

AREA		
centimetre ²	015500	inch ²
centimetre ²	0.00108	foot ²
foot ²	0.09290	metre ² (m ²)
foot ²	929.0304	centimetre ² (cm ²)
inch ²	645s.16	millimetre ² (mm ²)
metre ²	1550.003	inch ²
metre ²	10.76391	foot ²
millimetre	0.00155	inch

VOLUME		
centimetre ³	0.06102	inch
foot ³	0.02832	metre ³ (m ³)
foot ³	28.31685	litre
gallon (U K Liquid)	4.54609	litre
gallon (U S Liquid)	3.78541	litre
inch ³	16.38706	centimetre ³ (cm ³)
litre	0.021997	gallon (U K Liquid)
litre	0.26417	gallon (U S Liquid)

VELOCITY & FLOW		
centimetre / minute	0.39307	inch / minute
foot / minute	18.288	metre/ hour
foot / minute	0.3048	metre / minute
foot / minute	28.31685	litre / minute
gallon (U S Liquid) min	3.78541	litre / minute
litre / minute	0.035315	foot/ minute
litre / minute	0.26417	gallon (U S Liquid) min

MASS AND DENSITY		
gram (= 0.001 kg)	0.035274	ounce (avoirdupois)
kilogram	2.20462	pound
kilogram / metre	0.06243	pound / footpound / gallon (U.S)
kilogram / metre	0.00835	pound/ gallon (U.S)
ounce (avoirdupois)	28.34592	gram
pound (avoirdupois)	0.45359	kilogram (kg)
ton (long = 2240 LB)	1016.047	kilogram
ton (short = 2000 LB)	907.1847	kilogram

FORCE AND FORCE LENGTH		
dyne	0.00001	newton (n)
kilogram - force	9.80665	newton
newton	0.10197	kilogram- force
newton	0.22481	pound - force
newton / metre	0.00571	pound / inch
pound / force	4.44822	newton
pound / inch	175.1268	newton/ metre (N/m)
pound / inch	14.59390	newton / metre

BENDING MOMENT or TORQUE		
Kilogram-metre	9.80665	Newton-metre (n-m)
kilogram-metre	7.23299	pound-foot
newton-metre	0.73756	pound-foot
newton-metre	0.10197	kilogram-metre
pound-foot	1.35582	newton-metre

MULTIPLY	BY	TO OBTAIN
PRESSURE AND STRESS		
atmosphere (atm)	101325	Pascal (Pa)
atmosphere	1.101325	bar
atmosphere	1.0333	kilogram / centimetre ²
bar	0.98692	atmosphere
bar	1.02668	kilogram / centimetre ²
bar	10000	pascal (or N/m)
bar	14.50377	pound / inch ²
kilogram / centimetre ²	0.968	atmosphere
kilogram / centimetre ²	0.98066	bar
kilogram / centimetre ²	98066	pascal (or n/m ²)
kilogram / centimetre ²	14.22334	pound / inch ²
kilogram / metre ²	9.80665	pascal
newton/ metre ² (N/m ²)	0.000145	pound / inch ²
newton/ metre (or Pa)	010197	kilogram / metre ²
newton / metre ²	0.000010197	kilogram / centimetre ²
pascal (and M/m ²)	0.00000987	atmosphere
pascal	0.00001	bar
kPa	0.01	bar
Mpa	10	bar
pound / inch ²	0.6895	bar
pound/ inch ²	6895	pa
pound / inch ²	0.7031	kilogram / centimetre
pound / inch ²	0.06805	atmosphere

ENERGY - WORK and POWER		
Btu (interat)	1055.056	joule (J)
Calorie	4.19002	joule
Foot pound	1.35582	joule
kilogram - metre	9.80665	joule
joule	0.73756	foot-pound
joule	0.101972	kilogram - metre
foot-pound/hour ²	0.0003766	watt (W)
horsepower (55ft-lb/s)	0.7457	kilowatt
horsepower (electric) ²	746	watt
kilowatt	1.34102	horesepower (550ft-b/s)

MISCELLANEOUS		
atmosphor (atm)	760	mm Hg at 32° F
atmosphere	129.92	inch Hg at 32°F
atmosphere	10330	mm H20 at 60°f
bar	14.70	pound / inch ²
bar	750	torr
bar	29.53	inch Hg at 32°F
feet of water (at 60° f)	0.8843	inch Hg at 60°F
feet of water	0.4331	pound/inch ²
inch of Hg (60°f)	0.03342	atmosphere
inch of hg	1.131	feet of Water
inch of hg	0.4898	pound/inch ²
torr (an mm Hg)	0.0013116	atmosphere
torr	0.001333	bar (or 133 6Pa)
torr	0.00136	kilogram/centimetre ²
torr	0.03937	inch of Hg (32°F)
torr	13.59	mmH ₂ O
torr	0.01934	pound/inch ²
torr/sec	1.316	atm cc/sec (or Std,cc/s)
atm.cc/sec	0.76	torr / sec
torr / sec	1000	Lusec
Lusec	0.001	torr/sec
drop of water of bubble	16	centimetre ²
-	-	-

IN HOUSE TESTING FACILITIES INCLUDE

FACTORY
ACCEPTANCE
TEST (FAT)

HYDROSTATIC
SHELL & SEAT
TESTING

LOW & HIGH
PRESSURE GAS
TESTING

CRYOGENIC
TESTING

LOW
TEMPERATURE
TESTING

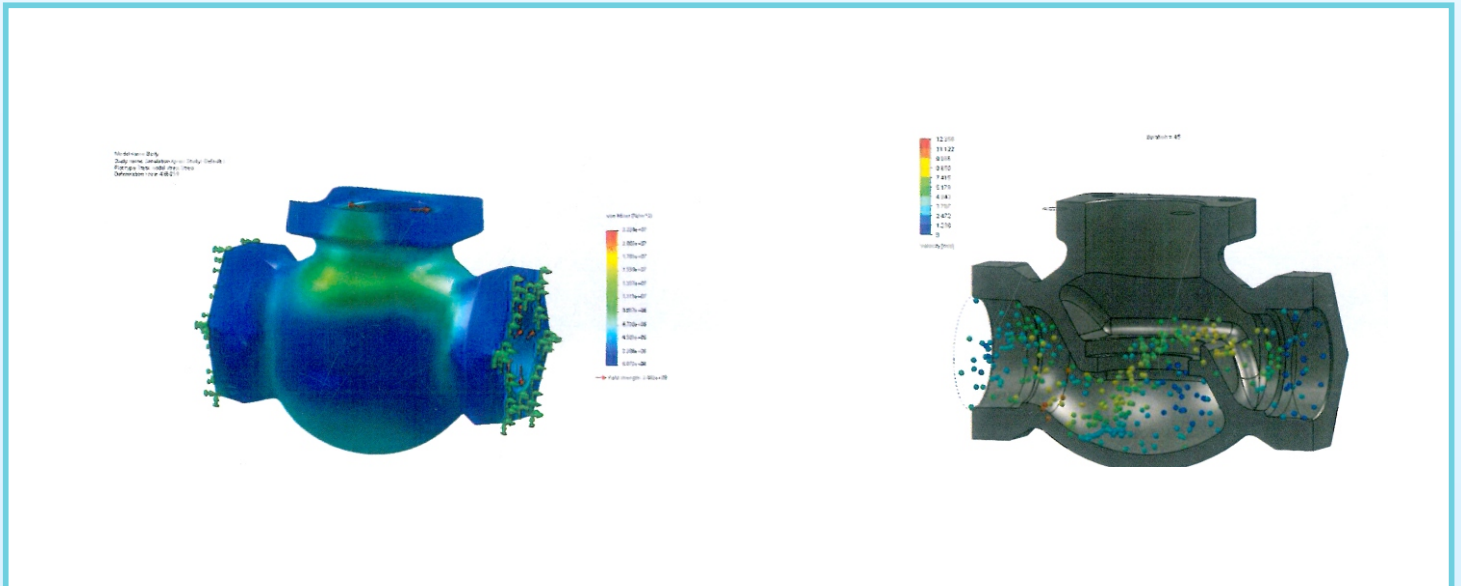
HIGH
TEMPERATURE
TESTING

FUGITIVE
EMISSION
TESTING (FET)

ENDURANCE
CYCLIC TESTING

FIRE SAFE
TESTING

Alka Tech Industrial Valve & Fittings Co. has an advanced manufacturing setup with automated valve test equipment. In-House Research and Development has an advanced setup for new design validation tests (DVT).



Our research and development team continuously upgrade our valves to meet latest standards and customer requirements hence the data given here in is subject to change.

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