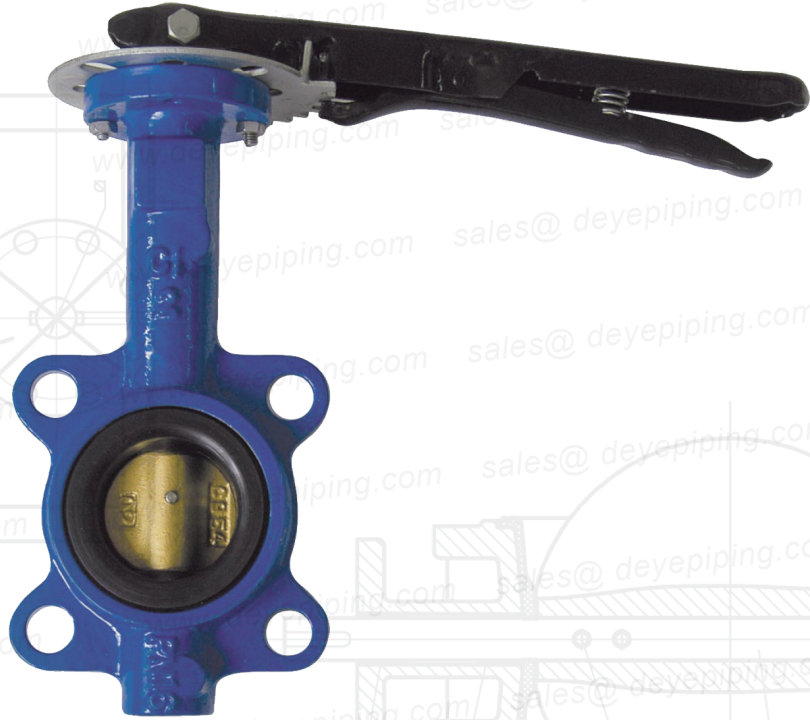




CENTERLINE TYPE BUTTERFLY VALVES



WRAS Approved Materials



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Fax: 0086 311 85335190– Mail: sales@deyepiping.com deyepiping@hotmail.com Website: www.deyepiping.com

SHIJIAZHUANG DEYE PIPING INDUSTRY CO., LTD, Located in Hebei, China, is a unique company within the Flow Control Industry. We focus on organization based on “Value-add” and “Quality Service” principles. Achieving long term partnership with our customers and being their supplier of choice is our prime mission.

- DEYE brand = high quality certified products (API, NSF, CSA, WRAS etc.)
- Valves, Actuators and Accessories — all ‘DEYE’ branded
- Width and Depth of Product Offerings
- Flexibility to customize products to customer needs
- Specialized user-friendly products including large sizes
- Quick Response
- Reduced Delivery times
- Efficient after sales service
- Competitive Pricing

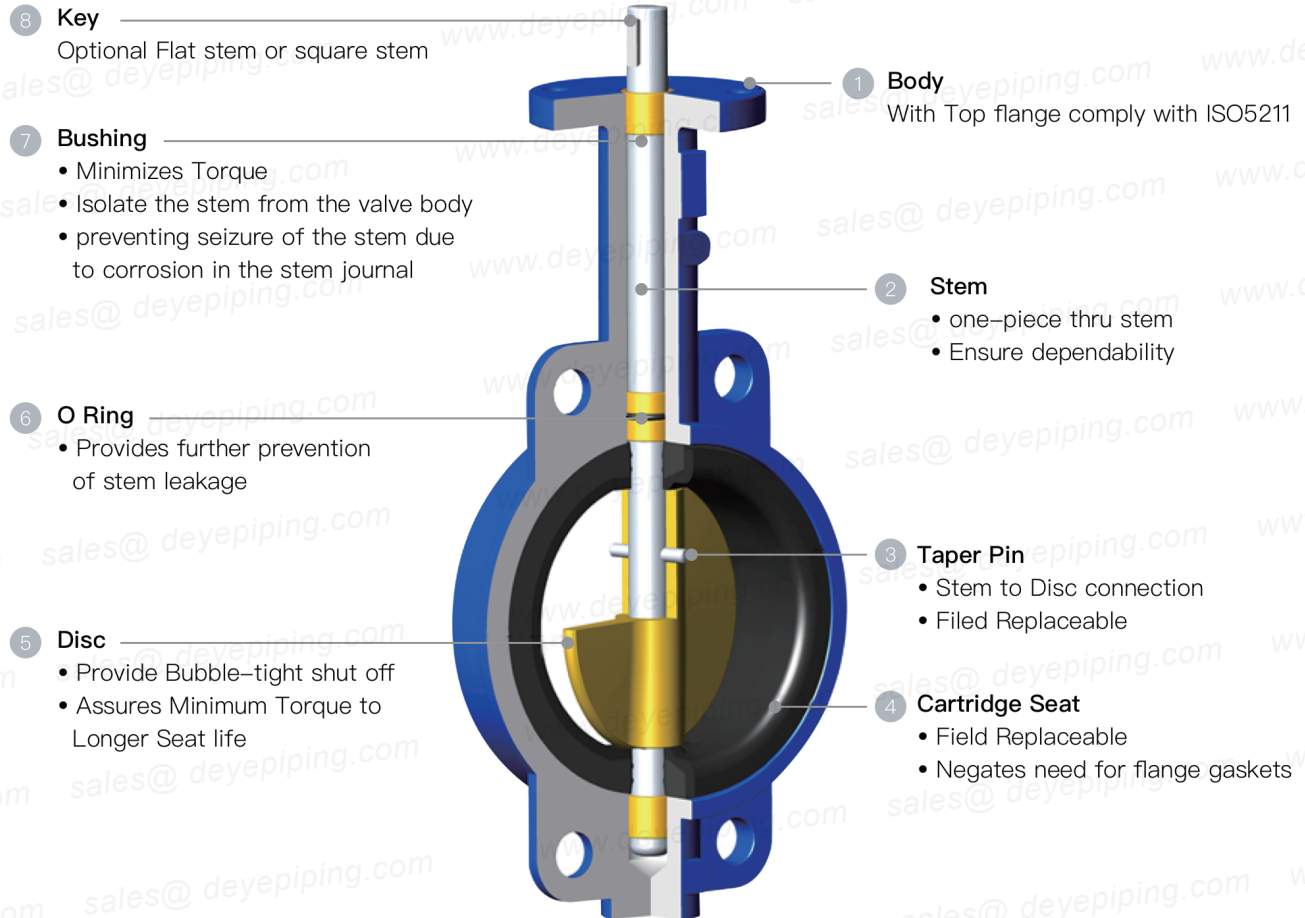
We develop, manufacture and market DEYE branded Valves, Actuators, Automatic Control Valves and Accessories for variety of Industrial Applications. Our product range includes:



We can supply all types of valves with following materials of construction like: Ductile Iron, Cast Iron, Carbon Steel, Stainless Steel — SS304, SS304L, SS316, SS316L, Duplex Stainless Steel, Super Duplex, Alloy, Monel and Inconel with variety of seating and stem configurations.

Rubber Seated Butterfly Valves

Design Features



The design features a one – piece body for minimum weight and maximum strength, the back seat allows easy installation, reliable operation.

Resilient seated butterfly valves are applicable in a wide variety of industry such as:

- Chemical and Petrochemical
- Agriculture
- Oil and Gas
- Food and Beverages
- Drinking Water and Waste Water
- District Cooling & HVAC
- Power and Mining
- Marine

Not recommended as replacement of blind flange at full rated pressure.

Material List

Item	Part Name	Materials
1	Body	Cast Iron: ASTM A126CL. B , DIN1691 GG25, EN 1561 EN-GJL-200; GB12226 HT200
		Ductile Iron: ASTM A536 65-45-12, DIN 1693 GGG40, EN1563 EN-GJS-400-15, GB12227 QT450-10
		Stainless Steel: ASTM A351 CF8, CF8M; CF3, CF3M;
		Carbon Steel: ASTM A216 WCB
2	Stem	Zinc Plated Steel
		Stainless Steel: ASTM A276 Type 316, Type 410, Type 420; ASTM A582 Type 416; UNS31803/32750
3	Taper Pin	Stainless Steel: ASTM A276 Type 304, Type 316; EN 1.4501
4	Seat	NBR, EPDM, Neoprene, PTFE, Viton
5	Disc	Ductile Cast Iron (Nickel plated):
		ASTM A536 65-45-12, DIN 1693 GGG40, EN1563 EN-GJS-400-15, GB12227 QT450-10
		Stainless Steel: ASTM A351 CF8, CF8M; CF3, CF3M; EN 1.4408, 1.4469; 1.4501;DSS2205/2507
		AL-Bronze: ASTM B148 C95400
6	O-Ring	NBR, EPDM, Neoprene, Viton
7	Bushing	PTFE, Nylon, Lubricated Bronze
8	Key	Carbon Steel

This buyer can select material as per materials list. The customer may mark the material and temperature used, Our company may select instead. When the medium and temperature is special, please consult with our company.

Seat Temperature Ratings

Material		NBR	Neoprene	EPDM	Hypalon	Viton	PTFE
Temperature Ratings	°C	- 20 ~ 100	- 40 ~ 100	- 40 ~ 120	- 32 ~ 135	- 12 ~ 230	- 50 ~ 200
	°F	- 4 ~ 212	- 40 ~ 212	- 40 ~ 248	- 25.6 ~ 275	- 10.4 ~ 446	- 58 ~ 392

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.

Flow Performance

Definition of Cv Value (Flow Coefficient)

The value Cv is the flow rate of pure water at 60°F passing through the valve when the disc is fully opened and the differential pressure between the two ends of the valve is 1 lbf/in².

V: Max. Flow (US gal/min)
G: Specific Gravity (1 for water)
ΔP: Differential in Valve (lbf/in²)

Definition of Kv Value (Flow Coefficient)

The value Kv is the flow rate of pure water at 15°C passing through the valve when the disc is fully opened and the differential pressure between the two ends of the valve is 1 bar.

Q: Max. Flow (m³/h)
G: Medium Density (g/cm³)(1 for water)
ΔP: Differential Pressure in Valve ((100 kpa) ie. bar)

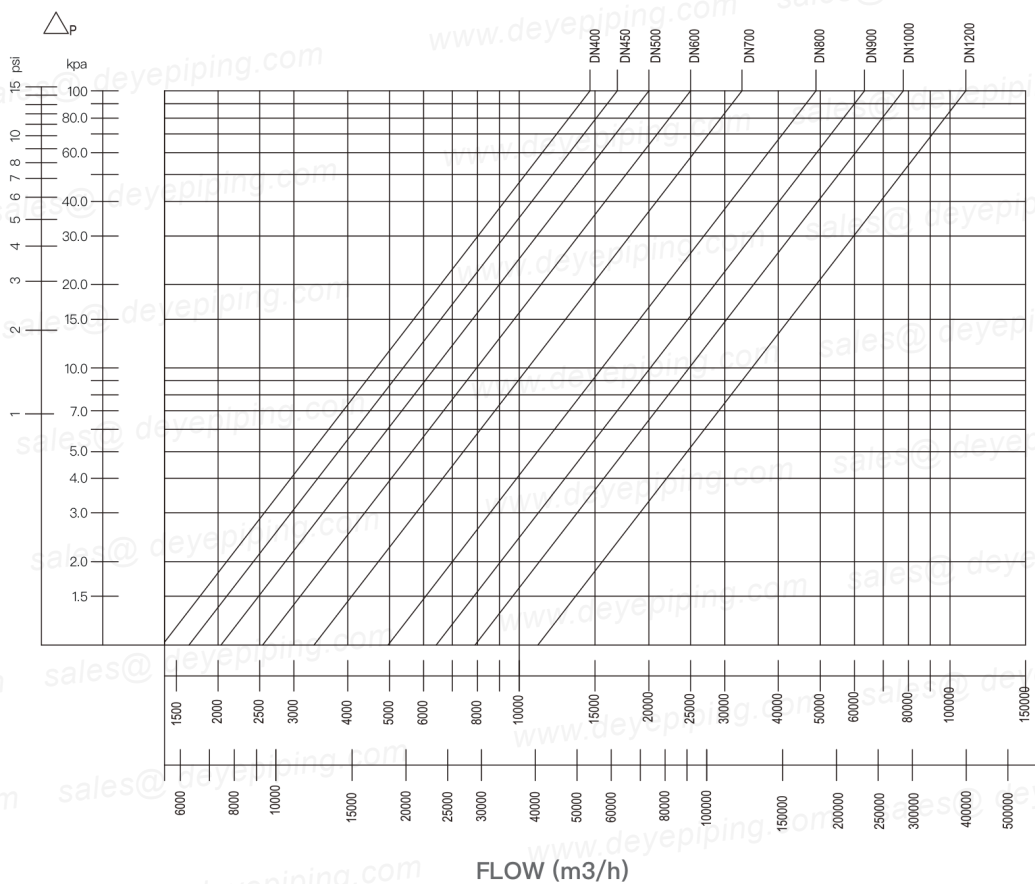
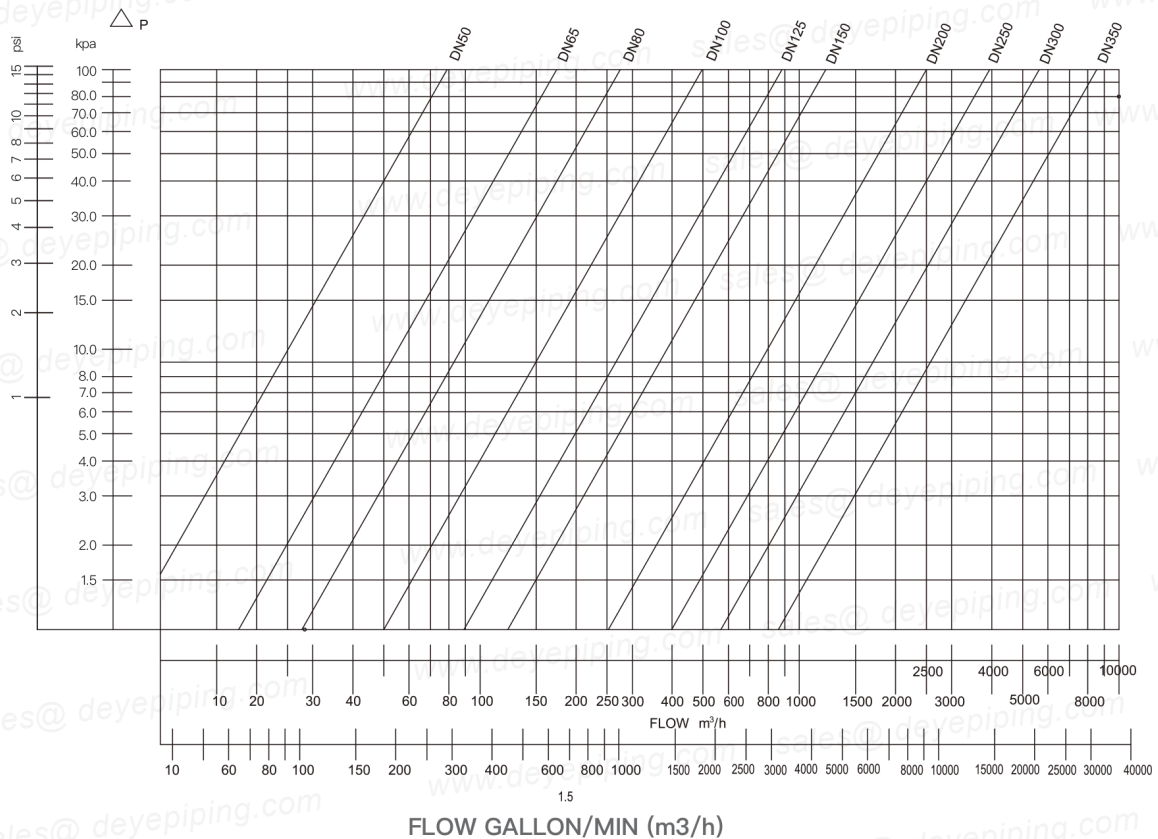
Cv Values–Valve Sizing Coefficients (US-GPM@1ΔP)

Size		10°	20°	30°	40°	50°	60°	70°	80°	90°
inch	mm									
2"	50	0.06	3	7	15	27	44	70	105	115
2 1/2"	65	0.1	6	12	25	45	75	119	178	196
3"	80	0.2	9	18	39	70	116	183	275	302
4"	100	0.3	17	36	78	139	230	364	546	600
5"	125	0.5	29	61	133	237	392	620	930	1022
6"	150	0.8	45	95	205	366	605	958	1437	1579
8"	200	2	89	188	408	727	1202	1903	2854	3136
10"	250	3	151	320	694	1237	2047	3240	4859	5340
12"	300	4	234	495	1072	1911	3162	5005	7507	8250
14"	350	6	338	715	1549	2761	4568	7230	10844	11917
16"	400	8	464	983	2130	3797	6282	9942	14913	16388
18"	450	11	615	1302	2822	5028	8320	13168	19752	21705
20"	500	14	791	1647	3628	6465	10698	16931	25396	27908
24"	600	22	1222	2587	5605	9989	16528	26157	39236	43116
28"	700	36	1813	3639	6636	10000	14949	22769	34898	49500
30"	750	37	2080	4406	9546	17010	28147	44545	66818	73426
32"	800	45	2387	4791	8736	13788	20613	31395	48117	38250
36"	900	260	3050	6730	12740	20220	32500	52500	79600	87500
40"	1000	84	4183	8395	15307	24159	36166	55084	84425	119750
42"	1050	350	4095	9040	17108	27150	43640	70500	106890	117500
48"	1200	455	5365	11840	22400	30600	51200	92300	140000	154000

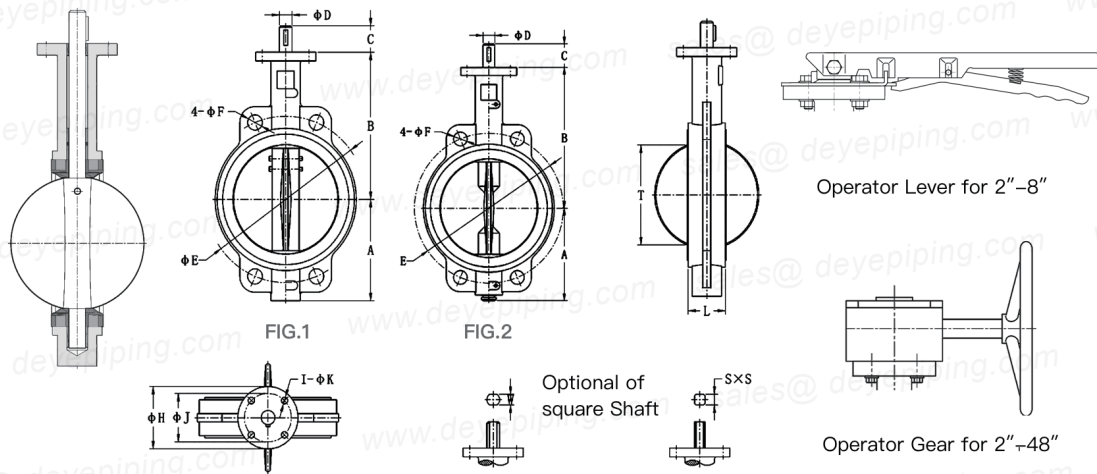
Kv Values–Valve Sizing Coefficients (m³/h @1ΔP)

Size		10°	20°	30°	40°	50°	60°	70°	80°	90°
inch	mm									
2"	50	0.05	2.6	6	13	23	38	60	90	99
2 1/2"	65	0.09	5	10	21	39	64	102	153	168
3"	80	0.17	8	15	33	60	99	157	236	259
4"	100	0.26	15	31	67	119	197	312	468	514
5"	125	0.43	25	52	114	203	336	531	797	876
6"	150	0.69	39	81	176	314	518	821	1231	1353
8"	200	1.7	76	161	350	623	1030	1631	2446	2687
10"	250	2.6	129	274	595	1060	1754	2776	4164	4576
12"	300	3	201	424	919	1638	2710	4289	6433	7069
14"	350	5	290	613	1327	2366	3914	6195	9292	10212
16"	400	7	398	842	1825	3254	5383	8519	12779	14043
18"	450	9	527	1116	2418	4308	7129	11284	16925	18599
20"	500	12	678	1411	3109	5540	9167	14508	21762	23914
24"	600	19	1047	2217	4803	8560	14163	22414	33621	36946
28"	700	31	1554	3118	5686	8569	12810	19511	29904	42416
30"	750	32	1782	3775	8180	14576	24119	38171	57256	62919
32"	800	39	2045	4105	7486	11815	17663	26902	41231	32776
36"	900	223	2614	5767	10917	17326	27849	44987	68209	74979
40"	1000	72	3584	7194	13117	20702	30991	47201	72344	102614
42"	1050	300	3509	7746	14660	23265	37395	60411	91594	100686
48"	1200	390	4597	10146	19195	26221	43873	79092	119966	131962

Valve Pressure Drop Curve Table



Wafer Type Butterfly Valve



Standard Specifications

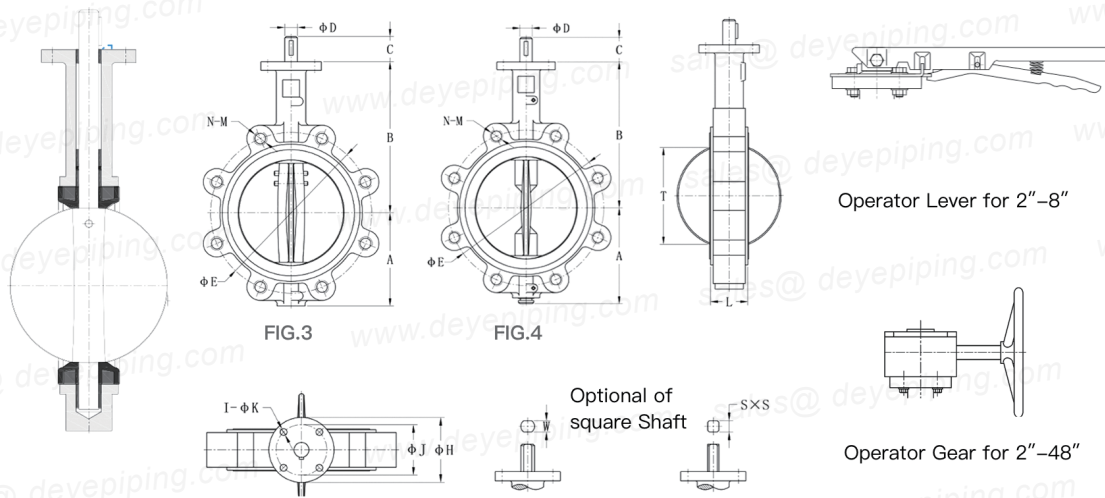
Design Standard	BS 5155, API 609, EN 593
Test Standard	DIN 3230 Part3, API 598, EN 12266-1
Face-to-Face Standard	DIN 3202 K1, API 609, EN558-1, ISO 5752
Flange Connection	DIN 2501 PN10/16, BS 4504 PN10/16, EN1092-1 PN10/PN16 ASME B16.5 125LB/150LB, JISB 2220 10K & so on.
Working Pressure	10 bar / 16 bar
Medium	Water, Sewage, Oil, Gas, Food and so on.

Dimensions List (mm)

Size		A	B	C	D	E				F/M				H	J	I-K	L	T	S	W	ISO 5211
mm	inch					ANSI 125/150	PN10	PN16	10K	ANSI 125/150	PN10	PN16	10K								
40	1½	70	145	32	12.7	98.4	110	110	105	16	18	18	19	65	50	4-7	33	27	9	10	F05
F50	2	76	162	32	12.7	120.7	125	125	120	19	18	18	19	65	50	4-7	42	32	9	10	F05
65	2½	89	174	32	12.7	139.7	145	145	140	19	18	18	19	65	50	4-7	45	47	9	10	F05
80	3	95	181	32	12.7	152.4	160	160	150	19	18	18	19	65	50	4-7	45	65	9	10	F05
100	4	114	200	32	15.9	190.5	180	180	175	19	18	18	19	90	70	4-9.5	52	90	11	12	F07
125	5	127	213	32	19.1	215.9	210	210	210	22	18	18	23	90	70	4-9.5	54	111	14	14	F07
150	6	139	225	32	19.1	241.3	240	240	240	22	22	22	23	90	70	4-9.5	56	145	14	14	F07
200	8	177	260	38	22.2	298.5	295	295	290	22	22	22	23	125	102	4-11.5	60	193	17	17	F10
250	10	203	292	38	28.6	362	350	355	355	25	22	26	25	125	102	4-11.5	66	241	22	22	F10
300	12	242	337	38	31.8	431.8	400	410	400	25	22	26	25	125	102	4-11.5	77	292	22	24	F10
350	14	277	368	45	31.8	476.3	460	470	445	29	22	26	25	125	102	4-11.5	77	325	22	24	F10
400	16	308	400	51	33.3	539.8	515	525	510	29	26	30	27	210	165	4-22	86	380	27	27	F14
450	18	342	422	51	38.1	577.9	565	585	565	32	26	30	27	210	165	4-22	105	428	27	27	F14
500	20	374	479	64	41.3	635	620	650	620	32	26	33	27	210	165	4-22	130	474	27	32	F14
600	24	459	562	70	50.8	749.3	725	770	730	35	30	36	33	210	165	4-22	152	575	36	36	F16
700	28	520	624	72	55	—	840	840	840	—	30	36	33	300	254	8-18	165	674	—	—	F25
750	30	565	650	72	55	914.4	900	900	900	1¼"-7	33	36	33	300	254	8-18	167	726	—	—	F25
800	32	591	672	72	55	—	950	950	950	—	33	39	M30	300	254	8-18	190	771	—	—	F25
900	36	610	768	77	75	1085.9	1050	1050	1050	1½"-6	M30	M36	M30	300	254	8-18	207	839	—	—	F25
1000	40	685	823	85	85	—	1160	1170	1160	—	M33	M39	M36	300	254	8-18	216	939	—	—	F25
1050	42	785	858	85	85	1257.3	—	—	—	1½"-6	—	—	—	300	254	8-18	256	997	—	—	F25
1200	48	839	940	150	92	1422.4	1380	1390	1380	1½"-6	M36	M45	M36	350	298	8-22	276	1125	—	—	F30

* Please contact manufacturer if you want more flange standards.

Lug Type Butterfly Valve



Standard Specifications

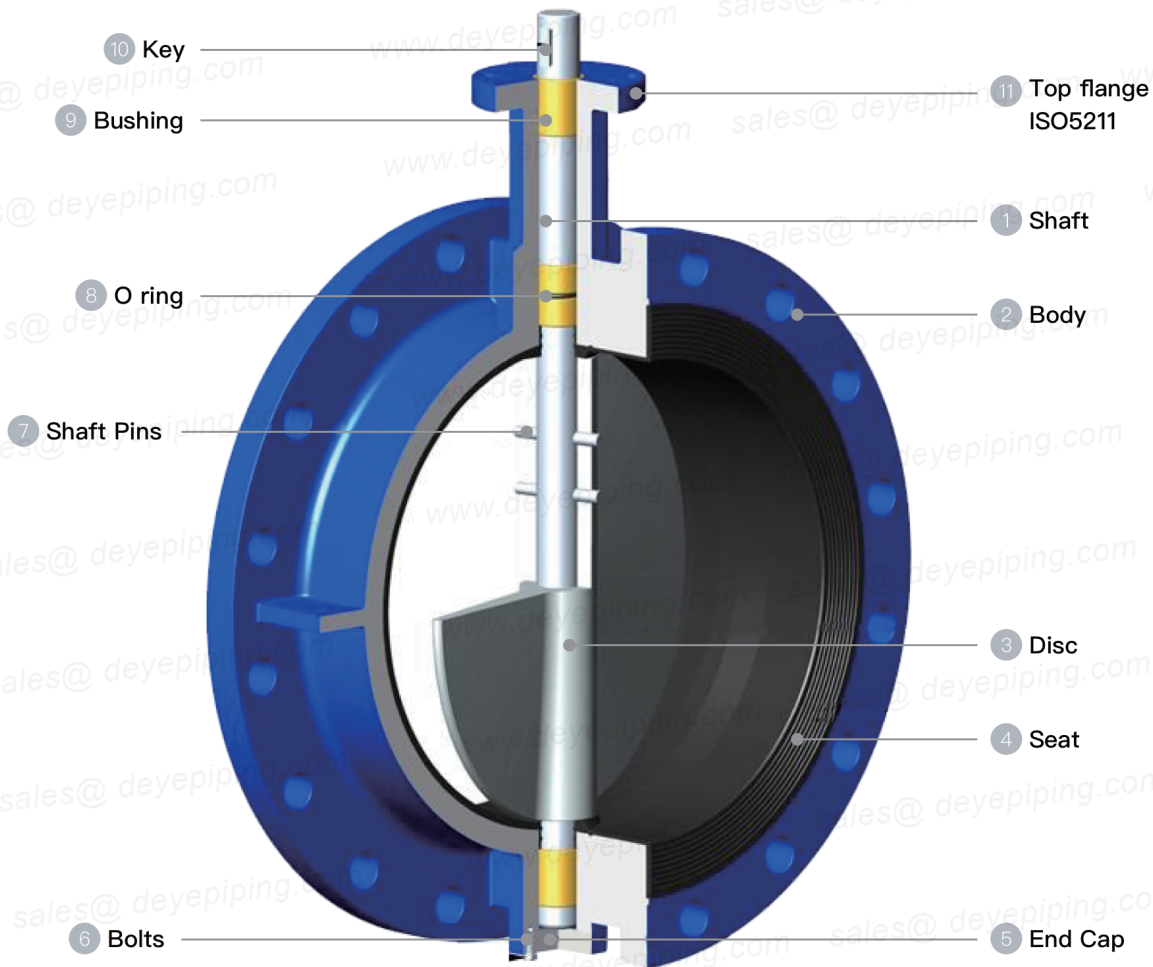
Design Standard	BS 5155, API 609, EN 593
Test Standard	DIN 3230 Part3, API 598, EN 12266-1
Face-to-Face Standard	DIN 3202 K1, API 609, EN558-1, ISO 5752
Flange Connection	DIN 2501 PN10/16, BS 4504 PN10/16, EN1092-1 PN10/PN16 ASME B16.5 125LB/150LB, JISB 2220 10K & so on.
Working Pressure	10 bar / 16 bar
Medium	Water, Sewage, Oil, Gas, Food and so on.

Dimensions List (mm)

Size		A	B	C	D	E			N-M			H	J	I-K	L	T	S	W	ISO 5211		
mm	inch					ANSI 125/150	PN10	PN16	10K	ANSI 125/150	PN10									PN16	10K
40	1½	70	145	32	12.7	98.4	110	110	105	4-½"-12	4-M16	4-M16	4-M16	65	50	4-7	33	27	9	10	F05
50	2	76	162	32	12.7	120.7	125	125	120	4-½"-11	4-M16	4-M16	4-M16	65	50	4-7	42	32	9	10	F05
65	2½	89	174	32	12.7	139.7	145	145	140	4-½"-11	4-M16	4-M16	4-M16	65	50	4-7	45	47	9	10	F05
80	3	95	181	32	12.7	152.4	160	160	150	4-½"-11	4-M16	8-M16	8-M16	65	50	4-7	45	65	9	10	F05
100	4	114	200	32	15.9	190.5	180	180	175	8-¾"-11	8-M16	8-M16	8-M16	90	70	4-9.5	52	90	11	12	F07
125	5	127	213	32	19.1	215.9	210	210	210	8-¾"-10	8-M16	8-M16	8-M20	90	70	4-9.5	54	111	14	14	F07
150	6	139	225	32	19.1	241.3	240	240	240	8-¾"-10	8-M20	8-M20	8-M20	90	70	4-9.5	56	145	14	14	F07
200	8	177	260	38	22.2	298.5	295	295	290	8-¾"-10	8-M20	12-M20	12-M20	125	102	4-11.5	60	193	17	17	F10
250	10	203	292	38	28.6	362	350	355	355	12-¾"-9	12-M20	12-M24	12-M22	125	102	4-11.5	66	241	22	22	F10
300	12	242	337	38	31.8	431.8	400	410	400	12-¾"-9	12-M20	12-M24	16-M22	125	102	4-11.5	77	292	22	24	F10
350	14	277	368	45	31.8	476.3	460	470	445	12-1"-8	16-M20	16-M24	16-M22	125	102	4-11.5	77	325	22	24	F10
400	16	308	400	51	33.3	539.8	515	525	510	16-1"-8	16-M24	16-M27	16-M24	210	165	4-22	86	380	27	27	F14F14
450	18	342	422	51	38.1	577.9	565	585	565	16-1½"-7	20-M24	20-M27	20-M24	210	165	4-22	105	428	27	27	F14
500	20	374	479	64	41.3	635	620	650	620	20-1½"-7	20-M24	20-M30	20-M24	210	165	4-22	130	474	27	32	F14
600	24	459	562	70	50.8	749.3	725	770	730	20-1¼"-7	20-M27	20-M33	24-M30	210	165	4-22	152	575	36	36	F16
700	28	520	624	72	55	—	840	840	840	—	24-M27	24-M33	24-M30	300	254	8-18	165	674	—	—	F25
750	30	565	650	72	55	914.4	900	900	900	28-1¼"-7	24-M30	24-M33	24-M30	300	254	8-18	167	726	—	—	F25
800	32	591	672	72	55	—	950	950	950	—	24-M30	24-M36	28-M30	300	254	8-18	190	771	—	—	F25
900	36	610	768	77	75	1085.9	1050	1050	1050	32-1½"-6	28-M30	28-M36	28-M30	300	254	8-18	207	839	—	—	F25
1000	40	685	823	85	85	—	1160	1170	1160	—	28-M33	28-M39	28-M36	300	254	8-18	216	939	—	—	F25
1050	42	785	858	85	85	1257.3	—	—	—	36-1½"-6	—	—	—	300	254	8-18	256	997	—	—	F25
1200	48	839	940	150	92	1422.4	1380	1390	1380	44-1½"-6	32-M36	32-M45	32-M36	350	298	8-22	276	1125	—	—	F30

* Please contact manufacturer if you want more flange standards.

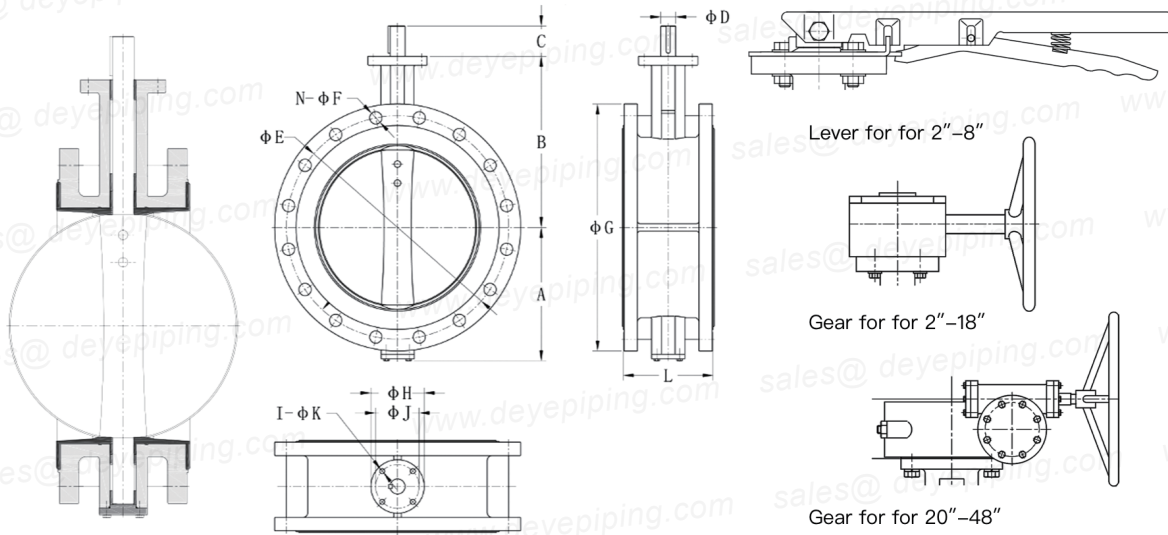
Double Flanged Concentric Butterfly Valve



Materials List

Item	Part Name	Materials
1	Stem	Zinc Plated Steel Stainless Steel: ASTM A276 Type 316, Type 410, Type 420; ASTM A582 Type 416
2	Body	Cast Iron: ASTM A126CL. B , DIN1691 GG25, EN 1561 EN-GJL-200 Ductile Cast Iron: ASTM A536 65-45-12, DIN 1693 GGG40, EN1563 EN-GJS-400-15 Ductile Cast Iron(Nickel plated):
3	Disc	ASTM A536 65-45-12, DIN 1693 GGG40, EN1563 EN-GJS-400-15 Stainless Steel: ASTM A351 CF8, CF8M; CF3, CF3M; EN 1.4408, 1.4469; 1.4501 AL-Bronze: ASTM B148 C95400
4	Seat	NBR, EPDM, Neoprene, PTFE, Viton
5	End Cap	Cast Iron: ASTM A126CL. B , DIN1691 GG25, EN 1561 EN-GJL-200 Ductile Cast Iron: ASTM A536 65-45-12, DIN 1693 GGG40, EN1563 EN-GJS-400-15
6	Bolt	Zinc Plated Steel
7	Taper Pin	Stainless Steel: ASTM A276 Type 304, Type 316; EN 1.4501
8	O-Ring	NBR, EPDM, Neoprene, Viton

Double Flanged Concentric Butterfly Valve



Standard Specifications

Design Standard	BS 5155, API 609, EN 593, AWW AC504 (Optional)
Test Standard	DIN 3230 Part3, API 598, EN 12266-1
Face-to-Face Standard	API 609, EN 558-1 /13, ISO 5702/13, AWWAC504 (Optional)
Flange Connection	DIN 2501 PN10/16, BS 4504 PN10/16, EN1092-1 PN10/PN16 ASME B16.5 125LB/150LB, JISB 2220 10K & so on
Working Pressure	10 bar / 16 bar
Medium	Water, Sewage, Oil, Gas, Food and so on

Dimensions List (mm)

Size		A	B	C	D	E		N-F			G			H	J	I-K	L	ISO 5211	
mm	inch					ANSI	PN10	PN16	ANSI	PN10	PN16	ANSI	PN10						PN16
50	2	70	130	32	12.7	120.7	125	125	4-19	4-18	4-18	152	165	165	90	70	4-9.5	108	F07
65	2½	75	140	32	12.7	139.7	145	145	4-19	4-18	4-18	178	185	185	90	70	4-9.5	112	F07
80	3	85	150	32	12.7	152.4	160	160	4-19	4-18	8-18	191	200	200	90	70	4-9.5	114	F07
100	4	104	160	32	15.9	190.5	180	180	8-19	8-18	8-18	229	220	220	90	70	4-9.5	127	F07
125	5	112	180	32	19.1	215.9	210	210	8-22	8-18	8-18	254	250	250	90	70	4-9.5	140	F07
150	6	130	200	32	19.1	241.3	240	240	8-22	8-22	8-22	279	285	285	90	70	4-9.5	140	F07
200	8	160	230	38	22.2	298.5	295	295	8-22	8-22	12-22	343	340	340	125	102	4-11.5	152	F10
250	10	194	260	38	28.6	362	350	355	12-25	12-22	12-26	406	395	405	125	102	4-11.5	165	F10
300	12	220	300	38	31.8	431.8	400	410	12-25	12-22	12-26	483	445	460	125	102	4-11.5	178	F10
350	14	270	360	45	31.8	476.3	460	470	12-29	16-22	16-26	533	505	520	125	102	4-11.5	190	F10
400	16	305	390	51	33.3	539.8	515	525	16-29	16-26	16-30	597	565	580	210	165	4-22	216	F16
450	18	332	420	51	38.1	577.9	565	585	16-32	20-26	20-30	635	615	640	210	165	4-22	222	F16
500	20	362	470	64	41.3	635	620	650	20-32	20-26	20-33	699	670	715	210	165	4-22	229	F16
600	24	415	540	70	50.8	749.3	725	770	20-35	20-30	20-36	813	780	840	210	165	4-22	267	F16
700	28	515	565	72	55	—	840	840	—	24-30	24-36	—	895	910	300	254	8-18	292	F25
800	32	565	640	72	55	—	950	950	—	24-33	24-39	—	1025	1025	300	254	8-18	318	F25
900	36	605	680	77	75	1085.9	1050	1050	32-41	28-33	28-39	1168	1115	1125	300	254	8-18	330	F25
1000	40	685	760	85	85	—	1160	1170	—	28-36	28-42	—	1230	1255	300	254	8-18	410	F25
1200	48	790	880	150	92	1422.4	1380	1390	44-41	32-39	32-48	1511	1455	1485	350	298	8-22	470	F30

* Please contact manufacturer if you want more flange standards.

Torque Data

Total torque can be calculated as follows:

$$T_a = T_s + T_b + T_d$$

Where:

T_s = Seat Torque

T_b = Bearing Torque

T_d = Dynamic Torque

$$T_b = Q_c * f_c * D_s / 2$$

Where:

P = Normal Pressure

f_c = Friction Coefficient

D_s = Shaft Diameter

$$T_d = C_t * D^3 * \Delta P$$

Where:

C_t = Dynamic Torque Coefficient

D = Valve Normal Diameter

ΔP = Pressure Drop

$$T_s = Q_m * R / 1000$$

Where:

Q_m = Friction of Sealing Face

Q_c = Bearing Loading

R = Radius Disc

The concentric butterfly valve's torque in relation to three factors:

1. Seat Torque

Friction of disc displace from the resilient seat.

2. Bearing Torque

Friction of force from the bushing surfaces and shaft.

3. Dynamic Torque

The force of flow through the valve faced by disc.

Dynamic torque is not a major concern in resilient seated butterfly valve unless the flow velocity exceeds 6 m/s. In such cases include dynamic torque valves while selecting an actuator.

C_t Against Disc Angle Open

Angle Open	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
C_t	0	0.007	0.014	0.022	0.033	0.050	0.087	0.143	0.225	0

VALVE SIZE		Torque Value for Rubber Seat Butterfly Valve (N.M)					
		PN6 (85PSI)		PN10 (16PSI)		PN16 (250PSI)	
inch	mm	Dry	Wet	Dry	Wet	Dry	Wet
1.5"	40	11.5	8	18.5	9	22	11
2"	50	20.3	12.5	22.1	13.9	24.2	15.1
2.5"	65	26.1	13.8	29.2	15.4	32.7	17.2
3"	80	39.9	21	41.1	21.7	43.7	23.1
4"	100	60.5	34.9	67.8	37.1	72.8	39.8
5"	125	85.1	53.5	101	57.9	108	61.9
6"	150	149	84.5	165	93.9	174	102
8"	200	264	154	297	173	30	192
10"	250	423	249	486	286	549	323
12"	300	605	371	699	429	799	490
14"	350	699	466	825	550	970	625
16"	400	948	632	1133	755	1307	846
18"	450	1247	831	1518	1012	1788	1131
20"	500	1639	1093	2026	1350	2308	1431
24"	600	2519	1679	3166	2111	3711	2301
28"	700	4511	3008	4903	3269	6850	5670
30"	750	5222	3482	5677	3785	7916	6782
32"	800	5939	3762	6456	4304	9180	7840
36"	900	7363	4949	7879	5252	13786	10150
40"	1000	12539	8359	13377	8917	-	-
42"	1050	14300	9538	15291	10193	-	-
44"	1100	16301	10867	17390	11592	-	-
48"	1200	17585	11723	18816	12735	-	-



One Stop Solution for Piping Fluid control

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