

**INDUSTRIAL**

**VALVES**

**FEVISA**

**CHECK VALVE**





# Cast Steel Swing Check Valve

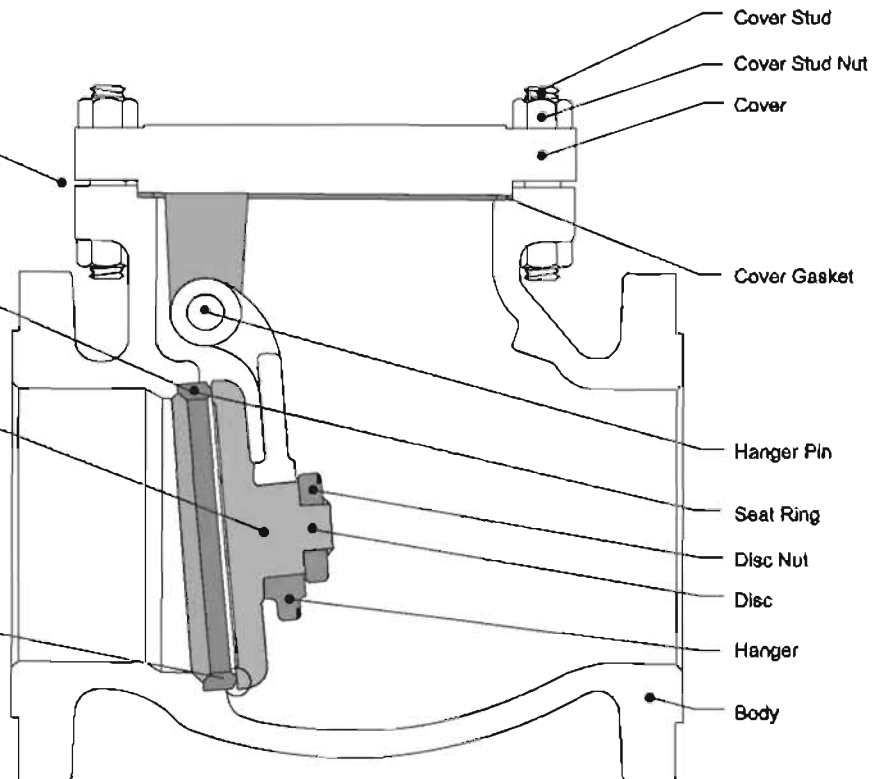


Body to Cover Joint designed to apply a uniform load to the gasket to assure a leak proof seal. Seat Rings are seal welded to provide a bubble tight joint.

Disc to Hanger connection allows the disc a controlled movement independent of the hanger to assure proper disc alignment with the seat at closure.

The connection is secured by a welded disc nut to prevent disassembly due to vibration and closure impact.

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



**FEATURES**

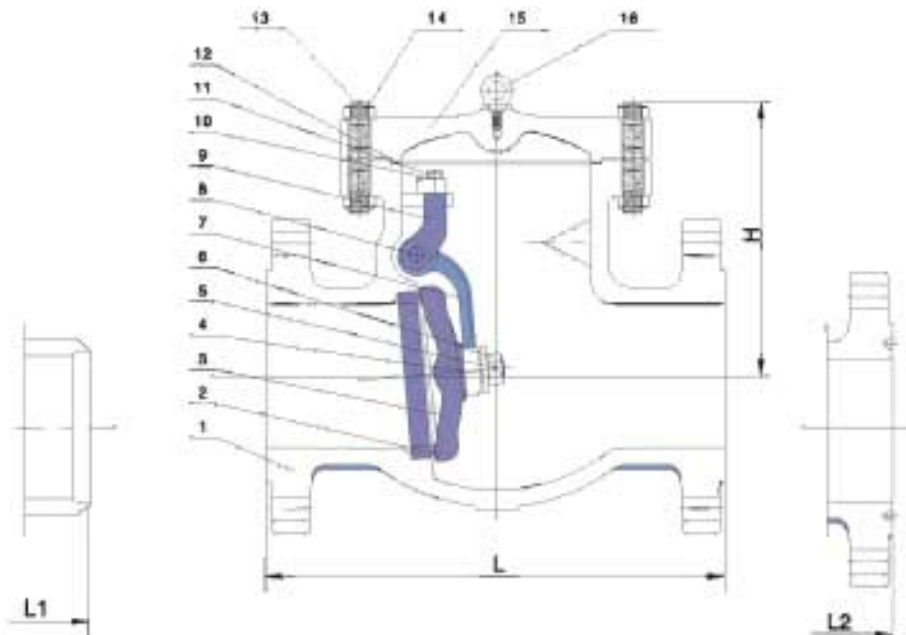
Bolted Cover
Swing Type Disc
6" & Larger With Eye Bolt
By Pass On Request
Lever & Wight Optional

**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	Seel Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Disc Thrust Plate	ASTM A278 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Hinge	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F8
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	18.50	24.50	27.50	31.00	34.00	38.50	38.50	51.00
	mm	203	216	241	292	356	466	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	38.00	39.00	51.50
	mm	216	228	2254	305	368	508	635	711	800	878	961	991	1308
H	in	6.10	6.70	7.09	8.66	10.55	12.20	14.57	16.73	16.70	20.57	22.83	24.72	34.72
	mm	155	170	180	220	268	310	370	425	475	525	580	628	882
Weight RF	kg	19	28	28	48	77	163	220	368	428	555	775	835	1180

**FEATURES**

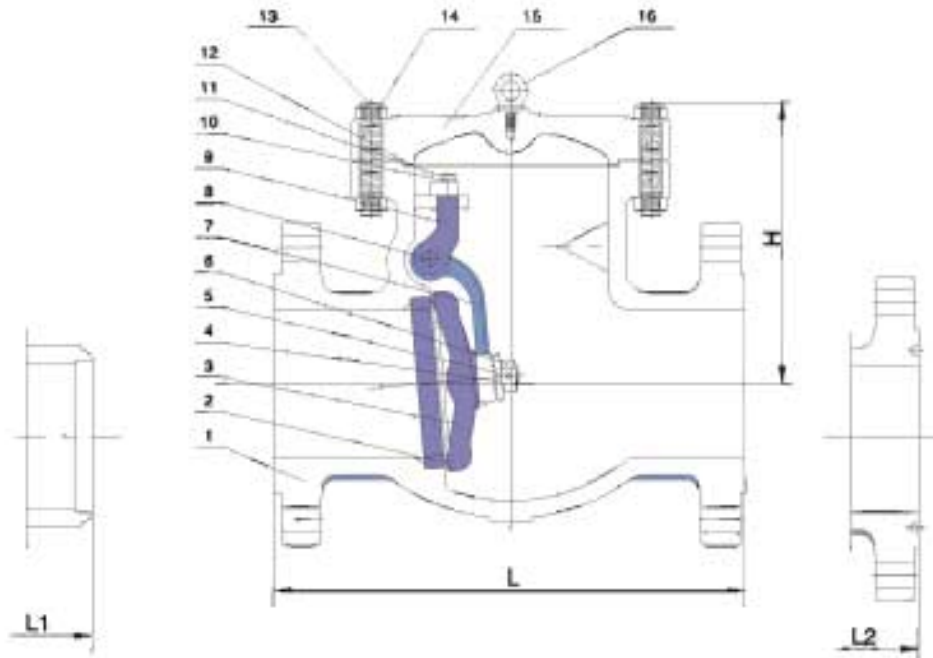
Bolted Cover
Swing Type Disc
4" & Larger With Eye Bolt
By Pass On Request
Lever & Wight Optional

**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	Steel Ring	ASTM A105+Stellite Faced
3	Disc	ASTM A216 GR.WCB+13Cr Faced
4	Disc Washer	ASTM A278 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Hinge	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F8
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"
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	838	864	978	1016	1346
L2	in	11.12	12.12	13.12	14.82	18.12	21.82	25.12	28.82	33.82	34.82	39.12	40.75	53.88
	mm	283	308	333	371	460	548	638	727	854	878	994	1035	1368
H	in	6.80	7.28	7.80	9.25	11.10	13.19	15.15	16.11	20.47	21.81	23.62	26.38	29.53
	mm	175	185	198	235	282	335	386	460	520	554	600	670	750
Weight RF	kg	21	30	39	69	125	210	307	450	680	640	1025	1320	1980

### FEATURES

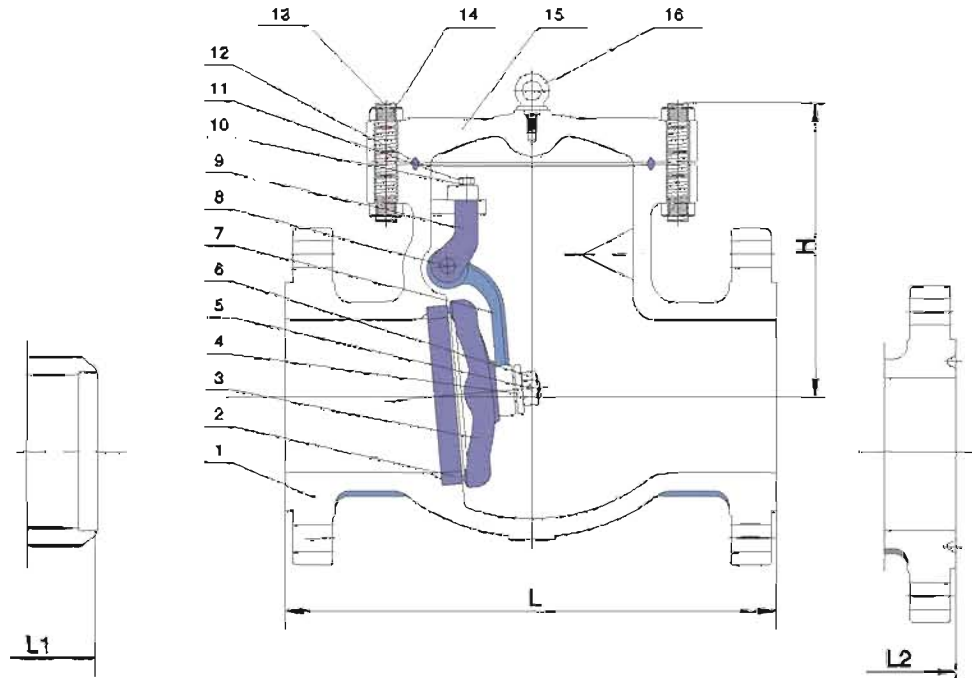
Bolted Cover
Swing Type Disc
With Eye Bolt
By Pass On Request
Lever & Wight Optional

### SPECIFICATIONS

Design	ASME B16.34/BS 1888
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 Facad
3	Disc	ASTM A216 GR.WCB+13Cr Facad
4	Disc Washer	ASTM A276 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Hlgns	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														
SIZE	In	2"	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L/L1	In	11.50	13.00	14.00	17.00	22.00	28.00	31.00	33.00	35.00	38.00	43.00	47.00	55.00
	mm	292	330	368	432	559	689	757	828	889	961	1082	1194	1397
L2	In	11.62	13.12	14.12	17.12	22.12	26.12	31.12	33.12	35.12	38.12	43.12	47.26	56.38
	mm	295	333	369	436	562	683	790	841	892	964	1095	1200	1407
H	In	7.168	7.87	8.94	10.24	12.80	15.35	19.29	20.79	22.88	25.08	28.35	29.37	37.80
	mm	182	200	227	260	326	390	490	528	572	680	720	748	960
Weight RF	kg	36	49	70	122	289	465	673	876	994	1220	1620	2120	3100

**FEATURES**

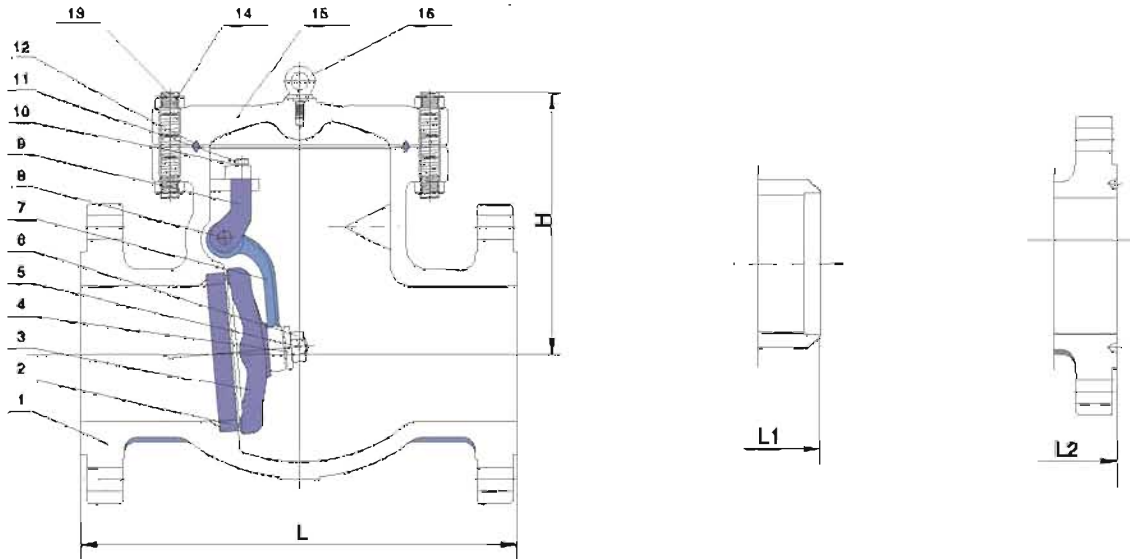
Bolted Cover
Swing Type Disc
With Eye Bolt
By Pass On Request
Lever & Weight Optional

**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	Hinge	ASTM A216 GR.WCB
8	Hinge Pin	ASTM A182 GR.F8
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 A183 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	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	50	65	80	100	150	200	250	300	50	65	80	100	150	200	250	300	50	65	80	100	150	200	250	300	
mm	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	38.00	44.50	17.75	20.00	22.75	26.50	36.00	40.25	50.00	58.00	
L/L1	388	419	381	457	810	737	838	865	368	418	470	645	705	832	891	1130	461	608	678	673	814	1022	1270	1422	
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	26.00	33.13	38.38	38.12	17.87	20.25	23.00	28.88	38.50	40.87	50.88	58.68	
mm	371	422	384	460	813	740	841	888	371	422	473	548	711	841	1000	1148	454	514	584	683	827	1038	1282	1445	
H	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	38.37	
mm	296	300	300	327	441	502	684	775	298	300	341	412	511	680	758	857	418	418	441	478	511	711	851	1000	
Weight RF	kg	70	100	81	150	305	510	810	1120	70	100	150	245	550	1010	1550	2280	145	240	330	650	1400	2420	3750	5500

## 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				
		CL600-2500 Ring Joint Soft Iron	304			304			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 304L	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 LCC	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 LCC	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	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 304L	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	A194 L7	A193 L7	A193 B7	A193 B16	A193 B16	A193 B8					
9	Gasket	CL150-300 Soft Iron+ Graphite	304+Graphite			304+Graphite			304+Graphite				
		CL600-2500 Ring Joint Soft Iron	304			304			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 CFM		
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				
		CL600-2500 Ring Joint Soft Iron	304			304			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	



**FEATURES**

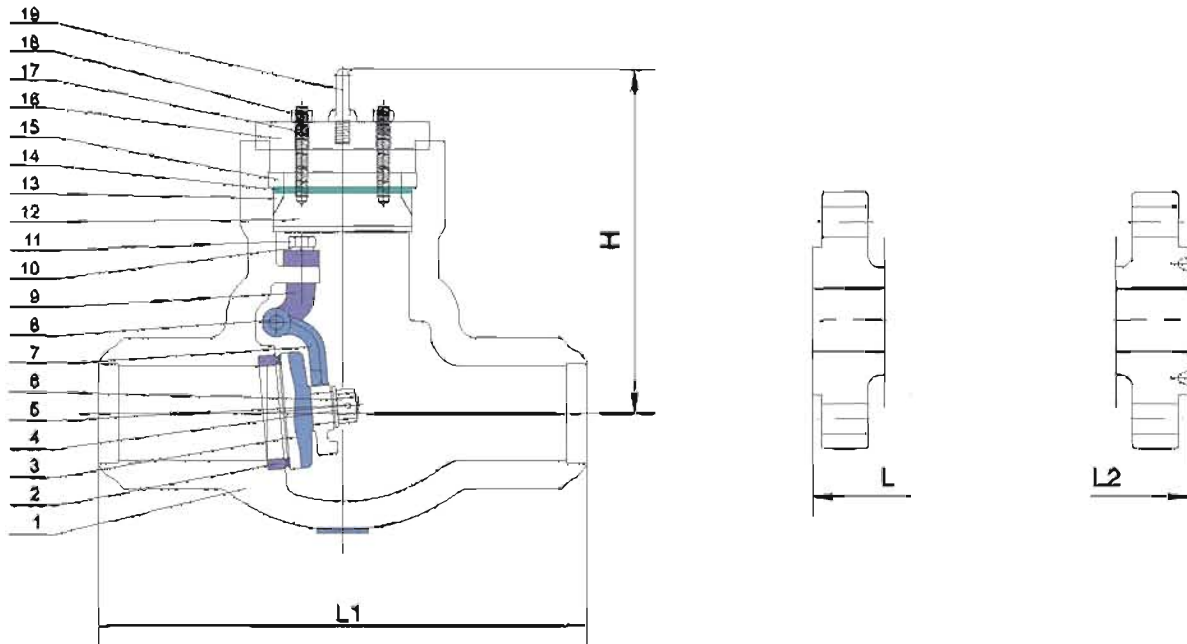
Pressure Seal
Swing Type Disc
Type 1 Standard
Type 2 Optional
With Eye Bolt
By Pass On Request
Lever & Wight Optional

**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 A278 Type 410
5	Disc Nut Pin	Stainless Steel
6	Disc Nut	Stainless Steel
7	Hlgns	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"	2.6"	3"	4"	6"	8"	10"	12"	2"	2.5"	3"	4"	6"	8"	10"	12"	2"	2.6"	3"	4"	6"	8"	10"	12"
	mm	90	85	80	100	180	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	16.80	16.50	21.50	27.75	32.78	36.00	44.80	17.75	20.00	22.75	28.50	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	16.12	18.12	24.12	29.12	33.12	38.12	14.62	16.62	16.62	21.62	28.00	33.13	36.38	45.12	17.87	20.25	23.00	28.88	36.50	40.87	50.88	68.88
	mm	371	422	384	480	613	740	841	988	371	422	473	549	711	841	1000	1148	454	514	584	683	927	1038	1282	1445
H	In	11.65	11.81	11.81	12.87	17.38	19.78	26.14	30.51	11.85	11.81	13.43	16.22	20.12	26.77	28.78	33.74	16.38	16.50	17.38	18.86	20.12	27.88	33.80	38.37
	mm	296	300	300	327	441	502	654	775	296	300	341	412	511	680	758	857	416	419	441	479	511	711	851	1000
Weight BW	kg	50	77	68	115	230	387	632	910	50	77	115	190	482	845	1280	1780	110	190	280	636	1110	1980	2980	4360





Bolted bonnet



Welded bonnet



Pressure seal bonnet

### Check valve Design Construction and Specifications

**FEVISA** check valves conform to MSS-SP-118 and ASME B16.34 Each are tested according to API 598, and marking is per MSS SP-25

#### Construction:

Full Port or Conventional Port

Piston check

Ball check

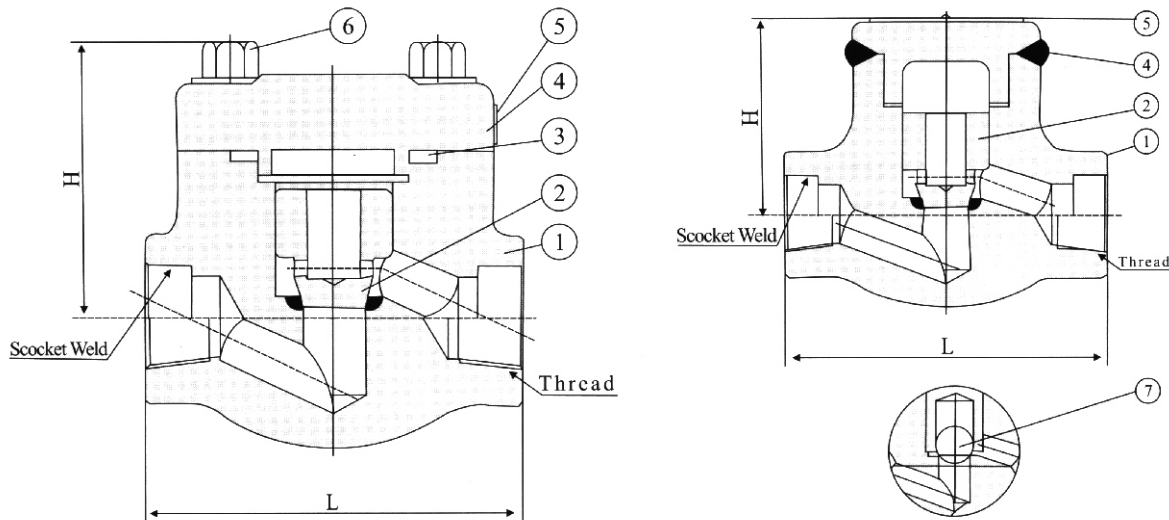
Swing check

Spring available on request

Bolted bonnet with spiral-wound gasket, threaded and seal welded bonnet or threaded and pressure seal bonnet

Socket weld ends to ASME B16.11

Screwed Ends(NPT)to ANSI/ASMEB1.20.1



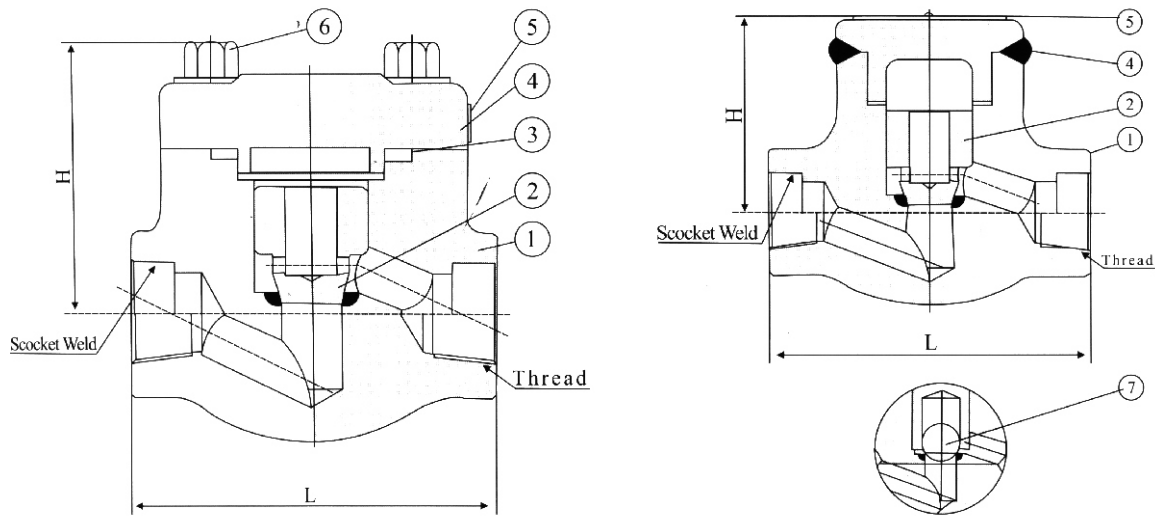
## Standard Material Specifications

No	Part Name	CS to ASTM	AS to ASTM	SS to ASTM	
		Type A105	Type F22	Type F304(L)	Type F316(L)
1	Body	A 105	A182 F22	A182 F304(L)	A182 F316(L)
2	Piston Disc	A276 410	A276 304	A276 304(L)	A276 316(L)
3	Gasket	Corrugated SS+graphite		SS+PTFE	
4	Bonnet	A105	A182 F22	A182/F304(L)	A182/F316(L)
5	Nameplate	SS			
6	Bolt	A193 B7	F193 B16	A193 B8(M)	A193 B8(M)
7	Ball	A182 F304	A182 F304	A182 F304	A182 F304
Suitable Medium		W.O.G.etc	W.O.G.etc	HNO <sub>3</sub> CH <sub>3</sub> OOH etc	
Suitable Temperature		-29°C~425°C	-29°C~550°C	-29°C~180°C	

Note: Other materials are available upon request. CS=Carbon Steel; AS=Alloy Steel; SS=Stainless Steel;

## Dimensions(mm) and Weights(Kg)

NPS	Couv	3/8	1/2	3/4	1	1 1/4	1 1/2	2	
	Full		3/8	1/2	3/4	1	1 1/4	1 1/2	2
L		79	79	92	111	120	152	172	200
H		61	61	65	79	95	103	118	132
Weights	Bolted	1.4	1.2	1.5	3.1	3.9	5.6	8.9	12.5
	Welded	1.1	1.0	1.2	2.9	3.3	4.9	8.1	10.9



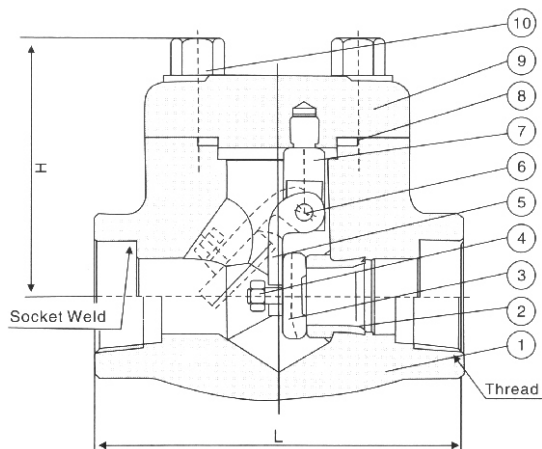
## Standard Material Specifications

No	Part Name	CS to ASTM	AS to ASTM	SS to ASTM	
		Type A105	Type F22	Type F304(L)	Type F316(L)
1	Body	A 105	A182 F22	A182 F304(L)	A182 F316(L)
2	Piston Disc	A276 410	A276 304	A276 304(L)	A276 316(L)
3	Gasket	Corrugated SS+graphite		SS+PTFE	
4	Bonnet	A105	A182 F22	A182/F304(L)	A182/F316(L)
5	Nameplate	SS			
6	Bolt	A193 B7	F193 B16	A193 B8(M)	A193 B8(M)
7	Ball	A182 F304	A182 F304	A182 F304	A182 F304
Suitable Medium		W.O.G.etc	W.O.G.etc	HNO <sub>3</sub> CH <sub>3</sub> OOH etc	
Suitable Temperature		-29°C~425°C	-29°C~550°C	-29°C~180°C	

Note: Other materials are available upon request. CS=Carbon Steel; AS=Alloy Steel; SS=Stainless Steel;

## Dimensions(mm) and Weights(Kg)

NPS	Couv	3/8	1/2	3/4	1	1 1/4	1 1/2	2	
	Full		3/8	1/2	3/4	1	1 1/4	1 1/2	2
L		92	111	111	120	152	172	200	220
H		65	79	79	97	104	120	139	215
Weights	Bolted	1.6	3.4	3.3	5.5	6.0	9.2	12.9	16.2
	Welded	1.3	3.2	3.1	4.8	5.4	8.5	11.2	14.3



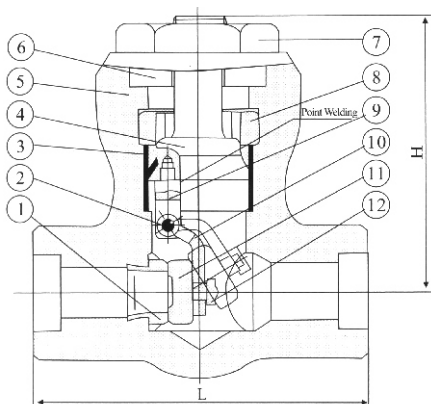
## Standard Material Specifications

No	Part Name	CS to ASTM	AS to ASTM	SS to ASTM	
		Type A105	Type F22	Type F304(L)	Type F316(L)
1	Body	A 105	A182 F22	A182 F304(L)	A182 F316(L)
2	Seat	A276 410	A276 304	A276 304(L)	A182 F316(L)
3	Swing Disc	A276 420	A276 304	A276 304(L)	A276 316(L)
4	Nut	A194 2H	A194 4	A194 8	A1978M
5	Hinge	A105	A182 F22	A182 F304(L)	A182 F316(L)
6	Pin	A276 F22		A182 F304	A182 F316
7	Pontlevis	A105	A182 F22	A182F304L	A182 F316(L)
8	Gasket	Corrugated Ss+grapite		SS+PTFE	
9	Bonnet	A105	A182 F22	A182 F304L	A182 F306(L)
10	Bolt	A193 B7	A193 B16	A193 B8(M)	A193B8M
Suitable Medium		W.O.G.etc	W.O.G.etc	HNO <sub>3</sub> CH <sub>3</sub> OOH etc	
Suitable Temperature		-29°C~425°C	-29°C~550°C	-29°C~180°C	

Note: Other materials are available upon request. CS=Carbon Steel; AS=Alloy Steel; SS=Stainless Steel;

## Dimensions(mm) and Weights(Kg)

NPS		3/8	1/2	3/4	1	1 1/4	1 1/2	2
L	800Lb	79	79	92	111	120	120	140
	900~1500Lb	92	111	111	120	120	140	178
H	800Lb	61	61	78	84	101	120	133
	900~1500Lb	79	7	79	97	105	120	140
Weights	800Lb	1.1	1.0	1.9	3.9	4.5	7.3	10.0
	900~1500Lb	3.1	3.0	3.6	4.3	6.1	8.8	12.6



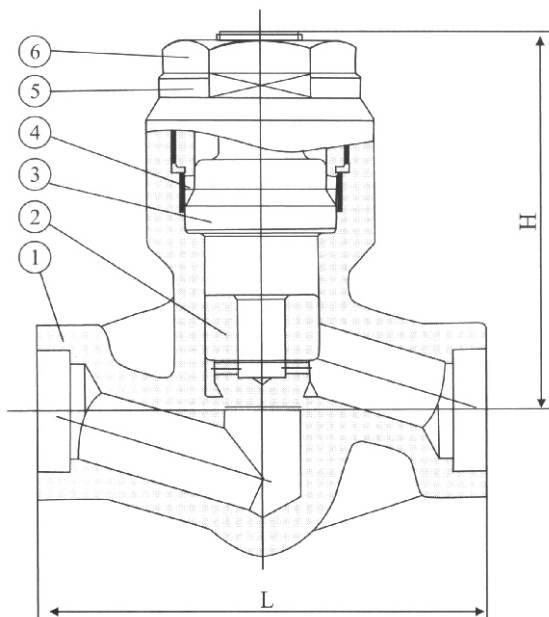
## Standard Material Specifications

No	Part Name	CS to ASTM	AS to ASTM	SS to ASTM	
		Type A105	Type F22	Type F304(L)	Type F316(L)
1	Seat Ring	A276 410	A276 304	A276 304(L)	A276 316(L)
2	Pin	A276 420		A182 F304	A182 F316
3	Pressure Ring		A276 304		A276 316(L)
4	Pressure Seat	A105	A182 F304	A182/F304(L)	A182 F316(L)
5	Body	A 105	A18 F22	A182/F304(L)	A182 F316(L)
6	Bonnet	A 105	A182 F22	A182 F304	A182 F316(L)
7	Bolt	A193 B7	A193 B16	A193 B8	A193 B8M
8	Quarter Ring	A276 420	A182 F304		A182 F316
9	Pontlevis	A105	A182 F22	A182 F304L	A182 F316(L)
10	Hinge	A 105	A182 F22	A182 F304L	A182 F316(L)
11	Disc	A276 420	F304	A182 F304(L)	F316(L)
12	Nut	A194 2H	A194 4	A194 8	A194 8M
Suitable Medium		W.O.G.Ete	W.O.G.etc	HNO <sub>3</sub> CH <sub>3</sub> OOH etc	
Suitable Temperature		-29°C~425°C	-29°C~550°C	-29°C~180°C	

Note: Other materials are available upon request. CS=Carbon Steel; AS=Alloy Steel; SS=Stainless Steel;

## Dimensions(mm) and Weights(Kg)

NPS		1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
L	900~1500Lb	140	140	140	178	178	216
	2500Lb	186	186	186	232	232	279
H		117	117	117	152	152	195
Weights	900~1500Lb	8.2	7.8	7.7	19.8	19.2	21.3
	2500Lb	10.0	9.6	9.4	21.5	21.0	22.8



## Standard Material Specifications

No	Part Name	CS to ASTM	AS to ASTM	SS to ASTM	
		Type A105	Type F22	Type F304(L)	Type F316(L)
1	Body	A 105	A182 F22	A182 F304(L)	A182 F316(L)
2	Lift Disc	A276 420	A276 304	A276 304(L)	A276 316(L)
3	Sealing Seat	A105	F22	A182 F304(L)	F316(L)
4	Pressure Ring	08F	08F	A276 304L	A276 316L
5	Retainion Nut	A194 2H	A194 4	A194 8	A194 8M
6	P.S.Lock Nut	A194V 2H	A194 4	A194 8	A194 8M
Suitable Medium		W.O.G.etc	W.O.G.etc	HNO <sub>3</sub> CH <sub>3</sub> OOH etc	
Suitable Temperature		-29°C~425°C	-29°C~550°C	-29°C~180°C	

Note: Other materials are available upon request. CS=Carbon Steel; AS=Alloy Steel; SS=Stainless Steel;

## Dimensions(mm) and Weights(Kg)

NPS		1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
L	900~1500Lb	140	140	140	178	178	216
	2500Lb	186	186	186	232	232	279
H		117	117	117	152	152	195
Weights	900~1500Lb	7.5	7.0	6.7	18.5	18.1	20.3
	2500Lb	9.0	7.6	8.4	19.5	20.1	21.8

## 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				
		CL600-2500 Ring Joint Soft Iron	304			304			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 410	A276 410	A276 304	A276 316	A276 304L	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 410	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 WCB	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	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	A194 L7	A193 L7	A193 B7	A193 B16	A193 B16	A193 B8					
9	Gasket	CL150-300 Soft Iron+ Graphite	304+Graphite			304+Graphite			304+Graphite				
		CL600-2500 Ring Joint Soft Iron	304			304			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 CFM		
13	Eye Bolt Pins	Carbon Steel			A276 410			Stainless Steel					
14	Gland	A276 410	A276 304	A276 304	A276 410	A276 410	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 WCB	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

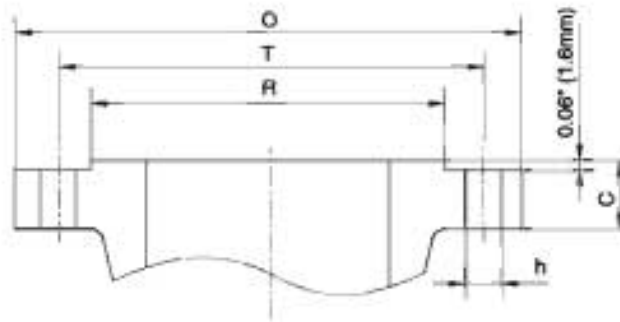
ITEM	PART NAME	CARBON STEEL			ALLOY STEEL			STAINLESS STEEL					
1	Body	A216 WCB	A352 LCB	A352 LCC	A217 WC1	A217 WC6	A217 C5	A351 CF8	A351 CF8M	A351 CF3	A351 CF3M	A351 CF8C	
2	seat ring	A105	A350 LF2	A350 LF2	A182 F1	A182 F11	A182 F5	A182 F304	A182 F316	A182 F304L	A182 F316L	A182 F321	
3	disc	A216 WCB	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				
		CL600-2500 Ring Joint Soft Iron	304			304			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 WCB	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	

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	



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	0.38- 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							HB128-300 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						HB128-300 HRC 60-105	

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	8.00	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	8.00	229	6.19	157	0.84	24	7.50	190.5	0.75	19	8	5/8
	6	150	11.00	279	8.50	216	1.00	28	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	16.00	463	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	1.58	40	22.75	578	1.25	32	16	1 1/8
	20	500	27.50	699	23.00	584	1.69	43	25.00	636	1.25	32	20	1 1/8
	24	600	32.00	813	27.25	682	1.88	48	29.50	748.5	1.38	35	20	1 1/4
	28	700	36.50	927	31.50	800	2.81	72	34.00	863.5	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	0.68	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	682	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 1/2
30	750	43.00	1092	33.75	857	3.62	92	39.25	997	1.68	48	28	1 1/2	

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:

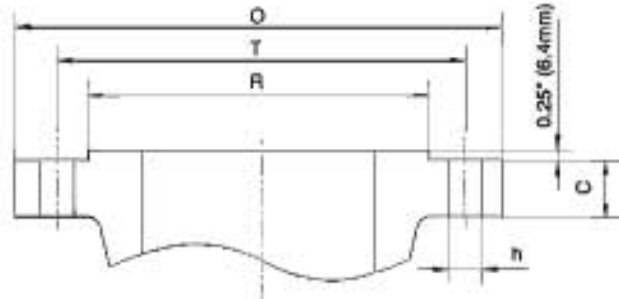
NPS ≤ 2 1/2" ±0.03

NPS ≤ 2 1/2" ±0.06

Outside Diameter R: 0.06 Raised Face: ±0.03

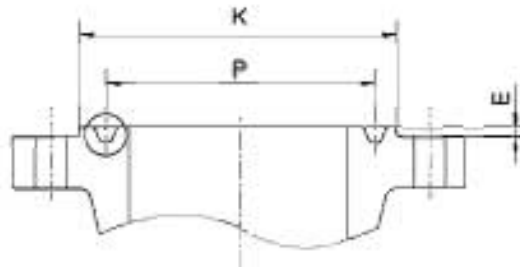
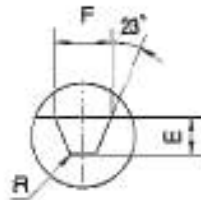
0.25 Raised Face: ±0.02

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	166	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	366	8.50	216	1.88	48	11.50	292	1.12	29	12	1
	8	200	18.50	419	10.82	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	569	15.00	381	2.82	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 1/2
	16	400	27.00	666	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 1/2
	20	500	32.00	813	23.00	584	3.50	88	28.50	724	1.75	44	24	1 1/2
	24	600	37.00	940	27.25	692	4.00	102	33.00	838	2.00	51	24	1 1/2
	900	2	50	8.50	216	3.62	92	1.50	38.5	6.50	165.1	1.00	26	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	10.82	270	2.50	63.5	15.50	393.7	1.50	36	12	1 1/8
10		250	21.50	545	12.75	324	2.75	70.0	18.50	469.9	1.50	36	16	1 1/8
12		300	24.00	610	15.00	381	3.12	79.5	21.00	533.4	1.50	36	20	1 1/8
14		350	25.25	640	16.25	413	3.38	85.0	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 1/2
18		450	31.00	785	21.00	533	4.00	102.0	27.00	685.8	2.00	51	20	1 1/2
20		500	33.75	855	23.00	584	4.25	108.0	28.50	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
	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	46.5	8.00	190.5	1.25	32	8	1 1/4
	4	100	12.25	311	6.19	157	2.12	54.0	9.50	234.9	1.38	35	8	1 1/2
	6	150	15.50	394	8.50	216	3.25	83.0	12.50	317.5	1.50	36	12	1 1/2
	8	200	19.00	483	10.82	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	489.9	2.00	51	12	2
	12	300	26.50	675	15.00	381	4.88	124.0	22.50	579.9	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 1/2
	16	400	32.50	825	18.50	470	5.75	146.5	27.75	701.7	2.62	67	16	2 3/8
	18	450	36.00	915	21.00	533	6.38	162.0	30.50	779.9	2.88	74	16	2 3/8
	20	500	38.75	985	23.00	584	7.00	178.0	32.75	859.9	3.12	80	16	3 1/8
	24	600	46.00	1170	27.25	692	8.00	203.5	39.00	991.7	3.62	93	16	3 3/8
	2500	2	60	9.25	235	3.62	92	2.00	51.0	6.75	170.5	1.12	29	8
2.5		65	10.50	267	4.12	105	2.25	57.5	7.75	190.5	1.25	32	8	1 1/8
3		80	12.00	305	5.00	127	2.62	67.0	9.00	224.9	1.38	36	8	1 1/4
4		100	14.00	366	6.19	157	3.00	78.5	10.75	274.9	1.62	42	8	1 1/2
6		150	19.00	483	8.50	216	4.25	108.0	14.50	369.9	2.12	54	8	2
8		200	21.75	550	10.82	270	5.00	127.0	17.25	449.9	2.12	54	12	2
10		250	26.50	675	12.75	324	6.50	165.5	21.50	559.9	2.62	67	12	2 1/8
12		300	30.00	780	15.00	381	7.25	184.5	24.38	639.9	2.88	74	12	2 3/4

CLASS 150-2500 RTJ



CLASS	SIZE	Ring No.	P		E		F		R		K	
			in	mm	in	mm	in	mm	in	mm	in	mm
150	2 90	R22	3.250	82.54	0.250	6.35	0.344	8.74	0.03	0.8	4.00	102
	2.5 95	R25	4.000	101.60	0.250	6.35	0.344	8.74	0.03	0.8	4.75	121
	3 90	R28	4.500	114.30	0.250	6.35	0.344	8.74	0.03	0.8	5.25	133
	4 100	R38	5.875	148.22	0.250	6.35	0.344	8.74	0.03	0.8	8.75	171
	6 150	R43	7.825	198.68	0.250	6.35	0.344	8.74	0.03	0.8	8.62	218
	8 200	R48	8.750	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	R58	15.825	399.88	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	517.92	0.250	6.35	0.344	8.74	0.03	0.8	21.60	546
	20 500	R72	23.000	586.80	0.250	6.35	0.344	8.74	0.03	0.8	23.50	597
	24 600	R78	28.500	727.10	0.250	6.35	0.344	8.74	0.03	0.8	28.00	711
	28 700	R84	31.000	800.10	0.500	12.7	0.781	19.844	0.06	1.5	33.88	861
	30 750	R85	33.700	867.23	0.500	12.7	0.781	19.844	0.06	1.5	36.12	917
	32 800	R86	36.000	914.40	0.562	14.3	0.906	23.019	0.09	2.3	38.75	984
	36 900	R88	40.250	1022.95	0.562	14.3	0.906	23.019	0.09	2.3	40.75	1035
	300	2 90	R26	3.250	82.54	0.312	7.92	0.489	11.91	0.03	0.8	4.25
2.5 95		R28	4.000	101.60	0.312	7.92	0.489	11.91	0.03	0.8	5.00	127
3 90		R31	4.875	123.82	0.312	7.92	0.489	11.91	0.03	0.8	5.75	146
4 100		R37	5.875	148.22	0.312	7.92	0.489	11.91	0.03	0.8	8.88	175
6 150		R45	8.312	211.13	0.312	7.92	0.489	11.91	0.03	0.8	9.50	214
8 200		R49	10.825	280.84	0.312	7.92	0.489	11.91	0.03	0.8	11.86	302
10 250		R53	12.750	323.85	0.312	7.92	0.489	11.91	0.03	0.8	14.00	356
12 300		R57	15.000	381.00	0.312	7.92	0.489	11.91	0.03	0.8	16.25	413
14 350		R61	16.000	419.10	0.312	7.92	0.489	11.91	0.03	0.8	16.00	457
16 400		R66	18.500	469.90	0.312	7.92	0.489	11.91	0.03	0.8	20.00	508
18 450		R69	21.000	533.40	0.312	7.92	0.489	11.91	0.03	0.8	22.82	575
20 500		R73	23.000	584.20	0.375	9.52	0.531	13.48	0.06	1.5	25.00	636
24 600		R77	27.250	692.15	0.438	11.13	0.656	16.66	0.06	1.5	28.50	748
28 700		R84	31.000	800.10	0.500	12.7	0.781	19.84	0.06	1.5	33.88	861
30 750		R85	33.700	867.25	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	
900	2 90	R24	3.750	95.25	0.312	7.92	0.489	11.91	0.03	0.8	4.88	124	
	2.5 95	R27	4.250	107.95	0.312	7.92	0.489	11.91	0.03	0.8	5.38	137	
	3 90	R31	4.875	123.82	0.312	7.92	0.489	11.91	0.03	0.8	6.12	156	
	4 100	R37	5.875	148.22	0.312	7.92	0.489	11.91	0.03	0.8	7.12	181	
	6 150	R45	8.312	211.12	0.312	7.92	0.489	11.91	0.03	0.8	8.50	241	
	8 200	R49	10.825	280.84	0.312	7.92	0.489	11.91	0.03	0.8	12.12	306	
	10 250	R53	12.750	323.85	0.312	7.92	0.489	11.91	0.03	0.8	14.25	362	
	12 300	R57	15.000	381.00	0.312	7.92	0.489	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	20.82	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	646	
	24 600	R78	27.250	692.15	0.625	15.88	1.062	26.97	0.09	2.3	30.38	772	
	1500	2 90	R27	3.750	95.25	0.312	7.92	0.489	11.91	0.03	0.8	4.88	124
		2.5 95	R27	4.250	107.95	0.312	7.92	0.489	11.91	0.03	0.8	5.38	137
		3 90	R35	4.875	123.82	0.312	7.92	0.489	11.91	0.03	0.8	6.82	168
		4 100	R39	5.875	148.22	0.312	7.92	0.489	11.91	0.03	0.8	7.62	194
		6 150	R48	8.312	211.12	0.375	9.52	0.531	13.48	0.06	1.5	8.75	248
8 200		R50	10.825	280.84	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	14.82	371	
12 300		R58	15.000	381.00	0.562	14.27	0.809	20.51	0.06	2.3	17.35	438	
14 350		R63	16.500	419.10	0.625	15.88	1.062	26.97	0.09	2.3	19.35	489	
16 400		R67	18.500	469.90	0.688	17.48	1.188	30.18	0.09	2.3	21.90	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	36.33	0.09	2.3	31.25	794	
2500		2 90	R28	4.000	101.60	0.312	7.92	0.489	11.91	0.03	0.8	5.25	133
		2.5 95	R28	4.375	111.12	0.375	9.52	0.531	13.48	0.03	0.8	5.88	148
		3 90	R32	5.000	127.00	0.375	9.52	0.531	13.48	0.06	1.5	6.62	168
		4 100	R38	5.188	131.78	0.438	11.13	0.656	16.66	0.06	1.5	8.00	203
		6 150	R47	8.000	203.20	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	0.809	20.51	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	19.80	486	

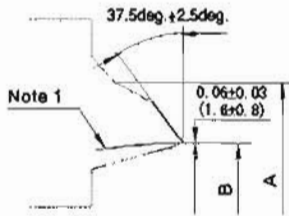
End Flange Dimensions: Size 2" - 24" to ASME B16.5, Size 28" - 36" to ASME B16.47 A.

Tolerances: Unit Inch

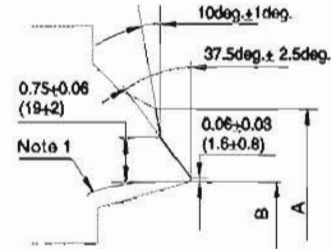
- Depth E: +0.016,-0
- Width F: ±0.008
- Pitch Diameter P: ±0.005
- Radius at Bottom R: R ≤ 0.08" ±0.03,0  
R ≥ 0.06" ±0.03
- Angle 23 Deg: ±0.5Deg



# 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	mm
65	2.5	40	43.0	2.88	75	2.96	62.5	2.469	62.93	2.479	6.18	0.203
		80					59	2.323	59.69	2.341	7.01	0.276
		160					54	2.125	55.28	2.178	9.53	0.376
		XCS					45	1.771	47.43	1.866	14.02	0.552
80	3	40	88.9	3.50	91	3.95	78	3.088	78.25	3.081	5.49	0.126
		80					73.5	2.900	74.53	2.934	7.82	0.300
		160					66.5	2.626	66.38	2.682	11.13	0.438
		XCS					58.5	2.300	61.19	2.409	15.24	0.600
90	3.6	40	101.6	4.00	105	4.12	90	3.548	90.52	3.584	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	4.82	102	4.028	102.73	4.044	6.02	0.237
		80					97	3.828	98.28	3.889	8.68	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	80				80	3.152	83.30	3.279	17.12	0.674	
		XCS										
		40	141.3	5.58	144	5.69	128	5.047	128.80	5.070	8.55	0.258
		80					122	4.813	123.58	4.866	9.53	0.375
150	6	120				116	4.683	118.04	4.647	12.70	0.500	
		160				109.5	4.313	112.47	4.428	15.88	0.625	
		XCS				103	4.063	106.92	4.209	19.05	0.750	
		40	169.3	6.62	172	6.78	154	6.085	154.82	6.094	7.11	0.280
200	8	80				145.5	5.781	146.06	5.629	10.97	0.432	
		120				140	5.501	142.29	5.600	14.27	0.562	
		160				132	5.187	135.31	5.326	18.26	0.719	
		XCS				124.5	4.897	128.85	5.072	21.95	0.864	
250	10	40	219.1	8.62	223	8.78	203	7.981	203.75	8.020	8.18	0.322
		80					196.5	7.813	200.02	7.783	10.31	0.406
		120					183.5	7.225	185.84	7.309	12.70	0.500
		160					189	7.437	181.65	7.544	15.09	0.594
		XCS					182.5	7.187	186.11	7.326	18.26	0.719
		140					178	7.001	181.98	7.163	20.62	0.812
		174.5	6.875	179.16	7.063	22.23	0.875					
		173	6.813	177.79	6.989	23.01	0.906					
300	12	40	273.0	10.75	278	10.94	254.5	10.020	255.74	10.070	9.27	0.365
		80					247.5	9.75	246.74	9.634	12.70	0.500
		120					243	9.682	245.55	9.670	15.09	0.594
		160					236.5	9.312	240.01	9.451	18.26	0.719
		XCS					230	9.062	234.44	9.232	21.44	0.844
		140					222	8.750	227.51	8.959	25.40	1.000
		218	8.600	221.95	8.740	28.58	1.125					
		305	12.000	306.08	12.063	9.63	0.375					
350	14	STD	323.8	12.75	329	12.97	303	11.938	304.72	11.999	10.31	0.406
		40					298.5	11.750	300.54	11.834	12.70	0.500
		80					295	11.628	287.79	11.725	14.27	0.562
		120					289	11.374	282.17	11.505	17.48	0.688
		160					281	11.062	285.24	11.232	21.44	0.844
		XCS					273	10.760	278.31	10.959	25.40	1.000
		286.5	10.500	272.75	10.740	28.58	1.125					
		267	10.126	264.45	10.413	33.32	1.312					
		339.5	13.250	337.88	13.303	9.63	0.375					
		40					333.5	13.124	335.08	13.182	11.13	0.438
		80					330	13.000	332.34	13.084	12.70	0.500
		120					325.5	12.812	328.15	12.920	15.09	0.594
160					317.5	12.500	321.22	12.646	19.05	0.750		
308	12.124	312.88	12.318	23.83	0.938							
300	11.812	305.93	12.044	27.79	1.094							
292	11.500	299.00	11.771	31.75	1.250							
284	11.188	282.07	11.488	35.71	1.106							

Nominal Pipe Size		Schedule No. [Note(1)]	O.D. at Welding Ends				B		C[Note(3)]		T	
DN	NPS		Wrought or Fabricated Components, A[Note(1)]		Cast Steel Valves, A[Note(2)]		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	16.06	0.606
		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	351.10	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	16.648	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	14.878	386.77	15.225	39.67	1.562
160					366.5	14.438	376.99	14.842	45.24	1.781		
500	20	STD	508.0	20.00	516	20.31	489	19.250	490.28	19.303	9.53	0.375
		XS					482.5	19.000	484.74	19.084	12.70	0.500
		40					478	18.812	480.55	18.920	15.09	0.594
		60					467	18.376	470.86	18.538	20.82	0.812
		80					455.5	17.938	461.13	18.155	26.19	1.031
		100					443	17.438	450.02	17.717	32.54	1.281
		120					432	17.000	440.29	17.334	38.10	1.500
		140					419	16.500	429.17	16.896	44.45	1.750
550	22	STD	558.8	22.00	567	22.34	408	16.062	419.44	16.513	50.01	1.969
		XS					530	21.250	541.08	21.303	9.53	0.375
		40					533	21.000	535.54	21.084	12.70	0.500
		60					514	20.250	518.86	20.428	22.23	0.875
		80					501	19.750	507.75	19.990	28.58	1.125
		100					488.5	19.250	498.63	19.553	34.93	1.375
		120					478	18.790	485.52	19.115	41.28	1.625
		140					463	18.250	474.41	18.678	47.63	1.875
160					450.5	17.750	463.30	18.240	53.98	2.125		
600	24	STD	609.6	24.00	619	24.38	580.5	23.250	591.88	23.303	9.53	0.375
		XS					564	23.000	586.34	23.084	12.70	0.500
		30					581	22.876	583.59	22.975	14.27	0.562
		40					574.5	22.624	577.97	22.755	17.48	0.688
		60					560.5	22.062	565.49	22.263	24.81	0.969
		80					547.5	21.562	554.38	21.826	30.96	1.219
		100					532	20.938	540.49	21.280	38.89	1.531
		120					517.5	20.376	528.03	20.789	46.02	1.812
140					505	19.876	516.91	20.350	52.37	2.062		
160					490.5	19.312	504.37	19.857	59.54	2.344		
650	26	10	660.4	26.00	670	26.38	645.5	25.376	645.50	25.413	7.92	0.312
		20					635	25.000	637.14	25.084	12.70	0.500
700	28	10	711.2	28.00	721	28.38	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
750	30	10	762.0	30.00	772	30.38	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
800	32	10	812.8	32.00	825	32.50	797	31.376	797.90	31.413	7.92	0.312
		20					787.5	31.000	789.54	31.084	12.70	0.500
		30					781	30.750	783.97	30.865	15.88	0.625
		40					778	30.624	781.17	30.755	17.48	0.688
850	34	10	863.6	34.00	878	34.50	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					828.5	32.624	831.97	32.755	17.48	0.688
900	36	10	914.4	36.00	927	36.50	898.5	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

NOTES:

(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) Internal machining for continuous backing rings for sizes DN 50(NPS 2) and smaller is not contemplated.