



PROTEK



www.protekvalves.co.uk



Cast Steel and Stainless Valves



- Gate Valves
- Globe Valves
- Check Valves
- Strainer Valves



CE 0035





Protek Valve have strong technical capability . It is also equipped with many manufacturing facilities and test equipments including Ultrasonic test, Radiographic test both X-ray and gamma ray, Magnetic particle test , liquid Penetant test , Pressure test and materials analyzers which can assure the reliability and safety of the products.

Protek Valve Co., Ltd has obtained API certificates and was granted the Quality System certificate of ISO9001-2000 by TUV Rhineland. The company also obtained PED module "H" certificate issued by TUV Rhineland as European Notified Body and get the authorization to use CE marking for industrial valves , Protek valves , has adopted API ANSI ASME MSS JIS BS DIN etc standard to design , manufacturing and inspection of industrial valves , and has become one of major manufacturers and supplies of valves used in petroleum and petrochemical industries. Protek valves have exported the industrial valve to international markets such as North and South America , Europe , Middle East and South east Asia, We also established good relationship with many international company and traders.

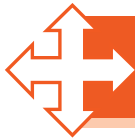
The main products manufactured at Protek is Gate , Globe , Check , Ball , Plug, Butterfly and some special requirement valves. The pressure rating is from Class 150 (PN20) to Class 2500 (PN420) and size range is from 1/8(DN3) to 36 (DN900). The main material of valves are Carbon, Alloy and Stainless steel materials, such as WCB (DIN 1.0619), CF8 (DIN1.4403) CF8M (DIN1.4408) and Titanium and Monel etc. We also can provide other special materials as per customer's requirements. Based on our company's policy "Clients first ". Protek will provide quality valves as well as best services to both domestic and foreign customers.



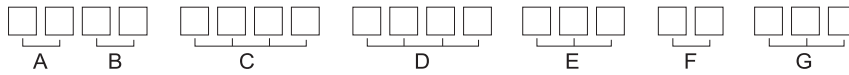
ISO 9001 Certificate



API 6D Certificate



How to order PROTEK direct seal valve



A :	BODY MATERIAL	FS : FORGEDSTEEL						
		CS : CASTSTEEL						
B :	TYPE OF VALVE	GT : GATE						
		GL : GLOBE						
		CP : PISTON						
		CS : SWING						
C :	SIZE / CODE	1 1/2"	150	12"	1200	30"	3000	
		2"	200	14"	1400	32"	3200	
		2 1/2"	250	16"	1600	34"	3400	
		3"	300	18"	1800	36"	3600	
		4"	400	20"	2000	38"	3800	
		5"	500	22"	2200	40"	4000	
		6"	600	24"	2400	42"	4200	
		8"	800	26"	2600	44"	4400	
D :	CLASS [PRESSURE RATING]							
	150/300/600/900/1500/2500/ SPECIAL							
E :	BODY MATERIAL							
	FORGED STEEL							
	A105N					304		
	F5					304L		
	F11					316		
	F22					316L		
	CAST CARBON STEEL			CAST CHROME STEEL				
	02 - ASTM A216 WCB			10 - ASTM A217 WC6 (1 1/4 CR)				
	03 - ASTM A216 WCC			11 - ASTM A217 WC9 (2 1/4 CR)				
	04 - ASTM A352 LCB			12 - ASTM A217 C-5 (5 CR)				
	05 - ASTM A352 LCC			13 - ASTM A217 C-12 (9 CR)				
	06 - ASTM A352 LC1			14 - ASTM A217 C-12A (9ACR)				
	07 - ASTM A352 LC2			15 - ASTM A217 CCA15 (13 CR)				
	08 - ASTM A352 LC3							
	CAST STAINLESS STEEL & ALLOYS							
	20 - ASTM A351 CF8M (316)			40 - ALLOY 20				
	21 - ASTM A351 CF10M (316H)			41 - HASTELLOY B (A494 N12MV)				
	22 - ASTM A351 CF3M (316L)			42 - HASTELLOY C (A494 CW2M)				
	23 - ASTM A351 CF8C (347)			43 - MONEL (A494 M35-1)				
	24 - ASTM A351 CF10C (347H)			44 - INCONEL 600 (CY40)				
	25 - ASTM A351 CF3C (347L)			45 - TITANIUM (ASTM B367)				
	26 - ASTM A351 CF8 (304)			46 - ZIRCONIUM (ASTM B493)				
	27 - ASTM A351 CF10 (304H)			47 - NICKEL (A494 CW12MW)				
	28 - ASTM A351 CF3 (304L)			48 - INCONEL 625 (CW6MC)				
	29 - ASTM A351 CG8M (317)			49 - INCONEL 800 (CT15C)				
	30 - ASTM A351 CG3M (317L)			50 - INCONEL 825 (CU5MCuC)				
	31 - ASTM A351 CK3MCUN			51 - ASTM A890 1A				
	32 - ASTM A351 CDMCu			52 - ASTM A890 2A				
	33 - ASTM A351 CK20			53 - ASTM A890 3A				
	34 - ASTM A351 CK20 (310)			54 - ASTM A890 4A				
	36 - ASTM A743 CA6NM (13-4)			55 - ASTM A890 5A				
	37 - STAINLESS STEEL 904L			75 - SPECIAL				
F :	TRIM MATERIAL							
	TRIM NO.	WEDGE/DISC	SEATS	STEM	TRIM NO.	WEDGE/DISC	SEATS	STEM
	1	F6(A216)	CR13	CR13	15	HASTELLOY	HARDFACED	HASTELLOY
	5	HARDFACED	HARDFACED	CR13	16	HARDFACED	HARDFACED	18-8-3M
	8	F6(A216)	HARDFACED	CR13	17	HARDFACED	HARDFACED	347
	9	MONEL	MONEL	MONEL	18	HARDFACED	HARDFACED	MONEL
	10	18-8-3M	18-8-3M	18-8-3M	19	TITANIUM	HARDFACED	TITANIUM
	11	MONEL	HARDFACED	MONEL	20	TITANIUM	TITANIUM	TITANIUM
	12	18-8-3M	HARDFACED	18-8-3M	21	INCONEL	INCONEL	INCONEL
	13	ALLOY 20	ALLOY 20	ALLOY 20	22	INCONEL	HARDFACED	INCONEL
14	HASTELLOY	HASTELLOY	HASTELLOY	23	347	HARDFACED	347	
				50	SPECIAL	SPECIAL	SPECIAL	
G :	SPECIAL REQUIREMENTS							
	JIS / DIN / STANDARD							



Pressure-Temperature Ratings

Standard Class Flanged End Valves for: Water, Steam and Oil Services

ASME/ANSI B16.34-88

Metric Units in Maximum Non-Shock Working Pressures (Bars)

TEMP °C	CARBON STEEL WCB					CARBON-MOLYBDENUM STEEL / WC1					1 1/4% Cr - 1/2% MO STEEL / WC6					2 1/4% Cr - 1% MO STEEL / WC9									
	Class	150	300	600	900	1500	150	300	600	900	1500	150	300	600	900	1500	150	300	600	900	1500				
-29 to 38	19.6	51.1	102.1	153.2	255.3	18.4	47.9	95.8	143.6	239.4	20.0	51.7	103.4	155.1	258.6	20.0	51.7	103.4	155.1	258.6	20.0	51.7	103.4	155.1	258.6
50	19.2	50.1	100.2	150.2	250.4	18.3	47.6	95.3	142.9	238.2	19.2	51.1	102.3	153.4	255.7	19.2	51.2	102.4	153.6	256.0	19.2	51.2	102.4	153.6	256.0
100	17.7	46.4	92.8	139.1	231.9	17.7	46.6	93.2	139.8	233.0	17.7	48.8	97.5	146.3	243.8	17.7	49.0	98.1	147.1	245.2	17.7	49.0	98.1	147.1	245.2
150	15.8	45.2	90.5	135.7	226.1	15.8	45.0	89.9	134.9	224.8	15.8	46.4	92.7	139.1	231.9	15.8	46.6	93.3	139.9	233.2	15.8	46.6	93.3	139.9	233.2
200	14.0	43.8	87.6	131.5	219.1	14.0	44.2	88.4	132.6	221.0	14.0	45.5	91.0	136.4	227.4	14.0	44.8	89.7	134.5	224.2	14.0	44.8	89.7	134.5	224.2
250	12.1	41.7	83.4	125.2	208.6	12.1	43.1	86.2	129.2	215.4	12.1	44.5	88.9	133.4	222.3	12.1	44.2	88.4	132.7	221.1	12.1	44.2	88.4	132.7	221.1
300	10.2	38.7	77.5	116.2	193.7	10.2	42.0	84.1	126.1	210.1	10.2	42.4	84.9	127.3	212.1	10.2	42.4	84.9	127.3	212.1	10.2	42.4	84.9	127.3	212.1
350	8.4	37.0	73.9	110.9	184.8	8.4	40.2	80.5	120.7	201.1	8.4	40.2	80.5	120.7	201.2	8.4	40.2	80.5	120.7	201.2	8.4	40.2	80.5	120.7	201.2
375	7.4	36.5	72.9	109.4	182.3	7.4	38.8	77.6	116.4	194.0	7.4	38.8	77.6	116.4	194.0	7.4	38.8	77.6	116.4	194.0	7.4	38.8	77.6	116.4	194.0
400	6.5	34.5	69.0	103.5	172.5	6.5	36.6	73.2	109.8	182.9	6.5	36.6	73.2	109.8	182.9	6.5	36.6	73.2	109.8	182.9	6.5	36.6	73.2	109.8	182.9
425	5.6	28.8	57.5	86.3	143.8	5.6	35.1	70.2	105.3	175.5	5.6	35.1	70.2	105.3	175.2	5.6	35.1	70.2	105.3	175.5	5.6	35.1	70.2	105.3	175.5
450	4.7	20.0	40.1	60.1	100.2	4.7	33.8	67.6	101.4	169.0	4.7	33.8	67.6	101.4	169.0	4.7	33.8	67.6	101.4	169.0	4.7	33.8	67.6	101.4	169.0
475	*3.7	13.5	27.1	40.6	67.7	3.7	31.7	63.3	95.0	158.3	3.7	31.7	63.3	95.0	158.3	3.7	31.7	63.3	95.0	158.3	3.7	31.7	63.3	95.0	158.3
500	*2.8	†8.8	†17.6	†26.4	†44.0	2.8	†24.1	†48.1	†72.2	†120.3	2.8	27.8	55.6	83.4	139.0	2.8	27.8	55.6	83.4	139.0	2.8	27.8	55.6	83.4	139.0
525	*1.9	†5.2	†10.4	†15.5	†25.9	1.9	†15.0	†30.1	†45.1	†75.2	1.9	20.3	40.5	60.8	101.3	1.9	21.9	43.8	65.8	109.6	1.9	21.9	43.8	65.8	109.6
††550	††1.3	†3.3	†6.5	†9.8	†16.3	†1.3	†10.7	†21.4	†32.1	†53.5		12.8	25.5	38.3	63.8		16.4	32.7	49.1	81.8		16.4	32.7	49.1	81.8
575												8.5	17.0	25.5	42.5		11.7	23.4	35.1	58.5		11.7	23.4	35.1	58.5
600												5.9	11.8	17.6	29.4		7.6	15.3	22.9	38.2		7.6	15.3	22.9	38.2
**TEST PRESSURES: Bars																									
BODY	30	77	154	230	383	28	72	144	216	360	30	77	154	230	383	30	77	154	230	383	30	77	154	230	383
SEAT	21.6	56.3	112.4	168.6	280.9	20.3	52.7	105.4	158.0	263.4	21.6	56.3	112.4	168.6	280.9	21.6	56.3	112.4	168.6	280.9	21.6	56.3	112.4	168.6	280.9

* To be used on Oil Service only.

† Consideration should be given to scaling due to oxidation.

** Hydrostatic Tests carried out with water.

†† Flanged End Ratings terminate at 540 °C.

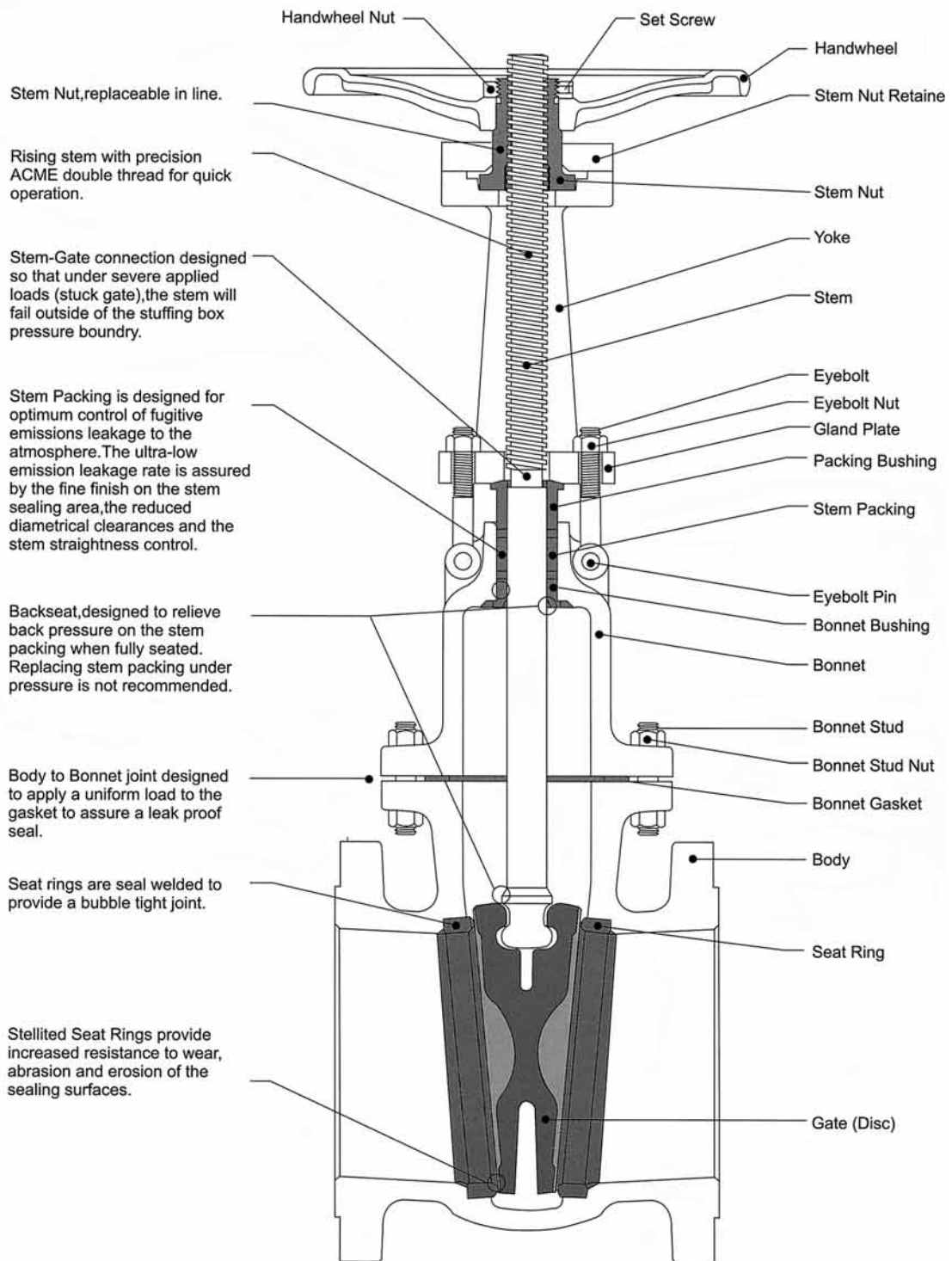
Metric Units in Maximum Non-Shock Working Pressures (Bars)

TEMP °C	5% Cr 1/2% Mo STEEL / C5					9% Cr 1% Mo STEEL / C12					18% Cr 10% Ni 2% Mo STAINLESS STEEL / CF8M					18% Cr 10% Ni 1% Cb STAINLESS STEEL / CF8C									
	Class	150	300	600	900	1500	150	300	600	900	1500	150	300	600	900	1500	150	300	600	900	1500				
-29 to 38	20.0	51.7	103.4	155.2	258.6	20.0	51.7	103.4	155.2	258.6	19.0	49.6	99.3	148.9	248.1	19.0	49.6	99.3	148.9	248.2	19.0	49.6	99.3	148.9	248.2
50	19.2	51.7	103.4	155.2	258.6	19.2	51.7	103.4	155.2	258.6	18.4	48.1	95.3	144.4	240.6	18.5	48.4	96.8	145.1	241.9	18.5	48.4	96.8	145.1	241.9
100	17.7	51.5	103.1	154.6	257.7	17.7	51.5	103.1	154.6	257.7	16.2	42.2	84.4	126.6	211.0	16.7	43.5	86.9	130.4	217.3	16.7	43.5	86.9	130.4	217.3
150	15.8	50.2	100.4	150.6	251.0	15.8	50.2	100.4	150.6	251.0	14.8	38.5	77.0	115.5	192.5	15.5	40.5	81.0	121.5	202.5	15.5	40.5	81.0	121.5	202.5
200	14.0	48.8	97.6	146.4	243.9	14.0	48.8	97.6	146.4	243.9	13.7	35.7	71.3	107.0	178.4	14.0	38.4	76.8	115.3	192.1	14.0	38.4	76.8	115.3	192.1
250	12.1	46.3	92.7	139.0	231.7	12.1	46.3	92.7	139.0	231.7	12.1	33.4	66.8	100.2	166.9	12.1	36.2	72.4	108.6	181.0	12.1	36.2	72.4	108.6	181.0
300	10.2	42.4	84.9	127.3	212.1	10.2	42.4	84.9	127.3	212.1	10.2	31.6	63.3	94.9	158.1	10.2	34.4	68.9	103.3	172.2	10.2	34.4	68.9	103.3	172.2
350	8.4	40.2	80.5	120.7	201.2	8.4	40.2	80.5	120.7	201.2	8.4	30.4	60.8	91.3	152.1	8.4	32.9	65.8	98.7	164.5	8.4	32.9	65.8	98.7	164.5
375	7.4	38.8	77.6	116.4	194.0	7.4	38.8	77.6	116.4	194.0	7.4	29.7	59.4	89.1	148.5	7.4	32.2	64.4	96.6	161.0	7.4	32.2	64.4	96.6	161.0
400	6.5	36.6	73.2	109.8	182.9	6.5	36.6	73.2	109.8	182.9	6.5	29.1	58.2	87.3	145.6	6.5	31.8	63.5	95.3	158.8	6.5	31.8	63.5	95.3	158.8
425	5.6	34.5	69.0	103.5	172.5	5.6	35.1	70.2	105.3	175.5	5.6	28.7	57.3	86.0	143.3	5.6	31.5	62.9	94.4	157.3	5.6	31.5	62.9	94.4	157.3
450	4.7	30.9	61.8	92.7	154.5	4.7	33.8	67.6	101.4	169.0	4.7	28.1	56.2	84.2	140.4	4.7	30.8	61.5	92.3	153.8	4.7	30.8	61.5	92.3	153.8
475	3.7	25.9	51.8	77.7	129.5	3.7	31.7	63.3	95.0	158.3	3.7	27.4	54.7	82.1	135.8	3.7	30.0	60.0	90.0	150.0	3.7	30.0	60.0	90.0	150.0
500	2.8	20.3	40.5	60.8	101.3	2.8	27.5	55.0	82.5	137.5	2.8	26.8	53.7	80.5	134.1	2.8	27.8	55.6	83.4	139.0	2.8	27.8	55.6	83.4	139.0
525	1.9	15.4	30.8	46.3	77.1	1.9	22.6	45.2	67.8	113.0	1.9	26.3	52.6	78.9	131.5	1.9	25.8	51.6	77.4	129.0	1.9	25.8	51.6	77.4	129.0
550	*1.3	11.7	23.4	35.0	58.4	*1.3	17.0	34.0	50.9	84.9	*1.3	25.0	49.9	74.9	124.8	*1.3	25.0	49.9	74.9	124.8	*1.3	25.0	49.9	74.9	124.8
575		8.8	17.6	26.4	44.1		11.2	22.5	33.7	56.2		24.1	48.2	72.3	120.5		24.1	48.2	72.3	120.5		24.1	48.2	72.3	120.5
600		6.5	13.1	19.3	32.6		7.2	14.4	21.5	35.9		21.4	42.9	64.3	107.2		21.4	42.9	64.3	107.2		21.4	42.9	64.3	107.2
625		4.5	9.0	13.5	22.5		5.0	9.9	14.9	24.9		18.3	36.5	58.4	91.3		17.8	35.6	53.4	89.0		17.8	35.6	53.4	89.0
650		3.0	6.0	9.0	15.0		3.5	7.0	10.4	17.4		14.4	28.2	42.4	70.6		11.6	23.2	34.7	57.9		11.6	23.2	34.7	57.9
**TEST PRESSURES: Bars																									
BODY	30	78	156	233	388	30	78	156	233	388	29	75	149	224	373	29	75	149	224	373	29	75	149	224	373
SEAT	22	56.9	113.8	170.8	284.5	22	56.9	113.8	170.8	284.4	20.9	54.6	109.3	163.8	273.1	20.9	54.6	109.3	163.8	273.1	20.9	54.6	109.3	163.8	273.1



Cast steel gate valve

Cast Steel Gate Valves with fixed handwheel and rising stem (outside screw and yoke) (OS&Y)





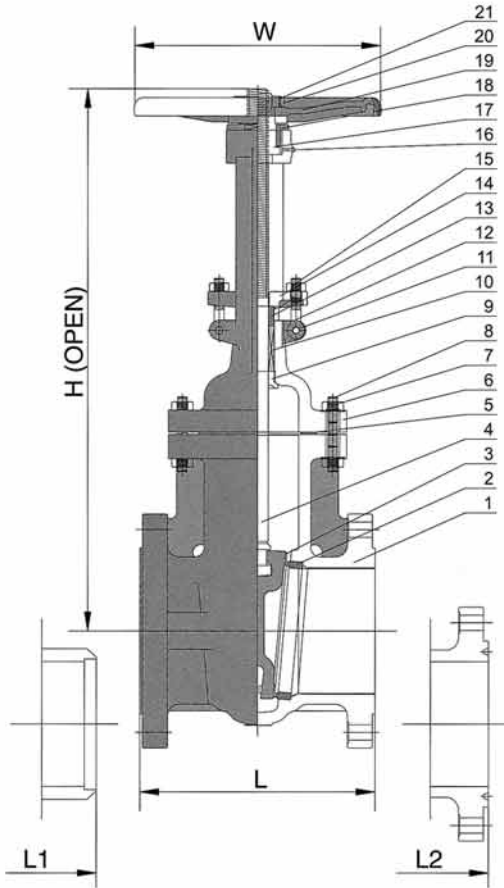
Cast steel gate valve Class 150

FEATURES

OS & Y, Rising Stem
Bolted Bonnet
Flexible Wedge (2" Solid)
Extended Bonnet for Cryogenic Services
By Pass On Request
Locking Device Optional

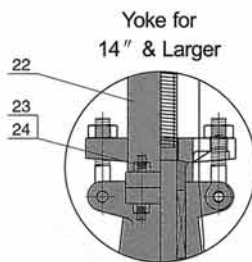
SPECIFICATIONS

Design	ASME B16.34/API 600
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

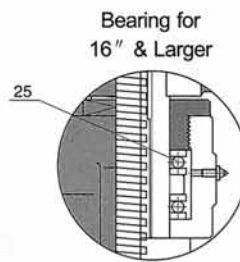


STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Stem	ASTM A182 GR.F6
5	Gasket	Soft Iron+Graphite
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	ASTM A193 GR.B7
9	Backseat Bushing	ASTM A276 Type 410
10	Stem Packing	Braided Graphite & Die formed Graphite Ring
11	Eye Bolt Pins	Carbon Steel
12	Gland Eye Bolts	ASTM A307 GR.B
13	Gland	ASTM A276 Type 410
14	Gland Flange	ASTM A216 GR.WCB
15	Eye Bolt Nuts	ASTM A194 GR.2H
16	Grease Nipple	Carbon steel
17	Stem Nut	ASTM A439 GR.D-2
18	Retaining Nut	Carbon steel
19	Handwheel	Ductile Iron
20	Handwheel Nut	Carbon steel
21	Screw	Carbon steel
22	Yoke	ASTM A216 GR.WCB
23	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
24	Yoke Pan Bolts	ASTM A193 GR.B7
25	Bearing	Steel

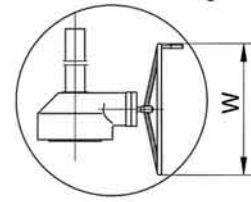


Yoke for 14" & Larger



Bearing for 16" & Larger

Gear Optional for 24" & Smaller
Standard for 28" & Larger

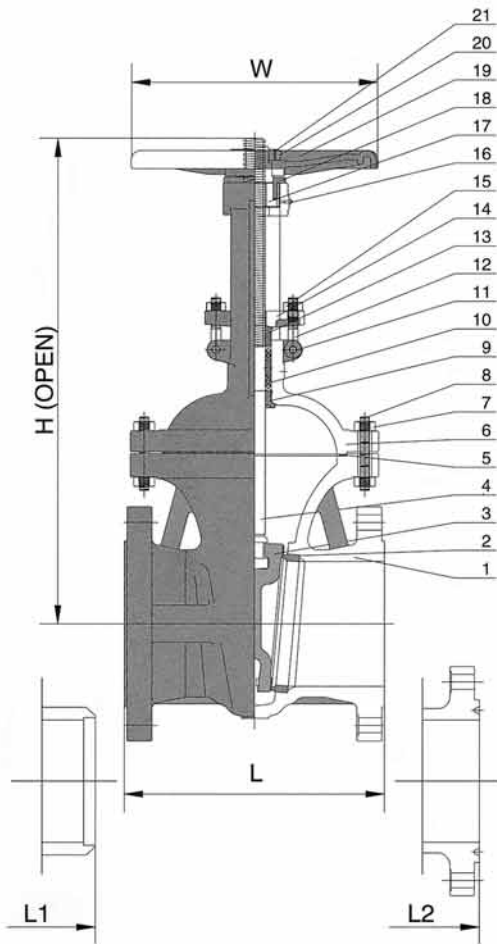


Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	32"	36"
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600	700	750	800	900
L	in	7.00	7.50	8.00	9.00	10.50	11.50	13.00	14.00	15.00	16.00	17.00	18.00	20.00	24.00	24.00	28.00	28.00
	mm	178	191	203	229	267	292	330	356	381	406	432	457	508	610	610	711	711
L1	in	8.50	9.50	11.12	12.00	15.88	16.50	18.00	19.75	22.50	24.00	26.00	28.00	32.00	36.00	36.00	38.00	40.00
	mm	216	241	283	305	403	419	457	502	572	610	660	711	813	914	914	965	1016
L2	in	7.50	8.00	8.50	9.50	11.00	12.00	13.50	14.50	15.50	16.50	17.50	18.50	20.50	-	-	-	-
	mm	191	203	216	241	279	305	343	368	394	419	445	470	521	-	-	-	-
H	in	15.31	17.28	19.69	23.43	30.59	38.39	45.67	54.72	61.22	71.30	82.80	90.55	102.72	130.98	141.97	145.98	154.49
	mm	389	439	500	595	777	975	1160	1390	1555	1811	2103	2300	2609	3327	3606	3708	3924
W	in	8	8	10	10	14	14	16	18	22	24	25	27	30	24	24	24	24
	mm	200	200	250	250	350	350	400	450	560	600	640	680	760	610	610	610	610
Weight RF	kg	17	23	29	47	80	129	192	287	410	571	720	1170	1466	1931	2380	2490	3600



Cast steel gate valve Class 300



FEATURES

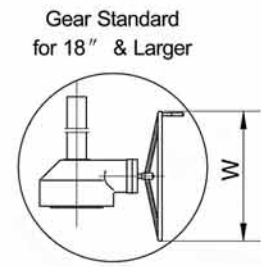
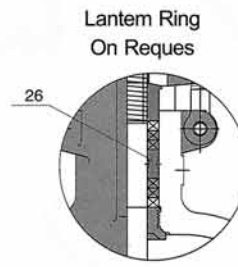
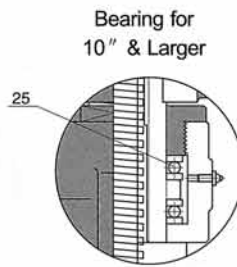
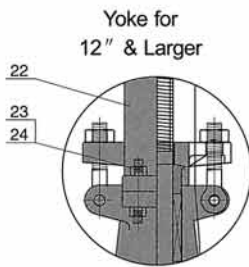
OS & Y, Rising Stem
Bolted Bonnet
Flexible Wedge (2" Solid)
Extended Bonnet for Cryogenic Services
By Pass On Request
Locking Device Optional

SPECIFICATIONS

Design	ASME B16.34/API 600
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

STANDARD MATERIALS OF PARTS

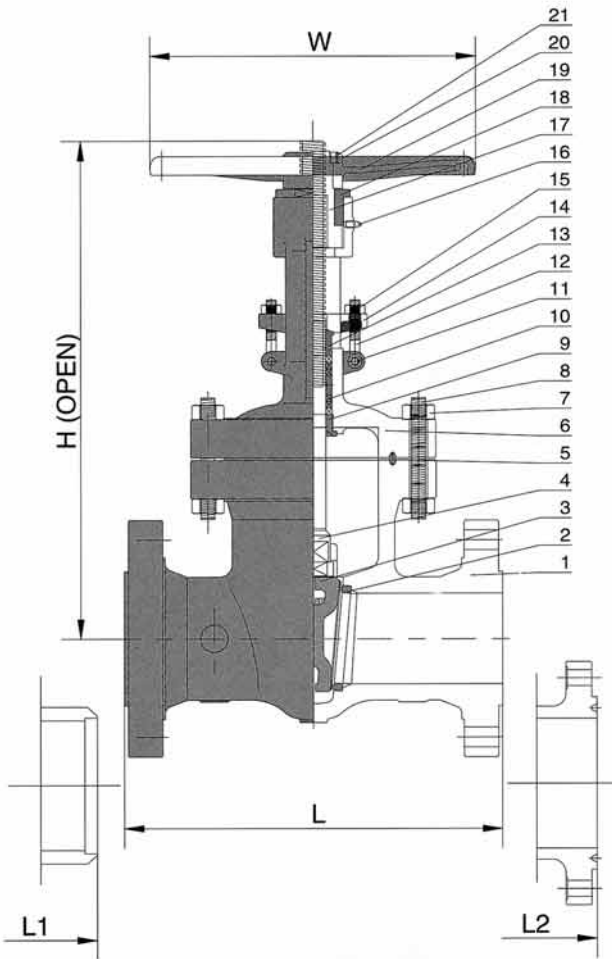
ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Stem	ASTM A182 GR.F6
5	Gasket	Soft Iron+Graphite
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	ASTM A193 GR.B7
9	Backseat Bushing	ASTM A276 Type 410
10	Stem Packing	Braided Graphite & Die formed Graphite Ring
11	Eye Bolt Pins	Caibon Steel
12	Gland Eye Bolts	ASTM A307 GR.B
13	Gland	ASTM A276 Type 410
14	Gland Flange	ASTM A216 GR.WCB
15	Eye Bolt Nuts	ASTM A194 GR.2H
16	Grease Nipple	Carbon steel
17	Stem Nut	ASTM A439 GR.D-2
18	Retaining Nut	Carbon steel
19	Handwheel	Ductile Iron
20	Handwheel Nut	Carbon steel
21	Screw	Carbon steel
22	Yoke	ASTM A216 GR.WCB
23	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
24	Yoke Pan Bolts	ASTM A193 GR.B7
25	Bearing	Steel
26	Lantern Ring On Request	ASTM A276 Type 410



Dimensions and Weights																
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"
L/L1	in	8.50	9.50	11.12	12.00	15.88	16.50	18.00	19.75	30.00	33.00	36.00	39.00	45.00	53.00	55.00
	mm	216	241	283	305	403	419	457	502	762	838	914	991	1143	1346	1397
L2	in	9.12	10.12	11.74	12.62	16.50	17.12	18.62	20.37	30.62	33.62	36.62	39.75	45.88	54.00	56.00
	mm	232	257	298	321	419	435	473	517	778	854	930	1010	1165	1372	1422
H	in	16.93	19.88	20.87	24.80	31.50	39.69	48.82	57.87	64.76	72.48	77.13	86.38	102.28	122.05	130.71
	mm	430	505	530	630	800	1008	1240	1470	1645	1841	1959	2194	2598	3100	3320
W	in	8	10	10	10	14	16	18	20	24	24	24	24	24	24	24
	mm	200	250	250	250	350	400	450	500	600	600	600	610	610	610	610
Weight RF	kg	30	45	57	88	147	219	368	522	694	1080	1235	1655	2320	3893	4930



Cast steel gate valve Class 600



FEATURES

OS & Y,Rising Stem
Bolted Bonnet
Flexible Wedge (2" Solid)
Extended Bonnet for Cryogenic Services
By Pass On Request
Locking Device Optional

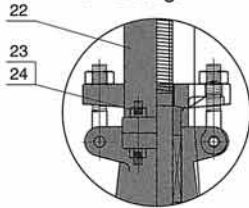
SPECIFICATIONS

Design	ASME B16.34/API 600
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

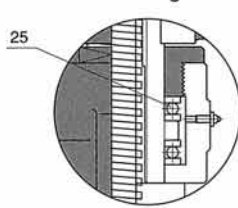
STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Stem	ASTM A182 GR.F6
5	Gsaket,Ring Joint	Soft Iron
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	ASTM A193 GR.B7
9	Backseat Bushing	ASTM A276 Type 410
10	Stem Packing	Braided Graphite & Die formed Graphite Ring
11	Eye Bolt Pins	Caibon Steel
12	Gland Eye Bolts	ASTM A307 GR.B
13	Gland	ASTM A276 Type 410
14	Gland Flange	ASTM A216 GR.WCB
15	Eye Bolt Nuts	ASTM A194 GR.2H
16	Grease Nipple	Carbon steel
17	Stem Nut	ASTM A439 GR.D-2
18	Retaining Nut	Carbon steel
19	Handwheel	Ductile Iron
20	Handwheel Nut	Carbon steel
21	Screw	Carbon steel
22	Yoke	ASTM A216 GR.WCB
23	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
24	Yoke Pan Bolts	ASTM A193 GR.B7
25	Bearing	Steel
26	Lantern Ring On Request	ASTM A276 Type 410

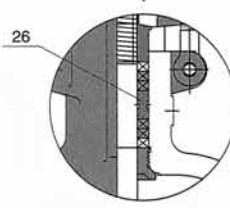
Yoke for 8" & Larger



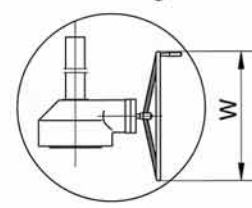
Bearing for 6" & Larger



Lantern Ring On Reques



Gear Standard for 14" & Larger

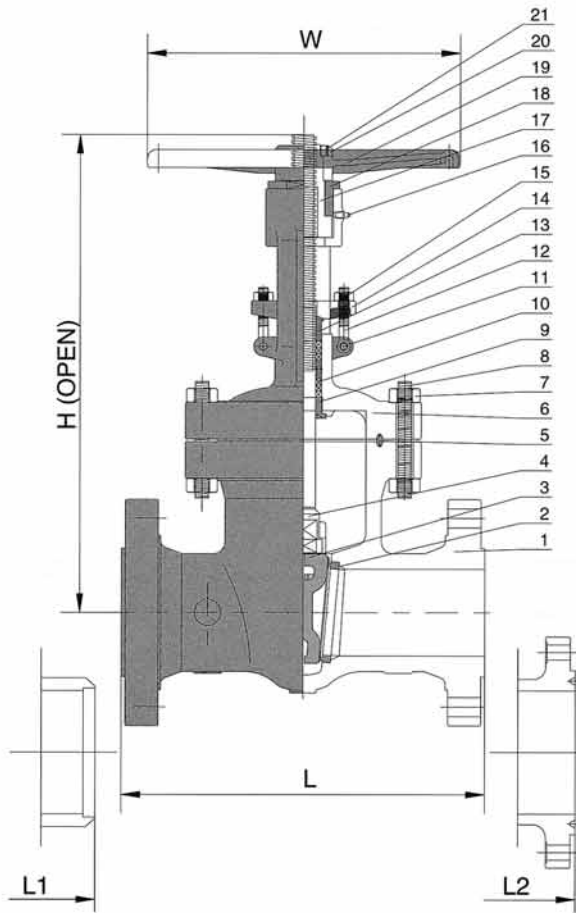


Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
mm		50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1	in	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
mm		292	330	356	432	559	660	787	838	889	991	1092	1194	1397
L2	in	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38
mm		295	333	359	435	562	663	790	841	892	994	1095	1200	1407
H	in	17.91	23.14	21.65	27.17	35.83	41.93	49.49	57.80	63.90	71.50	88.98	106.50	110.63
mm		455	588	550	690	910	1065	1257	1468	1623	1816	2260	2705	2810
W	in	10	10	10	14	18	20	25	27	24	24	24	24	24
mm		250	250	250	350	450	500	640	680	610	610	610	610	610
Weight RF	kg	45	55	76	127	277	485	754	936	1316	1672	2070	2405	4550



Cast steel gate valve Class 900-2500



FEATURES

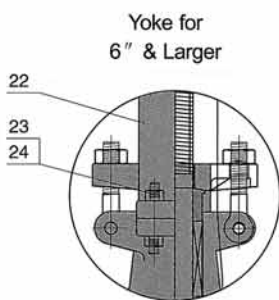
OS & Y, Rising Stem
Bolted Bonnet
Flexible Wedge (2" Solid)
Extended Bonnet for Cryogenic Services
By Pass On Request
Locking Device Optional

SPECIFICATIONS

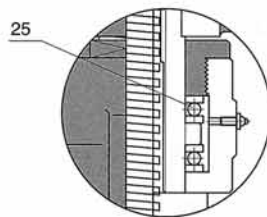
Design	ASME B16.34/API 600
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

STANDARD MATERIALS OF PARTS

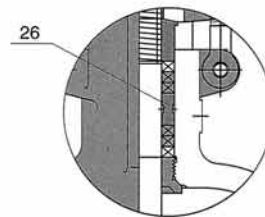
ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Stem	ASTM A182 GR.F6
5	Gasket, Ring Joint	Soft Iron
6	Bonnet	ASTM A216 GR.WCB
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	ASTM A193 GR.B7
9	Backseat Bushing	ASTM A276 Type 410
10	Stem Packing	Braided Graphite & Die formed Graphite Ring
11	Eye Bolt Pins	Carbon Steel
12	Gland Eye Bolts	ASTM A307 GR.B
13	Gland	ASTM A276 Type 410
14	Gland Flange	ASTM A216 GR.WCB
15	Eye Bolt Nuts	ASTM A194 GR.2H
16	Grease Nipple	Carbon steel
17	Stem Nut	ASTM A439 GR.D-2
18	Retaining Nut	Carbon steel
19	Handwheel	Ductile Iron
20	Handwheel Nut	Carbon steel
21	Screw	Carbon steel
22	Yoke	ASTM A216 GR.WCB
23	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
24	Yoke Pan Bolts	ASTM A193 GR.B7
25	Bearing	Steel
26	Lantern Ring On Request	ASTM A276 Type 410



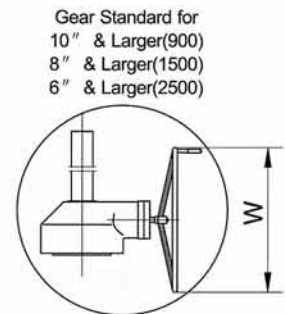
Yoke for 6" & Larger



Bearing for 6" & Larger

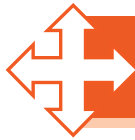


Lantern Ring On Request



Gear Standard for 10" & Larger(900)
8" & Larger(1500)
6" & Larger(2500)

Dimensions and Weights	CALSS 900										CALSS 1500								CALSS 2500							
	SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"
L/L1	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00	
	mm	368	419	381	457	610	737	838	965	368	419	470	546	705	832	991	1130	451	508	578	673	914	1022	1270	1422	
L2	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88	
	mm	371	422	384	460	613	740	841	968	371	422	473	549	711	842	1000	1146	454	514	584	683	927	1038	1292	1445	
H	in	24.41	27.76	29.02	32.48	41.93	47.99	52.95	72.44	27.36	27.76	30.31	34.33	42.99	55.12	62.95	72.44	27.56	29.53	34.82	43.19	57.09	63.39	81.73	89.80	
	mm	620	705	737	825	1065	1219	1345	1840	695	705	770	872	1092	1400	1600	1840	700	750	887	1079	1450	1610	2076	2281	
W	in	12	14	14	16	20	24	24	24	14	16	16	20	24	24	24	24	14	18	18	20	24	24	24	24	
	mm	300	350	350	400	500	600	610	610	350	400	400	500	600	610	610	610	350	450	450	500	610	610	610	610	
Weight RF	kg	95	108	125	194	378	635	900	1550	95	128	181	275	627	1000	2200	3300	135	210	271	506	1600	2450	4570	7150	



Cast steel globe valve

Impactor Handwheel, the mechanism is based on transmitting the momentum generated by the mass of the handwheel through the impact/impulse generated during the snap closure action of the handwheel. This type of handwheel is used when a standard handwheel cannot create enough closing force to effect a seal.

Stem Nut replaceable in the line.

Revolving rising stem with precision ACME thread.

Stem Packing is designed for optimum control of fugitive emissions leakage to the atmosphere. The ultra low emission leakage rate is assured by the fine finish in the stem, the reduced diametrical clearances and the stem straightness control.

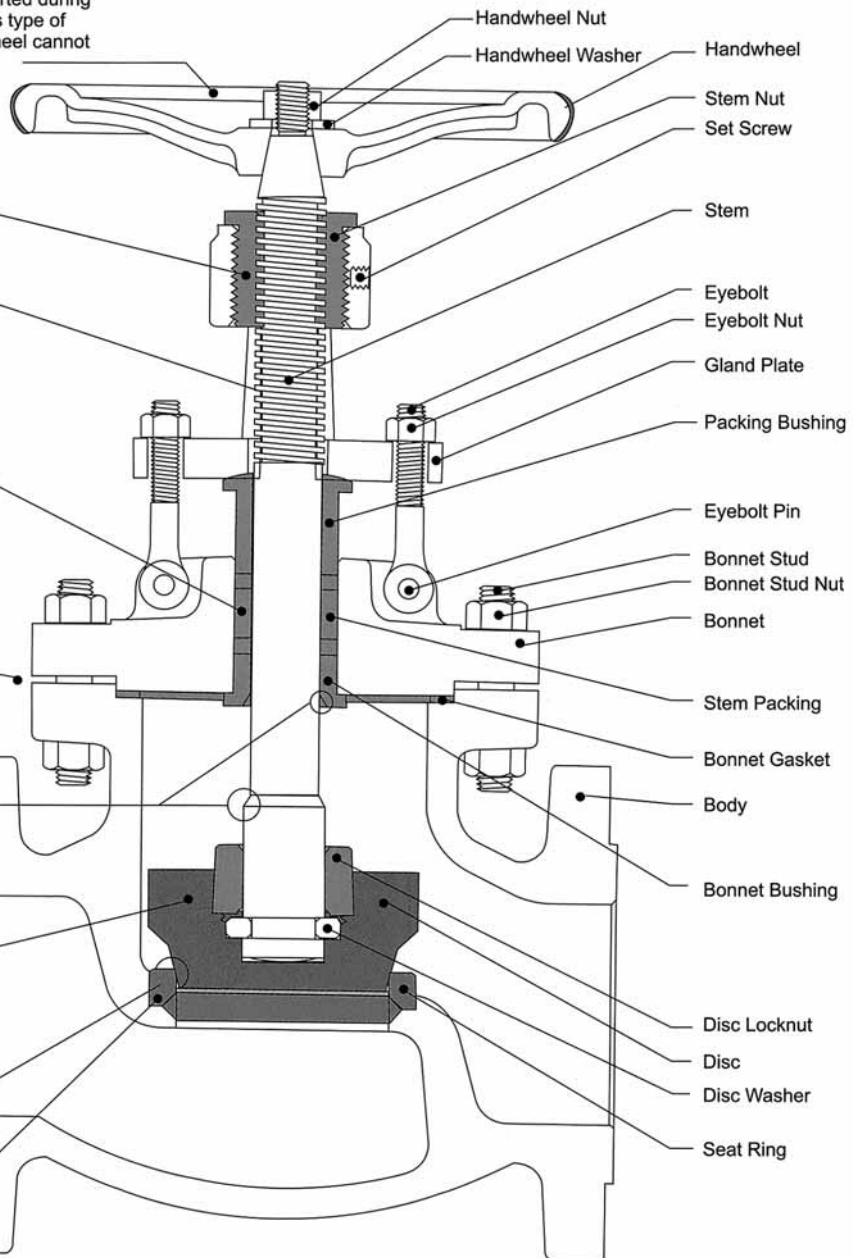
Body to Bonnet Joint designed to apply a uniform load to the gasket to assure a leak proof seal.

Backseat designed to relieve back pressure on the stem packing when fully seated. Replacing stem packing under pressure is not recommended.

Conical Disc, integrally guided to assure true alignment between disc and valve body. The loose disc design allows the disc and seat ring sealing surface to seat correctly without damage.

Stellited Seat Ring, providing increased resistance to wear, abrasion and erosion of the sealing surface.

Seat ring is seal welded to provide a bubble tight joint.





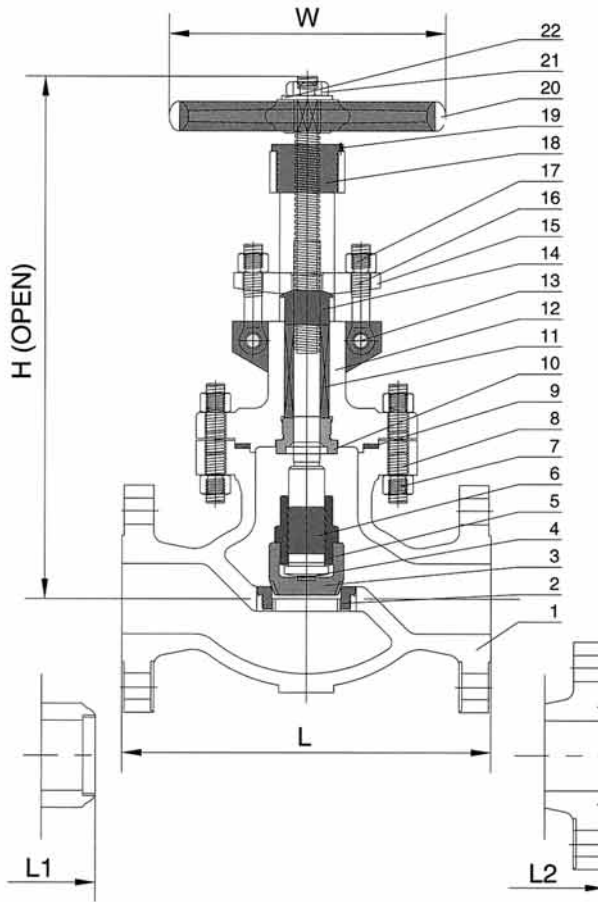
Cast steel globe valve Class 150

FEATURES

OS & Y, Rising Stem
Bolted Bonnet
Conic Disc
Extended Bonnet for Cryogenic Services
Impact hand wheel Optional
Gear Optional

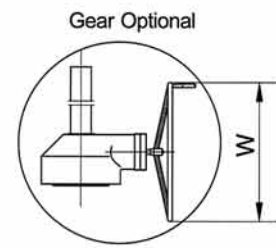
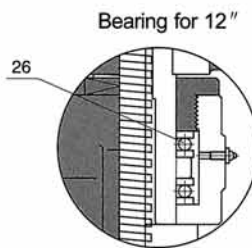
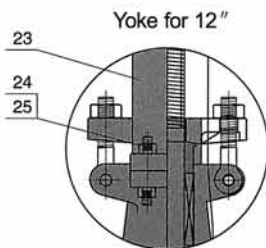
SPECIFICATIONS

Design	ASME B16.34/BS1873
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75



STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A105+13Cr Faced
4	Disc Thrust Plate	ASTM A276 Type 420
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 GR.F6
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	ASTM A193 GR.B7
9	Gasket	Soft Iron+Graphite
10	Backseat Bushing	ASTM A276 Type 410
11	Stem Packing	Braided Graphite & Die formed Graphite Ring
12	Bonnet	ASTM A216 GR.WCB
13	Eye Bolt Pins	Carbon Steel
14	Gland	ASTM A276 Type 410
15	Gland Flange	ASTM A216 GR.WCB
16	Gland Eye Bolts	ASTM A307 GR.B
17	Eye Bolt Nuts	ASTM A194 GR.2H
18	Yoke Bush	ASTM A439 GR.D-2
19	Screw	Carbon steel
20	Handwheel	Ductile Iron
21	Handwheel Nut	ASTM A194 GR.2H
22	Washer	Carbon steel
23	Yoke	ASTM A216 GR.WCB
24	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
25	Yoke Pan Bolts	ASTM A193 GR.B7
26	Bearing	Steel

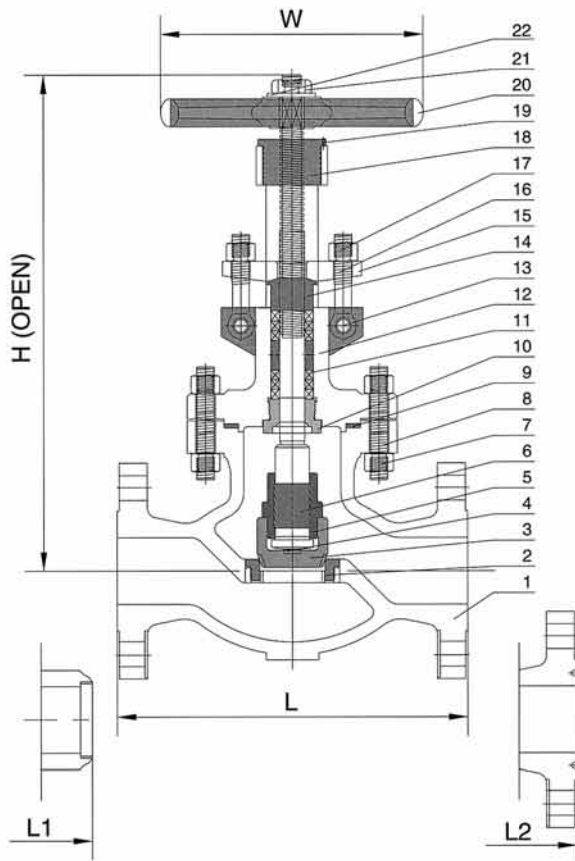


Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300
L/L1	in	8.00	8.50	9.50	11.50	16.00	19.50	24.50	27.50
	mm	203	216	241	292	406	495	622	698
L2	in	8.50	9.00	10.00	12.00	16.50	20.00	25.00	28.00
	mm	216	229	254	305	419	508	635	711
H	in	13.58	16.34	15.94	19.09	20.47	23.62	30.00	33.94
	mm	345	415	405	485	520	600	762	862
W	in	8	8	10	12	14	18	20	25
	mm	200	200	250	300	350	450	500	640
Weight RF	kg	22	32	38	62	104	159	308	539



Cast steel globe valve Class 300



FEATURES

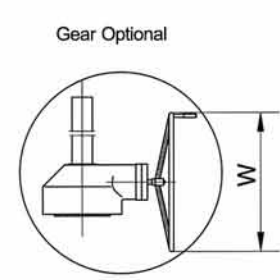
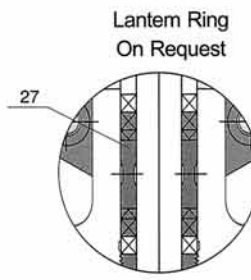
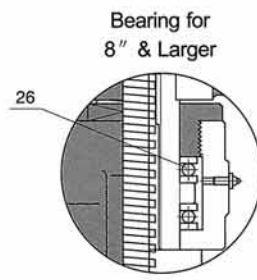
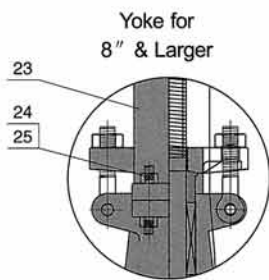
OS & Y,Rising Stem
Bolted Bonnet
Conic Disc
Extended Bonnet for Cryogenic Services
Impact hand wheel Optional
Gear Optional

SPECIFICATIONS

Design	ASME B16.34/BS1873
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A105+13Cr Faced
4	Disc Thrust Plate	ASTM A276 Type 420
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 GR.F6
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	ASTM A193 GR.B7
9	Gasket	Soft Iron+Graphite
10	Backseat Bushing	ASTM A276 Type 410
11	Stem Packing	Braided Graphite & Die formed Graphite Ring
12	Bonnet	ASTM A216 GR.WCB
13	Eye Bolt Pins	Carbon Steel
14	Gland	ASTM A276 Type 410
15	Gland Flange	ASTM A216 GR.WCB
16	Gland Eye Bolts	ASTM A307 GR.B
17	Eye Bolt Nuts	ASTM A194 GR.2H
18	Yoke Bush	ASTM A439 GR.D-2
19	Screw	Carbon steel
20	Handwheel	Ductile Iron
21	Handwheel Nut	ASTM A194 GR.2H
22	Washer	Carbon steel
23	Yoke	ASTM A216 GR.WCB
24	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
25	Yoke Pan Bolts	ASTM A193 GR.B7
26	Bearing	Steel

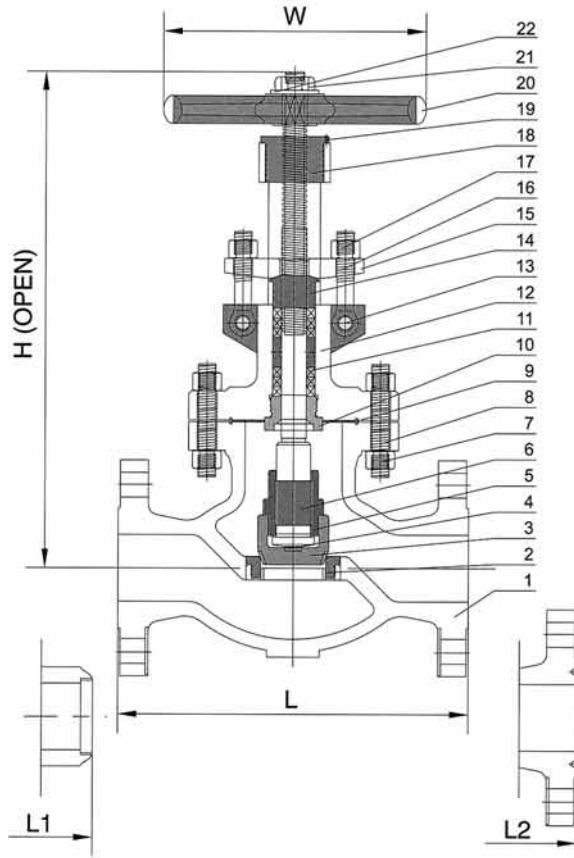


Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300
L/L1	in	10.50	11.50	12.50	14.00	17.50	22.00	24.50	28.00
	mm	267	292	318	356	445	559	622	711
L2	in	11.12	12.12	13.12	14.62	18.12	22.62	25.12	28.62
	mm	283	308	333	371	460	575	638	727
H	in	14.57	18.66	17.32	20.67	24.41	35.83	37.36	40.63
	mm	370	474	440	525	620	910	949	1032
W	in	8	10	10	14	18	22	24	26
	mm	200	250	250	350	450	560	600	650
Weight RF	kg	28	48	56	82	154	240	319	632



Cast steel globe valve Class 600



FEATURES

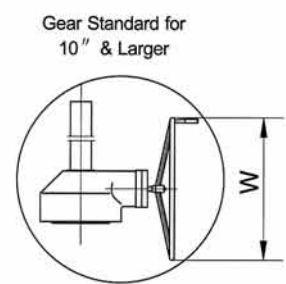
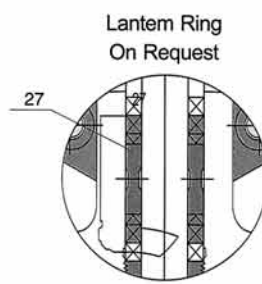
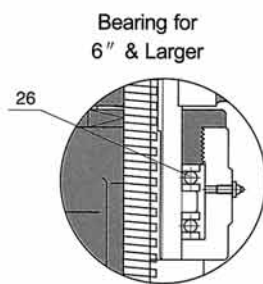
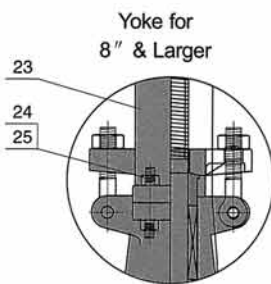
OS & Y, Rising Stem
Bolted Bonnet
Conic Disc
Extended Bonnet for Cryogenic Services
Impact hand wheel Optional
Gear Optional

SPECIFICATIONS

Design	ASME B16.34/BS1873
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A105+13Cr Faced
4	Disc Thrust Plate	ASTM A276 Type 420
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 GR.F6
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	ASTM A193 GR.B7
9	Gasket	Soft Iron
10	Backseat Bushing	ASTM A276 Type 410
11	Stem Packing	Braided Graphite & Die formed Graphite Ring
12	Bonnet	ASTM A216 GR.WCB
13	Eye Bolt Pins	Carbon Steel
14	Gland	ASTM A276 Type 410
15	Gland Flange	ASTM A216 GR.WCB
16	Gland Eye Bolts	ASTM A307 GR.B
17	Eye Bolt Nuts	ASTM A194 GR.2H
18	Yoke Bush	ASTM A439 GR.D-2
19	Screw	Carbon steel
20	Handwheel	Ductile Iron
21	Handwheel Nut	ASTM A194 GR.2H
22	Washer	Carbon steel
23	Yoke	ASTM A216 GR.WCB
24	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
25	Yoke Pan Bolts	ASTM A193 GR.B7
26	Bearing	Steel
27	Lantern Ring ON Request	ASTM A276 Type 410



Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"
	mm	50	65	80	100	150	200	250	300
L/L1	in	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00
	mm	292	330	356	432	559	660	787	838
L2	in	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12
	mm	295	333	359	435	562	663	790	841
H	in	18.19	21.26	23.03	26.38	34.88	36.69	40.94	50.39
	mm	462	540	585	670	886	932	1040	1280
W	in	10	10	12	18	20	25	24	24
	mm	250	250	350	450	500	630	610	610
Weight RF	kg	36	70	85	123	404	450	700	900



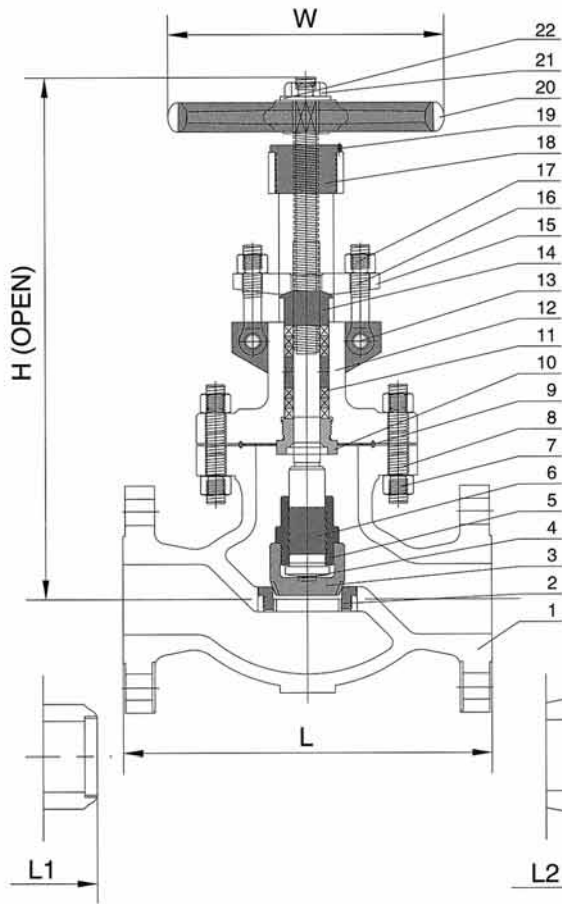
Cast steel globe valve Class 900-2500

FEATURES

OS & Y, Rising Stem
Bolted Bonnet
Conic Disc
Extended Bonnet for Cryogenic Services
Impact hand wheel Optional
Gear Optional

SPECIFICATIONS

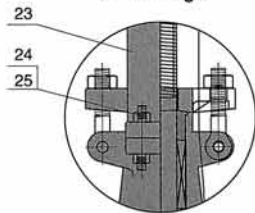
Design	ASME B16.34/BS1873
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75



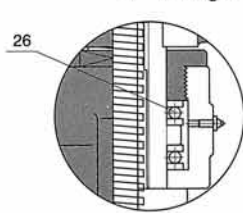
STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A105+Stellite Faced
4	Disc Thrust Plate	ASTM A276 Type 420
5	Disc Nut	ASTM A276 Type 410
6	Stem	ASTM A182 GR.F6
7	Bonnet Bolt nuts	ASTM A194 GR.2H
8	Bonnet Bolt	ASTM A193 GR.B7
9	Gasket	Soft Iron
10	Backseat Bushing	ASTM A276 Type 410
11	Stem Packing	Braided Graphite & Die formed Graphite Ring
12	Bonnet	ASTM A216 GR.WCB
13	Eye Bolt Pins	Carbon Steel
14	Gland	ASTM A276 Type 410
15	Gland Flange	ASTM A216 GR.WCB
16	Gland Eye Bolts	ASTM A307 GR.B
17	Eye Bolt Nuts	ASTM A194 GR.2H
18	Yoke Bush	ASTM A439 GR.D-2
19	Screw	Carbon steel
20	Handwheel	Ductile Iron
21	Handwheel Nut	ASTM A194 GR.2H
22	Washer	Carbon steel
23	Yoke	ASTM A216 GR.WCB
24	Yoke Pan Bolt Nuts	ASTM A194 GR.2H
25	Yoke Pan Bolts	ASTM A193 GR.B7
26	Bearing	Steel
27	Lantern Ring ON Request	ASTM A276 Type 410

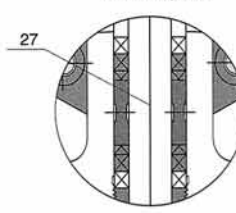
Yoke for 6" & Larger



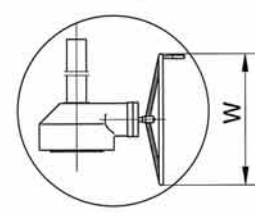
Bearing for 4" & Larger



Lantern Ring On Reques



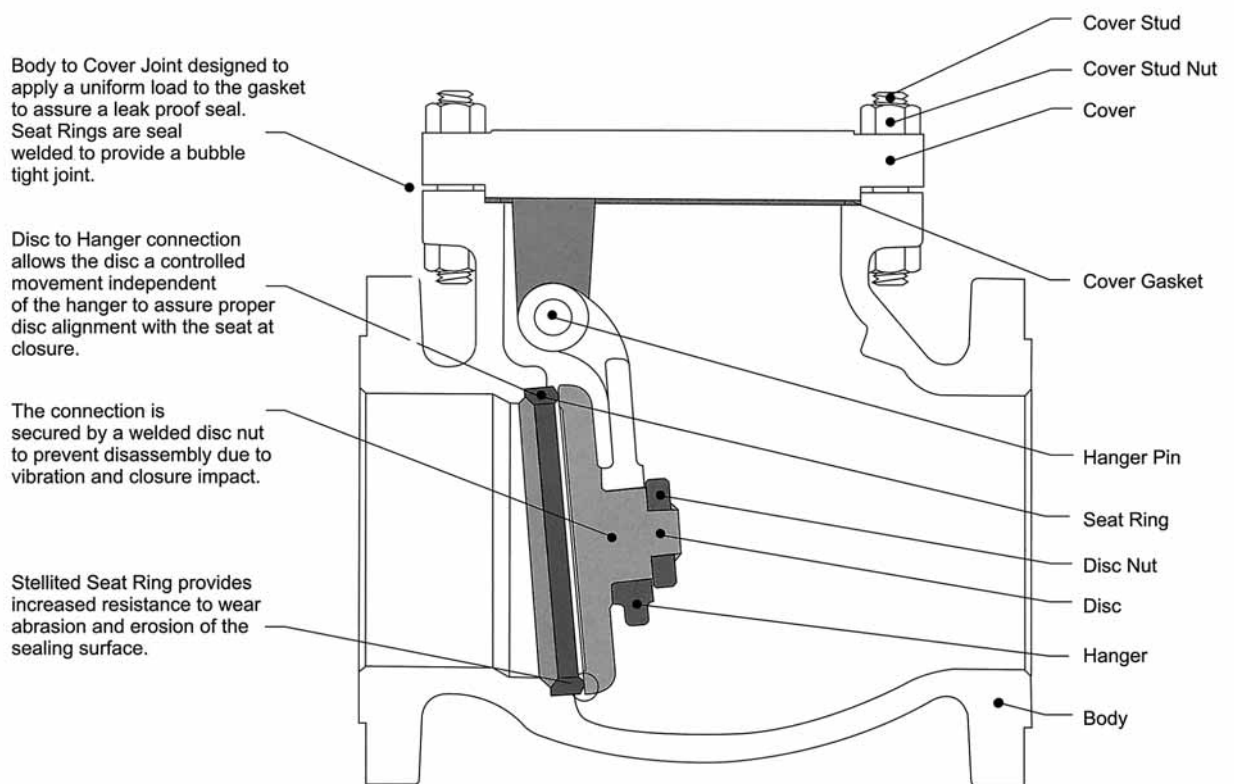
Gear Standard for 6" & Larger



Dimensions and Weights	CALSS 900						CALSS 1500						CALSS 2500						
	2"	2.5"	3"	4"	6"	8"	2"	2.5"	3"	4"	6"	8"	2"	2.5"	3"	4"	6"	8"	
SIZE	in 50	65	80	100	150	200	50	65	80	100	150	200	50	65	80	100	150	200	
L/L1	in	14.50	16.50	15.00	18.00	24.00	29.00	14.50	16.50	18.50	21.50	27.75	32.75	17.75	20.00	22.75	26.50	36.00	40.25
	mm	368	419	381	457	610	737	368	419	470	546	705	832	451	508	578	673	914	1022
L2	in	14.62	16.62	15.12	18.12	24.12	29.12	14.62	16.62	18.62	21.62	28.00	33.13	17.87	20.25	23.00	26.88	36.50	40.87
	mm	371	422	384	460	613	740	371	422	473	549	711	841	454	514	584	683	927	1038
H	in	23.62	25.98	26.18	31.50	43.62	46.61	25.98	25.98	30.31	33.46	45.08	52.95	28.35	31.50	34.84	49.61	75.00	97.05
	mm	600	660	665	800	1108	1184	660	660	770	850	1145	1345	720	800	885	1260	1905	2465
W	in	14	14	18	20	24	24	14	14	20	22	24	24	16	20	22	24	24	24
	mm	350	350	450	500	610	610	350	350	500	560	610	610	400	500	560	600	610	610
Weight RF	kg	95	138	122	195	435	730	95	138	250	435	540	970	176	264	308	759	1990	4390



Cast steel swing check valve





Cast steel swing check valve Class 150

FEATURES

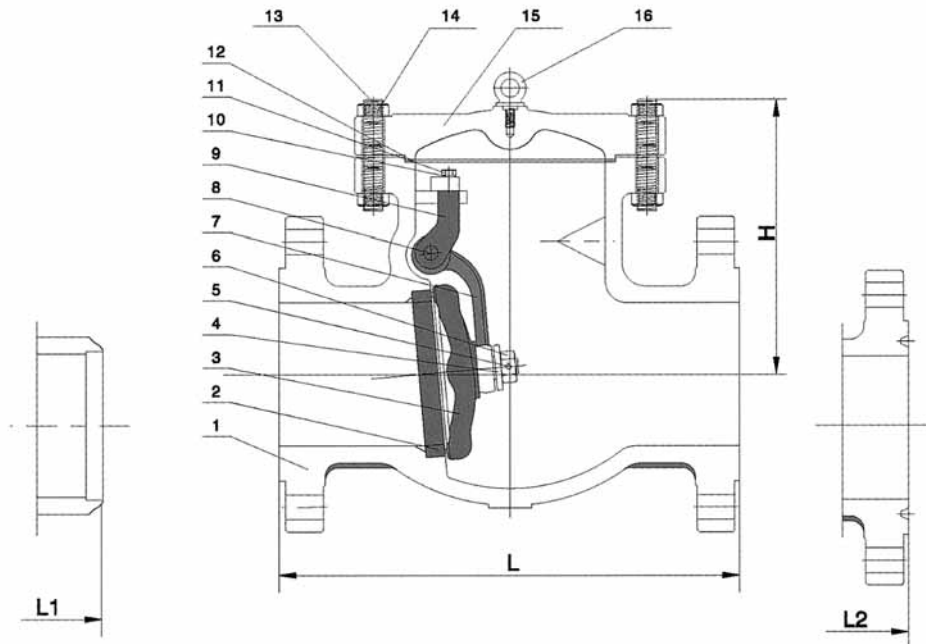
Bolted Cover
Swing Type Disc
6" & Larger With Eye Bolt
By Pass On Request
Lever & Wight Optional

SPECIFICATIONS

Design	ASME B16.34/BS 1868
Face to Face	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Disc Thrust Plate	ASTM A276 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Higne	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F6
9	Bearing Bracket	ASTM A216 GR.WCB
10	Spring Washer	Carbon Steel
11	Hex, Bolt	Carbon Steel
12	Gasket	Soft Iron+Graphite
13	Cover Bolt	ASTM A193 GR.B7
14	Cover Bolt Nut	ASTM A194 GR.2H
15	Cover	ASTM A216 GR.WCB
16	Eye Bolt	Carbon Steel



Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1	in	8.00	8.50	9.50	11.50	14.00	19.50	24.50	27.50	31.00	34.00	38.50	38.50	51.00
	mm	203	216	241	292	356	495	622	699	787	864	978	978	1295
L2	in	8.5	9.00	10.00	12.00	14.50	20.00	25.00	28.00	31.50	34.50	39.00	39.00	51.50
	mm	216	229	2254	305	368	508	635	711	800	876	991	991	1308
H	in	6.10	6.70	7.09	8.66	10.55	12.20	14.57	16.73	18.70	20.67	22.83	24.72	34.72
	mm	155	170	180	220	268	310	370	425	475	525	580	628	882
Weight RF	kg	19	26	29	46	77	163	220	366	428	555	775	835	1180



Cast steel swing check valve Class 300

FEATURES

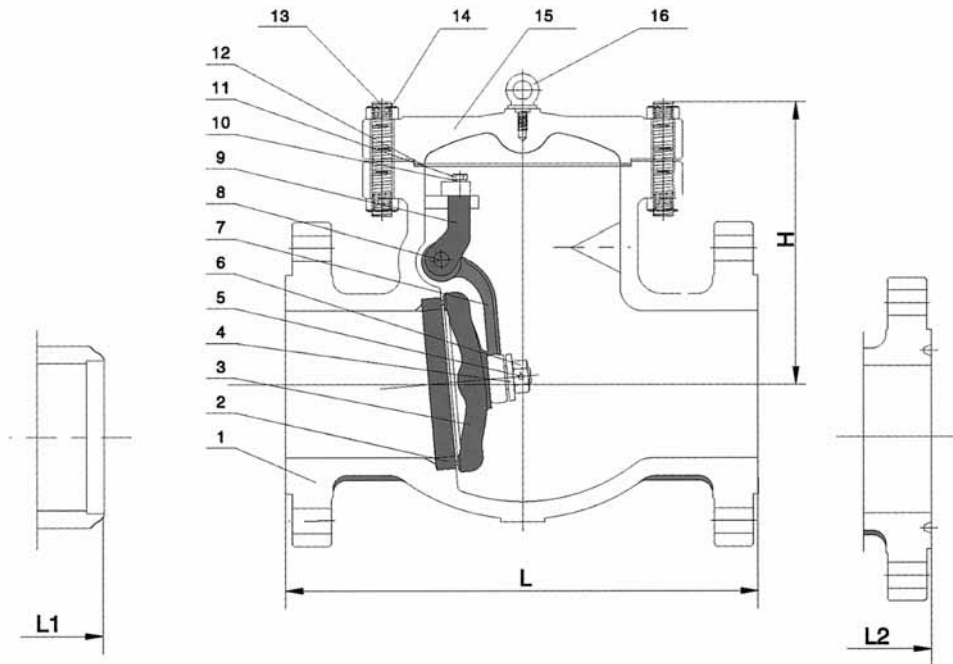
Bolted Cover
Swing Type Disc
4" & Larger With Eye Bolt
By Pass On Request
Lever & Wight Optional

SPECIFICATIONS

Design	ASME B16.34/BS 1868
Face to Face	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Higne	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F6
9	Bearing Bracket	ASTM A216 GR.WCB
10	Spring Washer	Carbon Steel
11	Hex, Bolt	Carbon Steel
12	Gasket	Soft Iron+Graphite
13	Cover Bolt	ASTM A193 GR.B7
14	Cover Bolt Nut	ASTM A194 GR.2H
15	Cover	ASTM A216 GR.WCB
16	Eye Bolt	Carbon Steel



Dimensions and Weights														
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1	in	10.50	11.50	12.50	14.00	17.50	21.00	24.50	28.00	33.00	34.00	38.50	40.00	53.00
	mm	267	292	318	356	445	533	622	711	83/8	864	978	1016	1346
L2	in	11.12	12.12	13.12	14.62	18.12	21.62	25.12	28.62	33.62	34.62	39.12	40.75	53.88
	mm	283	308	333	371	460	549	638	727	854	879	994	1035	1368
H	in	6.89	7.28	7.80	9.25	11.10	13.19	15.15	18.11	20.47	21.81	23.62	26.38	29.53
	mm	175	185	198	235	282	335	385	460	520	554	600	670	750
Weight RF	kg	21	30	39	69	125	210	307	450	680	640	1025	1320	1960



Cast steel swing check valve Class 600

FEATURES

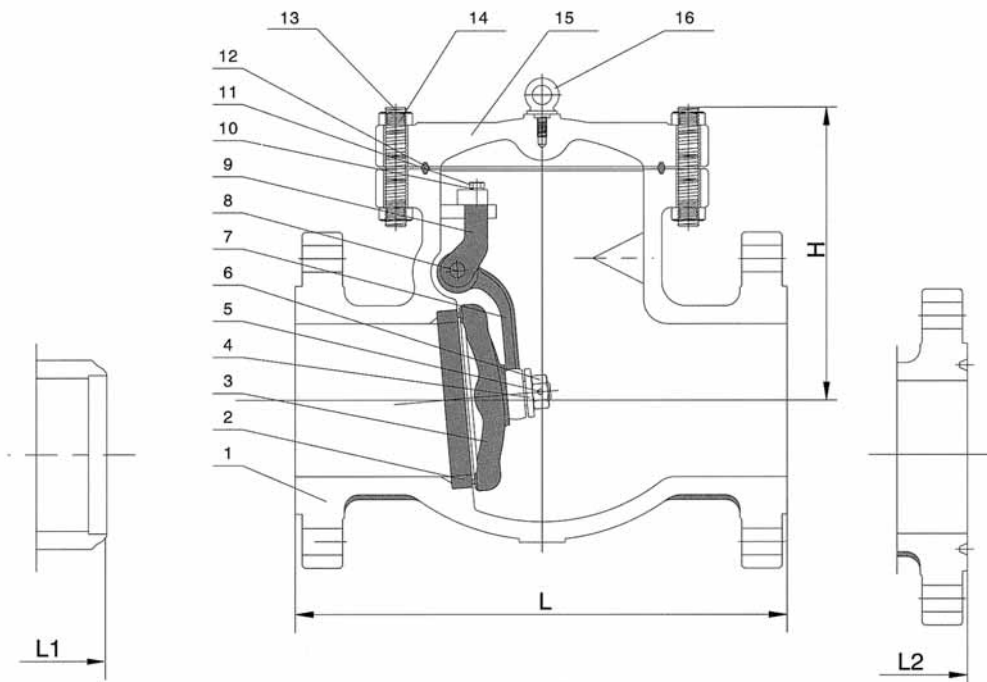
Bolted Cover
Swing Type Disc
With Eye Bolt
By Pass On Request
Lever & Wight Optional

STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Higne	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F6
9	Bearing Bracket	ASTM A216 GR.WCB
10	Spring Washer	Carbon Steel
11	Hex, Bolt	Carbon Steel
12	Gasket, Ring Joint	Soft Iron+Graphite
13	Cover Bolt	ASTM A193 GR.B7
14	Cover Bolt Nut	ASTM A194 GR.2H
15	Cover	ASTM A216 GR.WCB
16	Eye Bolt	Carbon steel

SPECIFICATIONS

Design	ASME B16.34/BS 1868
Face to Face	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75



Dimensions and Weights

SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	mm	50	65	80	100	150	200	250	300	350	400	450	500	600
L/L1	in	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00	35.00	39.00	43.00	47.00	55.00
	mm	292	330	356	432	559	660	757	828	889	991	1092	1194	1397
L2	in	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	39.12	43.12	47.25	55.38
	mm	295	333	359	435	562	663	790	841	892	994	1095	1200	1407
H	in	7.166	7.87	8.94	10.24	12.80	15.35	19.29	20.79	22.56	25.98	28.35	29.37	37.80
	mm	182	200	227	260	325	390	490	528	572	660	720	746	960
Weight RF	kg	36	49	70	122	269	465	673	875	994	1220	1620	2120	3100



Cast steel swing check valve Class 900-2500

FEATURES

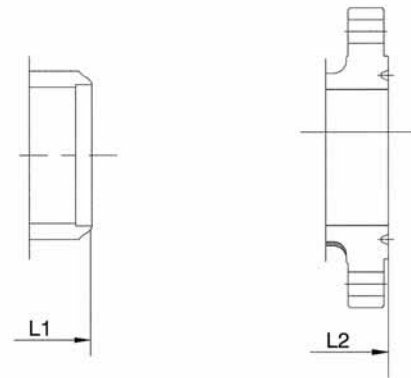
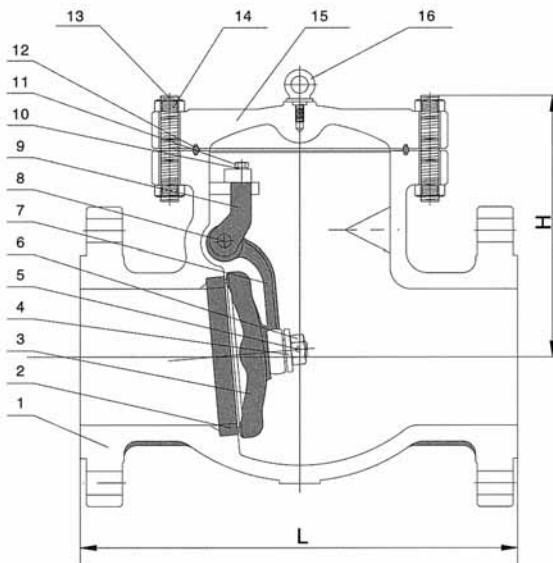
Bolted Cover
Swing Type Disc
With Eye Bolt
By Pass On Request
Lever & Wight Optional

SPECIFICATIONS

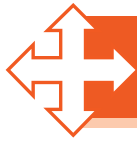
Design	ASME B16.34/BS 1868
Face to Face	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR. WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Higne	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F6
9	Bearing Bracket	ASTM A216 GR.WCB
10	Spring Washer	Carbon Steel
11	Hex, Bolt	Carbon Steel
12	Gasket, Ring Joint	Soft Iron+Graphite
13	Cover Bolt	ASTM A193 GR.B7
14	Cover Bolt Nut	ASTM A194 GR.2H
15	Cover	ASTM A216 GR.WCB
16	Eye Bolt	Carbon steel



Dimensions and Weights		CALSS 900										CALSS 1500										CALSS 2500									
SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"						
	mm	50	65	80	100	150	200	250	300	50	65	80	100	150	200	250	300	50	65	80	100	150	200	250	300						
L/L1	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00						
	mm	368	419	381	457	610	737	838	965	368	419	470	546	705	832	991	1130	451	508	578	673	914	1022	1270	1422						
L2	in	14.62	14.62	15.12	18.12	24.12	29.12	33.12	38.12	14.62	16.62	18.62	21.62	28.00	33.13	39.38	38.12	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88						
	mm	371	422	384	460	613	740	841	968	371	422	473	549	711	841	1000	1146	454	514	584	683	927	1038	1292	1445						
H	in	11.65	11.81	11.81	12.87	17.36	19.76	26.14	30.51	11.65	11.81	13.43	16.22	20.12	26.77	29.76	33.74	16.38	16.50	17.36	18.86	20.12	27.99	33.50	39.37						
	mm	296	300	300	327	441	502	664	775	296	300	341	412	511	680	756	857	416	419	441	479	511	711	851	1000						
Weight RF	kg	70	100	91	150	305	510	810	1120	70	100	150	245	550	1010	1550	2280	145	240	330	650	1400	2420	3750	5500						



Type of end connections

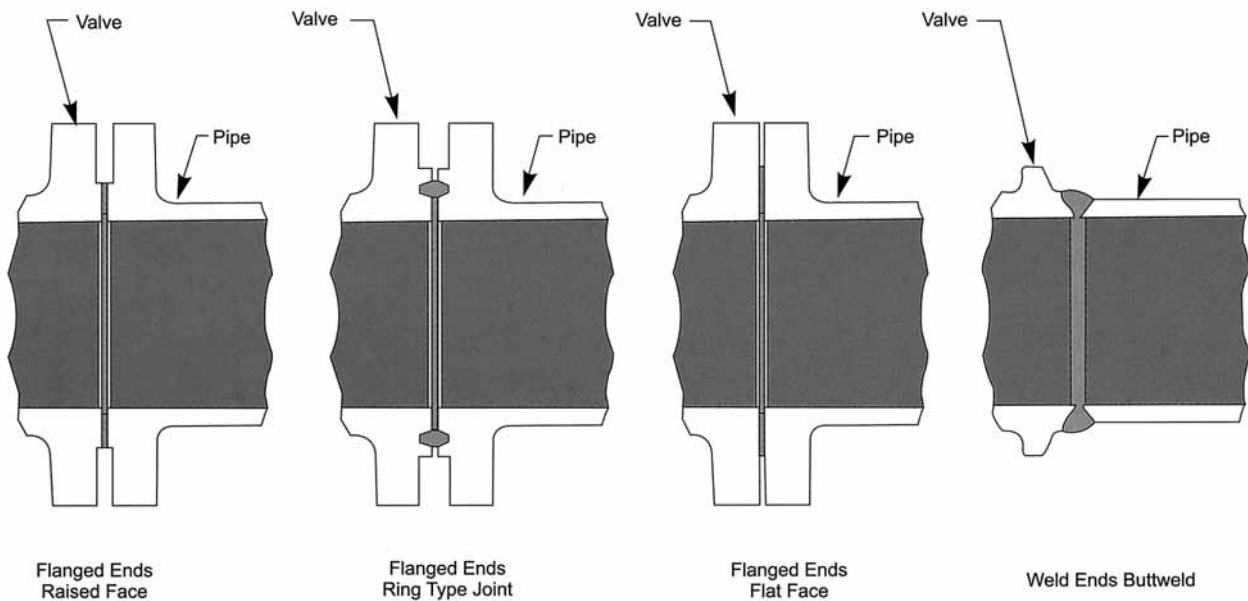
PROTEK Cast steel valves can be supplied with flanged ends in raised face, flat faces or ring joint type as well as in welding ends (buttweld). They can also

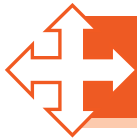
Be supplied with combined ends, such as flanged by weld, in accordance to customer requirements.

The buttweld ends in standard valves are machined in accordance with ASME B 16.25 and are supplied to meet the following pipe schedules:

Valve Pressure Class	Weld End Pipe Schedule
150/300	Schedule 40-2" to 10"
	Standard Wall-12" to 24"
600	Schedule 80
900	Schedule 160-2" to 3"
	Schedule 120-4" and Larger
1500	Schedule 160

The customer must clearly specify the pipe wall thickness and type of pipe to be welded to the valves for schedules different than the above.





Body and bonnet joint seal gaskets

PROTEK Cast steel standard valves are supplied with the types of body/bonnet gaskets shown in the table.

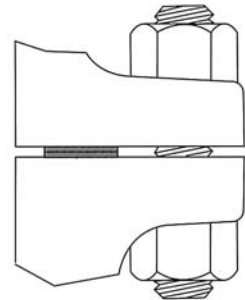
For special service conditions, the **PROTEK** valves can also be supplied with special shapes on joins and special materials, to comply with specific requirements of the customer.

VALVE	CLASS				
	150	300	600	900	1500
GATE	1	2	3	3	3
GLOBE	1	2	3	3	3
CHECK	1	2	3	3	3

Flat Gasket



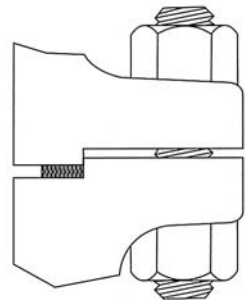
1.Flat Gasket:Graphite with 316 Stainless Steel Core



Spirotalic Gasket



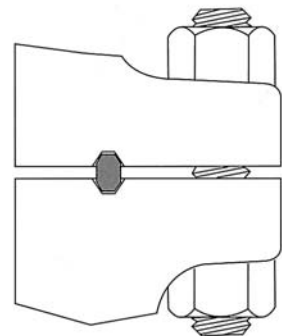
2.Spirotalic Gasket:Stainless Steel/Graphite Filled.

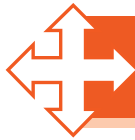


Ring Gasket



3.Ring Gasket:Oval or Octagonal shape,Soft or Stainless Steel





Stem Packing

Standard Compression and Live Loading

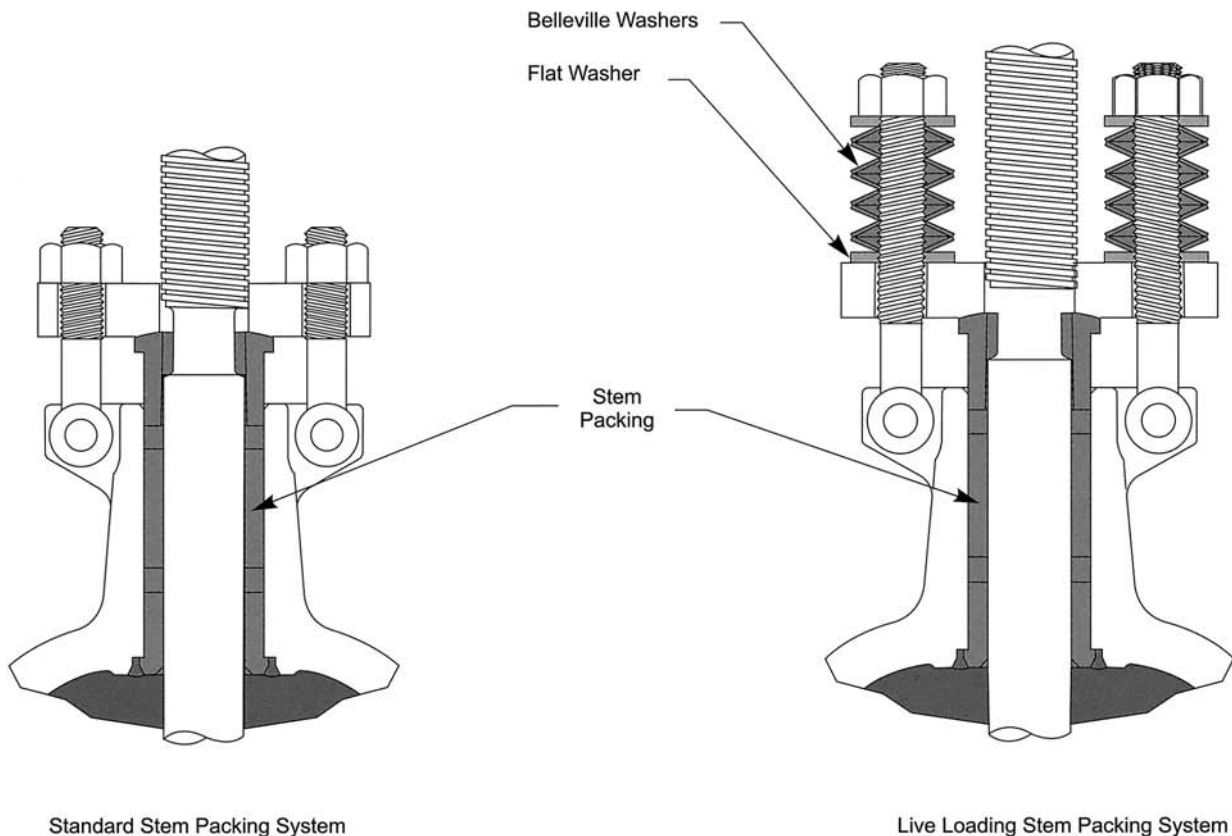
PROTEK Valves are designed, manufactured and tested to meet 50 PPMVOC fugitive emission leak rate as a standard off the shelf valve. This applies to all gate and globe valves, both Cast Steel and Forge Steel, without a requirement for a "special order".

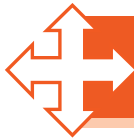
PROTEK Uses a stem packing of flexible graphite incorporating a passive corrosion inhibitor in a combination of high and low density sealing rings with anti-extrusion end rings reinforced with Inconel wire.

The long term low emission stem sealing ability of **PROTEK** packing is enhanced by reduced diametral clearances and close control of stem straightness and packing sealing surface finish.

PROTEK Can also provide gate and globe valves with a stem packing live loading system for installations requiring frequent valve operation and/or having large variations in temperature/pressure or where it is desirable to eliminate the need for occasional adjustment of the packing to compensate for the variations in operation. Live loading will provide a constant compression against the packing to maintain the optimum seal over a long period of time and variations in the operating conditions.

PROTEK Can also supply valves with stem packing of different types and materials to meet the customer requirements.





Material of parts

CAST STEEL GATE VALVE STANDARD MATERIALS OF PARTS

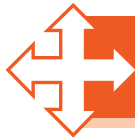
ITEM	PART NAME	CARBON STEEL			ALLOY STEEL			STAINLESS STEEL					
1	Body	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
2	seat ring	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321	
3	disc	A216 WCB	A352 LCB	A352 LCC	A216 WC1	A216 WC6	A216 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
4	stem	A182 F6	A182 F304	A182 F304	A182 F6	A182 F6	A182 F6	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321	
5	Gasket	CL150-300 Soft Iron+ Graphite	304+Graphite			304+Graphite	304+Graphite		304+Graphite				
		CL600-2500 Ring Joint	Soft Iron			304	316		316				
6	Bonnet	A216 WCB	A352 LCB	A352 LCC	A216 WC1	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
7	bonnet bolt nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8					
8	bonnet bolt	A193 B7	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A193 B8					
9	backseat bushing	A276 410	A276 304	A276 304	A276 410			A276 304	A276 316	A276 316L	A276 316L	A276 321	
10	Stem Packing	Braided Graphite& Die formed Graphite Ring			Braided Graphite& Die formed Graphite Ring			Braided Graphite& Die formed Graphite Ring					
11	Eye Bolt Pins	Carbon Steel			A276 410			Stainless Steel					
12	Gland eye bolts	A307 B	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A193 B8					
13	gland	A276 410	A276 304	A276 304	A276 410			A276 304	A276 316	A276 304L	A276 316L	A276 321	
14	gland flange	A216 WCB	A352 LCB	A352 LCB	A216 WC1	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
15	Eye Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8	A194 8	A194 8	A194 8	A194 8	
16	Grease Nipple	Carbon Steel			Carbon Steel			Stainless Steel					
17	Stem Nut	A439 D-2			A439 D-2			AL-Bronze					
18	Retaining Nut	Carbon Steel			Carbon Steel			Carbon Steel					
19	handwheel	Ductile Iron			Ductile Iron			Ductile Iron					
20	handwheel nut	Carbon Steel			Carbon Steel			Stainless Steel					
21	Screw	Carbon Steel			Carbon Steel			Stainless Steel					
22	yoke	A216 WCB	A352 LCB	A352 LCB	A216 WCB	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
23	yoke pan bolt nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8					
24	yoke pan bolts	A193 B7	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A193 B8					
25	bearing	Steel			Steel			Steel					
26	Lantern Ring On Request	A276 410	A276 304	A276 304	A276 410			A276 304	A276 316	A276 316	A276 316L	A276 321	

CAST STEEL GLOBE VALVE STANDARD MATERIALS OF PARTS

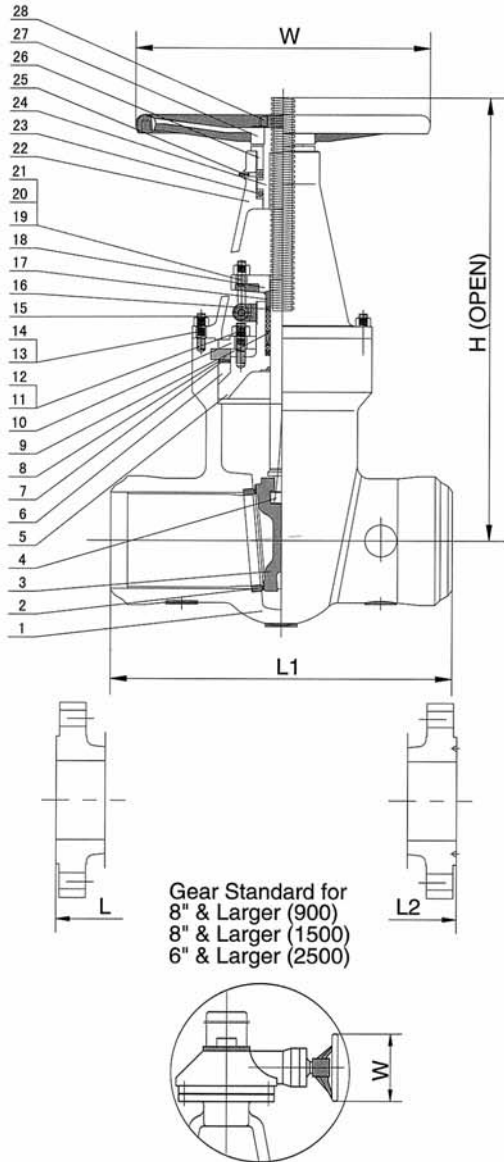
ITEM	PART NAME	CARBON STEEL			ALLOY STEEL			STAINLESS STEEL					
1	Body	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
2	seat ring	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321	
3	disc	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
4	Disc Thrust Plate	A276 420	A276 304	A276 304	A276 420			A276 304	A276 316	A276 304L	A276 316L	A276 321	
5	Disc Nut	A276 410	A276 304	A276 304	A276 410			A276 304	A276 316	A276 304L	A276 316L	A276 321	
6	stem	A182 F6	A182 F304	A182 F304	A182 F6	A182 F6	A182 F6	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321	
7	Bonnet Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8					
8	bonnet bolt	A193 B7	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A193 B8					
9	Gasket	CL150-300 Soft Iron+ Graphite	304+Graphite			304+Graphite	304+Graphite		304+Graphite				
		CL600-2500 Ring Joint	Soft Iron			304	316		316				
10	Backseat Bushing	A216 410	A276 304	A276 304	A276 410			A276 304	A276 316	A276 304L	A276 316L	A276 321	
11	Stem Packing	Braided Graphite& Die formed Graphite Ring			Braided Graphite& Die formed Graphite Ring			Braided Graphite& Die formed Graphite Ring					
12	Bonnet	A216 WCB	A352 LCB	A352 LCC	A216 WC1	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
13	Eye Bolt Pins	Carbon Steel			A276 410			Stainless Steel					
14	Gland	A276 410	A276 304	A276 304	A276 410			A276 304	A276 316	A276 304L	A276 316L	A276 321	
15	Gland Flange	A216 WCB	A352 LCB	A352 LCC	A216 WC1	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
16	Gland Eye Bolts	A307 B	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A193 B8					
17	Eye Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8					
18	Yoke Bush	A439 D-2			A439 D-2			AL-Bronze					
19	Screw	Carbon Steel			Carbon Steel			Stainless Steel					
20	Handwheel	Carbon Steel			Ductile Iron			Ductile Iron					
21	Handwheel Nut	Ductile Iron			A194 2H			Stainless Steel					
22	Washer	Carbon Steel			Carbon Steel			Stainless Steel					
23	Yoke	A216 WCB	A352 LCB	A352 LCC	A216 WCB	A216 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
24	Yoke Pan Bolt Nuts	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8					
25	Yoke Pan Bolts	A193 B7	A193 L7	A193 L7	A193 B7	A193 B16	A193 B16	A193 B8					
26	Bearing	Steel			Steel			Steel					
27	Lantern Ring On Request	A276 410	A276 304	A276 304	A276 410			A276 304	A276 316	A276 304L	A276 316L	A276 321	

CAST STEEL SWING CHECK VALVE STANDARD MATERIALS OF PARTS

ITEM	PART NAME	CARBON STEEL			ALLOY STEEL			STAINLESS STEEL					
1	Body	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
2	seat ring	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321	
3	disc	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
4	Disc Washer	A276 410	A276 304	A276 304	A276 410			A276 316					
5	Disc Nut Pin	Stainless Steel			Stainless Steel			316					
6	Disc Nut	Stainless Steel			Stainless Steel			316					
7	Higne	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
8	Hinge Pin	A182 F6	A182 F304	A182 F304	A182 F6	A182 F6	A182 F6	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321	
9	Bearing Bracket	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
10	Spring Washer	Carbon steel			Stainless Steel			316					
11	Hex, Bolt	A193 B7	A193 L7	A307 L7	A193 B7	A193 B16	A193 B16	A193 B8					
12	Gasket	CL150-300 Soft Iron+ Graphite	304+Graphite			304+Graphite	304+Graphite		304+Graphite				
		CL600-2500 Ring Joint	Soft Iron			304	316		316				
13	Cover Bolt	A193 B7	A193 L7	A307 L7	A193 B7	A193 B16	A193 B16	A193 B8					
14	Cover Bolt Nut	A194 2H	A194 4	A194 4	A194 2H	A194 4	A194 4	A194 8					
15	Cover	A216 WCB	A352 LCC	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
16	Eye Bolt	Carbon steel			Stainless Steel			Stainless Steel					
17	Plug	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321	



Pressure seal gate valve class 900-2500



FEATURES

OS & Y, Rising Stem
Pressure Seal
Flexible Wedge
Backseat Weld-Deposited
By Pass On Request
Locking Device Optional
Gear Optional

SPECIFICATIONS

Design	ASME B16.34
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

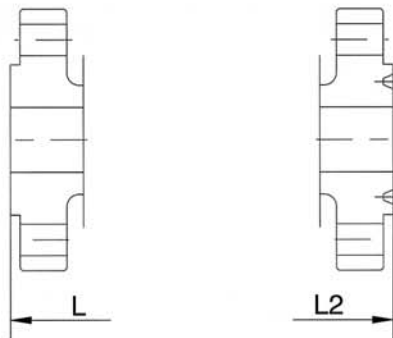
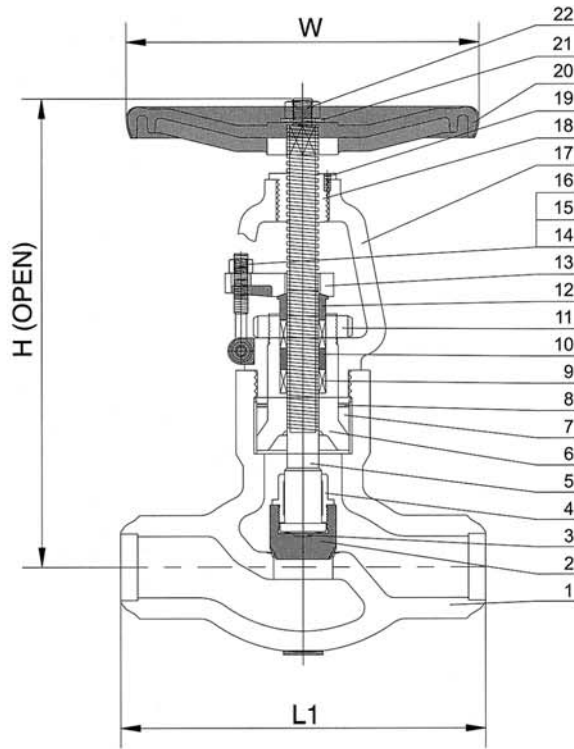
STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR.WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR. WCB+Stellite Faced
4	Stem	ASTM A182 GR.F6
5	Bonnet	ASTM A216 GR. WCB+Stellite Faced
6	Gasket	ASTM A182 GR. F304
7	Thrust Ring	ASTM A276 Type 410
8	Separate Ring	Carbon Steel
9	Lantern Ring On Request	ASTM A276 Type 410
10	Bonnet Retainer	Carbon Steel
11	Bonnet Bolts	ASTM A193 GR.B7
12	Bonnet Bolt nuts	ASTM A194 GR.2H
13	Yoke Bolts	ASTM A194 GR.B7
14	Yoke Bolt Nuts	ASTM A193 GR.2H
15	Gland Eye	ASTM A216 GR.WCB
16	Stem Packing	Braided Graphite & Die formed Graphite Ring
17	Gland	ASTM A276 Type 410
18	Gland Flange	ASTM A216 GR.WCB
19	Eye Bolt Pins	Carbon steel
20	Gland Eye Bolts	ASTM A193 GR.B7
21	Eye Bolt Nuts	ASTM A194 GR.2H
22	Yoke	ASTM A216 GR.WCB
23	Bearing	Steel
24	Stem Nut	ASTM A439 GR. D-2
25	Grease Nipple	Carbon Steel
26	Retaining Nut	Carbon Steel
27	Handwheel	Ductile Iron
28	Handwheel Nut	Carbon Steel

Dimensions and Weights		CALSS 900								CALSS 1500								CALSS 2500							
SIZE		2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"
	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	17.50	20.00	22.75	26.50	36.00	40.25	50.00	56.00	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50
	mm	368	419	381	457	610	737	838	965	450	508	578	673	914	1022	1270	1422	368	419	470	546	705	832	991	1130
L	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	17.50	20.00	22.75	26.50	36.00	40.25	50.00	56.00	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50
	mm	368	419	381	457	610	737	838	965	450	508	578	673	914	1022	1270	1422	368	419	470	546	705	832	991	1130
L1	in	8.50	10.00	12.00	14.00	20.00	26.00	31.00	36.00	11.00	13.00	14.50	18.00	24.00	30.00	36.00	41.00	8.50	10.00	12.00	16.00	22.00	28.00	34.00	39.00
	mm	216	254	305	356	508	660	787	914	279	330	368	457	610	762	914	1041	216	254	305	406	559	711	864	991
L2	in	14.62	16.62	15.12	18.12	24.12	29.12	33.12	38.12	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12
	mm	371	422	384	460	613	740	841	968	454	514	584	683	927	1038	1292	1445	371	422	473	549	711	842	100	146
H	in	24.41	30.00	30.71	33.86	40.35	50.63	60.63	70.28	24.00	30.55	30.90	34.40	44.02	53.46	66.14	74.50	24.00	30.55	30.90	34.40	40.35	53.46	61.74	74.50
	mm	620	762	780	860	1025	1286	1540	1785	610	776	785	874	1118	1358	1680	1892	610	776	785	874	1025	1358	1568	1892
W	in	12	14	14	16	20	24	24	24	14	18	18	20	24	24	24	24	12	16	16	20	24	24	24	24
	mm	300	350	350	400	500	610	610	610	350	450	450	500	610	610	610	610	300	400	400	500	600	610	610	610
Weight RF	kg	50	72	86	110	202	530	782	1135	60	112	122	192	480	830	1678	2320	50	92	92	145	230	540	1060	1184



Pressure seal globe valve class 900-2500



FEATURES

OS & Y, Rising Stem
Pressure Seal
Conic Disc
Backseat Weld-Deposited
By Pass On Request
Locking Device Optional
Gear Optional

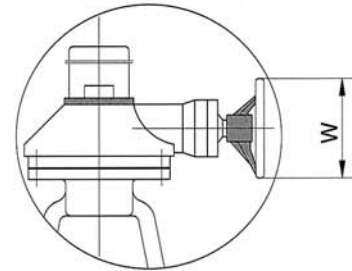
SPECIFICATIONS

Design	ASME B16.34
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

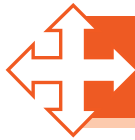
STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216GR.WCB+Stellite Faced
2	Disc	ASTM A105+13Cr Faced
3	Disc Thrust Plate	ASTM A276 Type 420
4	Disc Nut	ASTM A276 Type 410
5	Stem	ASTM A182 GR.F6
6	Bonnet	ASTM A216GR.WCB+Stellite Faced
7	Gasket	ASTM A182 GR.F304
8	Thrust Ring	ASTM A276 Type 410
9	Stem Packing	Braided Graphite & Die formed Graphite Ring
10	Lantern Ring	ASTM A276 Type 410
11	Bonnet Retainer	Carbon Steel
12	Gland	ASTM A276 Type 410
13	Gland Flange	ASTM A216 GR.WCB
14	Eye Bolt Pins	Carbon Steel
15	Gland Eye Bolts	ASTM A193 GR.B7
16	Eye Bolt Nuts	ASTM A194 GR.2H
17	Yoke	ASTM A216 GR.WCB
18	Yoke Bush	ASTM A439 GR.D-2
19	Screw	Carbon steel
20	Handwheel	Ductile Iron
21	Washer	Carbon steel
22	Handwheel Nut	ASTM A194 GR.2H

Gear Standard for
6" & Larger (900)
6" & Larger (1500)
4" & Larger (2500)



Dimensions and Weights		CALSS 900						CALSS 1500						CALSS 2500					
SIZE	in mm	2"	2.5"	3"	4"	6"	8"	2"	2.5"	3"	4"	6"	8"	2"	2.5"	3"	4"	6"	8"
L/L1	in mm	14.50 368	16.50 419	15.00 381	18.00 457	24.00 610	29.00 737	14.50 368	16.50 419	18.50 470	21.50 546	27.75 705	32.75 832	17.75 451	20.00 508	22.75 578	26.50 673	36.00 914	40.25 1022
L2	in mm	14.62 371	16.62 422	15.12 384	18.12 460	24.12 613	29.12 740	14.62 371	16.62 422	18.62 473	21.62 549	28.00 711	33.13 841	17.87 454	20.25 514	23.00 584	26.88 683	36.50 927	40.87 1038
H	in mm	24.41 620	25.40 645	28.50 724	33.40 848	48.23 1225	53.15 1350	24.41 620	25.40 645	32.68 830	33.86 860	48.50 1232	70.24 1784	24.41 620	30.63 778	34.84 885	51.10 1298	53.74 1365	83.46 2120
W	in mm	14 350	14 350	18 450	20 500	24 610	24 610	14 350	14 350	20 500	22 560	24 610	24 610	16 400	20 500	22 560	24 610	24 610	24 610
Weight RF	kg	62	86	86	140	380	948	62	86	112	158	765	1494	80	115	152	358	965	2095



Pressure seal swing check valve class 900-2500

FEATURES

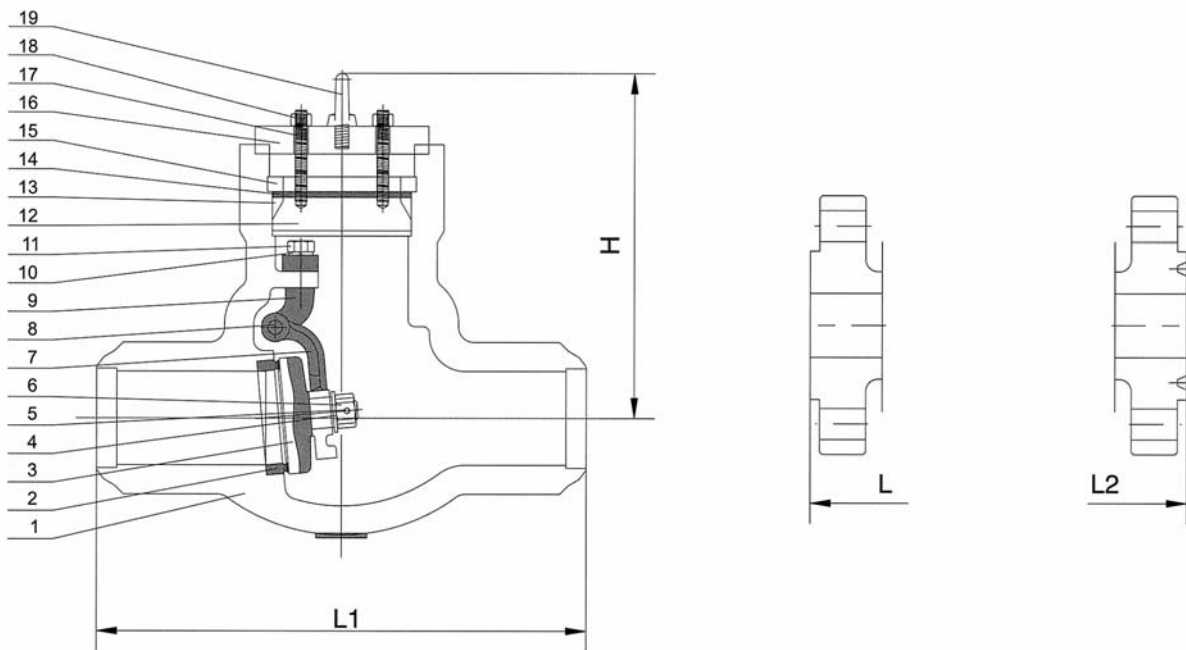
Pressure Seal
Swing Type Disc
Type 1 Standard
Type 2 Optional
With Eye Bolt
By Pass On Request
Lever & Wight Optional

SPECIFICATIONS

Design	ASME B16.34
Face to Face	ASME B16.10
End to End	ASME B16.10
End Flange	ASME B16.5
BW End	ASME B16.25
Test	API 598
Special	NACE MR-01-75

STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR. WCB
2	Seat Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Higne	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F6
9	Bearing Bracket	ASTM A216 GR.WCB
10	Spring Washer	Carbon Steel
11	Hex, Bolt	Carbon Steel
12	Bonnet	ASTM A216 GR.WCB
13	Gasket	ASTM A182 GR.F304
14	Thrust Ring	ASTM A 276 Type 410
15	Separate Ring	ASTM A 276 Type410
16	Cover	ASTM A216 GR.WCB
17	Cover Bolt	ASTM A193 GR.B7
18	Cover Bolt Nut	ASTM A194 GR.2H
19	Eye Bolt	Carbon steel



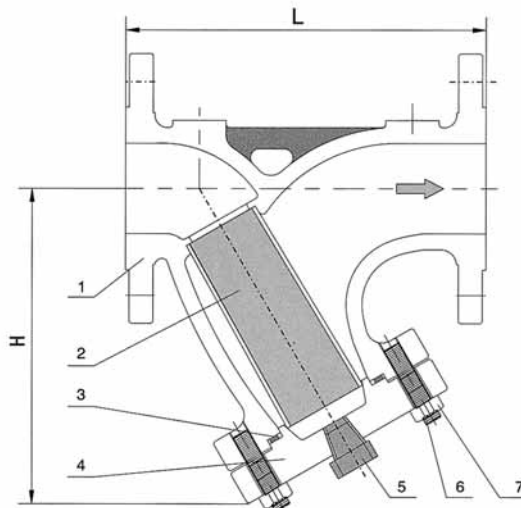
Dimensions and Weights	CALSS 900										CALSS 1500								CALSS 2500							
	SIZE	in	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"
L/L1	in	14.50	16.50	15.00	18.00	24.00	29.00	33.00	38.00	14.50	16.50	18.50	21.50	27.75	32.75	39.00	44.50	17.75	20.00	22.75	26.50	36.00	40.25	50.00	56.00	
	mm	368	419	381	457	610	737	838	965	368	419	470	546	705	832	991	1130	451	508	578	673	914	1022	1270	1422	
L2	in	14.62	14.62	15.12	18.12	24.12	29.12	33.12	38.12	14.62	16.62	18.62	21.62	28.00	33.13	39.38	45.12	17.87	20.25	23.00	26.88	36.50	40.87	50.88	56.88	
	mm	371	422	384	460	613	740	841	968	371	422	473	549	711	841	1000	1146	454	514	584	683	927	1038	1292	1445	
H	in	11.65	11.81	11.81	12.87	17.36	19.76	26.14	30.51	11.65	11.81	13.43	16.22	20.12	26.77	29.76	33.74	16.38	16.50	17.36	18.86	20.12	27.99	33.50	39.37	
	mm	296	300	300	327	441	502	664	775	296	300	341	412	511	680	756	857	416	419	441	479	511	711	851	1000	
Weight BW	kg	50	77	68	115	230	387	632	910	50	77	115	190	452	845	1280	1780	110	190	260	535	1110	1980	2980	4350	



Cast steel Y-strainer class 150-600

SPECIFICATIONS

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



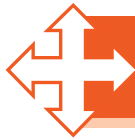
STANDARD MATERIALS OF PARTS

ITEM	PART NAME	MATERIAL
1	Body	ASTM A216 GR. WCB
2	Screen	ASTM A276 Type 304
3	Gasket	304+Graphite
4	Cover	ASTM A216 GR.WCB
5	Plug	ASTM A105
6	Cover Bolt	ASTM A193 GR.B7
7	Cover Bolt Nut	ASTM A194 GR.2H

Dimensions and Weights		CALSS 150							
SIZE	in mm	2"	2.5"	3"	4"	6"	8"	10"	12"
L	in	8.00	8.50	9.50	11.50	16.00	19.50	24.50	27.50
	mm	203	216	241	292	406	495	622	699
H	in	5.71	7.20	8.11	8.98	12.95	17.32	19.96	23.39
	mm	145	183	206	228	329	440	507	594
Weight	kg	12	18	21	32	48	105	169	215

Dimensions and Weights		CALSS 300							
SIZE	in mm	2"	2.5"	3"	4"	6"	8"	10"	12"
L	in	10.50	11.50	12.50	14.00	17.50	22.00	24.50	28.00
	mm	267	292	318	356	445	559	622	711
H	in	6.70	7.28	9.25	11.42	14.76	17.72	22.64	26.18
	mm	170	185	235	290	375	450	575	665
Weight	kg	15	18	35	51	92	182	285	307

Dimensions and Weights		CALSS 600							
SIZE	in mm	2"	2.5"	3"	4"	6"	8"	10"	12"
L	in	11.50	13.00	14.00	17.00	22.00	26.00	31.00	33.00
	mm	292	330	356	432	559	660	787	838
H	in	7.28	7.87	9.84	11.81	16.34	19.29	23.43	26.77
	mm	185	200	250	300	415	490	595	680
Weight	kg	35	40	48	90	220	360	500	781



Stem data & operation torques

Gate Valve

CLASS	ITEM	VALVE SIZE																
		2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	30"	32"	32"
150	Stem Thread O.D.	3/4"	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 3/8"	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2"	2 1/4"	2 1/2"	2 3/4"	2 3/4"	3"
	Thread Per Inch	5	5	5	5	5	4	4	4	3	3	3	3	3	3	3	3	2
	Pitch(in)	0.2	0.2	0.5	0.2	0.2	0.25	0.25	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5
	Tums to Open	13	16	18	24	34	36	44	52	44	53	58	64	75	88	94	99	74
	Torque(N.m)	16	18	24	38	76	111	182	269	325	435	565	748	1256	1587	1935	2127	3239
300	Stem Thread O.D.	3/4"	3/4"	7/8"	1"	1 1/4"	1 3/8"	1 1/2"	1 5/8"	1 3/4"	1 7/8"	2"	2 1/8"	2 1/8"	2 3/4"	2 7/8"		
	Thread Per Inch	5	5	5	5	4	4	4	3	3	3	3	3	3	3	2		
	Pitch(in)	0.2	0.2	0.2	0.2	0.25	0.25	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5	
	Tums to Open	14	16	18	24	26	36	44	40	45	53	58	64	76	88	94		
	Torque(N.m)	23	26	35	55	159	291	458	661	810	1088	1430	1778	2823	4115	5653		
600	Stem Thread O.D.	3/4"	7/8"	1"	1 1/8"	1 1/2"	1 5/8"	1 7/8"	2"	2 1/4"	2 3/8"	2 1/2"	2 3/4"	3"				
	Thread Per Inch	5	5	5	5	4	3	3	3	3	3	3	3	2				
	Pitch(in)	0.2	0.2	0.2	0.2	0.25	0.333	0.333	0.333	0.333	0.333	0.333	0.333	0.5				
	Tums to Open	14	16	18	24	27	27	33	40	45	53	58	64	51				
	Torque(N.m)	35	47	70	122	406	641	1023	1508	2098	2816	3038	3981	6896				
900	Stem Thread O.D.	3/4"	1 1/8"	1 1/8"	1 1/4"	1 5/8"	1 7/8"	2 1/8"	2 1/4"									
	Thread Per Inch	5	5	5	4	3	3	3	3									
	Pitch(in)	0.2	0.2	0.2	0.25	0.333	0.333	0.333	0.333									
	Tums to Open	14	16	18	21	22	28	34	40									
	Torque(N.m)	80	90	95	159	569	978	1728	2601									
1500	Stem Thread O.D.	3/4"	1 1/8"	1 1/4"	1 3/8"	1 3/4"	2 1/8"	2 1/2"	2 3/4"									
	Thread Per Inch	5	5	4	4	3	3	3	3									
	Pitch(in)	0.2	0.2	0.2	0.25	0.333	0.333	0.333	0.333									
	Tums to Open	14	16	16	22	22	28	34	40									
	Torque(N.m)	117	172	224	349	1009	2025	3259	4437									
2500	Stem Thread O.D.	3/4"	1 1/8"	1 1/4"	1 3/8"	1 7/8"	2 3/8"	2 7/8"	3 1/4"									
	Thread Per Inch	5	5	4	4	3	3	2	2									
	Pitch(in)	0.2	0.2	0.2	0.25	0.333	0.333	0.333	0.333									
	Tums to Open	15	17	17	22	28	28	34	40									
	Torque(N.m)	165	224	281	559	1407	2913	5748	8332									

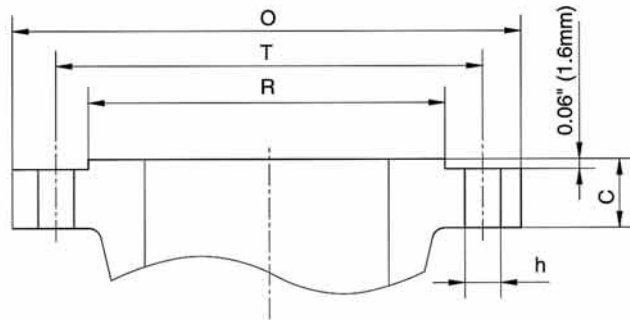
Globe Valve

CLASS	ITEM	VALVE SIZE							
		2"	2.5"	3"	4"	6"	8"	10"	12"
150	Stem Thread O.D.	3/4"	7/8"	1"	1 1/8"	1 1/4"	1 3/8"	1 1/2"	1 5/8"
	Thread Per Inch	5	5	5	5	4	4	4	3
	Pitch(in)	0.2	0.2	0.2	0.2	0.25	0.25	0.25	0.333
	Tums to Open	4	7	5	8	7	9	10	7
	Torque(N.m)	47	66	84	157	239	326	620	1198
300	Stem Thread O.D.	3/4"	7/8"	1"	1 1/8"	1 3/8"	1 1/2"	1 1/2"	1 3/4"
	Thread Per Inch	5	5	5	5	4	4	4	3
	Pitch(in)	0.2	0.2	0.2	0.2	0.25	0.25	0.333	0.333
	Tums to Open	4	8	7	8	7	9	9	9
	Torque(N.m)	62	85	118	218	727	1309	2160	3100
600	Stem Thread O.D.	7/8"	1"	1 1/8"	1 1/4"	1 5/8"	1 3/4"	2"	2 1/8"
	Thread Per Inch	5	5	5	4	3	3	3	3
	Pitch(in)	0.2	0.2	0.2	0.25	0.333	0.333	0.333	0.333
	Tums to Open	8	8	8	8	9	9	9	9
	Torque(N.m)	142	244	316	602	1590	2782	4579	6216
900	Stem Thread O.D.	1 1/8"	1 1/4"	1 1/4"	1 3/8"	1 3/4"	2"		
	Thread Per Inch	5	4	4	4	3	3		
	Pitch(in)	0.2	0.25	0.25	0.25	0.333	0.333		
	Tums to Open	8	7	7	8	9	9		
	Torque(N.m)	285	412	528	1063	1792	3439		
1500	Stem Thread O.D.	1 1/8"	1 1/4"	1 3/8"	1 1/2"	2"	2 1/4"		
	Thread Per Inch	5	4	4	4	3	3		
	Pitch(in)	0.2	0.25	0.2	0.25	0.333	0.333		
	Tums to Open	8	7	7	8	9	9		
	Torque(N.m)	352	772	876	1816	3868	5011		
2500	Stem Thread O.D.	1 1/4"	1 1/2"	1 5/8"	1 3/4"	2"	2 1/2"		
	Thread Per Inch	4	4	3	3	3	3		
	Pitch(in)	0.25	0.25	0.333	0.333	0.333	0.333		
	Tums to Open	7	7	6	6	9	9		
	Torque(N.m)	502	824	959	2062	6530	9682		



Steel end flange dimensions **class 150-300** ASME B16.5/B16.47

CLASS 150 300 RF



CLASS	SIZE		O		R		C		T		h		Bolt	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY.	Diameter
150	2	50	6.00	152	3.62	92	0.62	16	4.75	120.5	0.75	19	4	5/8
	2.5	65	7.00	178	4.12	105	0.69	18	5.50	139.5	0.75	19	4	5/8
	3	80	7.50	190	5.00	127	0.75	19	6.00	152.5	0.75	19	4	5/8
	4	100	9.00	229	6.19	157	0.94	24	7.50	190.5	0.75	19	8	5/8
	6	150	11.00	279	8.50	216	1.00	26	9.50	241.5	0.88	22	8	3/4
	8	200	13.50	343	10.62	270	1.12	29	11.75	298.5	0.88	22	8	3/4
	10	250	16.00	406	12.75	324	1.19	31	14.25	362	1.00	25	12	7/8
	12	300	19.00	483	15.00	381	1.25	32	17.00	432	1.00	25	12	7/8
	14	350	21.00	533	16.25	413	1.38	35	18.75	476	1.12	29	12	1
	16	400	23.50	597	18.50	470	1.44	37	21.25	540	1.12	29	16	1
	18	450	25.00	635	21.00	533	1.56	40	22.75	578	1.25	32	16	1 1/8
	20	500	27.50	699	23.00	584	1.69	43	25.00	635	1.25	32	20	1 1/8
	24	600	32.00	813	27.25	692	1.88	48	29.50	749.5	1.38	35	20	1 1/4
	28	700	36.50	927	31.50	800	2.81	72	34.00	963.5	1.38	35	28	1 1/4
	30	750	38.75	984	33.75	857	2.94	75	36.00	914.5	1.38	35	28	1 1/4
	32	800	41.75	1060	36.00	914	3.19	81	38.50	978	1.62	41	28	1 1/2
36	900	46.00	1168	40.25	1022	3.56	91	42.75	1086	1.62	41	32	1 1/2	
300	2	50	6.50	165	3.62	92	0.88	23	5.00	127	0.75	19	8	5/8
	2.5	65	7.50	190	4.12	105	1.00	26	5.88	179	0.88	22	8	3/4
	3	80	8.25	210	5.00	127	1.12	29	6.62	168.5	0.88	22	8	3/4
	4	100	10.00	254	6.19	157	1.25	32	7.88	200	0.88	22	8	3/4
	6	150	12.50	318	8.50	216	1.44	37	10.62	270	0.88	22	12	3/4
	8	200	15.00	381	10.62	270	1.62	42	13.00	330	1.00	25	12	7/8
	10	250	17.50	445	12.75	324	1.88	48	15.25	387.5	1.12	29	16	1
	12	300	20.50	521	15.00	381	2.00	51	17.75	451	1.25	32	16	1 1/8
	14	350	23.00	584	16.25	413	2.12	54	20.25	514.5	1.25	32	20	1 1/8
	16	400	25.50	648	18.50	470	2.25	58	22.50	571.5	1.38	35	20	1 1/4
	18	450	28.00	711	21.00	533	2.38	61	24.75	628.5	1.38	35	24	1 1/4
	20	500	30.50	775	23.00	584	2.50	64	27.00	686	1.38	35	24	1 1/4
	24	600	36.00	914	27.25	692	2.75	70	32.00	813	1.62	41	24	1 1/2
	28	700	40.75	1035	31.50	800	3.38	86	37.00	940	1.75	45	28	1 5/8
30	750	43.00	1092	33.75	857	3.62	92	39.25	997	1.88	48	28	1 3/4	

End Flange Dimensions: Size 2" - 24" to ASME B16.5, Size 28" - 36" to ASME B16.47 A.

Tolerances: Unit inch

Thickness C: NPS ≤ 18" +0.12, -0

NPS ≥ 20" +0.19, -0

Drilling and Facing: Bolt Circle Diameter h: ±0.06

Center to Center of Adjacent Bolt Holes: ±0.03

Eccentricity Between Bolt Circle Diameter and Machined Facing Diameters:

NPS ≤ 2 1/2" ±0.03

NPS ≤ 2 1/2" ±0.06

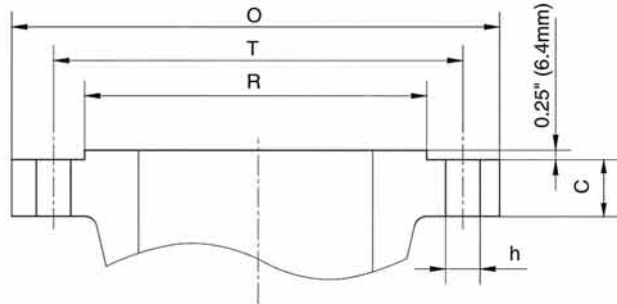
Outside Diameter R: 0.06 Raised Face: ±0.03

0.25 Raised Face: ±0.02



Steel end flange dimensions class 600-2500 ASME B16.5

CLASS 600-2500 RF



CLASS	SIZE		O		R		C		T		h		Bolt	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	QTY.	Diameter
600	2	50	6.50	165	3.62	92	1.00	26	5.00	127	0.75	19	8	5/8
	2.5	65	7.50	190	4.12	105	1.12	29	5.88	149	0.88	22	8	3/4
	3	80	8.25	210	5.00	127	1.25	32	6.62	168	0.88	22	8	3/4
	4	100	10.75	273	6.19	157	1.50	38	8.50	216	1.00	25	12	7/8
	6	150	14.00	356	8.50	216	1.88	48	11.50	292	1.12	29	12	1
	8	200	16.50	419	10.62	270	2.19	56	13.75	349	1.25	32	12	1 1/8
	10	250	20.00	508	12.75	324	2.50	64	17.00	432	1.38	35	16	1 1/4
	12	300	22.00	559	15.00	381	2.62	67	19.25	489	1.38	35	20	1 1/4
	14	350	23.75	603	16.25	413	2.75	70	20.75	527	1.50	38	20	1 3/8
	16	400	27.00	686	18.50	470	3.00	77	23.75	603	1.62	41	20	1 1/2
	18	450	29.25	743	21.00	533	3.25	83	25.75	654	1.75	44	20	1 5/8
	20	500	32.00	813	23.00	584	3.50	89	28.50	724	1.75	44	24	1 5/8
24	600	37.00	940	27.25	692	4.00	102	33.00	838	2.00	51	24	1 7/8	
900	2	50	8.50	216	3.62	92	1.50	38.5	6.50	165.1	1.00	26	8	7/8
	2.5	65	9.62	244	4.12	105	1.62	41.5	7.50	190.5	1.12	29	8	1
	3	80	9.50	241	5.00	127	1.50	38.5	7.50	190.5	1.00	26	8	7/8
	4	100	11.50	292	6.19	157	1.75	44.5	9.25	234.9	1.25	32	8	1 1/8
	6	150	15.00	381	8.50	216	2.19	56.0	12.50	317.5	1.25	32	12	1 1/8
	8	200	18.50	470	10.62	270	2.50	63.5	15.50	393.7	1.50	39	12	1 3/8
	10	250	21.50	545	12.75	324	2.75	70.0	18.50	469.9	1.50	39	16	1 3/8
	12	300	24.00	610	15.00	381	3.12	79.5	21.00	533.4	1.50	39	20	1 3/8
	14	350	25.25	640	16.25	413	3.38	86.0	22.00	558.8	1.62	42	20	1 1/2
	16	400	27.75	705	18.50	470	3.50	89.0	24.25	615.9	1.75	45	20	1 5/8
	18	450	31.00	785	21.00	533	4.00	102.0	27.00	685.8	2.00	51	20	1 7/8
	20	500	33.75	855	23.00	584	4.25	108.0	29.50	749.3	2.12	54	20	2
24	600	41.00	1040	27.25	692	5.50	140.0	35.50	901.7	2.62	67	20	2 1/2	
1500	2	50	8.50	216	3.62	92	1.50	38.5	6.50	165.1	1.00	26	8	1
	2.5	65	9.62	244	4.12	105	1.62	41.5	7.50	190.5	1.12	29	8	1 1/8
	3	80	10.50	267	5.00	127	1.88	48.5	8.00	203.2	1.25	32	8	1 1/4
	4	100	12.25	311	6.19	157	2.12	54.0	9.50	238.7	1.38	35	8	1 3/8
	6	150	15.50	394	8.50	216	3.25	83.0	12.50	317.5	1.50	39	12	1 1/2
	8	200	19.00	483	10.62	270	3.62	92.9	15.50	393.7	1.75	45	12	1 3/4
	10	250	23.00	585	12.75	324	4.25	108.0	19.00	481.4	2.00	51	12	2
	12	300	26.50	675	15.00	381	4.88	124.0	22.50	571.5	2.12	54	16	2 1/8
	14	350	29.50	750	16.25	413	5.25	133.5	25.00	635.0	2.38	61	16	2 3/8
	16	400	32.50	825	18.50	470	5.75	146.5	27.75	701.2	2.62	67	16	2 5/8
	18	450	36.00	915	21.00	533	6.38	162.0	30.50	771.2	2.88	74	16	2 7/8
	20	500	38.75	985	23.00	584	7.00	178.0	32.75	837.2	3.12	80	16	3 1/8
24	600	46.00	1170	27.25	692	8.00	203.5	39.00	991.2	3.62	93	16	3 5/8	
2500	2	50	9.25	235	3.62	92	2.00	51.0	6.75	171.8	1.12	29	8	1
	2.5	65	10.50	267	4.12	105	2.25	57.5	7.75	196.8	1.25	32	8	1 1/8
	3	80	12.00	305	5.00	127	2.62	67.0	9.00	228.6	1.38	35	8	1 1/4
	4	100	14.00	356	6.19	157	3.00	76.5	10.75	271.8	1.62	42	8	1 1/2
	6	150	19.00	483	8.50	216	4.25	108.0	14.50	368.3	2.12	54	8	2
	8	200	21.75	550	10.62	270	5.00	127.0	17.25	438.3	2.12	54	12	2
	10	250	26.50	675	12.75	324	6.50	165.5	21.50	546.7	2.62	67	12	2 1/2
	12	300	30.00	760	15.00	381	7.25	184.5	24.38	621.8	2.88	74	12	2 3/4

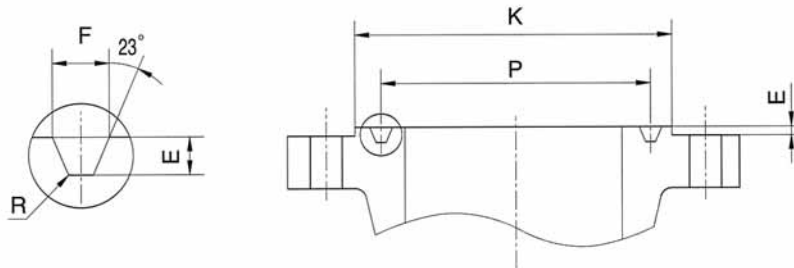
End Flange Dimensions: ASME B16.5

Tolerances: the Same as Class 150 300



Dimensions of ring joint facing **class 150-2500** ASME B16.5/B16.47

CLASS 150-2500 RTJ



CLASS	SIZE		Ring No.	P		E		F		R		K	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm
	150	2		50	R22	3.250	82.55	0.250	6.35	0.344	8.74	0.03	0.8
	2.5	65	R25	4.000	101.60	0.250	6.35	0.344	8.74	0.03	0.8	4.75	121
	3	80	R29	4.500	114.30	0.250	6.35	0.344	8.74	0.03	0.8	5.25	133
	4	100	R36	5.875	149.22	0.250	6.35	0.344	8.74	0.03	0.8	6.75	171
	6	150	R43	7.625	193.88	0.250	6.35	0.344	8.74	0.03	0.8	8.62	219
	8	200	R48	9.750	247.65	0.250	6.35	0.344	8.74	0.03	0.8	10.75	273
	10	250	R52	12.000	304.80	0.250	6.35	0.344	8.74	0.03	0.8	13.00	330
	12	300	R56	15.000	381.00	0.250	6.35	0.344	8.74	0.03	0.8	16.00	406
	14	350	R59	15.625	396.88	0.250	6.35	0.344	8.74	0.03	0.8	16.75	425
	16	400	R64	17.875	454.02	0.250	6.35	0.344	8.74	0.03	0.8	19.00	483
	18	450	R68	20.375	517.52	0.250	6.35	0.344	8.74	0.03	0.8	21.50	546
	20	500	R72	22.000	558.80	0.250	6.35	0.344	8.74	0.03	0.8	23.50	597
	24	600	R76	26.500	673.10	0.250	6.35	0.344	8.74	0.03	0.8	28.00	711
	28	700	R94	31.500	800.10	0.500	12.7	0.781	19.844	0.06	1.5	33.88	861
	30	750	R95	33.750	857.25	0.500	12.7	0.781	19.844	0.06	1.5	36.12	917
	32	800	R96	36.000	914.40	0.562	14.3	0.906	23.019	0.09	2.3	38.75	984
	36	900	R98	40.250	1022.35	0.562	14.3	0.906	23.019	0.09	2.3	40.75	1035
300	2	50	R26	3.250	82.55	0.312	7.92	0.469	11.91	0.03	0.8	4.25	108
	2.5	65	R26	4.000	101.60	0.312	7.92	0.469	11.91	0.03	0.8	5.00	127
	3	80	R31	4.875	123.82	0.312	7.92	0.469	11.91	0.03	0.8	5.75	146
	4	100	R37	5.875	149.22	0.312	7.92	0.469	11.91	0.03	0.8	6.88	175
	6	150	R45	8.312	211.13	0.312	7.92	0.469	11.91	0.03	0.8	9.50	214
	8	200	R49	10.625	269.88	0.312	7.92	0.469	11.91	0.03	0.8	11.88	302
	10	250	R53	12.750	323.85	0.312	7.92	0.469	11.91	0.03	0.8	14.00	356
600	12	300	R57	15.000	381.00	0.312	7.92	0.469	11.91	0.03	0.8	16.25	413
	14	350	R61	16.500	419.10	0.312	7.92	0.469	11.91	0.03	0.8	18.00	457
	16	400	R65	18.500	469.90	0.312	7.92	0.469	11.91	0.03	0.8	20.00	508
	18	450	R69	21.000	533.40	0.312	7.92	0.469	11.91	0.03	0.8	22.62	575
	20	500	R73	23.000	584.20	0.375	9.52	0.531	13.49	0.06	1.5	25.00	635
	24	600	R77	27.250	692.15	0.438	11.13	0.656	16.66	0.06	1.5	29.50	749
	28	700	R94	31.500	800.10	0.500	12.7	0.781	19.84	0.06	1.5	33.88	861
	30	750	R95	33.750	857.25	0.500	12.7	0.781	19.84	0.06	1.5	36.12	917

CLASS	SIZE		Ring No.	P		E		F		R		K	
	in	mm		in	mm	in	mm	in	mm	in	mm	in	mm
	900	2		50	R24	3.750	95.25	0.312	7.92	0.469	11.91	0.03	0.8
	2.5	65	R27	4.250	107.95	0.312	7.92	0.469	11.91	0.03	0.8	5.38	137
	3	80	R31	4.875	123.82	0.312	7.92	0.469	11.91	0.03	0.8	6.12	156
	4	100	R37	5.875	149.22	0.312	7.92	0.469	11.91	0.03	0.8	7.12	181
	6	150	R45	8.312	211.12	0.312	7.92	0.469	11.91	0.03	0.8	9.50	241
	8	200	R49	10.625	269.88	0.312	7.92	0.469	11.91	0.03	0.8	12.12	308
	10	250	R53	12.750	323.85	0.312	7.92	0.469	11.91	0.03	0.8	14.25	362
	12	300	R57	15.000	381.00	0.312	7.92	0.469	11.91	0.03	0.8	16.50	419
	14	350	R62	16.500	419.10	0.438	11.13	0.656	16.66	0.06	1.5	18.38	467
	16	400	R66	18.500	469.90	0.438	11.13	0.656	16.66	0.06	1.5	20.62	524
	18	450	R70	21.000	533.40	0.500	12.70	0.781	19.84	0.06	1.5	23.38	594
	20	500	R74	23.000	584.20	0.500	12.70	0.781	19.84	0.06	1.5	25.50	648
	24	600	R78	27.250	692.15	0.625	15.88	1.062	26.97	0.09	2.3	30.38	772
1500	2	50	R27	3.750	95.25	0.312	7.92	0.469	11.91	0.03	0.8	4.88	124
	2.5	65	R27	4.250	107.95	0.312	7.92	0.469	11.91	0.03	0.8	5.38	137
	3	80	R35	4.875	123.82	0.312	7.92	0.469	11.91	0.03	0.8	6.62	168
	4	100	R39	5.875	149.22	0.312	7.92	0.469	11.91	0.03	0.8	7.62	194
	6	150	R46	8.312	211.12	0.375	9.52	0.531	13.49	0.06	1.5	9.75	248
	8	200	R50	10.625	269.88	0.438	11.13	0.656	16.66	0.06	1.5	12.50	318
	10	250	R54	12.750	323.85	0.438	11.13	0.656	16.66	0.06	1.5	14.62	371
	12	300	R58	15.000	381.00	0.562	14.27	0.906	23.01	0.06	2.3	17.25	438
	14	350	R63	16.500	419.10	0.625	15.88	1.062	26.97	0.09	2.3	19.25	489
	16	400	R67	18.500	469.90	0.688	17.48	1.188	30.18	0.09	2.3	21.50	546
	18	450	R71	21.000	533.40	0.688	17.48	1.188	30.18	0.09	2.3	24.12	613
	20	500	R75	23.000	584.20	0.688	17.48	1.312	33.32	0.09	2.3	26.50	673
	24	600	R79	27.250	692.15	0.812	20.62	1.438	36.53	0.09	2.3	31.25	794
2500	2	50	R26	4.000	101.60	0.312	7.92	0.469	11.91	0.03	0.8	5.25	133
	2.5	65	R28	4.375	111.12	0.375	9.52	0.531	13.49	0.03	0.8	5.88	149
	3	80	R32	5.000	127.00	0.375	9.52	0.531	13.49	0.06	1.5	6.62	168
	4	100	R38	6.188	157.18	0.438	11.13	0.656	16.66	0.06	1.5	8.00	203
	6	150	R47	9.000	228.60	0.500	12.70	0.781	19.84	0.06	1.5	11.00	279
	8	200	R51	11.000	279.40	0.562	14.27	0.906	23.01	0.06	1.5	13.38	340
	10	250	R55	13.500	342.90	0.688	17.48	1.188	30.18	0.09	2.3	16.75	425
	12	300	R60	16.000	406.40	0.688	17.48	1.312	33.32	0.09	2.3	19.50	495

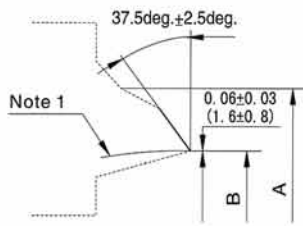
End Flange Dimensions: Size 2" - 24" to ASME B16.5, Size 28" - 36" to ASME B16.47 A.

Tolerances: Unit inch

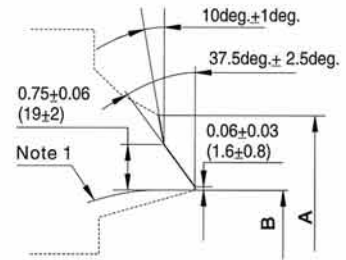
Depth E: +0.016, -0
 Width F: ±0.008
 Pitch Diameter P: ±0.005
 Radius at Bottom R: R ≤ 0.06" ±0.03, 0
 R ≥ 0.06" ±0.03
 Angle 23 Deg: ±0.5Deg



Buttwelding end dimensions ASME B16.25



Note 1 Internal surface may be as formed or machined for dimension B at root face. Contour within the envelope shall be in accordance with section



Wall Thicknesses Not Over 0.88in(22mm)
Welding End Detail for joint Without Backing Ring

Wall Thicknesses Over 0.88in(22mm)
Welding End Detail for joint Without Backing Ring

Nominal Pipe Size		Schedule No. [Note(1)]	O.D.at Welding Ends				B		C[Note(3)]		T	
			Wrought or Fabricated Components, A[Note(1)]		Cast Steel Valves, A[Note(2)]							
DN	NPS		mm	in	mm	in	mm	in	mm	mm	mm	
65	2.5	40	43.0	2.88	75	2.96	62.5	2.469	62.93	2.479	5.16	0.203
		80					59	2.323	59.69	2.341	7.01	0.276
		160					54	2.125	55.28	2.178	9.53	0.375
		XXS					45	1.771	47.43	1.868	14.02	0.552
80	3	40	88.9	3.50	91	3.95	78	3.068	78.25	3.081	5.49	0.126
		80					73.5	2.900	74.53	2.934	7.62	0.300
		160					66.5	2.625	68.38	2.692	11.13	0.438
		XXS					58.5	2.300	61.19	2.409	15.24	0.600
90	3.5	40	101.6	4.00	105	4.12	90	3.548	90.52	3.564	5.74	0.226
		80					85.5	3.364	86.42	3.402	8.08	0.318
100	4	40	114.3	4.50	117	4.62	102	4.026	102.73	4.044	6.02	0.237
		80					97	3.826	98.28	3.869	8.56	0.337
		120					92	3.624	93.78	3.692	11.13	0.438
		160					87.5	3.428	89.65	3.530	13.49	0.531
125	5	XXS					80	3.152	83.30	3.279	17.12	0.674
		40	141.3	5.56	144	5.69	128	5.047	128.80	5.070	6.55	0.258
		80					122	4.813	123.58	4.866	9.53	0.375
		120					116	4.563	118.04	4.647	12.70	0.500
150	6	160					109.5	4.313	112.47	4.428	15.88	0.625
		XXS					103	4.063	106.92	4.209	19.05	0.750
		40	168.3	6.62	172	6.78	154	6.065	154.82	6.094	7.11	0.280
		80					145.5	5.761	148.06	5.828	10.97	0.432
200	8	120					140	5.501	142.29	5.600	14.27	0.562
		160					132	5.187	135.31	5.326	18.26	0.719
		XXS					124.5	4.897	128.85	5.072	21.95	0.864
		40	219.1	8.62	223	8.78	203	7.981	203.75	8.020	8.18	0.322
250	10	60					198.5	7.813	200.02	7.783	10.31	0.406
		80					193.5	7.625	195.84	7.709	12.70	0.500
		100					189	7.437	191.65	7.544	15.09	0.594
		120					182.5	7.187	186.11	7.326	18.26	0.719
		140					178	7.001	181.98	7.163	20.62	0.812
		XXS					174.5	6.875	179.16	7.053	22.23	0.875
		160					173	6.813	177.79	6.998	23.01	0.906
		40	273.0	10.75	278	10.94	254.5	10.020	255.74	10.070	9.27	0.365
300	12	60					247.5	9.75	249.74	9.834	12.70	0.500
		80					243	9.652	245.55	9.670	15.09	0.594
		100					236.5	9.312	240.01	9.451	18.26	0.719
		120					230	9.062	234.44	9.232	21.44	0.844
		140					222	8.750	227.51	8.959	25.40	1.000
		160					216	8.500	221.95	8.740	28.58	1.125
		STD	323.8	12.75	329	12.97	305	12.000	306.08	12.053	9.53	0.375
		40					303	11.938	304.72	11.999	10.31	0.406
350	14	XS					298.5	11.750	300.54	11.834	12.70	0.500
		60					295	11.626	297.79	11.725	14.27	0.562
		80					289	11.374	292.17	11.505	17.48	0.688
		100					281	11.062	285.24	11.232	21.44	0.844
		120					273	10.750	278.31	10.959	25.40	1.000
		140					266.5	10.500	272.75	10.740	28.58	1.125
		160					257	10.126	264.45	10.413	33.32	1.312
		STD	355.6	14.00	362	14.25	336.5	13.250	337.88	13.303	9.53	0.375
350	14	40					333.5	13.124	335.08	13.192	11.13	0.438
		X3					330	13.000	332.34	13.084	12.70	0.500
		60					325.5	12.812	328.15	12.920	15.09	0.594
		80					317.5	12.500	321.22	12.646	19.05	0.750
		100					308	12.124	312.86	12.318	23.83	0.938
		120					300	11.812	305.93	12.044	27.79	1.094
		140					292	11.500	299.00	11.771	31.75	1.250
		160					284	11.188	292.07	11.498	35.71	1.106

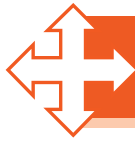


Buttwelding end dimensions ASME B16.25

Nominal Pipe Size		Schedule No. [Note(1)]	O.D.at Welding Ends				B		C[Note(3)]		T	
			Wrought or Fabricated Components, A[Note(1)]		Cast Steel Valves, A[Note(2)]							
DN	NPS		mm	in	mm	in	mm	in	mm	in	mm	in
400	16	STD	406.4	16.00	413	16.25	387.5	15.250	388.68	15.303	9.53	0.375
		40					381	15.000	383.14	15.084	12.70	0.500
		60					373	14.688	376.21	14.811	16.66	0.656
		80					363.5	14.312	367.84	14.482	21.44	0.844
		100					354	13.938	359.53	14.155	26.19	1.031
		120					344.5	13.562	351.18	13.826	30.96	1.219
		140					333.5	13.124	341.43	13.422	36.53	1.438
		160					325.5	12.812	334.50	13.170	40.49	1.594
450	18	STD	457.2	18.00	464	18.28	438	17.250	439.48	17.303	9.53	0.375
		XS					432	17.000	433.94	17.084	12.70	0.500
		40					428.5	16.876	431.19	16.975	14.27	0.562
		60					419	16.500	422.82	16.646	19.05	0.750
		80					409.5	16.124	414.46	16.318	23.83	0.938
		100					398.5	15.688	404.78	15.936	29.36	1.156
		120					387.5	15.250	395.03	15.553	34.93	1.375
		140					378	14.876	386.77	15.225	39.67	1.562
500	20	STD	508.0	20.00	516	20.31	366.5	14.438	376.99	14.842	45.24	1.781
		XS					489	19.250	490.28	19.303	9.53	0.375
		40					482.5	19.000	484.74	19.084	12.70	0.500
		60					478	18.812	480.55	18.920	15.09	0.594
		80					467	18.376	470.88	18.538	20.62	0.812
		100					455.5	17.938	461.13	18.155	26.19	1.031
		120					443	17.438	450.02	17.717	32.54	1.281
		140					432	17.000	440.29	17.334	38.10	1.500
550	22	STD	558.8	22.00	567	22.34	419	16.500	429.17	16.896	44.45	1.750
		XS					408	16.062	419.44	16.513	50.01	1.969
		40					539	21.250	541.08	21.303	9.53	0.375
		60					533	21.000	535.54	21.084	12.70	0.500
		80					514	20.250	518.86	20.428	22.23	0.875
		100					501	19.750	507.75	19.990	28.58	1.125
		120					488.5	19.250	496.63	19.553	34.93	1.375
		140					476	18.750	485.52	19.115	41.28	1.625
600	24	STD	609.6	24.00	619	24.38	463	18.250	474.41	18.678	47.63	1.875
		XS					450.5	17.750	463.30	18.240	53.98	2.125
		40					590.5	23.250	591.88	23.303	9.53	0.375
		60					584	23.000	586.34	23.084	12.70	0.500
		80					581	22.876	583.59	22.975	14.27	0.562
		100					574.5	22.624	577.97	22.755	17.48	0.688
		120					560.5	22.062	565.49	22.263	24.61	0.969
		140					547.5	21.562	554.38	21.826	30.96	1.219
650	26	10	660.4	26.00	670	26.38	532	20.938	540.49	21.280	38.89	1.531
		20					517.5	20.376	528.03	20.788	46.02	1.812
		30					505	19.876	516.91	20.350	52.37	2.062
		40					490.5	19.312	504.37	19.857	59.54	2.344
700	28	10	711.2	28.00	721	28.38	645.5	25.376	645.50	25.413	7.92	0.312
		20					635	25.000	637.14	25.084	12.70	0.500
		30					686	27.000	687.94	27.084	12.70	0.500
750	30	10	762.0	30.00	772	30.38	695.5	27.376	696.30	27.413	7.92	0.312
		20					686	27.000	687.94	27.084	12.70	0.500
		30					679.5	26.750	682.37	26.865	15.88	0.625
800	32	10	812.8	32.00	825	32.50	746	29.376	747.10	29.413	7.92	0.312
		20					736.5	29.000	738.74	29.084	12.70	0.500
		30					730	28.750	733.17	28.865	15.88	0.625
		40					797	31.376	797.90	31.413	7.92	0.312
850	34	10	863.6	34.00	876	34.50	787.5	31.000	789.54	31.084	12.70	0.500
		20					781	30.750	783.97	30.865	15.88	0.625
		30					778	30.624	781.17	30.755	17.48	0.688
		40					828.5	32.624	831.97	32.755	17.48	0.688
900	36	10	914.4	36.00	927	36.50	848	33.376	848.70	33.413	7.92	0.312
		20					838	33.000	840.34	33.084	12.70	0.500
		30					832	32.750	834.77	32.865	15.88	0.625
		40					889.5	35.376	899.50	35.413	7.92	0.312
		20					889	35.000	891.50	35.084	12.70	0.500
		30					882.5	34.750	885.57	34.865	15.88	0.625
		40					876.5	34.500	880.02	34.646	19.05	0.750

NOES:

- (1) Letter designations signify
 - (a) STD=standard wall thickness
 - (b) XS=extra-strong wall thickness
 - (c) XXS=double extra-strong wall thickness
- (2) The diameters listed are not requirements. They are provided for the convenience of the user.
- (3) Interanal machining for continuous backing rings for sizes DN 50(NPS 2)and smaller is not contemplated.



Materials

Material	CHEMICAL COMPOSITIONS(%) max									MECHANICAL PROPERTIES				
	C	Mn	P	S	Si	Ni	Cr	Mo	Other	Tensile, min MPa(ksi)	Yield, min MPa(ksi)	Elongation min (%)	Reduction of Area min(%)	Hardness Brinell
WCB	0.30	1.00	0.04	0.045	0.60	0.50	0.50	0.20	Cu 0.30 V0.03	485-655 (70-95)	250(36)	22	35	
WC1	0.25	0.50-0.80	0.04	0.045	0.60	0.50	0.35	0.45-0.65	Cu 0.50 V0.10	450-620 (65-90)	240(35)	24	35	
WC6	0.05-0.20	0.50-0.80	0.04	0.045	0.60	0.50	1.00-1.50	0.45-0.65	Cu 0.50 V0.10	485-655 (70-95)	275(40)	20	35	
WC9	0.05-0.18	0.40-0.70	0.04	0.045	0.60	0.50	2.00-2.75	0.90-1.20	Cu 0.50 V0.10	485-655 (70-95)	275(40)	20	35	
C5	0.20	0.40-0.70	0.04	0.045	0.75	0.50	4.00-6.50	0.45-0.65	Cu 0.50 V0.10	620-795 (90-115)	415(60)	18	35	
C12	0.20	0.35-0.65	0.04	0.045	1.00	0.50	8.00-10.00	0.90-1.20	Cu 0.50 V0.10	620-795 (90-115)	415(60)	18	35	
CA15	0.15	1.00	0.04	0.040	1.50	1.00	11.50-14.00	0.50		620-795 (90-115)	450(65)	18	30	
LCB	0.30	1.00	0.04	0.045	0.60	0.50	0.50	0.20	Cu 0.30 V0.03	450-650 (65.0-90.0)	240(35.0)	24	35	J(lbf • ft) 18(13)
LCC	0.25	1.20	0.04	0.045	0.60	0.50	0.50	0.20	Cu 0.30 V0.03	485-655 (70.0-95.0)	275(40.0)	22	35	J(lbf • ft) 20(15)
LC2	0.25	0.50-0.80	0.04	0.045	0.60	2.0-3.0				485-655 (70.0-95.0)	275(40.0)	24	35	J(lbf • ft) 20(15)
LC3	0.15	0.50-0.80	0.04	0.040	0.60	3.0-4.0				485-655 (70.0-95.0)	275(40.0)	24	35	J(lbf • ft) 20(15)
CF8	0.08	1.50	0.040	0.040	2.00	8.0-11.0	18.0-21.0			485(70)	205(30)	35		
CF8M	0.08	1.50	0.040	0.040	1.50	9.0-12.0	18.0-21.0	2.0-3.0		485(70)	205(30)	30		
CF3	0.03	1.50	0.040	0.040	2.00	8.0-12.0	17.0-21.0	0.50		485(70)	205(30)	35		
CF3M	0.03	1.50	0.040	0.040	1.50	9.0-12.0	17.0-21.0	2.0-3.0		485(70)	205(30)	30		
CF8C	0.08	1.50	0.040	0.040	2.00	27.5-30.5	18.0-21.0	0.50	No ≥8xC≤1	485(70)	205(30)	30		
CN7M	0.07	1.50	0.040	0.040	1.50	0.40	19.0-22.0	2.0-3.0	Cu0.40 V0.03 Nb0.02	450(62)	170(25)	35		
A105	0.35	0.60-1.05	0.040	0.050	0.35		0.30	0.12		485(70)	250(36)	22	30	≤187
F1	0.28	0.60-0.90	0.045	0.450	0.15-0.35			0.44-0.65		485(70)	275(40)	20	30	143-192
F5	0.15	0.30-0.60	0.030	0.030	0.50	0.50	4.0-6.0	0.44-0.65		485(70)	275(40)	20	35	143-217
F11-1	0.05-0.15	0.30-0.60	0.030	0.030	0.50-1.00		1.00-1.50	0.44-0.65		415(60)	205(30)	20	45	121-174
F22-1	0.05-0.15	0.30-0.60	0.040	0.040	0.50		2.00-2.50	0.87-1.13		415(60)	205(30)	20	35	≤170
F6A	0.15	1.00	0.040	0.030	1.00	0.50	11.5-13.5			585(85)	380(55)	18	35	167-229
F304	0.08	2.00	0.040	0.030	1.00	8.0-11.0	18.0-20.0			515(75)	205(30)	30	50	
F304L		2.00	0.040	0.030	1.00	8.0-13.0	18.0-20.0			485(70)	170(70)	30	50	



Materials

Material	CHEMICAL COMPOSITIONS(%) max									MECHANICAL PROPERTIES				
	C	Mn	P	S	Si	Ni	Cr	Mo	Other	Tensile, min MPa(ksi)	Yield, min MPa(ksi)	Elongation min (%)	Reduction of Area min(%)	Hardness Brinell
F316	0.08	2.00	0.040	0.030	1.00	10.0-14.0	16.0-18.0	2.00-3.00		515(75)	250(30)	30	50	
F316L	0.035	2.00	0.040	0.030	1.00	10.0-15.0	16.0-18.0	2.00-3.00		485(70)	170(25)	30	50	
F321	0.08	2.00	0.040	0.030	1.00	9.0-12.0	≥17.0		To ≥5xC≤0.70	515(75)	205(30)	30	50	
F347	0.08	2.00	0.040	0.030	1.00	9.0-13.0	17.0-20.0		Nb+Ta ≥5xC≤0.70	515(75)	205(30)	30	50	
410	0.15	1.00	0.040	0.030	1.00		11.50-13.50			480(70)	275(40)	20	45	
416	0.15	1.25	0.06	≥0.15	1.00		12.00-14.00							≤262
420	Over 0.15	1.00	0.040	0.030	1.00		12.00-14.00							≤241
D-2	3.00	0.70-1.25	0.08		1.50-3.00	18.00-22.00	1.75-2.75			400(58)	207(30)	8.0		139-202
B7	0.37-0.49	0.65-1.10	0.035	0.040	0.15-0.35		0.75-1.20	0.15-0.25		860(125)	720(105)	16	50	
B7M	0.37-0.49	0.65-1.10	0.035	0.040	0.15-0.35		0.75-1.20	0.15-0.25		690(100)	550(80)	18	50	≤HB235 or HRB 99
B16	0.36-0.47	0.45-0.70	0.035	0.040	0.15-0.35		0.80-1.15	0.50-0.65	V0.25-0.35	860(125)	725(105)	18	50	
B8	0.08	2.00	0.030	0.030	1.00	8.00-10.50	18.00-20.00			515(75)	205(30)	30	50	≤HB223or HRB 96
B8M	0.08	2.00	0.030	0.030	1.00	10.00-14.00	16.00-18.00	2.00-3.00		515(75)	205(30)	30	50	≤HB223or HRB 96
L7	0.38-0.48	0.75-1.00	0.040	0.040	0.15-0.35		0.80-1.10	0.15-0.25		860(125)	725(105)	16	50	
L7M	0.38-0.48	0.75-1.00	0.040	0.040	0.15-0.35		0.80-1.10	0.15-0.25		690(100)	550(80)	18	50	≤HB235 or HRB 99
B			0.04	0.05						415-690 (60-100)		18		HRB121-212 HRC 69-95
2H	≥0.40	1.00	0.040	0.050	0.40				Cu0.40 V0.03 Nb0.02					HRB248-352 HRC 24-38
2HM	≥0.40	1.00	0.040	0.050	0.40									HRB248-352 HRC ≤22
4	0.40-0.50	0.70-0.90	0.035	0.040	0.15-0.35			0.20-0.30						HRB248-352 HRC 24-38
7	0.37-0.49	0.65-1.10	0.040	0.040	0.15-0.35		0.75-1.20	0.15-0.25						HRB248-352 HRC 24-38
7M	0.37-0.49	0.65-1.10	0.040	0.040	0.15-0.35		0.75-1.20	0.15-0.25						HRB248-352 HRC ≤22
8	0.08	2.00	0.045	0.030	1.00	8.00-10.50	18.0-20.0							HB126-300 HRC 60-105
8M	0.08	2.00	0.045	0.030	1.00	10.0-14.0	16.0-18.0	2.00-3.00						HB126-300 HRC 60-105

www.thaivista.co.th



P O Box 46,Stocksfield, Northumberland, England NE43 7YP

Tel +44(0) 7939 096327

Fax +44(0) 1661 835751

Authorized Distributor

THAIVISTA ENTERPRISE CO.,LTD.

3/362 Moo.6 Soi Akachai 66 Akachai Road, Bangbon, Bangkok Thailand 10150

Tel (+662) 898-7898, 898-7475, 4167937

Fax (+662) 898-7476

E-mail: admin@thaivista.co.th