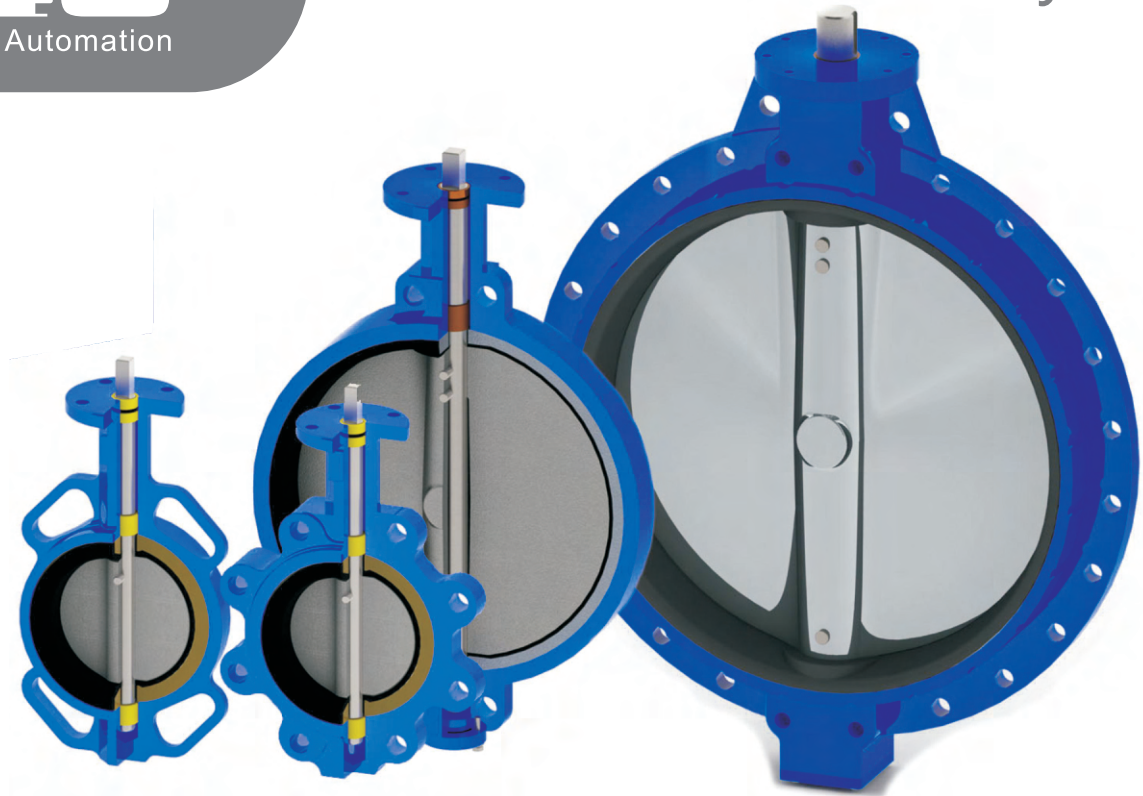


SIO
Valves & Automation

Resilient Seated Butterfly Valves





Max working pressure

DN32-DN300	16Bar
Flange PN6 PN10 PN16 150LB JIS 5K 10K AS"D" "E"	
DN 350—DN1200	10Bar
Flange PN6 PN10 Pn16 150LB JIS 5K 10K AS"D" "E"	

Body

Material	Referencesstandard	Coating
Cast iron	GG20 GG25 A126	Epoxy Ral 5005
Ductile iron	GGG40 GGG45 GGG50 A536 A395	Epoxy Ral 5005
Carbon steel	WCB WCC LCC LCB	Epoxy Ral 7011
Stainless steel	CF8 CF8M CF3 CF3M SAF2507 SAF2205	
Aluminum-bronze	C95400 C95500 C95800	

Design

En593 API 609 BS5155 EN1092 ISO5211

Face to Face

DIN558-1 API609 DIN3202 ISO5752 BS5155

Testing

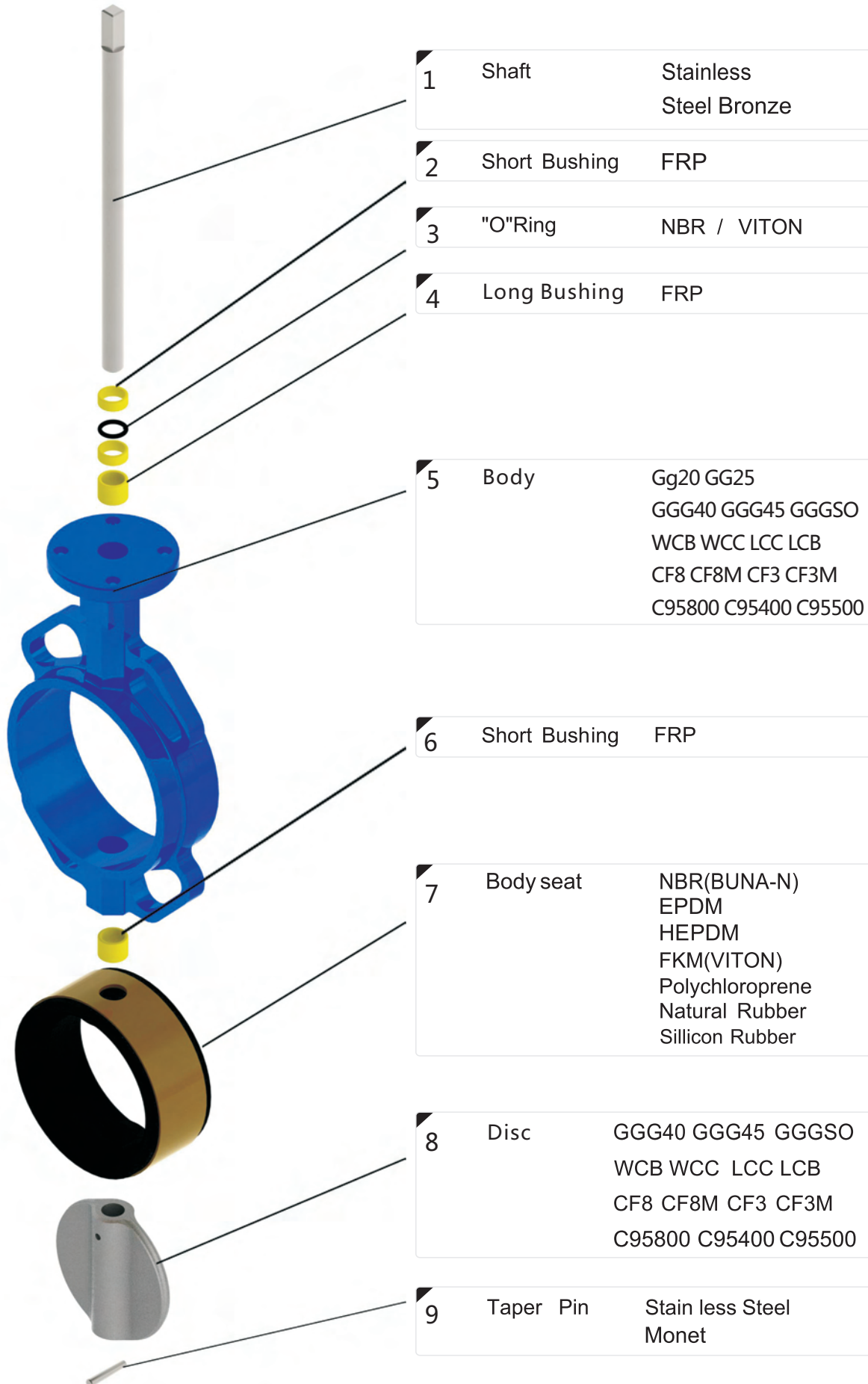
EN 12266- 1 ISO5208 API598

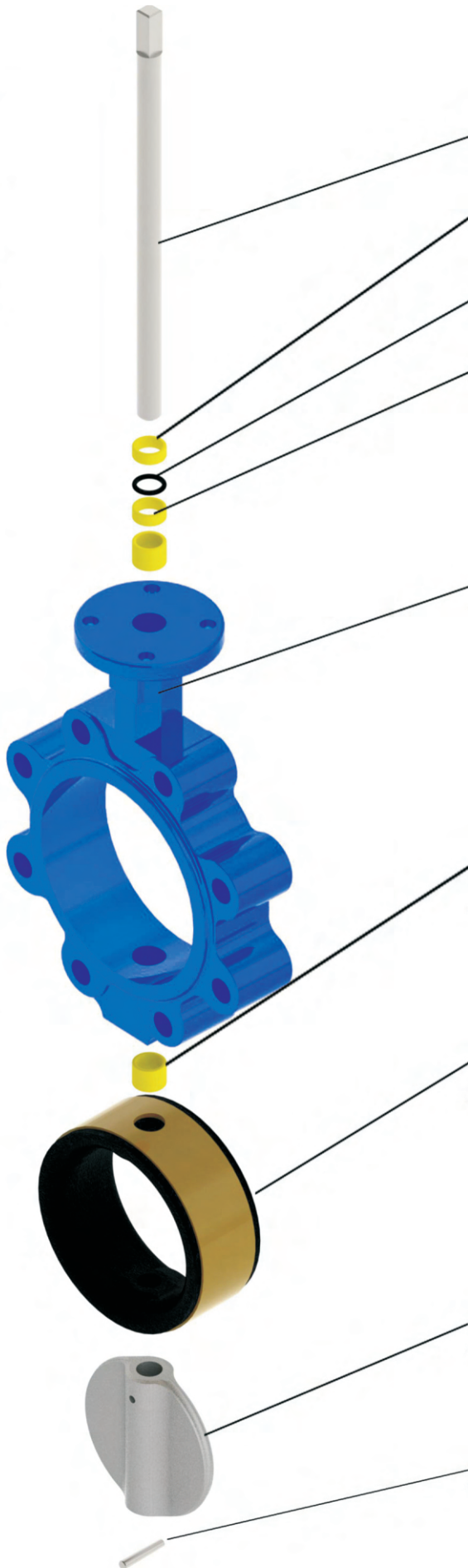
Disc

Material	References	Standard coating
Ductile iron	GGG40 GGG45 GGG50 A536	Nickel Brass-Nikle
Carbon steel	WCB WCC LCC LCB	
Stainless steel	CF8 CF8M CF3 CF3M SAF2507 SAF2205	
Aluminum-bronze		

Body Rubber Seat

References	Desigation	Trade Name	Working temp	Applications
NBR	Nitrilerubber	BUNA-N	-25/+100	Oils ,Hydrocarbons ,Gas, Air ,Water
EPDM	Copolymer	EPDM	-35/+130	Water ,Sea Water, Steam, Diluted Acids
FKM	Fluoroelastomer	VITON	-20/+200	Oils, Hydrocarbons, Acids
CR	Polychloroprene	NEOPRENE	-20/+100	Alkail Bases,Water
NR	Natural Rubber	NR	-40/+80	GlycoIs,Abrasive media
MVQ	Sillicon Rubber	SR	-60/+190	Water, food Drinks
CSM	Chlorosulfonate polychloroprene	HYPALON	-20/+125	Acids, mineral bases, Alcohols, Hydrocarbons
PTFE	PolyTetraFluoroEthyl-ene	TEFLON	-35/+150	Acidity Alkaline





1	Shaft	Stainless Steel Bronze
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2	Short Bushing	FRP
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3	"O"Ring	NBR / VITON
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4	Long Bushing	FRP
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5	Body	Gg20 GG25 GGG40 GGG45 GGG50 WCB WCC LCC LCB CF8 CF8M CF3 CF3M C95800 C95400 C95500
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6	Short Bushing	FRP
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7	Body seat	NBR(BUNA-N) EPDM HEPDM FKM(VITON) Polychloroprene Natural Rubber Sillicon Rubber
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8	Disc	Gg40 GGG45 GGG50 WCB WCC LCC LCB CF8 CF8M CF3 CF3M C95800 C95400 C95500
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9	Taper Pin	Stain less Steel Monel
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Main Spare Part Material Quality (DN350—DN600)



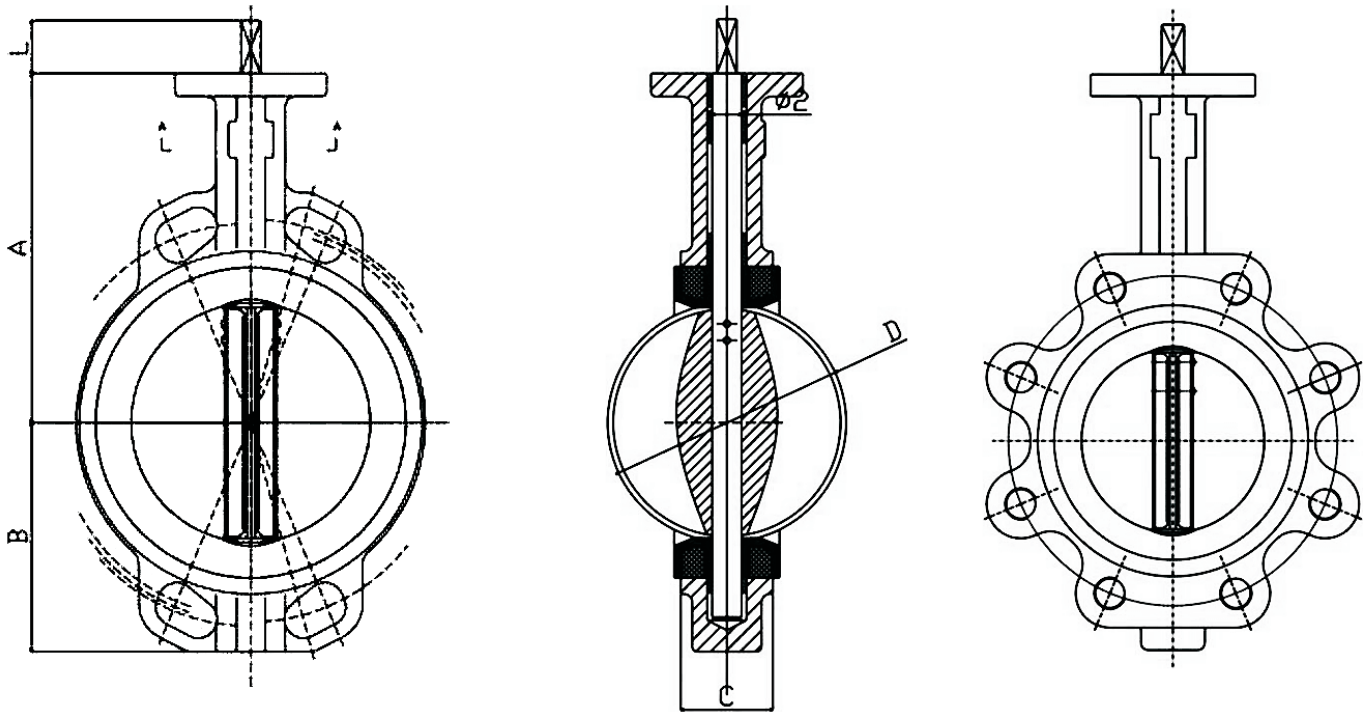
1	Shaft	Stainless Steel Bronze
2	Short Bushing	Luberized Bronze
3	"O"Ring	NBR /VITON
4	Long Bushing	Luberized Bronze
5	Body	GGG40 GGG45 GGG50 WCB WCC LCC LCB CF8 CF8M CF3 CF3M C95800 C95400 C95500
6	Body Seat	NBR(BUNA-N) EPDM HEPDM FKM(VITON) Polychloroprene Natural Rubber Sillicon Rubber
7	Disc	GGG40 GGG45 GGG 50 CF8 CF8M CF3 CF3M C95800 C95400 C95500 WCB WCC LCC LCB
8	Taper Pin	Stainless Steel Monel
9	Long Bushing	Luberized Bronze
10	"O"Ring	NBR /VITON
11	End Cover	GGG40 GGG45 GGG 50 WCB WCC LCC LCB CF8 CF8M CF3 CF3M C95800 C95400 C95500
12	Gasket	Stainless Steel
13	Spring Washer	Stainless Steel
14	Screw	Stainless Steel



1	Shaft	Stainless Steel Bronze
2	Short Bushing	Luberized Bronze
3	"O"Ring	NBR /VITON
4	Long Bushing	Luberized Bronze
5	Body	GGG40 GGG45 GGG50 WCB WCC LCC LCB CF8 CF8M CF3 CF3M C95800 C95400 C95500
6	Body Seat	NBR(BUNA-N) EPDM HEPDM FKM(VITON) Polychloroprene Natural Rubber Sillicon Rubber
7	Disc	GGG40 GGG45 GGG 50 CF8 CF8M CF3 CF3M C95800 C95400 C95500 WCB WCC LCC LCB
8	Taper Pin	Stainless Steel Monel
9	Long Bushing	Luberized Bronze
10	"O"Ring	NBR /VITON
11	End Cover	GGG40 GGG45 GGG 50 WCB WCC LCC LCB CF8 CF8M CF3 CF3M C95800 C95400 C95500
12	Gasket	Stainless Steel
13	Spring Washer	Stainless Steel
14	Screw	Stainless Steel



1	Short Bushing	Luberized Bronze
2	"O"Ring	NBR /VITON
3	Long Bushing	Luberized Bronze
4	Up Shaft	Stainless Steel Bronze
5	Taper Pin	Stainless Steel Monel
6	Body	GGG40 GGG45 GGG50 WCB WCC LCC LCB CF8 CF8M CF3 CF3M C95800 C95400 C95500
7	Body Seat	NBR(BUNA-N) EPDM HEPDM FKM(VITON) Polychloroprene Natural Rubber Sillicon Rubber
8	Disc	GGG40 GGG45 GGG50 CF8 CF8M CF3 CF3M C95800 C95400 C95500 WCB WCC LCC LCB
9	Taper Pin	Stainless Steel Monel
10	Down Shaft	Stainless Steel Bronze
11	Long Bushing	Luberized Bronze
12	Bearing	Assembly
13	"O"Ring	NBR /VITON
14	End Cover	GGG40 GGG45 GGG50 WCB WCC LCC LCB CF8 CF8M CF3 CF3M C95800 C95400 C95500
15	Gasket	Stainless Steel
16	Spring Washer	Stainless Steel
17	Screw	Stainless Steel



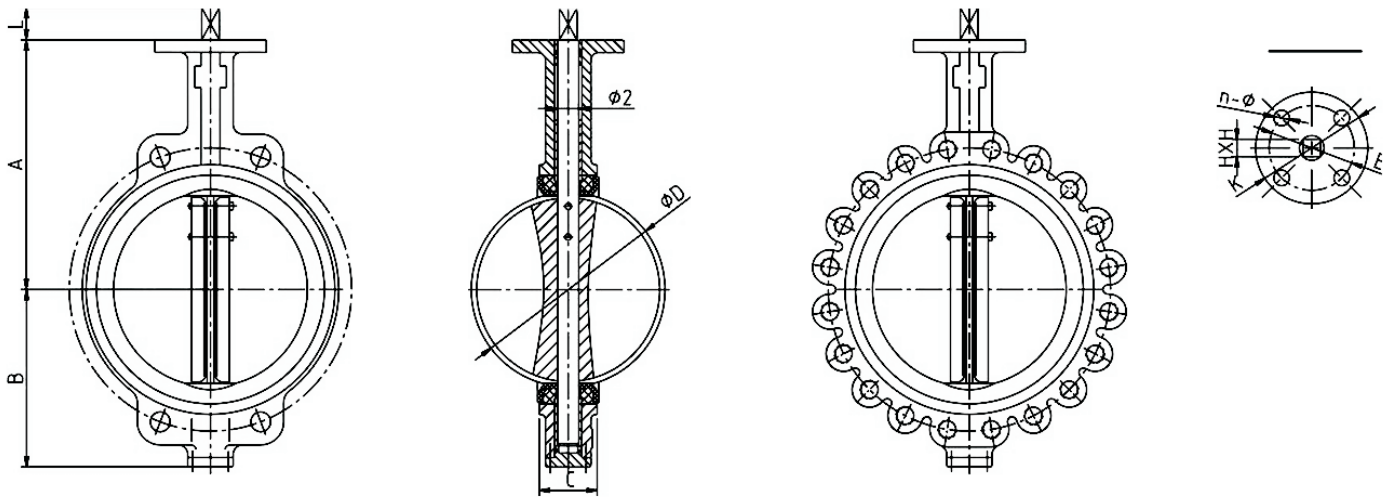
Outline Dimensions

SIZE	A	B	C	D	62	1505711	K	E	n_9	H x H	L
DN50	140	80	43	52.9	12.6	F07	90	70	4-10	11X11	14
DN65	150	89	46	64.5	12.6	F07	90	70	4-10	11X11	14
DN80	158	95	46	78.8	16	F07	92	70	4-10	11X11	14
DN100	176	114	52	104	15.77	F07	90	70	4-10	11X11	14
DN125	190	127	56	123.3	18.92	F07	90	70	4-10	14X14	17
DN150	212	139	56	155.6	18.92	F07	90	70	4-10	14X14	17
DN200	235	174	60	202.5	22.10	F10	125	102	4-12	17X17	22
DN250	265	203	68	250.5	28.45	F10	125	102	4-12	22X22	22
DN300	305	242	78	301.6	31.60	F10	125	102	4-12	22X22	22

Connection Dimensis

DN	Outer Dlameter Of Flange				Dlameter Of Center Circle				Number And Dlameter Of Bolt Holes			
	150LB	RN10	RN16	JIS10K	150LB	RN10	RN16	JIS10K	150LB	RN10	RN16	JIS10K
50	150	165	165	155	120.7	125	125	120	4-19	4-19	4-19	4-19
65	180	185	185	175	139.7	145	145	140	4-19	4-19	4-19	4-19
80	190	200	200	185	152.4	160	160	150	4-19	8-19	8-19	8-19
100	230	220	220	210	190.5	180	180	175	8-19	8-19	8-19	8-19
125	255	250	250	250	215.9	210	210	210	8-22	8-19	8-19	8-23
150	280	285	285	280	241.3	240	240	240	8-22	8-23	8-23	8-23
200	345	340	340	330	298.5	295	295	290	8-22	8-23	12-23	12-23
250	405	395	405	400	362	350	355	355	12-26	12-23	12-28	12-25
300	485	445	460	445	431.8	400	410	400	12-26	12-23	12-28	16-25

Drawing(350-600)



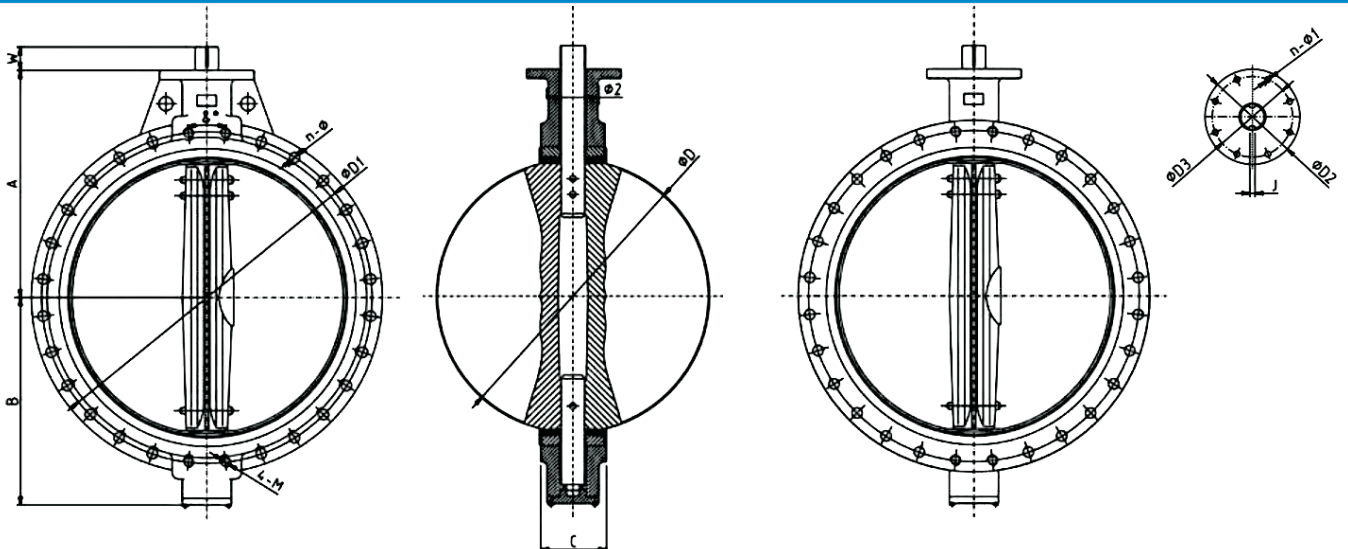
Outline Dimensions & Weight

SIZE	A	B	C	ØD	Ø2	ISO5211	K	E	n-Ø	HxH	L
DN350	368	267	78	333.5	31.6	F10	125	102	4-12	22X22	22
DN400	400	309	102	389.6	33.15	F14	175	140	4-18	27X27	36
DN450	422	340	114	440.5	37.95	F14	175	140	4-18	27X27	36
DN500	440	362	127	491.6	41.12	F14	175	140	4-18	36X36	36
DN600	565	452	154	592.5	50.62	F16	210	165	4-22	36X36	46

Connection Dimensions

DN	Outer Diameter Of Flange				Diameter Of Center Circle				Number And Diameter Of Bolt Holes			
	150LB	PN10	PN16	JIS10K	150LB	Pn10	PN16	JIS10K	150LB	PN10	PN16	JIS10K
350	535	505	520	490	476.3	460	470	445	12-29	16-23	16-28	16-25
400	595	565	580	560	539.8	515	525	510	16-29	16-28	16-31	16-27
450	635	615	640	620	577.9	565	585	565	16-32	20-28	20-31	20-27
500	700	670	715	675	635	620	650	620	20-32	20-28	20-34	20-27
600	815	780	840	795	749.3	725	770	730	20-35	20-31	20-37	24-33

Drawing(700-1200)



Outline Dimensions(700-1200)

SIZE (mm)	A	B	C	ØD	Ø2	IS05211	ØD2	ØD3	n-Ø1	J	W
700	631	511	165	695	63.35	F25	300	254	8-18	18	110
800	671	580	190	794.7	63.35	F25	300	254	8-18	18	110
900	720	636	203	864.7	75	F25	300	254	8-18	20	110
1000	805	709	216	965	85	F25	300	254	8-18	22	110
1200	942	846	254	1160.6	105	F30	350	298	8-22	28	130

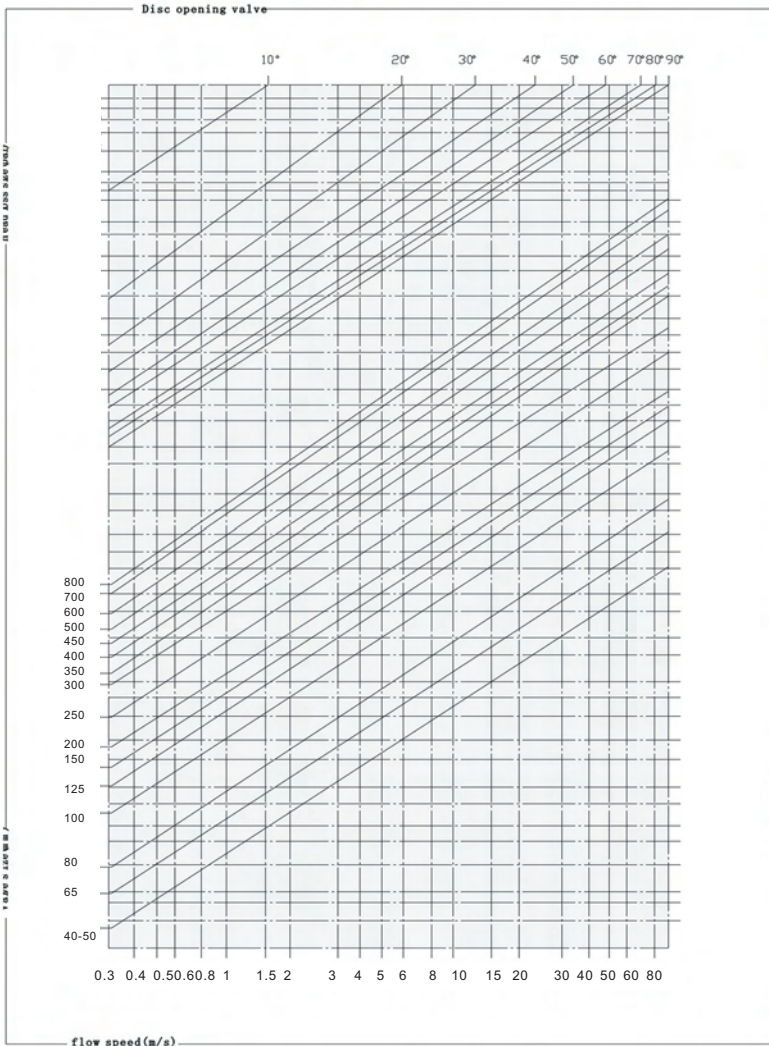
Connection Dimensions(700-1200)

DN	Outer Diameter of flange			Diameter of center Circle			Number and Diameter of bolt		
	150LB	PN10	PN16	150LB	PN10	PN16	150LB	PN10	PN16
700	927	895	910	863.6	840	840	28-35	24-31	24-37
800	1060	1015	1025	977.9	950	950	28-41	24-34	24-41
900	1168	1115	1125	1200	1050	1050	32-41	28-34	28-41
1000	1289	1230	1255	1315.4	1160	1170	36-41	28-37	28-44
1200	1511	1455	1485	1422.4	1380	1390	44-42	32-41	32-50

Torque values-Nm

APPLICATION IN WATER									
SIZE		6Bar	10Bar	16Bar	SIZE		6Bar	10Bar	16Bar
mm	inch				mm	inch			
DN40	1.5"	8	10	11	Dn350	14"		610	920
DN50	2"	9	11	12	Dn400	16"		890	1440
DN65	2.5"	15	18	20	Dn450	18"		1240	1780
DN80	3"	22	25	30	DN500	20"		1670	2210
DN100	4"	39	43	50	Dn600	24"		2560	3980
DN125	5"	60	67	77	Dn700	28"		3720	4920
DN150	6"	94	110	121	Dn800	32"		5640	7840
DN200	8"	165	201	242	Dn900	36"		7650	9760
DN250	10"	253	310	352	Dn1000	40"		9800	13560
DN300	12"	352	473	490	DN1200	48"		16800	21200

Notes: Values indicated in this page is only for information



Liquids: $Q = \frac{KV}{\sqrt{\frac{PS}{\Delta P}}}$

Q rate of flow (m³/h)
 PS specific gravity (water=1)
 ΔP pressure drop (bar)

Gas: $Q = 28.5 \frac{KV}{\sqrt{\frac{PS}{P_2 \Delta P}}}$

Q rate of flow (m³/h)
 PS specific gravity (air=1)
 ΔP pressure drop (bar)
 (less than 1/2 inlet pressure)
 P₂ outlet pressure

Steam: $Q = 22.5 \cdot KV \cdot \sqrt{P_2 \Delta P}$

Q rate of flow (Kg/h)
 ΔP pressure drop (bar)
 (less than 1/2 inlet pressure)
 P₂ outlet pressure

Calculation of the rate of flow equivalent to H₂O:

For different liquid, gas or steam head losses are determined by equivalent water of flow, as follows:

- Q_e equivalent water flow (mc/l o 1/s)
- Q fluid flow (mc/l o 1/s)
- d fluid specific gravity (Kg/mc)

Values KV(CV=1.16KV)

Size (mm)	Flow in Gpm@1 PSI P@ Various Disc Angles								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	0.1	5	12	24	45	64	90	125	135
65	0.2	8	20	37	65	98	144	204	220
80	0.3	12	22	39	70	116	183	275	302
100	0.5	17	36	78	139	230	364	546	600
125	0.8	29	61	133	237	392	620	930	1022
150	2	45	95	205	366	605	958	1437	1579
200	3	89	188	408	727	1202	1903	2854	3136
250	4	151	320	694	1237	2047	3240	4859	5340
300	5	234	495	1072	1911	3162	5005	7507	8250
350	6	338	715	1549	2761	4568	7230	10844	11917
400	8	464	983	2130	3797	6282	9942	14913	16388
450	11	615	1302	2822	5028	8320	13168	19752	21705
500	14	971	1674	3628	6465	10698	16931	25396	27908
600	22	1222	2587	5605	9989	16528	26157	39236	43116
700	30	1633	3522	7630	12599	20036	30482	46899	58696
800	45	2387	4791	8736	13786	20613	31395	48117	68250
900	60	3021	6063	11055	17449	26086	39731	60895	86375
1000	84	4183	8395	15307	24159	36166	55084	84425	119750
1200	102	4651	10365	17010	27242	43853	70431	108968	132888