



HEBEI LEADING METALS & PIPING INDUSTRIES CO., LTD.



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CENTERLINE RESILIENT SEATED BUTTERFLY VALVES (WITH PIN)



**ISO 9002
CERTIFIED**

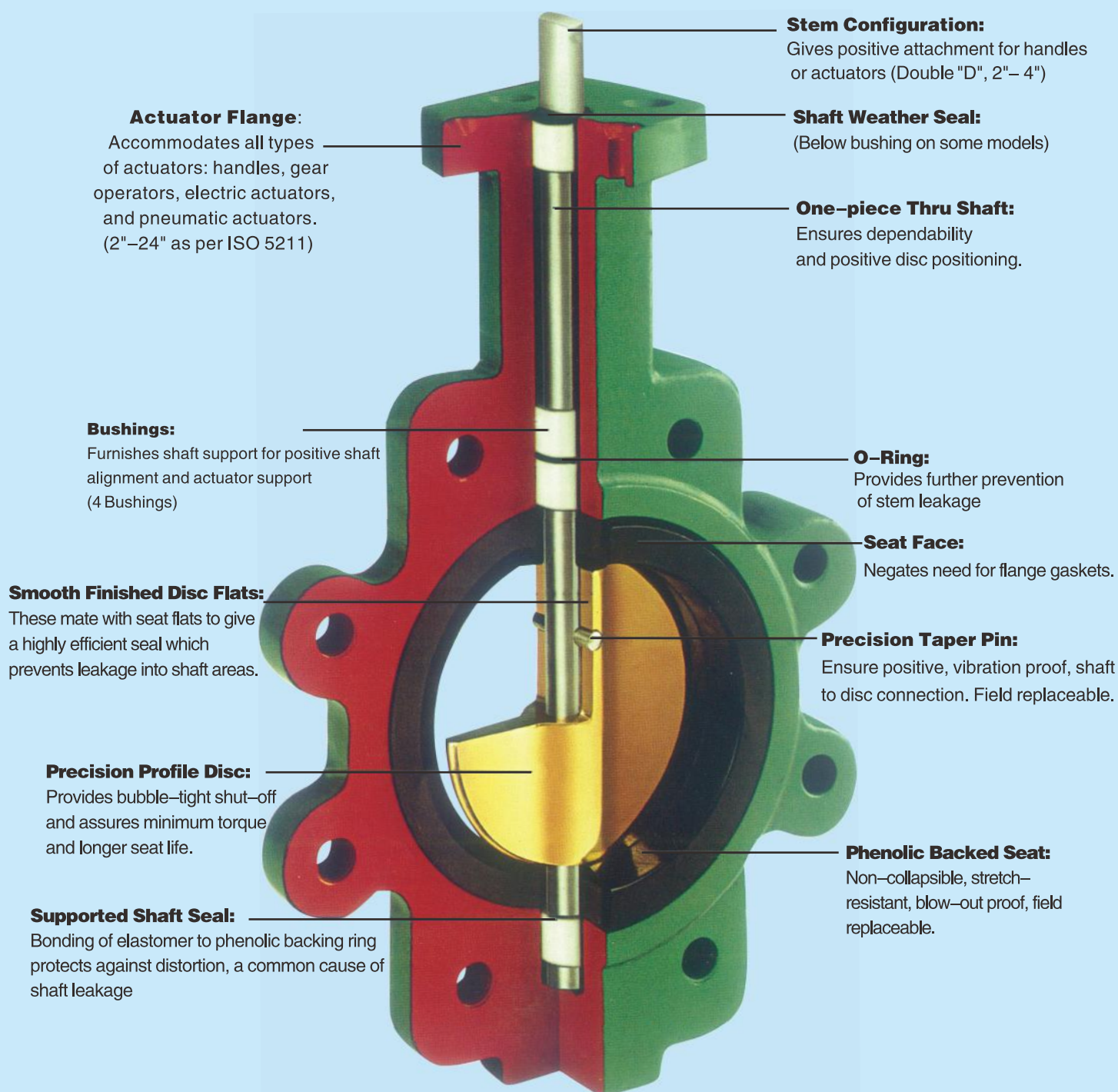


**CE
APPROVAL**

CENTERLINE RESILIENT SEATED BUTTERFLY VALVES (WITH PIN)

CENTERLINE butterfly valves is available with handles (1.5" to 12"), manual gear operators (1.5" to 48"), and electric or pneumatic actuators (1.5" to 48"). Designed to comply with MSS SP-67 and API 609. Compatible with ANSI 125/150, BS4504, DIN PN10/16 flanges. Valves (2" to 20") meet the intent and have passed the AWWA C-504-87 Section 5 proof of design tests.

STRUCTURE DISPLAY



CENTERLINE RESILIENT SEATED BUTTERFLY VALVES (WITH PIN)

Bill of Materials

Part Name	Materials	Optional Materials
Body	Grey Cast Iron Standard ASTM A126 Grade B , DIN1691 GG25	Ductile Cast Iron, Stainless Steel WCB
Disc	Ductile Cast Iron(Nickel plated or Nylon coated) Standard ASTM A536 65-45-12, DIN1693 GGG40	Stainless Steel ASTM CF8M CF8 AL-BZ ASTM C954
Seat	Buna-N or EPDM	PTFE, Viton, Neoprene, Hypalon
Shaft	Stainless Steel Standard ASTM 316 410 416	Carbon Steel
Pin	Stainless Steel Standard ASTM 316 410 416	No optional
Key	Carbon Steel	No optional
"O" Ring	Buna-N or EPDM	No optional
Bushing	PTFE	Lubricated Bronze

Valve Seating Torques (in • Lbs.)

Valve Size		Standard Disc, Differential Pressure							
		50PSI ΔP Bushing		100PSI ΔP Bushing		150PSI ΔP Bushing		200PSI ΔP Bushing	
NPS	DN	Bronze	PTFE	Bronze	PTFE	Bronze	PTFE	Bronze	PTFE
1.5"	40								
2"	50	106	100	117	106	129	111	140	117
2.5"	65	152	150	166	163	181	176	195	189
3"	80	213	207	230	220	248	322	265	244
4"	100	321	290	386	323	450	357	515	390
5"	125	481	423	598	481	715	540	832	598
6"	150	692	599	878	691	1063	783	1248	875
8"	200	1362	1060	1716	1183	2106	1307	2496	1430
10"	250	2239	1671	3010	1872	3780	2074	4550	2275
12"	300	3959	2568	4953	2795	5948	3023	6942	3250
14"	350	4881	2640	6226	3070	7570	3500	—	—
16"	400	7020	4260	8580	4880	10140	5500	—	—
18"	450	10105	6287	12202	7243	14300	8200	—	—
20"	500	13923	8360	16582	9180	19240	10000	—	—
24"	600	23617	15427	26953	16813	30290	18200	—	—
30"	750	39721	27313	43391	29407	47060	31500	—	—

All torque values shown on chart are for "wet" (water and other non-lubricating media) on-off service. For "dry" service (non-lubricating, dry gas media), multiply values by 1.6. For "lubbed" service (clean, non-abrasive lubricating media), multiply values by 0.85. When sizing actuators for single valve applications, multiply values by 1.25. When sizing for 3-way ("tee") applications multiply values by 1.5.

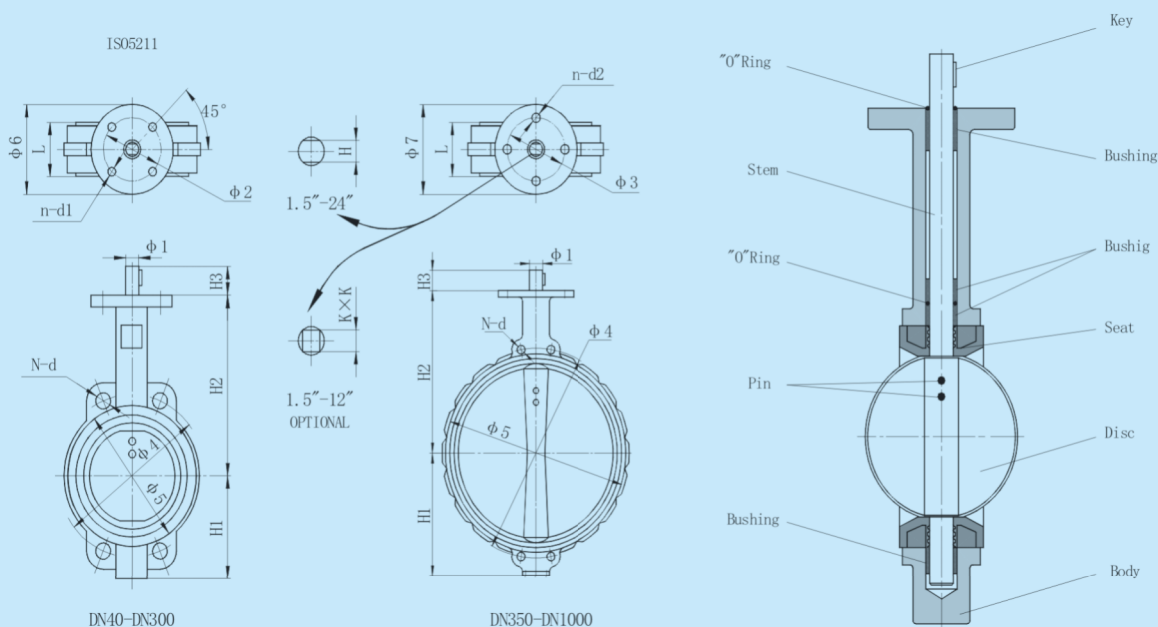
Under certain conditions, hydrodynamic torque can meet or exceed seating and unseating torques. When designing valve systems, hydrodynamic torque must be considered to help ensure correct selection of application.

Seat Temperature Ratings

Material		Buna-N	Abrasive Resistant Buna-N	Neoprene	EPDM		EPDM food grade	Hypalon	Viton	High Temp. Viton	PTFE over Buna-N	
					EPDM (2"-16")	EPDM (≥18")					75PSI 2"-12"	125PSI 2"-12"
Temperature Ratings	°C	-12~82	-12~82	-7~93	-35~135	-35~110	-35~110	-32~135	-12~135	-12~382	4.4~135	4.4~121
	°F	10~180	10~180	20~200	-30~275	-30~225	-30~225	0~275	10~275	10~400	40~275	40~250

Seat materials are capable of withstanding lower temperatures without damage. However, the elastomer becomes hard and torques increase. Some flow media may further restrict the published temperature limits or significantly reduce seat life. Please note that valve pressure rating will be derated with High Temp Viton Seats at temperatures greater than 275 °F.

CENTERLINE RESILIENT SEATED BUTTERFLY VALVES (WITH PIN)

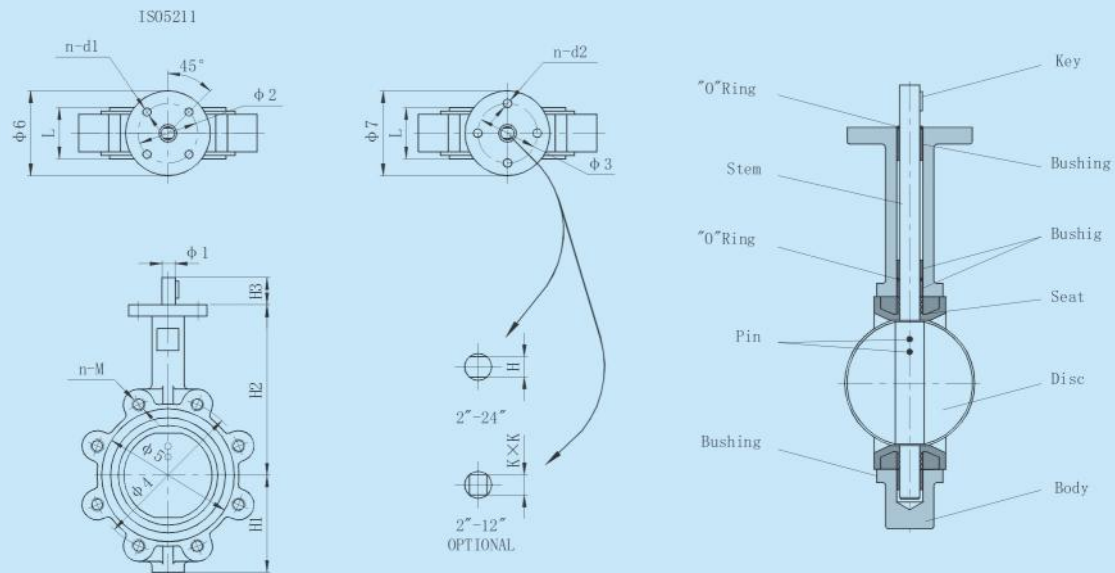


Dimension List of Wafer Type (with pin)

Size		H1	H2	H3	L	Φ1	Φ2	Φ3	Φ4						Φ5	Φ6	Φ7	N	d						n-d1	n-d2	H	K
mm	inch								ANSI B16.1	PN10	PN16	5K	10K	16K					ANSI	PN10	PN16	5k	10k	16k				
40	1.5"	60	130	32	36	12.7	50	57.15	98.5	110	110	95	105	105	82	70	80	4	15.87	18	18	15	19	19	4-7	4-6.8	10	10
50	2"	76	162	32	45	12.7	50	57.15	120.65	125	125	105	120	120	88	70	80	4	17.46	18	18	15	19	19	4-7	4-6.8	10	10
65	2.5"	89	175	32	48	12.7	50	57.15	139.7	145	145	130	140	140	108	70	80	4	17.46	18	18	15	19	19	4-7	4-6.8	10	10
80	3"	95	181	32	49	12.7	50	57.15	152.4	160	160	145	150	160	118	70	80	4	17.46	18	18	19	19	23	4-7	4-6.8	10	10
100	4"	114	200	32	55	15.9	70	69.85	190.5	180	180	165	175	185	156	90	90	4	17.46	18	18	19	19	23	4-9.5	4-10.3	12	12
125	5"	127	213	32	58	19	70	69.85	215.9	210	210	200	210	225	181	90	90	4	20.64	18	18	19	23	25	4-9.5	4-10.3	14	16
150	6"	140	225	32	59	19	70	69.85	241.3	240	240	230	240	260	210	90	90	4	20.64	22	22	19	23	25	4-9.5	4-10.3	14	16
200	8"	177	260	45	64	22.2	102	88.9	298.45	295	295	280	290	305	260	125	120	4	20.64	22	22	23	23	25	4-11.5	4-14.3	17	16
250	10"	203	292	45	70	28.6	102	88.9	361.95	350	355	345	355	380	321	125	120	4	23.81	22	26	23	25	27	4-11.5	4-14.3	22	24
300	12"	242	337	45	80	31.7	102	107.95	431.8	400	410	390	400	430	384	140	140	4	23.81	22	26	23	25	27	4-11.5	4-14.3	24	24
350	14"	267	368	45	80	31.7	102	107.95	476.25	460	470	435	445	480	400	140	140	4	26.98	22	26	25	25	33	4-11.5	4-14.3	24	—
400	16"	298	400	51	90	33.34	165	158.75	539.75	515	525	495	510	540	465	210	197	4	26.98	26	30	25	27	33	4-22.2	4-20.6	27	—
450	18"	318	422	51	109	38	165	158.75	577.85	565	585	555	565	605	514	210	197	4	31.75	26	30	25	27	33	4-22.2	4-20.6	27	—
500	20"	349	479	64	135	41.15	165	158.75	635	620	650	605	620	660	559	210	197	4	31.75	26	33	25	27	33	4-22.2	4-20.6	32	—
600	24"	410	562	70	156	50.65	165	215.9	749.3	725	770	715	730	770	686	210	286	4	34.92	30	36	27	33	39	4-22.2	4-22	36	—
700	28"	520	624	72	169	55	254	254	—	840	840	820	840	—	795	300	300	4	—	30	36	27	33	—	8-18	8-18	—	—
750	30"	616	648	72	173	55	254	215.9	914.5	—	—	880	900	—	851	300	286	4	1/4"7	—	—	33	33	—	4-22.2	8-18	—	—
800	32"	591	672	72	195	55	254	254	—	950	950	930	950	—	900	300	300	4	—	33	39	33	33	—	8-18	8-18	—	—
900	36"	611	768	77	211	75	254	254	1086	1050	1050	1030	1050	—	1002	300	300	4	41.1	33	39	33	33	—	8-18	8-18	—	—
1000	40"	665	823	85	229	85	254	254	—	1160	1160	1130	1160	—	1111	300	300	4	—	36	42	33	39	—	8-18	8-18	—	—
1050	42"	777	858	85	261	85	254	254	1257.75	—	—	—	—	—	—	300	300	36	41.3	—	—	—	—	—	8-18	8-18	—	—
1200	48"	955	880	150	285	92	298	298	1422.4	1380	1390	1350	1380	—	—	350	350	44/32	41.3	39	48	33	39	—	8-22	8-22	—	—

Notes: The H2 dimensions may be changed into lengthened butterfly valve according to request of the users.

CENTERLINE RESILIENT SEATED BUTTERFLY VALVES (WITH PIN)



Dimension List of Lug Type (with pin)

Size		H1	H2	H3	L	Φ1	Φ2	Φ3	Φ4			Φ5	Φ6	Φ7	n-M			n-d1	n-d2	H	K
mm	inch								ANSI B16.1	PN10	PN16				ANSI	PN10	PN16				
40	1.5"	60	130	32	36	12.7	50	57.15	98.5	110	110	82	70	80	4-1/2"-13	4-M16	4-M16	4-7	4-6.8	10	10
50	2"	76	162	32	45	12.7	50	57.15	120.65	125	125	88	70	80	4-5/8"-11	4-M16	4-M16	4-7	4-6.8	10	10
65	2.5"	80	175	32	48	12.7	50	57.15	139.7	145	145	108	70	80	4-5/8"-11	4-M16	4-M16	4-7	4-6.8	10	10
80	3"	95	181	32	49	12.7	50	57.15	152.4	160	160	118	70	80	4-5/8"-11	4-M16	8-M16	4-7	4-6.8	10	10
100	4"	114	200	32	55	15.9	70	69.85	190.5	180	180	156	90	90	8-5/8"-11	8-M16	8-M16	4-9.5	4-10.3	12	12
125	5"	127	213	32	58	19	70	69.85	215.9	210	210	181	90	90	8-3/4"-10	8-M16	8-M16	4-9.5	4-10.3	14	16
150	6"	140	225	32	59	19	70	69.85	241.3	240	240	210	90	90	8-3/4"-10	8-M20	8-M20	4-9.5	4-10.3	14	16
200	8"	173	260	45	64	22.2	102	88.9	298.45	295	295	260	125	120	8-3/4"-10	8-M20	12-M20	4-11.5	4-14.3	17	16
250	10"	203	292	45	70	28.6	102	88.9	361.95	350	355	321	125	120	12-7/8"-9	12-M20	12-M24	4-11.5	4-14.3	22	24
300	12"	237	337	45	80	31.7	102	107.95	431.8	400	410	384	125	140	12-7/8"-9	12-M20	12-M24	4-11.5	4-14.3	24	24
350	14"	279	368	45	80	31.7	102	107.95	476.25	460	470	400	125	140	12-1"-8	16-M20	16-M24	4-11.5	4-14.3	24	—
400	16"	304	400	51	90	33.34	165	158.75	539.75	515	525	465	210	197	16-1"-8	16-M24	16-M27	4-22.2	4-20.6	27	—
450	18"	362	422	51	109	38	165	158.75	577.85	565	585	514	210	197	16-1 1/8"-7	20-M24	20-M27	4-22.2	4-20.6	27	—
500	20"	368	479	64	135	41.15	165	158.75	635	620	650	559	210	197	20-1 1/8"-7	20-M24	20-M30	4-22.2	4-20.6	32	—
600	24"	444	562	70	156	50.65	165	215.9	749.3	725	770	686	210	286	20-1 1/4"-7	20-M27	20-M33	4-22.2	4-22	36	—
700	28"	520	624	72	169	55	254	254	—	840	840	795	300	300	—	24-M27	24-M33	8-18	8-18	—	—
750	30"	621	648	72	173	55	254	215.9	914.5	—	—	851	300	286	28-1 1/4"-7	—	—	4-22.2	8-18	—	—
800	32"	591	672	72	195	55	254	254	—	950	950	900	300	300	—	24-M30	24-M36	8-18	8-18	—	—
900	36"	623	768	77	211	75	254	254	1086	1050	1050	1002	300	300	32-1 1/2"-6	28-M30	28-M36	8-18	8-18	—	—
1000	40"	665	823	85	229	85	254	254	—	1160	1160	1111	300	300	—	28-M33	28-M39	8-18	8-18	—	—
1050	42"	777	858	85	261	85	254	254	1257.8	—	—	—	300	300	36-1 1/2"-6	—	—	8-18	8-18	—	—
1200	48"	955	880	150	285	92	298	298	1422.4	1380	1390	—	350	350	44-1 1/2"-6	32-M36	32-M45	8-22	8-22	—	—

Notes: 1. The H2 dimensions may be changed into lengthened butterfly valve according to request of the users
2. Bi-directional dead-end capability to 200psi (2" to 12") and 150psi (14" to 36") is available; Operators mounted perpendicular to pipe.

CENTERLINE RESILIENT SEATED BUTTERFLY VALVES (WITHOUT PIN)



**ISO 9002
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CENTERLINE RESILIENT SEATED BUTTERFLY VALVES (WITHOUT PIN)

Wafer and Lug style body
Wafer has 4 alignment holes
Ideal for on-off and throttling services
Handle, worm gear, electric or pneumatic actuator available
Design complies with MSS SP-67 and API 609
Valves (2"-12") meet the intent of and have passed AWWA C504-87
Section 5 proof of design tests.

Mounting Flange:

ISO 5211 mounting flange accommodates direct mounting of all types of actuators, including: handles, gear operators, electric and pneumatic.

Weather Seal:

O-Ring seals keep dust and moisture from entering the upper stem journal.

O-Ring:

Tertiary stem seal provides further assurance against stem leakage.

Stem:

Stub shaft design allows the disc to float within the flowway increasing cycle life.

Bushings:

Stem bushings reduce torque and isolate the stem from the valve body, preventing seizure of the stem due to corrosion in the stem journal. (4 Bushings)

Hub Seal:

Smooth finished disc flats mate with seat flats to give a highly efficient primary seal which prevents leakage into the shaft area and minimizes torque

Seat Face:

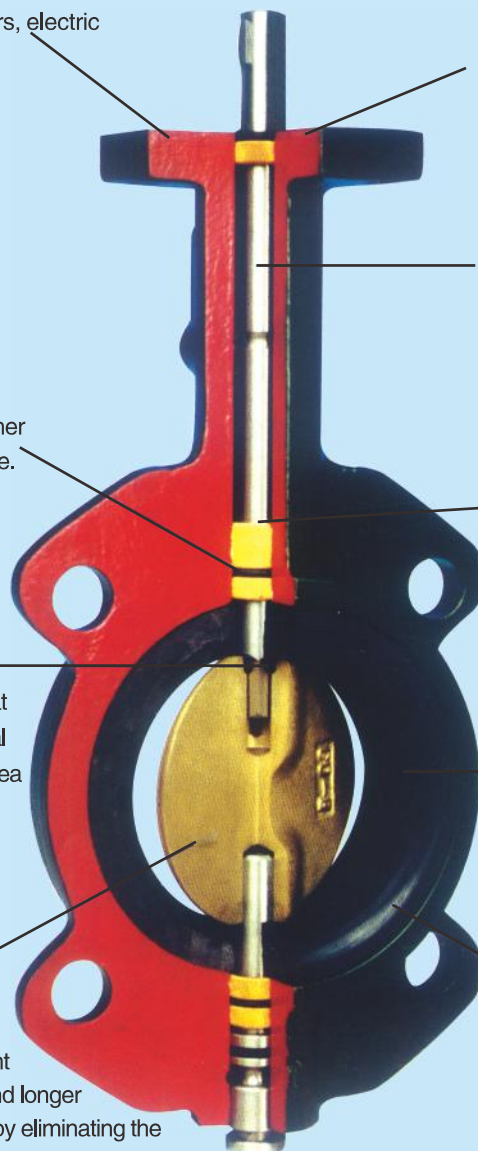
Seat to flange seal eliminates the need for flange gaskets

Disc:

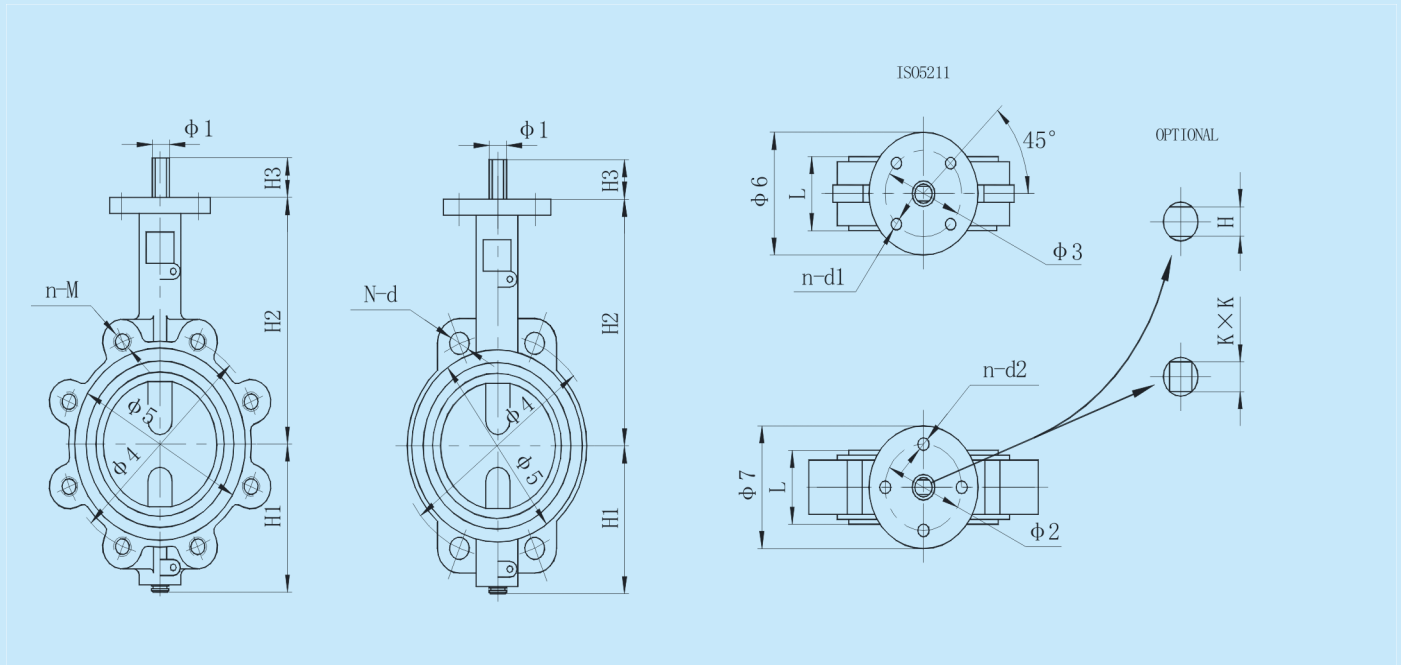
Precision profile provides bubble-tight shut-off, assures minimum torque and longer seat life. Maximum flow is achieved by eliminating the "through shaft" and external disc fasteners.

Seat:

Phenolic backed seat is non-collapsible, stretch-resistant, blow-out proof and easily replaced in the field.



CENTERLINE RESILIENT SEATED BUTTERFLY VALVES (WITHOUT PIN)



Dimension List of Wafer Type (without pin)

Size		H1	H2	H3	L	Φ1	Φ2	Φ3	Φ4						Φ5	Φ6	Φ7	H	K	N	d						n-d1	n-d2
mm	inch								ANSI B16.1	PN10	PN16	5K	10K	16K							ANSI	PN10	PN16	5k	10k	16k		
50	2"	85	162	32	45	12.7	57.15	50	120.65	125	125	105	120	120	88	70	80	10	10	4	17.46	18	18	15	19	19	4-7	4-6.75
65	2.5"	98	175	32	48	12.7	57.15	50	139.7	145	145	130	140	140	108	70	80	10	10	4	17.46	18	18	15	19	19	4-7	4-6.75
80	3"	104	181	32	49	12.7	57.15	50	152.4	160	160	145	150	160	118	70	80	10	10	4	17.46	18	18	19	19	23	4-7	4-6.75
100	4"	123	200	32	55	15.9	69.85	70	190.5	180	180	165	175	185	156	90	90	12	12	4	17.46	18	18	19	19	23	4-9.53	4-10.32
125	5"	136	213	32	58	19	69.85	70	215.9	210	210	200	210	225	181	90	90	14	16	4	20.64	18	18	19	23	25	4-9.53	4-10.32
150	6"	149	225	32	59	19	69.85	70	241.3	240	240	230	240	260	210	90	90	14	16	4	20.64	22	22	19	23	25	4-9.53	4-10.32
200	8"	186	260	45	64	22.2	88.9	102	298.45	295	295	280	290	305	260	125	120	17	16	4	20.64	22	22	23	23	25	4-11.51	4-14.3
250	10"	212	292	45	70	28.6	88.9	102	361.95	350	350	345	355	380	321	125	120	22	24	4	23.81	22	26	23	25	27	4-11.51	4-14.3
300	12"	251	337	45	80	31.7	107.95	102	431.8	400	400	390	400	430	384	125	140	24	24	4	23.81	22	26	23	25	27	4-11.51	4-14.3

Dimension List of Lug Type (without pin)

Size		H1	H2	H3	L	Φ1	Φ2	Φ3	Φ4			Φ5	Φ6	Φ7	H	K	n-M			n-d1	n-d2
mm	inch								ANSI B16.1	PN10	PN16						ANSI	PN10	PN16		
50	2"	85	162	32	45	12.7	57.15	50	120.65	125	125	88	70	80	10	10	4-5/8"-11	4-M16	4-M16	4-7	4-6.75
65	2.5"	89	175	32	48	12.7	57.15	50	139.7	145	145	108	70	80	10	10	4-5/8"-11	4-M16	4-M16	4-7	4-6.75
80	3"	104	181	32	49	12.7	57.15	50	152.4	160	160	118	70	80	10	10	4-5/8"-11	4-M16	8-M16	4-7	4-6.75
100	4"	123	200	32	55	15.9	69.85	70	190.5	180	180	156	90	90	12	12	8-5/8"-11	8-M16	8-M16	4-9.53	4-10.32
125	5"	136	213	32	58	19	69.85	70	215.9	210	210	181	90	90	14	16	8-3/4"-10	8-M16	8-M16	4-9.53	4-10.32
150	6"	149	225	32	59	19	69.85	70	241.3	240	240	210	90	90	14	16	8-3/4"-10	8-M20	8-M20	4-9.53	4-10.32
200	8"	182	260	45	64	22.2	88.9	102	298.45	295	295	260	125	120	17	16	8-3/4"-10	8-M20	12-M20	4-11.51	4-14.3
250	10"	212	292	45	70	28.6	88.9	102	361.95	350	350	321	125	120	22	24	12-7/8"-9	12-M20	12-M24	4-11.51	4-14.3
300	12"	246	337	45	80	31.7	107.95	102	431.8	400	400	384	125	140	24	24	12-7/8"-9	12-M20	12-M24	4-11.51	4-14.3

DOUBLE FLANGED BUTTERFLY VALVES WAFER TYPE DOUBLE DISC CHECK VALVES



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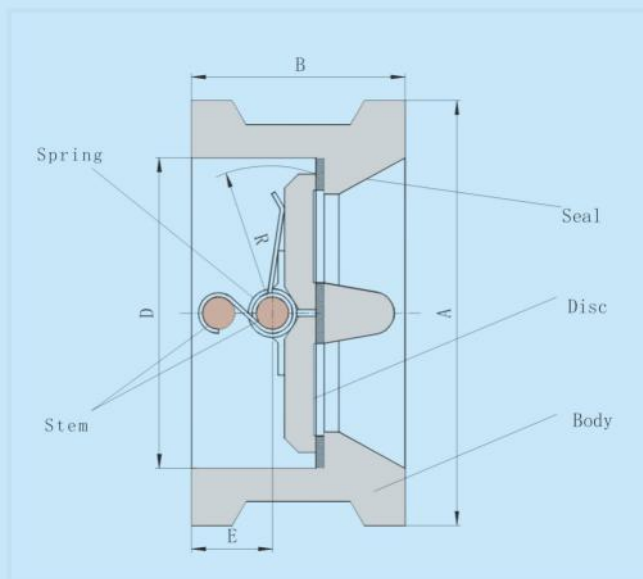


WAFER TYPE DOUBLE DISC CHECK VALVES

Valve Design: API 594,
Valve Pressure Testing & Inspection: API 598
Flange Connections: ANSI Class 125/150 or DIN PN10/16

Bill of Materials

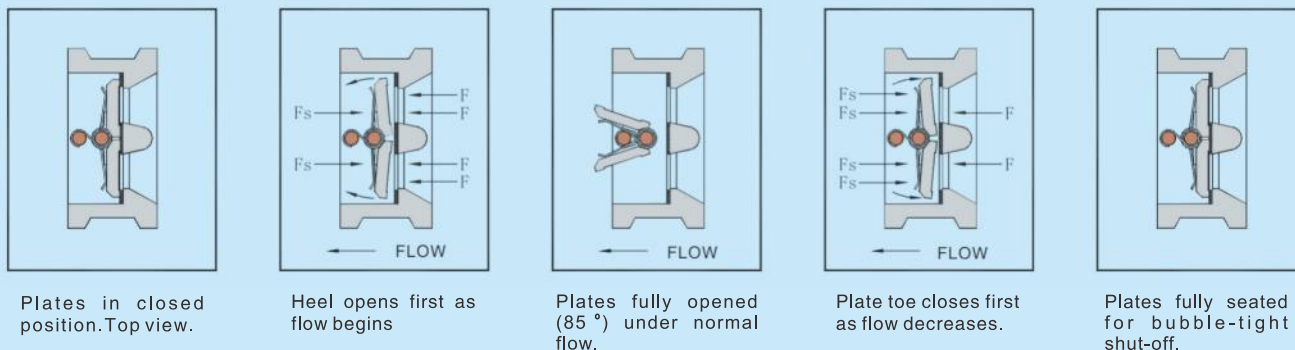
Description	Material	Optional Material
Body	CI	DI,, Carbon Steel
Seal	Buna-N or EPDM	Neoprene
Disc	Stainless Steel	AL-BZ, DI
Stem	Stainless Steel	No Optional
Spring	Stainless Steel	No Optional
Screw	Carbon Steel	Stainless Steel



Dimension List & Weight

Size		A			B			R			D			E			Weight (Kg)	
inch	mm	ANSI		PN10 PN16	ANSI		PN10 PN16	ANSI		PN10 PN16	ANSI		PN10 PN16	ANSI		PN10 PN16	ANSI Class 125	PN10 PN16
		Class 125	Class 150		Class 125	Class 150		Class 125	Class 150		Class 125	Class 150		Class 125	Class 150			
2"	50	105	105	107	54	60	43	28	28	29.7	60	60	65	25	25	19	1.8	1.5
2.5"	65	124	124	127	54	67	46	35	35	39.5	73	73	78	25	25	20	2.7	2.4
3"	80	137	137	142	57	73	64	41	41	43.4	89	89	94	25	25	28	3.2	3.6
4"	100	175	175	162	64	73	64	53	53	56.6	114	114	117	29	29	26	5.4	5.7
5"	125	197	197	192	70	86	70	64	64	67.6	141	141	145	30	30	30	6.8	7.3
6"	150	222	222	218	76	98	76	78	78	80.6	168	168	171	19	19	31	9	9.
8"	200	279	279	273	95	127	89	101	101	103.9	219	219	222	40	40	33	18	17
10"	250	340	340	328	108	146	114	125	125	127	273	273	265	40	40	45	29	26
12"	300	410	410	378	143	181	114	151	151	147	324	324	310	56	56	45	45	42
14"	350	451	451	438	184	184	127	171	171	173	356	356	360	94	94	50	61	55
16"	400	514	514	489	191	191	140	197	197	198	406	406	410	89	89	54	77	75
18"	450	549	549	539	203	203	152	222	222	223	457	457	450	86	86	58	100	102
20"	500	606	606	594	213	219	152	248	248	241	508	508	505	90	90	58	130	107
24"	600	718	718	695	222	222	178	295	295	298	610	610	624	87	87	73	152	165

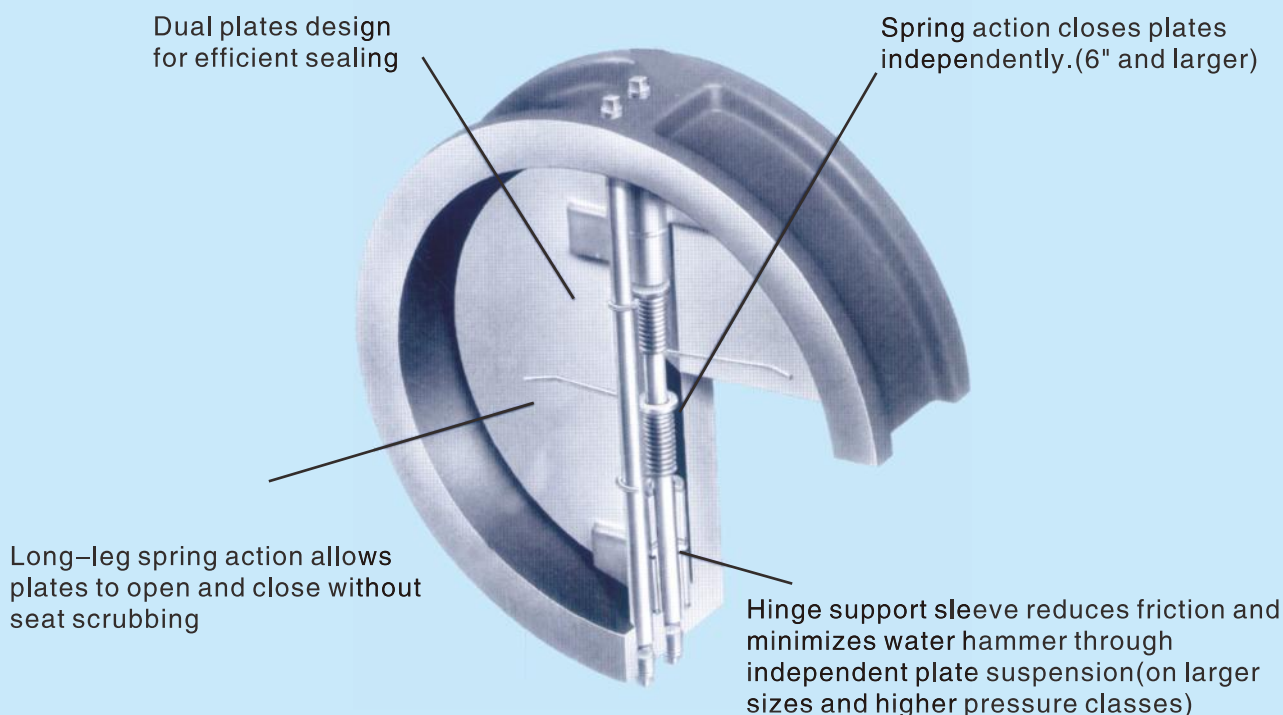
WAFER TYPE DOUBLE DISC CHECK VALVES



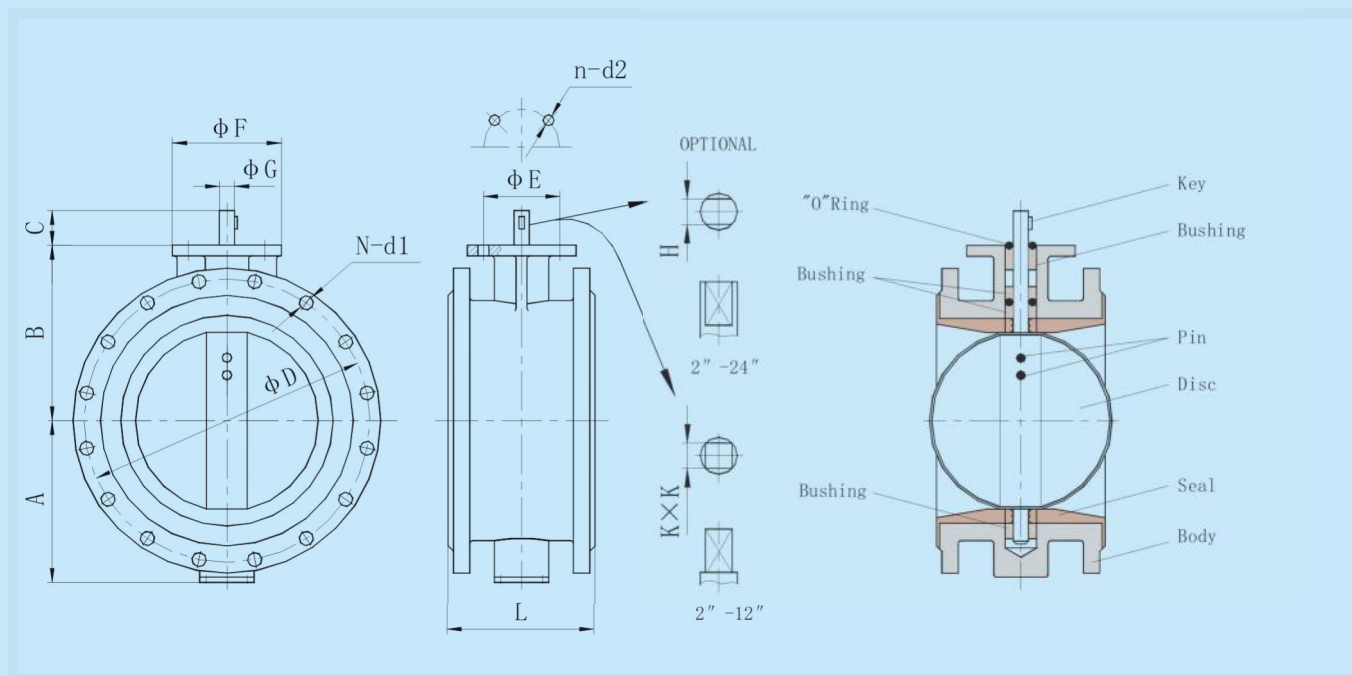
The innovative dual-plate design employs two spring-loaded plates (disc halves) suspended on a central vertical hinge pin. As flow begins, the plates open in response to a resultant force (F) which acts at the center of the sealed surface area. The contact point of the reacting spring leg's force (F_s) acts beyond the center of the plate area, causing the heel to open first. This prevents rubbing of the seal surface prior to normal plate opening.

As the velocity of flow decreases, torsion spring action reacts automatically. This moves the plates closer to the body seats, reducing the distance and time of travel for closure. By having the plates closer to the body seats at the time of flow reversal, the valve dynamic response is greatly enhanced. This dramatically reduces the water hammer effect.

At closing, the point of spring force causes the toe of the plates to close first. This prevents dragging of the heels of the plates and maintains seal integrity for much longer periods.



DOUBLE FLANGED BUTTERFLY VALVES



Dimension List

Size		A	B	C	ϕD						ϕE	ϕF	ϕG	n-d1						n-d2	L	H	K
mm	inch				ANSI B16.1	PN10	PN16	5K	10K	16K				ANSI	PN10	PN16	5k	10k	16k				
50	2"	65	120	32	120.65	125	125	105	120	120	70	90	12.7	4-17.46	4-18	4-18	4-15	4-19	8-19	4-9.5	108	10	10
65	2.5"	70	126	32	139.7	145	145	130	140	140	70	90	12.7	4-17.46	4-18	4-18	4-15	4-19	8-19	4-9.5	112	10	10
80	3"	80	133	32	152.4	160	160	145	150	160	70	90	12.7	4-17.46	4-18	8-18	4-19	8-19	8-23	4-9.5	114	10	10
100	4"	100	148	32	190.5	180	180	165	175	185	70	90	15.9	8-17.46	8-18	8-18	8-19	8-19	8-23	4-9.5	127	12	12
125	5"	110	160	32	215.9	210	210	200	210	225	70	90	19	8-20.64	8-18	8-18	8-19	8-23	8-25	4-9.5	140	14	16
150	6"	135	180	32	241.3	240	240	230	240	260	70	90	19	8-20.64	8-22	8-22	8-19	8-23	12-25	4-9.5	140	14	16
200	8"	160	205	45	298.45	295	295	280	290	305	102	125	22.2	8-20.64	8-22	12-22	8-23	12-23	12-25	4-11.5	152	17	16
250	10"	196	246	45	361.95	350	355	345	355	380	102	125	28.6	12-23.81	12-22	12-26	12-23	12-25	12-27	4-11.5	165	22	24
300	12"	220	270	45	431.8	400	410	390	400	430	102	125	31.7	12-23.81	12-22	12-26	12-23	16-25	16-27	4-11.5	178	24	24
350	14"	256	316	45	476.25	460	470	435	445	480	102	125	31.7	12-26.98	16-22	16-26	12-25	16-25	16-33	4-11.5	190	24	—
400	16"	308	365	51	539.75	515	525	495	510	540	165	210	33.34	16-26.98	16-26	16-30	16-25	16-27	16-33	4-22.2	216	27	—
450	18"	335	390	51	577.85	565	585	555	565	605	165	210	38	16-31.75	20-26	20-30	16-25	20-27	20-33	4-22.2	222	27	—
500	20"	360	415	64	635	620	650	605	620	660	165	210	41.15	20-31.75	20-26	20-33	20-25	20-27	20-33	4-22.2	229	32	—
600	24"	426	510	70	749.3	725	770	715	730	770	165	210	50.65	20-34.92	20-30	20-36	20-27	24-33	24-39	4-22.2	267	36	—
700	28"	480	560	72	—	840	840	820	840	—	254	300	55	—	24-30	24-36	24-27	24-33	—	8-18	292	—	—
750	30"	520	585	72	914.5	—	—	880	900	—	254	300	55	28-35	—	—	24-33	24-33	—	4-22.2	318	—	—
800	32"	525	610	72	—	950	950	930	950	—	254	300	55	—	24-33	24-39	24-33	28-33	—	8-18	318	—	—
900	36"	635	690	77	1086	1050	1050	1030	1050	—	254	300	75	32-41.1	28-33	28-39	24-33	28-33	—	8-18	330	—	—
1000	40"	685	740	85	—	1160	1160	1130	1160	—	254	300	85	—	28-36	28-42	28-33	28-39	—	8-18	410	—	—
1200	48"	870	856	150	1422.4	1380	—	1350	1380	—	298	350	92	44-41.3	32-39	32-48	32-33	32-39	—	8-22	470	—	—

ACTUATORS FOR BUTTERFLY VALVES

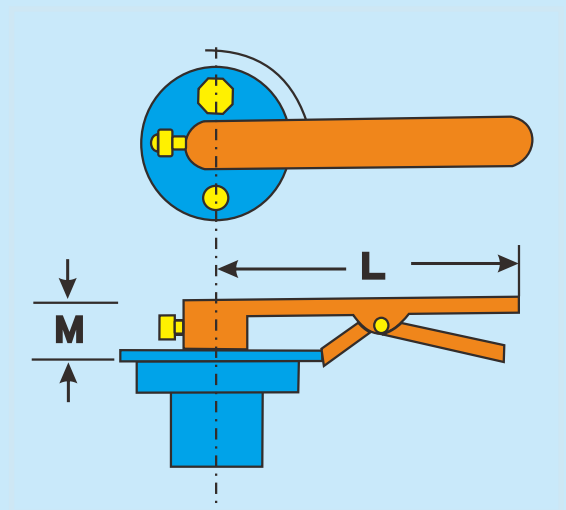
Operator Options

Centerline butterfly valves can be supplied for operation by lever, gear box/handwheel, pneumatic or electric actuator, or with bare shaft for fitting mounting of customer's own operating mechanism.

Lever Operators

The Lever comprise a ten position pressed steel lever and trigger release handle with carbon steel return spring. The indicator plate is cadmium plated carbon steel and mounts directly on the valve top mounting flange. A double "D" shaft gives positive attachment to the lever. The lever operators are available for size DN50 to 300 (2"–12"), but it is recommended that gear operators to be used on size DN200 (8") and larger.

Norm Size		Bore	L	M	Weight
DN	NPS	In/mm	In/mm	N/mm	Lbs/kg
50–80	2"–3"	1/2 12.7	10–1/4 260	1–1/4 32	2 0.9
100	4"	5/8 15.9			
125–150	5"–6"	3/4 19.05			
200	8"	7/8 22.22	14 356	1–1/2 38	4 1.8
250	10"	1–5/8 28.58			
300	12"	1–1/4 31.75			



Gear Operators

Gear operators can be used on all Centerline Resilient Seated Butterfly Valves. All series are weatherproof with the standard above-ground model equipped with a metal handwheel. A buried service model with square nut drive is available. For manual operation, a series of gear operators must be used for 14" and larger.

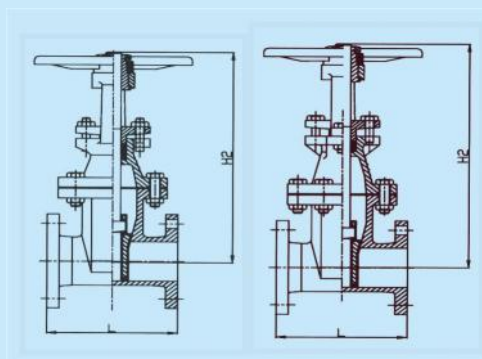
All units have cast iron housing, steel input shaft & worm gear, and ductile (SG) iron output gear segment. The enclosure is weatherproof and units are normally provided with a handwheel. Adjustable end of travel stops are standard and factory set when the gear box is factory mounted. Full details including dimensions are available upon request.



CAST IRON/DUCTILE IRON GATE VALVE FLANGED END NRS/ O.S. & Y. , CLASS125/CLASS150 TO AWWA/ANSI, RESILIENT SEATED



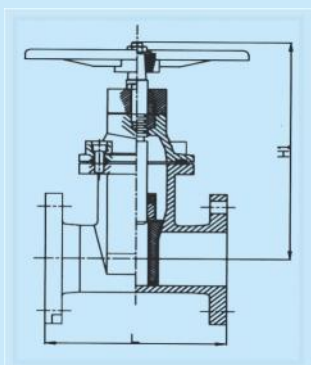
ZRIN-A1



2"-6"

8"-12"

ZRIO-A1



ZRIN-A1



ZRIO-A1

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Wedge	Cast iron/Ductile iron with NBR/EPDM
Stem	Stainless steel/Brass
Bolt & Nut	Stainless steel/Steel with zinc

Design

Face to face is according to ANSI B16.10
Flange drilled is according to ANSI B16.1/ANSI B16.5

Test

Working pressure	125PSI	150PSI
Shell pressure	200PSI	
Seat pressure	200PSI	

Dimension

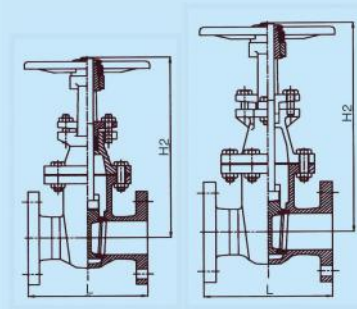
Unit:mm

Size(Inch)	2 "	2.1/2 "	3 "	4 "	5 "	6 "	8 "	10 "	12 "	14 "	16 "
L	178	190	203	229	254	267	292	330	356	381	406
H1(appr.)	236	261	297	329	394	424	518	601	693	770	851
H2(appr.)	290	340	390	460	530	575	770	920	1040	1160	1280
Working Pressure:Class 125LBS											
Dia.of flange	152	178	191	229	254	279	343	406	483	533	597
Nos.of hole	4	4	4	8	8	8	8	12	12	12	16
Dia.of hole	19	19	19	19	22	22	22	25	25	29	29
P.C.D	120.5	139.5	152.5	190.5	216	241.5	298.5	362	432	476	539.5
Working Pressure: Class 150LBS											
Dia.of flange	152	178	191	229	254	279	343	406	483	533	597
Nos.of hole	4	4	4	8	8	8	8	12	12	12	16
Dia.of hole	19	19	19	19	22	22	22	25	25	29	29
P.C.D	120.5	139.5	152.5	190.5	216	241.5	298.5	362	432	476	539.5

CAST IRON/DUCTILE IRON GATE VALVE FLANGED END NRS/ O.S. & Y. , CLASS125/CLASS150 TO ANSI, METAL SEATED

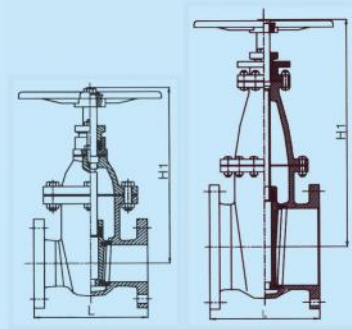


ZMIN-D41



2" - 6" 8" - 12"

ZMIO-A2



2" - 6" 8" - 12"

ZMIN-D41



ZMIO-A2

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Wedge	Cast iron/Ductile iron
Stem	Stainless steel/Brass
Body seat ring	Brass/Bronze/Stainless steel
Wedge seat ring	Brass/Bronze/Stainless steel

Design

Face to face is according to ANSI B16.10 (MSS-SP-70)

Flange drilled is according to ANSI B16.1/ANSI B16.5

Test

Working pressure	125PSI	150PSI
Shell pressure	300PSI	
Seat pressure	200PSI	

Dimension

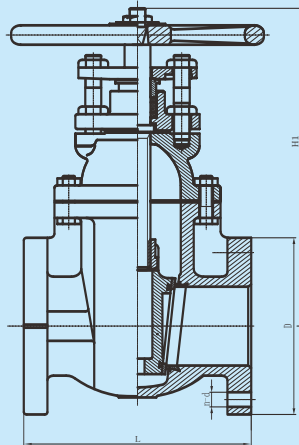
Unit:mm

Size(Inch)	1.1/2"	2"	2.1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L	165	178	190	203	229	254	267	292	330	356	381	406	432	457	508
H1	285	302	322	380	420	475	490	645	750	870	940	1060	1180	1300	1420
H2	250	290	340	390	460	530	575	770	920	1040	1160	1280	1420	1580	1760
Class 125LBS															
Dia.of flange	127	152	178	191	229	254	279	343	406	483	533	597	635	699	813
Nos.of hole	4	4	4	4	8	8	8	8	12	12	12	16	16	20	20
Dia.of hole	16	19	19	19	19	22	22	22	25	25	29	29	32	32	35
P.C.D	98.5	120.5	139.5	152.5	190.5	216	241.5	298.5	362	432	476	539.5	578	635	749.5
Class 150LBS															
Dia.of flange	127	152	178	191	229	254	279	343	406	483	533	597	635	699	813
Nos.of hole	4	4	4	4	8	8	8	8	12	12	12	16	16	20	20
Dia.of hole	16	19	19	19	19	22	22	22	25	25	29	29	32	32	35
P.C.D	98.5	120.5	139.5	152.5	190.5	216	241.5	298.5	362	432	476	539.5	578	635	749.5

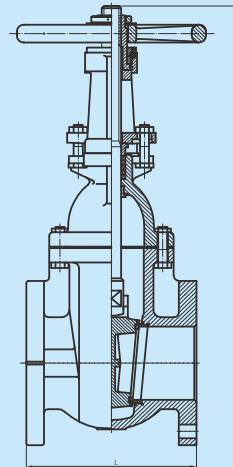
CAST IRON/DUCTILE IRON GATE VALVE FLANGED END NRS/O.S. & Y., CLASS 125/CLASS 150 TO ANSI, METAL SEATED



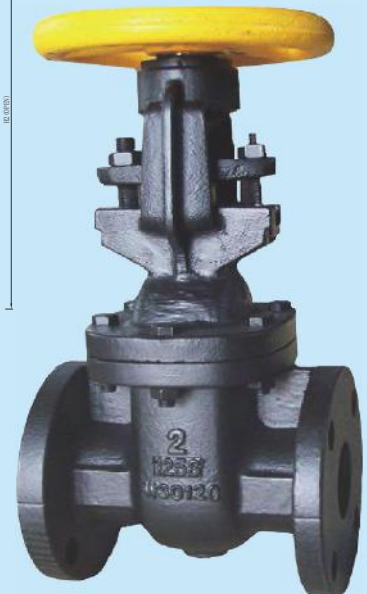
ZMIN-A1



ZMIN-A1



ZMIO-A1



ZMIO-A1

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Wedge	Cast iron/Ductile iron
Stem	Stainless steel/Brass
Body seat ring	Brass/Bronze/Stainless steel
Wedge seat ring	Brass/Bronze/Stainless steel

Design

Face to face is according to ANSI B16.10(MSS-SP-70)
Flange drilled is according to ANSI B16.1/ANSI B16.5

Test

Working pressure	125PSI	150PSI
Shell pressure	300PSI	
Seat pressure	200PSI	

Dimension

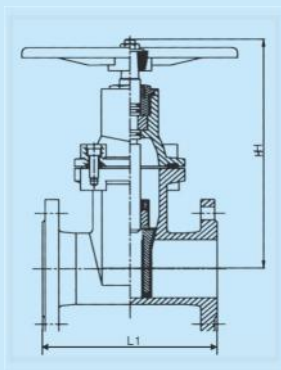
Unit:mm

Size(Inch)	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
L	178	190.5	203.2	228.6	254	266.7	292	330	356	381	406	432	457	508
H1	289	323	338	411	503	558	650	770	861	991	1058	1206	1276	1466
H2	380	430	485	615	700	835	1010	1220	1435	1655	1825	2020	2290	3360
Working Pressure: CLASS 125LBS														
Dia. of flange	152	178	191	228.6	254	279.4	343	406	483	533	597	635	699	813
Nos. of hole	4	4	4	8	8	8	8	12	12	12	16	16	20	20
Dia. of hole	19	19	19	19	22	22	22	25	25	29	29	32	32	35
P.C.D	121	140	152.5	190.5	215.9	241.5	298.5	362	432	476	540	578	635	749
Working Pressure: CLASS 150LBS														
Dia. of flange	152	178	190	228.6	254	279.4	343	406	483	533	597	635	699	813
Nos. of hole	4	4	4	8	8	8	8	12	12	12	16	16	20	20
Dia. of hole	19	19	19	19	22	22	22	25	25	29	29	32	32	35
P.C.D	121	140	152.5	190.5	215.9	241.5	298.5	362	432	476	540	578	635	749

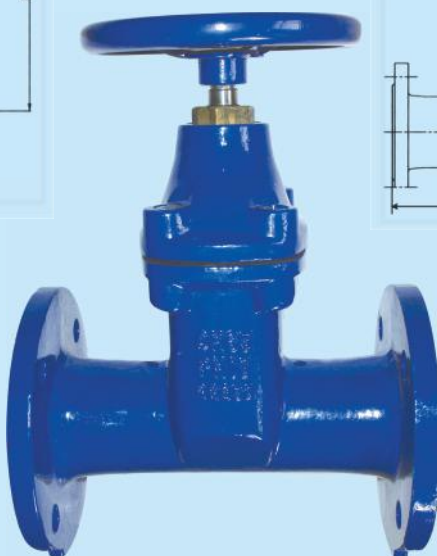
CAST IRON/DUCTILE IRON GATE VALVE FLANGED END NON RISING STEM,PN10/PN16 TO DIN3352-F4/F5 RESILIENT SEATED



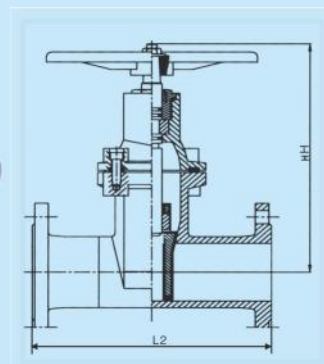
ZRIN-D41



ZRIN-D41



ZRIN-D51



ZRIN-D51

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Wedge	Cast iron/Ductile iron with NBR/EPDM
Stem	Stainless steel/Brass
Bolt & Nut	Stainless steel/Steel with zinc

Design

Face to face is according to DIN3202 F4/F5
Flange drilled is according to DIN2501

Test

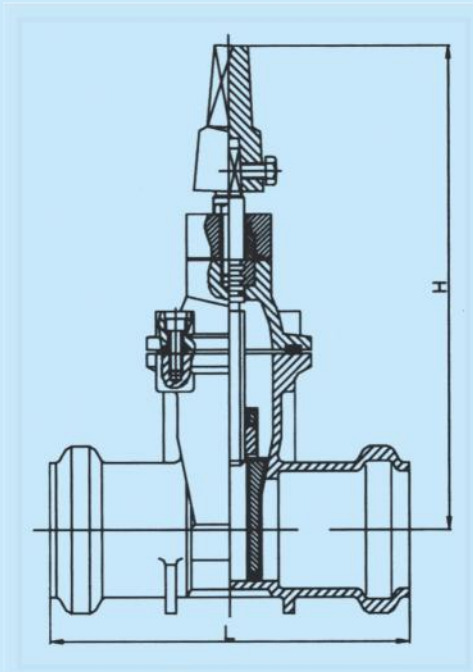
Working pressure	PN10	PN16
Shell pressure	PN15	PN24
Seat pressure	PN11	PN17.6

Dimension

Unit:mm

Size(DN)	40	50	65	80	100	125	150	200	250	300
L1	140	150	170	180	190	200	210	230	250	270
L2	240	250	270	280	300	325	350	400	450	500
H	230	240	270	303	330	375	426	514	600	689
Working Pressure:PN10										
Dia.of flange	150	165	185	200	220	250	285	340	395	445
Nos.of hole	4	4	4	8	8	8	8	8	12	12
Dia.of hole	18	18	18	18	18	18	22	22	22	22
P.C.D	110	125	145	160	180	210	240	295	350	400
Working Pressure:PN16										
Dia.of flange	150	165	185	200	220	250	285	340	405	460
Nos.of hole	4	4	4	8	8	8	8	12	12	12
Dia.of hole	18	18	18	18	18	18	22	22	26	26
P.C.D	110	125	145	160	180	210	240	295	355	410

CAST IRON/DUCTILE IRON GATE VALVE SOCKET END NON RISING STEM, PN10/PN16 RESILIENT SEATED



ZRIN-SC1



ZRIN-SC1

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Wedge	Cast iron/Ductile iron with NBR/EPDM
Stem	Stainless steel/Brass
Bolt & Nut	Stainless steel/Steel with zinc

Design

Face to face is according to BS, DIN, ANSI, AWWA, SABS standard etc.

Test

Working pressure	PN10	PN16
Shell pressure	PN15	PN24
Seat pressure	PN11	PN17.6

Dimension

Unit:mm

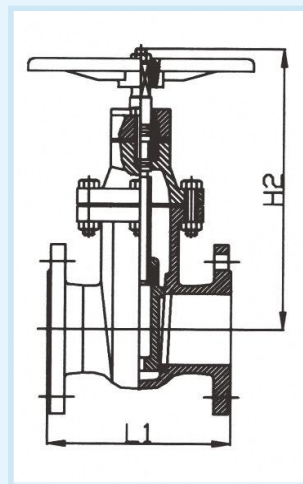
Size(DN)	50/63	65/75	80/90	100/110	150/160	200/220	250/270
L	335	335	335	355	405	450	500
H	239	264	294	321	413	506	583

Dimension Of "L" Can Be Designed According To Buyers' Request

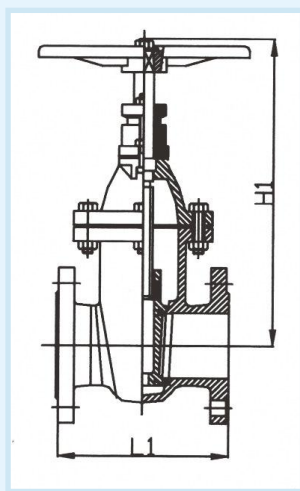
CAST IRON/DUCTILE IRON GATE VALVE FLANGED END NON RISING STEM, PN10/PN16 TO DIN3352-F4/F5, METAL SEATED



ZMIN-D41



ZMIN-D41



ZMIN-D42



ZMIN-D42

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Wedge	Cast iron/Ductile iron
Stem	Stainless steel/Brass
Body seat ring	Brass/Bronze/Stainless steel
Wedge seat ring	Brass/Bronze/Stainless steel

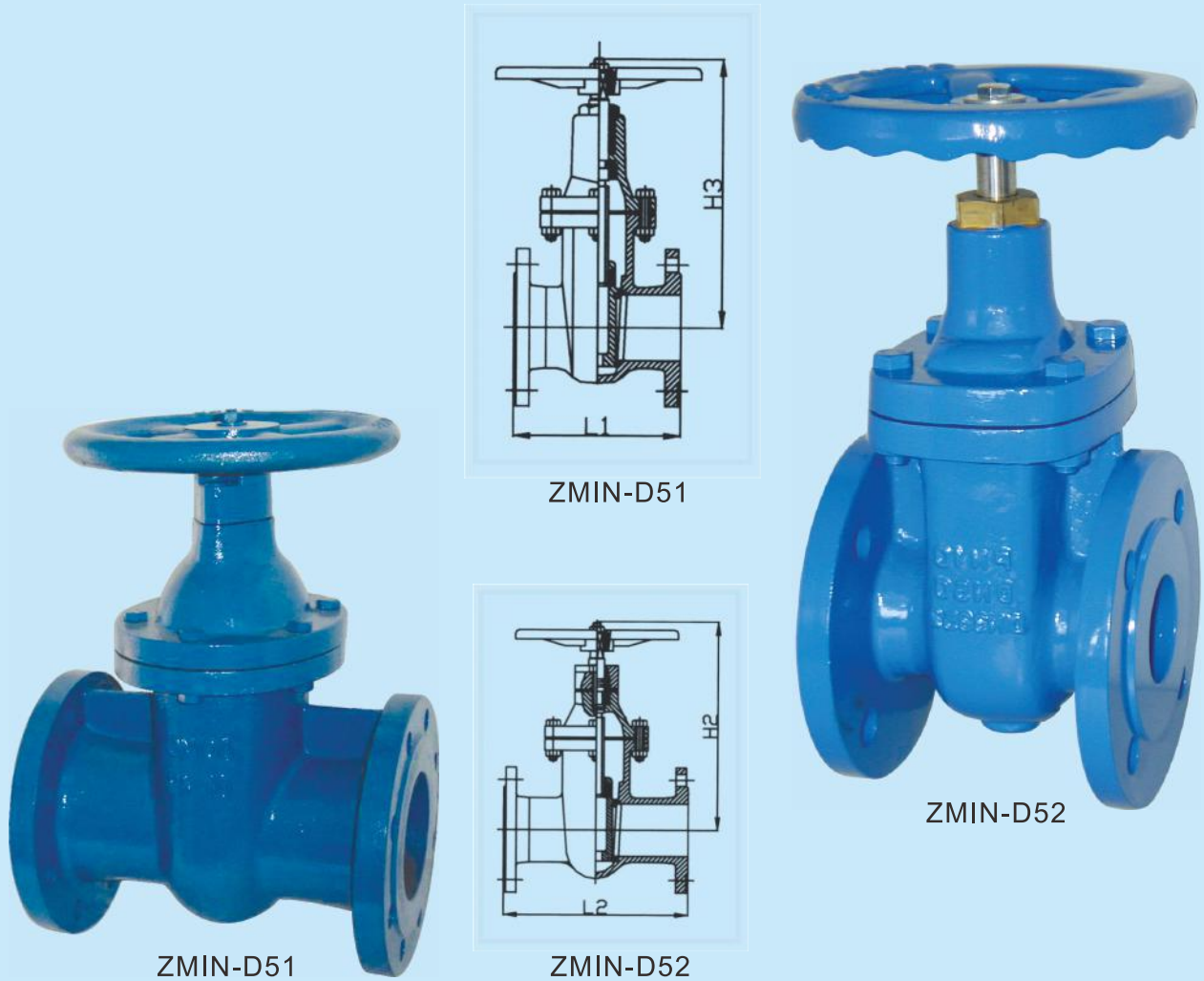
Design

Face to face is according to DIN3202 F4/F5
Flange drilled is according to DIN2501

Test

Working pressure	PN10	PN16
Shell pressure	PN15	PN24
Seat pressure	PN11	PN17.6

CAST IRON/DUCTILE IRON GATE VALVE FLANGED END NON RISING STEM, PN10/PN16 TO DIN3352-F4/F5, METAL SEATED

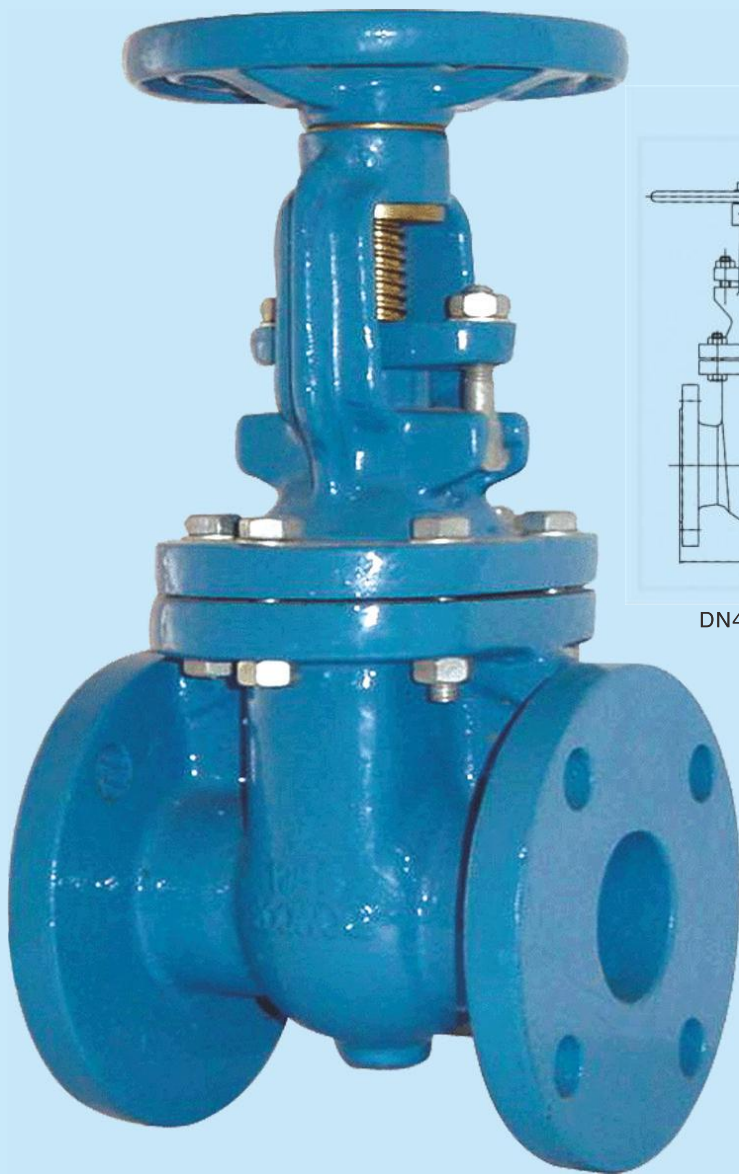


Dimension

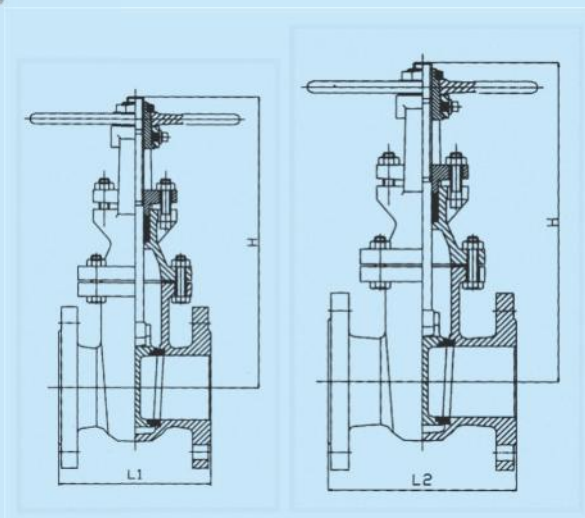
Unit:mm

Size(DN)	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L1	140	150	170	180	190	200	210	230	250	270	290	310	330	350	390
L2	240	250	270	280	300	325	350	400	450	500	550	600	650	700	800
H1	260	287	315	345	365	439	480	583	665	746	871	1000	1140	1290	1450
H2	215	237	264	294	327	372	415	530	611	695	790	885	980	1080	1190
H3	240	255	320	335	380	450	480	600	660	750	820	910	1000	1135	1250
Working Pressure:PN10															
Dia.of flange	150	165	185	200	220	250	285	340	395	445	505	565	615	670	780
Nos.of hole	4	4	4	8	8	8	8	8	12	12	16	16	20	20	20
Dia.of hole	18	18	18	18	18	18	22	22	22	22	22	26	26	26	30
P.C.D	110	125	145	160	180	210	240	295	350	400	460	515	565	620	725
Working Pressure:PN16															
Dia.of flange	150	165	185	200	220	250	285	340	405	460	520	580	640	715	840
Nos.of hole	4	4	4	8	8	8	8	12	12	12	16	16	20	20	20
Dia.of hole	18	18	18	18	18	18	22	22	26	26	26	30	30	33	36
P.C.D	110	125	145	160	180	210	240	295	355	410	470	525	585	650	770

CAST IRON/DUCTILE IRON GATE VALVE FLANGED END O.S. & Y. , RISING STEM, PN10/PN16 TO DIN3352-F4/F5,METAL SEATED



ZMIO-D41



DN40-DN150

DN200-DN600

ZMIO-D41

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Wedge	Cast iron/Ductile iron
Stem	Stainless steel/Brass
Body seat ring	Brass/Bronze/Stainless steel
Wedge seat ring	Brass/Bronze/Stainless steel

Design

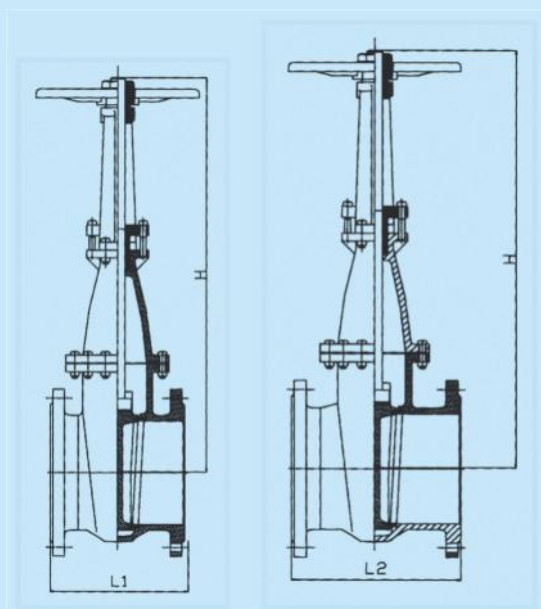
Face to face is according to DIN3202 F4/F5

Flange drilled is according to DIN2501

Test

Working pressure	PN10	PN16
Shell pressure	PN15	PN24
Seat pressure	PN11	PN17.6

CAST IRON/DUCTILE IRON GATE VALVE FLANGED END O.S. & Y. , RISING STEM, PN10/PN16 TO DIN3352-F4/F5,METAL SEATED



DN40-DN150

DN200-DN600

ZMIO-D51



ZMIO-D51

Dimension

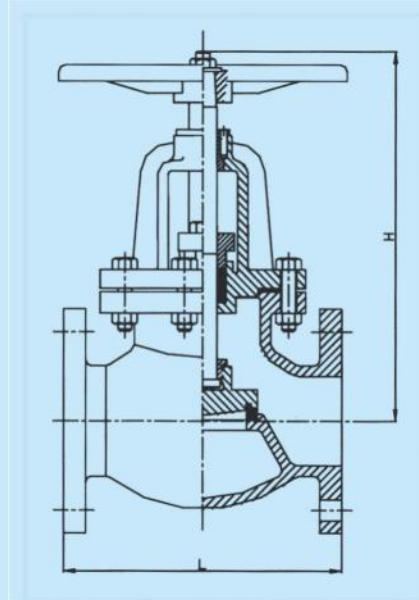
Unit:mm

Size(DN)	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
L1	140	150	170	180	190	200	210	230	250	270	290	310	330	350	390
L2	240	250	270	280	300	325	350	400	450	500	550	600	650	700	800
H	275	297	329	357	414	507	575	756	894	1022	1150	1280	1420	1570	1730
Working Pressure:PN10															
Dia.of flange	150	165	185	200	220	250	285	340	395	445	505	565	615	670	780
Nos.of hole	4	4	4	8	8	8	8	8	12	12	16	16	20	20	20
Dia.of hole	18	18	18	18	18	18	22	22	22	22	22	26	26	26	30
P.C.D	110	125	145	160	180	210	240	295	350	400	460	515	565	620	725
Working Pressure:PN16															
Dia.of flange	150	165	185	200	220	250	285	340	405	460	520	580	640	715	840
Nos.of hole	4	4	4	8	8	8	8	12	12	12	16	16	20	20	20
Dia.of hole	18	18	18	18	18	18	22	22	26	26	26	30	30	33	36
P.C.D	110	125	145	160	180	210	240	295	355	410	470	525	585	650	770

CAST IRON/DUCTILE IRON GLOBE VALVE FLANGED END CLASS125/CLASS150 TO ANSI METAL SEATED



JMI-A1



JMI-A1

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Disc	Cast iron/Ductile iron
Disc seat ring	Brass/Bronze/Stainless steel/Rubber
Body seat ring	Brass/Bronze/Stainless steel
Stem	Stainless steel/Brass

Design

Face to face is according to MSS-SP-85
Flange drilled is according to ANSI B16.1/ANSI B16.5

Test

Working pressure	125PSI	150PSI
Shell pressure	300PSI	
Seat pressure	200PSI	

Dimension

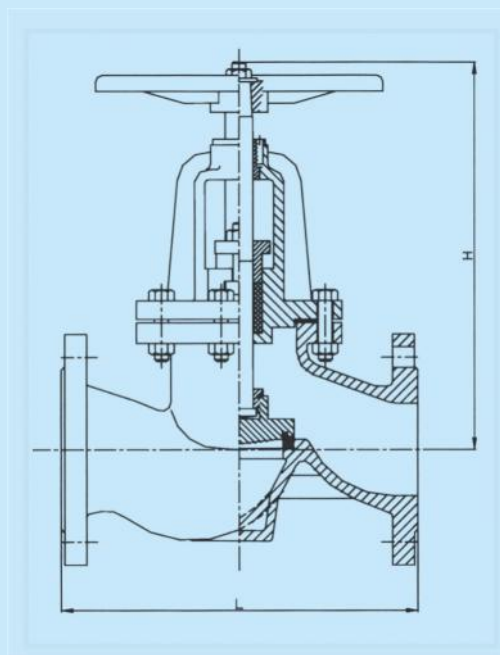
Unit:mm

Size(Inch)	3/4 "	1 "	1.1/4 "	1.1/2 "	2 "	2.1/2 "	3 "	4 "	5 "	6 "	8 "	10 "	12 "
L	117	127	140	165	203	216	241	292	330	356	495	622	698
H	207	212	227	238	254	273	292	314	364	400	469	553	634
Working Pressure:Class 125LBS													
Dia.of flange	98	108	117	127	152	178	191	229	254	279	343	406	483
Nos.of hole	4	4	4	4	4	4	4	8	8	8	8	12	12
Dia.of hole	16	16	16	16	19	19	19	19	22	22	22	25	25
P.C.D	70	79.5	89	98.5	120.5	139.5	152.5	190.5	216	241.5	298.5	362	432
Working Pressure: Class 150LBS													
Dia.of flange	98	108	117	127	152	178	191	229	254	279	343	406	483
Nos.of hole	4	4	4	4	4	4	4	8	8	8	8	12	12
Dia.of hole	16	16	16	16	19	19	19	19	22	22	22	25	25
P.C.D	70	79.5	89	98.5	120.5	139.5	152.5	190.5	216	241.5	298.5	362	432

CAST IRON/DUCTILE IRON GLOBE VALVE FLANGED END PN10/PN16 TO DIN3202-F1 METAL SEATED



JMI-D2



JMI-D2

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Disc	Cast iron/Ductile iron
Disc seat ring	Brass/Bronze/Stainless steel/Rubber
Body seat ring	Brass/Bronze/Stainless steel
Stem	Stainless steel/Brass

Design

Face to face is according to DIN3202 F1
Flange drilled is according to DIN2501

Test

Working pressure	PN10	PN16
Shell pressure	PN15	PN24
Seat pressure	PN11	PN17.6

Dimension

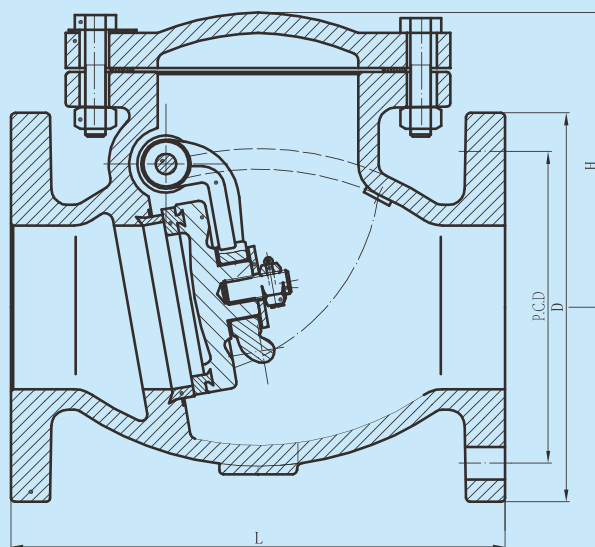
Unit:mm

Size(DN)	15	20	25	32	40	50	65	80	100	125	150	200	250	300
L	130	150	160	180	200	230	290	310	350	400	480	600	730	850
H	217	222	227	240	250	269	294	316	340	397	431	497	559	639
Working Pressure:PN10														
Dia.of flange	95	105	115	140	150	165	185	200	220	250	285	340	395	445
Nos.of hole	4	4	4	4	4	4	4	8	8	8	8	8	12	12
Dia.of hole	14	14	14	18	18	18	18	18	18	18	22	22	22	22
P.C.D	65	75	85	100	110	125	145	160	180	210	240	295	350	400
Working Pressure: PN16														
Dia.of flange	95	105	115	140	150	165	185	200	220	250	285	340	405	460
Nos.of hole	4	4	4	4	4	4	4	8	8	8	8	12	12	12
Dia.of hole	14	14	14	18	18	18	18	18	18	18	22	22	26	26
P.C.D	65	75	85	100	110	125	145	160	180	210	240	295	355	410

CAST IRON/DUCTILE CHECK VALVE FLANGED END SWING TYPE, CLASS125/CLASS150 TO ANSI METAL SEATED



ZHMIS-A1



ZHMIS-A1

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Wedge	Cast iron/Ductile iron
Body seat ring	Brass/Bronze/Stainless steel
Body seat ring	Brass/Bronze/Stainless steel
Hinge pin	Stainless steel

Design

Face to face is according to MSS-SP-71
Flange drilled is according to ANSI B16.1/ANSI B16.5

Test

Working pressure	125PSI	150PSI
Shell pressure	300PSI	
Seat pressure	200PSI	

Dimension

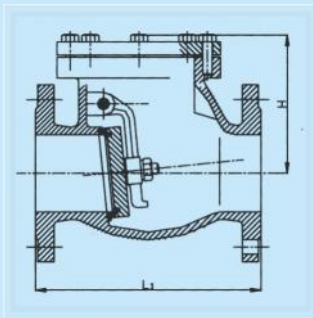
Unit:mm

Size(Inch)	2"	2-1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"
L	203.2	215.9	241.3	292	330.2	355.6	495	622	698.5	787	914
H	113	133	144	168	198	217	261	287	319	443	595.5
Working Pressure: CLASS 125LBS											
Dia. of flange	152	178	190	228.6	254	279.4	343	406.4	483	533	597
Nos. of hole	4	4	4	8	8	8	8	12	12	12	16
Dia. of hole	19	19	19	19	22	22	22	25	25	29	29
P.C.D	121	140	152.5	190.5	215.9	241	298.5	362	432	476	540
Working Pressure: CLASS 150LBS											
Dia. of flange	152	178	190	228.6	254	279.4	343	406.4	483	533	597
Nos. of hole	4	4	4	8	8	8	8	12	12	12	16
Dia. of hole	19	19	19	19	22	22	22	25	25	29	29
P.C.D	121	140	152.5	190.5	215.9	241	298.5	362	432	476	540

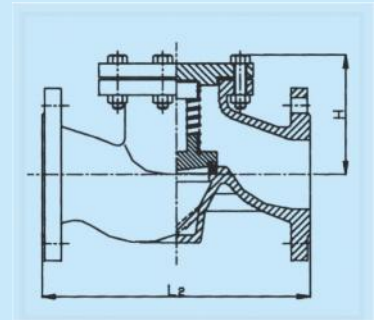
CAST IRON/DUCTILE IRON CHECK VALVE FLANGED END SWING TYPE TO DIN3202-F6 LIFT TYPE TO DIN3202-F1



ZHMIS-D2



ZHMIS-D2



ZHMIL-D1



ZHMIL-D1

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Disc	Cast iron/Ductile iron/Rubber
Disc seat ring	Brass/Bronze/Stainless steel
Body seat ring	Brass/Bronze/Stainless steel

Design

Face to face is according to DIN3202 F1/F6
Flange drilled is according to DIN2501

Test

Working pressure	PN10	PN16
Shell pressure	PN15	PN24
Seat pressure	PN11	PN17.6

Dimension

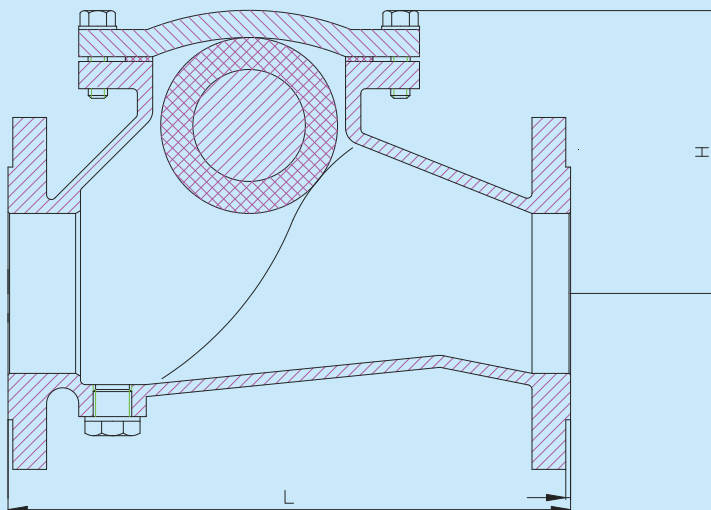
Unit:mm

Size(DN)	40	50	65	80	100	125	150	200	250	300
L1	180	200	240	260	300	350	400	500	600	700
L2	200	230	290	310	350	400	480	600	730	850
H	95	100	115	135	145	160	180	270	320	350
Working Pressure:PN10										
Dia.of flange	150	165	185	200	220	250	285	340	395	445
Nos.of hole	4	4	4	8	8	8	8	8	12	12
Dia.of hole	18	18	18	18	18	18	22	22	22	22
P.C.D	110	125	145	160	180	210	240	295	350	400
Working Pressure:PN16										
Dia.of flange	150	165	185	200	220	250	285	340	405	460
Nos.of hole	4	4	4	8	8	8	8	12	12	12
Dia.of hole	18	18	18	18	18	18	22	22	26	26
P.C.D	110	125	145	160	180	210	240	295	355	410

CAST IRON / DUCTILE IRON CHECK VALVE (BALL TYPE)



ZHRIB-D1



ZHRIB-D1

Material

Body	Ductile iron
Ball float	NBR/Steel
Gasket	NBR
Bonnet	Ductile iron
Bolt	Carbon steel

Design

Face to face is according to DIN3202 F6
Flange drilled is according to DIN2501

Test

Working pressure	PN16
Shell pressure	PN24
Seat pressure	PN17.6

Dimension

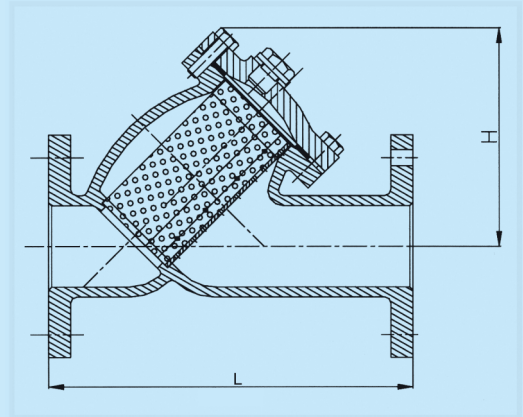
Unit:mm

Size(Inch)	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300	DN400	DN500
L	180	200	240	260	300	350	400	500	600	700	900	1100
H	106	115	124	138	162	202	228	298	368	438	584	740
Working Pressure: PN16												
Dia. of flange	150	165	185	200	220	250	285	340	405	460	580	715
Nos. of hole	4	4	4	8	8	8	8	12	12	12	16	20
Dia. of hole	19	19	19	19	19	19	23	23	28	28	31	34
P.C.D	110	125	145	160	180	210	240	295	355	410	525	650

CAST IRON / DUCTILE IRON Y-STRAINER CLASS125 / CLASS150 TO ANSI



GIA-1



GIA-1

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Screen	Stainless steel

Design

Face to face is according to ANSI CLASS125/150

Flange drilled is according to ANSI B16.1/ANSI B16.5

Test

Working pressure	125PSI	150PSI
Shell pressure	300PSI	
Seat pressure	200PSI	

Dimension

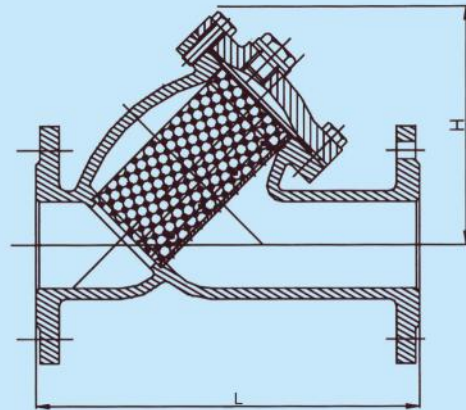
Unit:mm

Size(Inch)	2 "	2.1/2"	3 "	4 "	5 "	6 "	8 "	10 "	12"
L	251	289	317.5	378	420	517.5	609.5	749	857
H	160	185	200	225	280	360	440	525	585
Working pressure:Class 125LBS									
Dia.of flange	152	178	191	229	254	279	343	406	483
Nos.of hole	4	4	4	8	8	8	8	12	12
Dia.of hole	19	19	19	19	22	22	22	25	25
P.C.D	120.5	139.5	152.5	190.5	216	241.5	298.5	362	432
Working pressure: Class 150LBS									
Dia.of flange	152	178	191	229	254	279	343	406	483
Nos.of hole	4	4	4	8	8	8	8	12	12
Dia.of hole	19	19	19	19	22	22	22	25	25
P.C.D	120.5	139.5	152.5	190.5	216	241.5	298.5	362	432

CAST IRON/DUCTILE IRON Y-STRAINER FLANGED END PN6/PN10/PN16 TO DIN STANDARD



HB-11(B)



HB-11(B)

Material

Body	Cast iron/Ductile iron
Bonnet	Cast iron/Ductile iron
Screen	Stainless steel

Design

Face to face is according to DIN3202 F1
Flange drilled is according to DIN2531, 2532, 2533

Test

Working pressure	PN6/PN10/PN16
Shell pressure	PN9/PN15/PN24
Seat pressure	PN7.6/PN11/PN17.6

Dimension

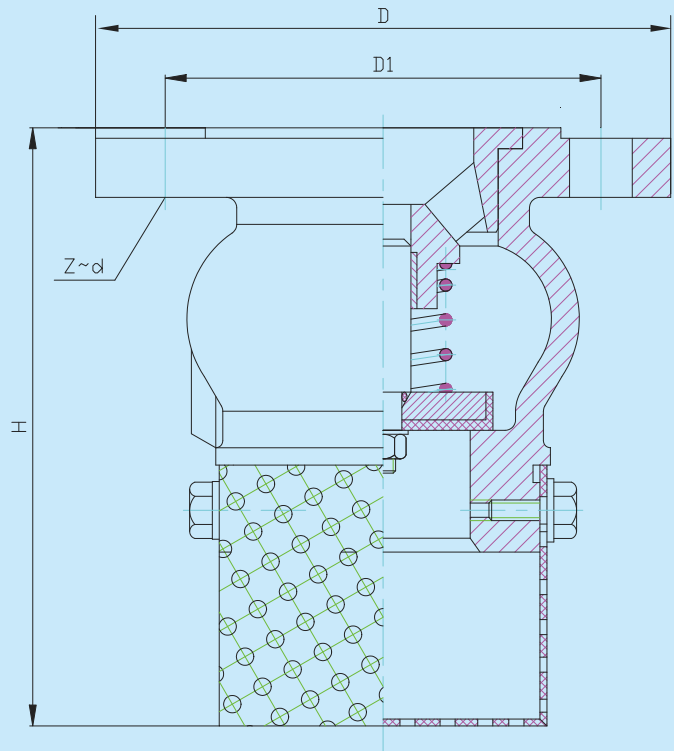
Unit:mm

Size(DN)	15	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400
L	130	150	160	180	200	230	290	310	350	400	480	600	730	850	980	1100
H	90	100	110	125	140	160	185	200	225	280	360	440	525	585	670	750
Working Pressure:PN6																
Dia.of flange	80	90	100	120	130	140	160	190	210	240	265	320	375	440	490	540
Nos.of hole	4	4	4	4	4	4	4	4	4	8	8	8	12	12	12	16
Dia.of hole	11.5	11.5	11.5	14	14	14	14	18	18	18	18	18	18	22	22	22
P.C.D	55	65	75	90	100	110	130	150	170	200	225	280	335	395	445	495
Working Pressure:PN10																
Dia.of flange	95	105	115	140	150	165	185	200	220	250	285	340	395	445	505	565
Nos.of hole	4	4	4	4	4	4	4	4	8	8	8	8	12	12	16	16
Dia.of hole	14	14	14	18	18	18	18	18	18	18	22	22	22	22	22	26
P.C.D	65	75	85	100	110	125	145	160	180	210	240	295	350	400	460	515
Working Pressure:PN16																
Dia.of flange	95	105	115	140	150	165	185	200	220	250	285	340	405	460	520	580
Nos.of hole	4	4	4	4	4	4	4	8	8	8	8	12	12	12	16	16
Dia.of hole	14	14	14	18	18	18	18	18	18	18	22	22	26	26	26	30
P.C.D	65	75	85	100	110	125	145	160	180	210	240	295	355	410	470	525

CAST IRON/DUCTILE FOOT VALVE FLANGED END



DI-1



DI-1

Material

Body	Gray cast iron
Bonnet	Gray cast iron
Spring	65Mn
Disc	Ductile iron/ NBR
Screen	Stainless steel SS304

Design

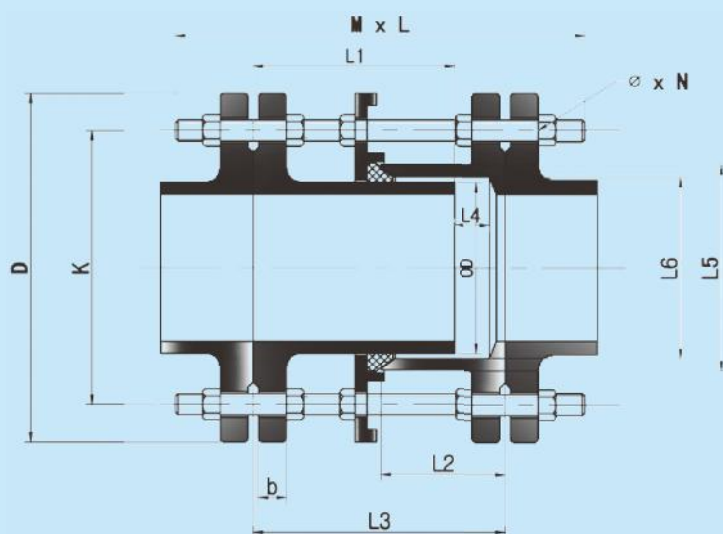
Face to face is according to DIN3202 F6
Flange drilled is according to DIN /ANSI

Dimension

Unit:mm

Size(Inch)	DN40	DN50	DN65	DN80	DN100	DN125	DN150	DN200	DN250	DN300	DN350
Working Pressure: PN16											
H	148	166	201	221	265	300	360	470	568	653	740
Dia. of flange (D)	150	165	185	200	220	250	285	340	405	460	520
Nos. of hole (Z)	4	4	4	8	8	8	8	12	12	12	16
Dia. of hole (d)	19	19	19	19	19	19	23	23	28	28	28
P.C.D (D1)	110	125	145	160	180	210	240	295	355	410	470

DUCTILE DISMANTLING JOINT



Material

SPECIFICATION	MATERIAL	STANDRAD
LEFT FLANGE	DUCTILE IRON	BS2789
BOLT	CARBON STEEL	BS1769
MID FLANGE	DUCTILE IRON	BS2789
NUT	CARBON STEEL	BS1769
RIGHT FLANGE	DUCTILE IRON	BS2789
RING	NBR	BS2494

DN	OD m m	D m m	k m m	b m m	L1 m m	L2 m m	L3 m m	L4 m m	L5 m m	L6 m m	Φ×N m m	M×L m m
50	66	165	125	16	175	90	220	45	88	71	19×4	M16×310
65	82	185	145	16	175	90	220	45	105	87	19×4	M16×310
80	98	200	160	16	175	100	225	50	124	104	19×8	M16×350
100	118	220	180	16	185	100	235	50	144	124	19×8	M16×350
125	144	250	210	16	200	100	250	50	170	149	19×8	M16×350
150	170	285	240	16	200	100	250	50	197	176	23×8	M20×360
200	222	340	295	17	200	100	250	50	250	228	23×12	M20×380
250	274	400	355	19	200	100	250	50	302	280	28×12	M24×410
300	326	455	410	20.5	215	100	265	50	356	332	28×12	M24×450
350	378	520	470	22.5	215	110	265	50	408	384	28×16	M24×450
400	429	580	525	24	225	110	275	50	460	435	31×16	M27×460
450	480	640	585	26	225	110	275	50	512	486	31×20	M27×480
500	532	715	650	27.5	250	115	305	50	564	538	34×20	M30×500
600	635	840	770	31	255	115	305	50	668	642	37×20	M33×520
700	738	910	840	34.5	255	115	315	60	772	745	37×24	M33×520
800	842	1025	950	38	270	115	330	60	878	849	40×24	M36×550
900	945	1125	1050	41.5	275	115	335	60	982	953	40×28	M36×580
1000	1048	1255	1170	45	295	115	355	60	1086	1056	43×28	M39×580
1200	1255	1485	1390	52	315	127	375	60	1294	1265	49×32	M45×600
1400	1462	1685	1590	55	330	127	390	60	1504	1474	49×36	M45×650
1600	1668	1930	1820	60	350	190	410	60	1716	1678	56×40	M52×700
1800	1875	2130	2020	65	360	190	420	60	1927	1887	56×44	M52×800
2000	2085	2345	2230	70	400	195	460	60	2126	2087	62×48	M56×880

STEEL SOCKETS AND NIPPLES



DIN 2982
NIPPLES

ND	Inch	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"	2.1/2"	3"	4"
	mm	6	8	10	15	20	25	32	40	50	65	80	100
Series of Length (mm)	40	X	X	X									
	60	X	X	X	X	X	X						
	80	X	X	X	X	X	X	X	X				
	100	X	X	X	X	X	X	X	X	X	X		
	120	X	X	X	X	X	X	X	X	X	X	X	
	150	X	X	X	X	X	X	X	X	X	X	X	X
	180	X	X	X	X	X	X	X	X	X	X	X	X
	200	X	X	X	X	X	X	X	X	X	X	X	X
	250	X	X	X	X	X	X	X	X	X	X	X	X
	300	X	X	X	X	X	X	X	X	X	X	X	X

DIN 2986
SOCKETS

ND	Inch	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"
	mm	6	8	10	15	20	25	32	40	50
Outside Diameter(min)	mm	14	18.5	21.3	26.4	31.8	39.5	48.3	54.5	66.3
Length(min)	mm	17	25	26	34	36	43	48	48	56

Note:

Mark "X" for Nipple means these series of length suppliable

Steel Pipe Standard DIN2240 for Nipples and DIN2448 for Sockets

Thread Standard DIN2999

Socket thread refers to internal paralleled thread

STEEL SOCKETS AND NIPPLES

BS1387
NIPPLES

ND	Inch	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"	2.1/2"	3"	4"	5"	6"
	mm	8	10	15	20	25	32	40	50	65	80	100	125	150
Close Taper Nipple	mm	27	28	37	39	46	51	51	60	69	75	87	96	96
Barrel Nipple	mm	38	38	51	54	60	70	70	79	89	102	114	124	127
Series of Length (mm)	100	X	X	X	X	X								
	150	X	X	X	X	X	X	X	X	X				
	200	X	X	X	X	X	X	X	X	X	X			
	250	X	X	X	X	X	X	X	X	X	X	X		
	300						X	X	X	X	X	X		
	400										X	X		

SOCKETS

BSEN 10241:2000 Socket Type Heavy

ND	Inch	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"	2.1/2"	3"	4"	5"	6"
	mm	8	10	15	20	25	32	40	50	65	80	100	125	150
Outside Diameter(min)	mm	18.5	22	27	32.5	39.5	49	56	68	84	98	124	151	178
Length(min)	mm	27	28	37	39	46	51	51	60	69	75	87	96	96

Note:

Mark "X" for Nipple means these series of length suppliable

Steel Pipe Standard BS 1387(M)

Thread Standard BS 21

Socket thread refers to internal paralleled thread



STEEL SOCKETS AND NIPPLES

ANSI/ASTM A733 NIPPLES

ND	Inch	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"	2.1/2"	3"	4"	5"	6"
	mm	6	8	10	15	20	25	32	40	50	65	80	100	125	150
Close Taper Nipple	Inch	3/4"	7/8"	1"	1.1/8"	1.3/8"	1.1/2"	1.5/8"	1.3/4"	2"	2.1/2"	2.5/8"	2.7/8"		
Series of Length (mm)	1.1/2"	X	X	X	X	X									
	2"	X	X	X	X	X	X	X	X						
	2.1/2"	X	X	X	X	X	X	X	X	X					
	3"	X	X	X	X	X	X	X	X	X	X	X			
	3.1/2"	X	X	X	X	X	X	X	X	X	X	X			
	4"	X	X	X	X	X	X	X	X	X	X	X	X		
	4.1/2"	X	X	X	X	X	X	X	X	X	X	X	X		
	5"	X	X	X	X	X	X	X	X	X	X	X	X		
	5.1/2"	X	X	X	X	X	X	X	X	X	X	X	X		
	6"	X	X	X	X	X	X	X	X	X	X	X	X		
	7"	X	X	X	X	X	X	X	X	X	X	X	X		
	8"	X	X	X	X	X	X	X	X	X	X	X	X		
	9"	X	X	X	X	X	X	X	X	X	X	X	X		
	10"	X	X	X	X	X	X	X	X	X	X	X	X		
	11"	X	X	X	X	X	X	X	X	X	X	X	X		
	12"	X	X	X	X	X	X	X	X	X	X	X	X		

ANSI/ASTM A120 SOCKETS

Standard-Weight ANSI B1.20.1 A53-98

ND	Inch	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"	2.1/2"	3"	4"	5"	6"	8"	10"	12"
	mm	6	8	10	15	20	25	32	40	50	65	80	100	125	150	200	250	300
Outside Diameter(min)	mm	14.3	18.26	22.23	27.00	33.35	40.03	48.26	55.88	69.85	82.55	101.6	127	159.9	187.7	244.48	298.45	355.6
Length(min)	mm	19.05	28.58	28.58	38.1	39.68	49.21	50.8	50.8	52.39	77.79	79.37	87.31	93.66	125.41	133.4	146	156

Note:

Mark "X" for Nipple means these series of length suppliable

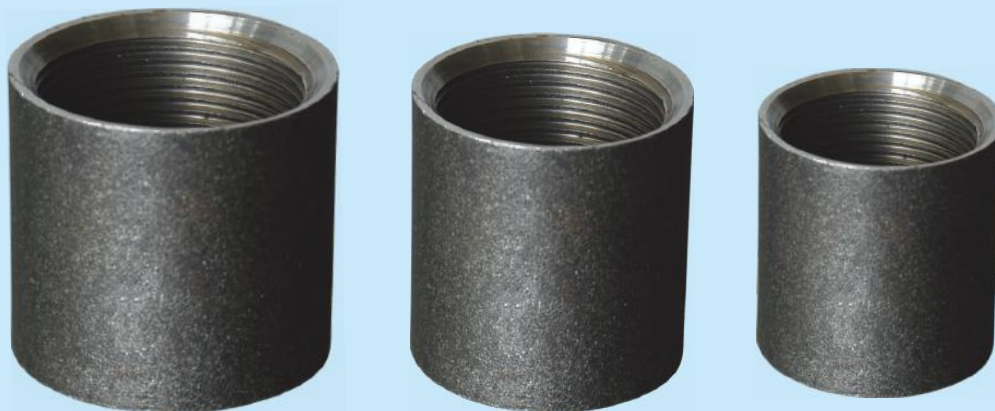
Steel Pipe Standard ANSI/ASTM A 120 (Schedule 40)

Thread Standard ANSI B1.20.1

Socket thread refers to internal paralleled thread



STEEL SOCKETS AND NIPPLES



JIS B2302

NIPPLES

ND	Inch	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"	2.1/2"	3"	4"
	mm	6	8	10	15	20	25	32	40	50	65	80	100
Close Taper Nipple	mm	22	24	26	29	35	38	41	44	51	64	67	73
Barrel Nipple	mm	24	26	28	34	38	42	50	50	58	70	78	90
Series of Length (mm)	50	X	X	X	X	X	X						
	65	X	X	X	X	X	X	X	X	X			
	75	X	X	X	X	X	X	X	X	X	X	X	
	100	X	X	X	X	X	X	X	X	X	X	X	
	125	X	X	X	X	X	X	X	X	X	X	X	X
	150	X	X	X	X	X	X	X	X	X	X	X	X
	200	X	X	X	X	X	X	X	X	X	X	X	X
	250	X	X	X	X	X	X	X	X	X	X	X	X
	300	X	X	X	X	X	X	X	X	X	X	X	X

SOCKETS

ND	Inch	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1.1/4"	1.1/2"	2"
	mm	6	8	10	15	20	25	32	40	50
Outside Diameter(min)	mm	14	18.5	21.3	26.4	31.8	39.5	48.3	54.5	66.3
Length(min)	mm	17	25	26	34	36	43	48	48	56

Note:

Mark "X" for Nipple means these series of length suppliable

Steel Pipe Standard JIS G3452

Thread Standard JIS B0203

Socket thread refers to internal paralleled thread

STEEL SOCKETS AND NIPPLES



KING NIPPLES

STANDARD	SPEC.	OUTSIDE DIAMETER	TOLERANCES	WALL THICKNESS	TOOTH MODEL CORNER
BS ELEC. GALV.	6"	165.00	±0.5	4.50	55°
	5"	140.00		4.00	
	4"	114.00		3.75	
	3"	88.50		3.50	
	2.1/2"	76.00		3.25	
	2"	60.00		3.25	
	1.1/2"	48.00	±1%	3.25	
	1.1/4"	42.30		2.60	
	1"	33.50		2.25	
	3/4"	27.00		2.00	
	1/2"	21.00			
	3/8"	17.20			
	1/4"	13.70			
	1/8"	10.30			
BS HOT GALV.	6"	165.00	±0.5	4.50	55°
	5"	140.00		4.00	
	4"	114.00		3.75	
	3"	88.50		3.50	
	2.1/2"	76.00		3.25	
	2"	60.00		3.25	
	1.1/2"	48.00	±1%	2.60	
	1.1/4"	42.30		2.25	
	1"	33.50		2.00	
	3/4"	26.80			
	1/2"	21.30			
	3/8"	17.20			
	1/4"	13.70			
	1/8"	10.30			
ANSI ELEC. GALV.	6"	168.00	±0.5	6.00	60°
	5"	141.00		6.00	
	4"	114.00		5.50	
	3"	89.00		5.00	
	2.1/2"	73.00		3.50	
	2"	60.00		3.25	
	1.1/2"	48.00	±1%	3.25	
	1.1/4"	42.30		2.60	
	1"	33.50		2.25	
	3/4"	27.00		2.00	
	1/2"	21.00			
	3/8"	17.20			
	1/4"	13.70			
	1/8"	10.30			

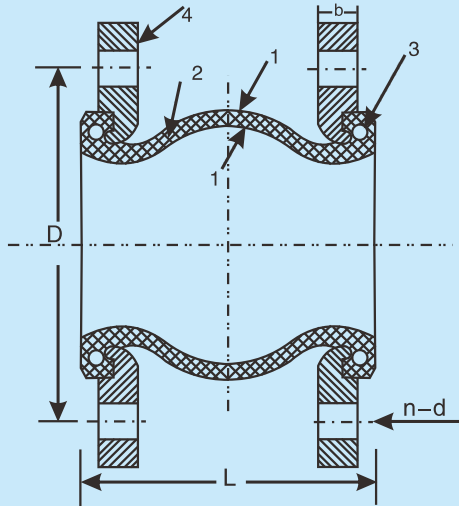
STEEL SOCKETS AND NIPPLES

STEEL SOCKETS AND NIPPLES
SOCKETS ARE MADE FROM SEAMLESS STEEL PIPES AND
NIPPLES ARE MADE FROM ERW PIPES.
ALL SOCKETS AND NIPPLES ARE MADE ACCORDING
TO STANDARD OF BS1387.
ANSI/ASTM A733.DIN2982.JIS B2302.
ANNUAL OUTPUT IS 2000 TONS
THE QUALITY FULLY GUARANTEED
SIZE SUPPLIABLE FROM 1/8" TO 6"

TECHNOLOGICAL PROCESS OF MANUFACTURING STEEL PIPE NIPPLES AND SOCKETS



SINGLE SPHERE EXPANSION JOINT FLANGE TYPE



TECHNICAL SPECIFICATION

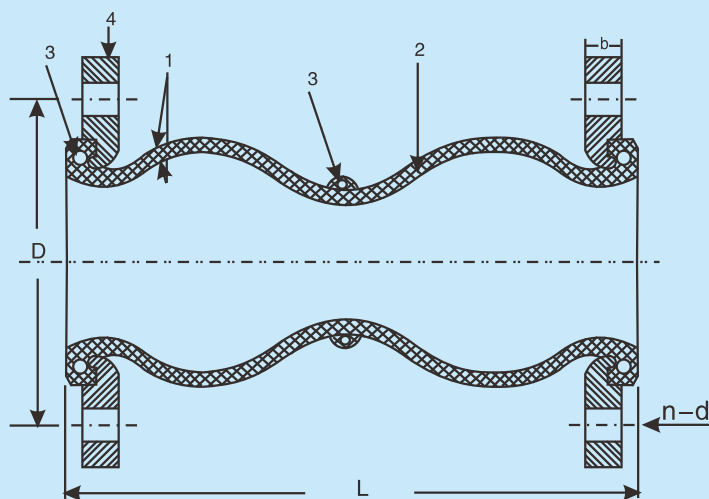
Working Pressure	1.6Mpa(16 kgf/cm ²)
Bursting Pressure	3.0Mpa(30 kgf/cm ²)
Vacuum Degree	650mmHg
Working Temperature	(-15°C to +115°C) (-30°C to +250°C) on special request
Working Medium	Vapour, compressed air, cold & hot water, seawater, oil, weak acid, alkali
Drilling:	DIN PN10, PN16, ANSI 150LBS

BILL OF MATERIALS

ITEM NO.	DESCRIPTION	MATERIAL
1	MAIN BODY	NEOPRENE, EPDM, NBR
2	LINING	CHINLON CORD FABRICS
3	FRAME	HARD STEEL WIRES
4	FLANGE	CARBON STEEL

Nominal		Length	Flange		Number of		Diameter of		Bolt Circle		Axial		Lateral	Angle of Deflection
Core Diameter			Thickness		Bolt Holes		Bolt Holes		Diameter		Displacement		Displacement	
		L	b		n		d		D					
mm	Inch	mm	mm		mm		mm		mm		mm		mm	a1+a2
			ANSI 150LBS	DIN PN16	ANSI 150LBS	DIN PN16	ANSI 150LBS	DIN PN16	ANSI 150LBS	DIN PN16	Stretch	Compression		
32	1.1/4"	95	16	16	4	4	15.7	18	88.9	100	6	9	9	15°
40	1.1/2"	95	16	16	4	4	15.7	18	98.6	110	6	10	9	15°
50	2"	105	18	18	4	4	19.1	18	120.7	125	7	10	10	15°
65	2.1/2"	115	18	18	4	4	19.1	18	139.7	145	7	13	11	15°
80	3"	135	20	20	4	8	19.1	18	152.4	160	8	15	12	15°
100	4"	150	20	20	8	8	19.1	18	190.5	180	10	19	13	15°
125	5"	165	22	22	8	8	22.4	18	215.9	210	12	19	13	15°
150	6"	180	22	22	8	8	22.4	23	241.3	240	12	20	14	15°
200	8"	210	24	24	8	12	22.4	23	298.5	295	16	25	22	15°
250	10"	230	26	28	12	12	25.4	27	362	355	16	25	22	15°
300	12"	245	28	28	12	12	25.4	27	431.8	410	16	25	22	15°
350	14"	255	30	30	12	16	28.4	27	476.3	470	16	25	22	15°
400	16"	255	32	32	16	16	28.4	30	539.8	525	16	25	22	15°
500	20"	255	34	36	20	20	31.8	33	635	650	16	25	22	15°
600	24"	260	36	38	20	20	35.1	36	749.3	770	16	25	22	15°

TWIN SPHERE EXPANSION JOINT FLANGE TYPE



TECHNICAL SPECIFICATION

Working Pressure	1.6Mpa(16 kgf/cm ²)
Bursting Pressure	3.0Mpa(30 kgf/cm ²)
Vacuum Degree	400mmHg
Working Temperature	(-15°C to +115°C) (-30°C to +250°C) on special request
Working Medium	Vapour, compressed air, cold & hot water, seawater, oil, weak acid, alkali
Drilling:	DIN PN10, PN16, ANSI 150LBS

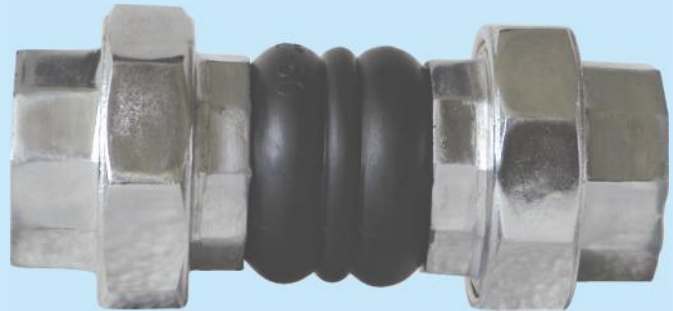
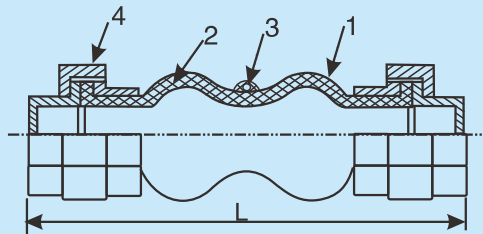
BILL OF MATERIALS

ITEM NO.	DESCRIPTION	MATERIAL
1	MAIN BODY	NEOPRENE, EPDM, NBR
2	LINING	CHINLON CORD FABRICS
3	FRAME	HARD STEEL WIRES
4	FLANGE	CARBON STEEL

Nominal		Length	Flange		Number of		Diameter of		Bolt Circle		Axial		Lateral	Angle
Diameter			Thickness		Bolt Holes		Bolt Holes		Diameter		Displacement		Displace- ment	Deflec- tion
		L	b		n		d		D					
mm	Inch	mm	mm		mm		mm		mm		mm		mm	a1+a2
			ANSI 150LBS	DIN PN16	ANSI 150LBS	DIN PN16	ANSI 150LBS	DIN PN16	ANSI 150LBS	DIN PN16	Stretch	Compr- ession		
50	2"	165	18	18	4	4	19.1	18	120.7	125	30	50	45	35°
65	2.1/2"	175	18	18	4	4	19.1	18	139.7	145	30	50	45	35°
80	3"	175	20	20	4	8	19.1	18	152.4	160	35	50	45	35°
100	4"	225	20	20	8	8	19.1	18	190.5	180	35	50	40	35°
125	5"	225	22	22	8	8	22.4	18	215.9	210	35	50	40	35°
150	6"	225	22	22	8	8	22.4	23	241.3	240	35	50	40	35°
200	8"	325	24	24	8	12	22.4	23	298.5	295	35	50	40	35°
250	10"	325	26	28	12	12	25.4	27	362	355	35	60	35	30°
300	12"	325	28	28	12	12	25.4	27	431.8	410	35	60	35	30°

Both ends of joint can be deflected or adjusted easily in axial or lateral displacement.

TWIN SPHERE EXPANSION JOINT UNION TYPE



TECHNICAL SPECIFICATION

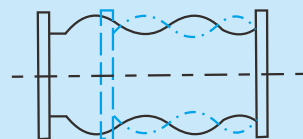
Working Pressure	1.0Mpa (10 kgf/cm ²)
Bursting Pressure	3.0Mpa (30 kgf/cm ²)
Vacuum Degree	400mmHg
Working Temperature	(-15°C to +115°C) (-30°C to +250°C) on special request
Working Medium	Vapour, compressed air, cold & hot water, seawater, oil, weak acid, alkali
Threading	DIN 2999, NPT, BSPT

BILL OF MATERIALS

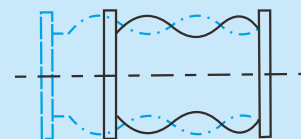
ITEM NO.	DESCRIPTION	MATERIAL
1	MAIN BODY	NEOPRENE, EPDM, NBR
2	LINING	CHINLON CORD FABRICS
3	FRAME	HARD STEEL WIRES
4	UNION	MALLEABLE IRON

Nominal		Length (L)	Axial		Lateral	Angle of
Diameter			Displacement		Displacement	Deflection
			Stretch	Compression		a1+a2
mm	Inch	mm	mm		mm	
20	3/4"	180	5-6	22	22	45°
25	1"	180	5-6	22	22	45°
32	1.1/4"	200	5-6	22	22	45°
40	1.1/2"	210	5-6	22	22	45°
50	2"	220	5-6	22	22	45°
65	2.1/2"	245	5-6	22	22	45°

SCHEMATIC DIAGRAM OF DISPLACEMENT AND DEFLECTION



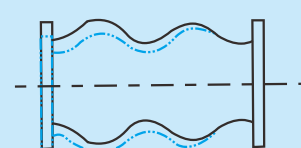
AXIAL COMPRESSION



AXIAL STRETCH



ANGULAR DEFLECTION



LATERAL DISPLACEMENT