

KEYSTONE DOUBLE FLANGED BUTTERFLY VALVE FIGURE 55

Double flanged valve design for services in the water treatment industry



FEATURES

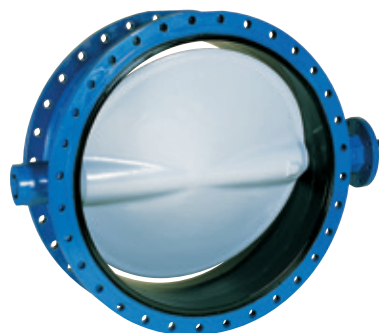
- The centric disc offers bidirectional service and allows with its symmetric shape high K_v values.
- Dry shaft design.
- The inside body is protected by a bonded rubber liner extending over the flanges.
- Primary stem sealing by preloaded contact between flatted seat surface and rounded polished disc-hub area exceeds the pressure rating of the valve and prevents leakage through shaft area to atmosphere.
- A secondary sealing is provided by the interference fit between shaft and shafthole in seat at all positions.
- Dirtscraper prevents moisture penetrating into the shaft area.
- Bubble-tight shut off at full pressure rating.
- Rounded, polished disc edge provides concentric sealing.
- Actuator flange acc. ISO 5211.
- Double flanged body design specified acc. ISO 5752/4 series 13 (short), series 14 (long) on request.
- Excellent performance in media with sedimentation and contamination.
- Suitable for severe vacuum applications and up to 16 bar bubble tight shut off.
- Flat facing for GRP flanges as option.

GENERAL APPLICATION

- Waterwork industries where a double flanged valve is required.
- Fire fighting systems.
- Sea water applications.
- For drinking water applications a certified EPDM compound and certified coatings available.
- Approvals: KIWA, KTW, WRC, PED/CE, FDA.

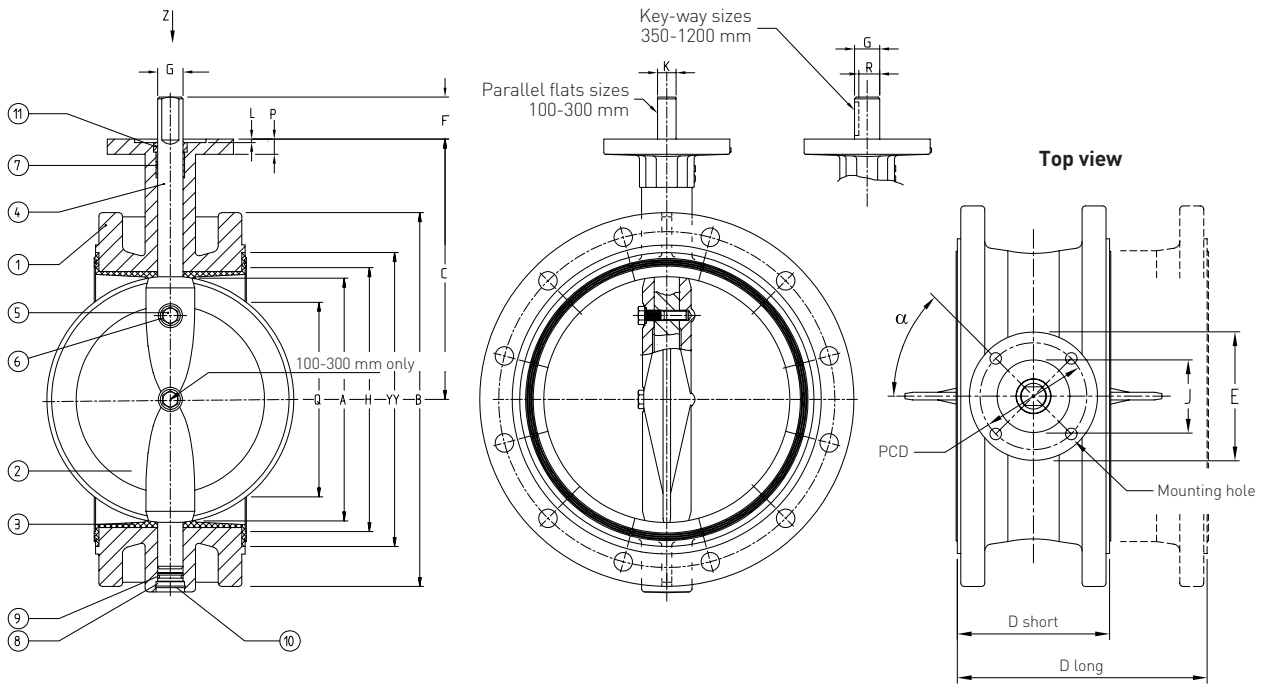
TECHNICAL DATA

Pressure (bar):	16
Temperature (°C):	-40 to +120
Sizes (mm):	100 - 1200
Flange accommodation:	PN 10/16 ASME 150 ISO, JIS, BS, API



KEYSTONE DOUBLE FLANGED BUTTERFLY VALVE FIGURE 55

VALVE DATA



VALVE DIMENSIONS in mm

Size	B				D				Stemhead				Actuator flange according ISO 5211/1						Mass [kg]						
	A	ISO PN 10	ISO PN 16	C	ISO short	ISO long	H	YY	Q	F	G _{H9}	K ⁰ _{0.05}	R	Key-size ^[1]	Type	E	J	L	P	Hole PCD dia	No of holes	α	ISO short	ISO long	
100	100	220	220	180	127	-	116	138	-	30	16	11	-	-	F-07	90	55	4	12	70	9	4	45	18	-
150	151	285	285	210	140	210	168	192	61	30	20	14	-	-	F-07	90	55	4	12	70	9	4	45	24	28
200	196	340	340	240	152	230	209	245	130	50	25	18	-	-	F-12	150	85	4	18	125	13.5	4	45	35	41
250	246	405	405	275	165	250	264	300	189	50	30	22	-	-	F-12	150	85	4	18	125	13.5	4	45	50	59
300	293	445	460	310	178	270	314	350	243	50	30	22	-	-	F-12	150	85	4	18	125	13.5	4	45	65	77
350	325	505	520	325	190	290	364	400	267	70	35	-	30	10x8	F-12	150	85	4	18	125	13.5	4	45	90	106
400	380	565	580	360	216	310	412	450	316	70	40	-	35	12x8	F-16	210	130	6	25	165	22	4	45	120	138
450	440	615	640	395	222	330	466	505	377	70	40	-	35	12x8	F-16	210	130	6	25	165	22	4	45	145	170
500	486	670	715	430	229	350	517	555	432	70	50	-	44.5	14x9	F-16	210	130	6	25	165	22	4	45	170	202
550	535	730	775	475	267	357	567	605	468	70	50	-	44.5	14x9	F-16	210	130	6	25	165	22	4	45	210	247
600	586	780	840	500	267	390	617	655	525	70	50	-	44.5	14x9	F-16	210	130	6	25	165	22	4	45	250	292
700	685	895	910	570	292	(430)	722	760	624	100	70	-	62.5	20x12	F-25	300	200	6	30	254	17.5	8	22.5	385	(455)
750	735	965	970	605	318	(450)	772	810	667	100	70	-	62.5	20x12	F-25	300	200	6	30	254	17.5	8	22.5	485	(537)
800	785	1015	1025	640	318	(470)	838	866	722	100	70	-	62.5	20x12	F-25	300	200	6	30	254	17.5	8	22.5	536	(628)
900	885	1115	1125	715	330	(510)	937	975	825	100	80	-	71	22x14	F-25	300	200	6	30	254	17.5	8	22.5	726	(854)
1000	985	1230	1255	780	410	(550)	1028	1066	900	129	90	-	81	25x14	F-30	350	230	6	35	298	22	8	22.5	1040	(1161)
1100	1085	1345	1370	870	470	(630)	1141	1179	980	129	100	-	90	28x16	F-30	350	230	6	35	298	22	8	22.5	1230	(1370)
1200	1185	1455	1485	920	470	(630)	1241	1279	1093	129	100	-	90	28x16	F-30	350	230	6	35	298	22	8	22.5	1419	(1601)

1. Keysize width x height

NOTES

- Dimension B is according PN 10/16 ISO 7005-2. For DN 550: ISO 2084.
- Flange accommodation must be specified when ordering.
- Valve shown is the 300 mm ISO short.
- Flange dimensions and mass will vary with flange accommodations.
- Q is the disc chordal dimension at face of valve for disc clearance into pipe fitting or equipment.
- ISO long > DN 700 on request.

Part	Name	Part	Name
1.	Body	7.	Bushing
2.	Disc	8.	Plug
3.	Seat	9.	O-ring
4.	Shaft	10.	Circlip
5.	Disc-screw	11.	Dirt scraper
6.	O-ring		

KEYSTONE DOUBLE FLANGED BUTTERFLY VALVE FIGURE 55

VALVE DATA

K_v VALUES

Disc opening	Size in mm																	
	100	150	200	250	300	350	400	450	500	550	600	700	750	800	900	1000	1100	1200
10°	5	15	21	33	49	119	155	196	242	293	349	475	545	620	785	969	1173	1396
20°	25	52	95	155	220	304	397	503	621	751	894	1216	1396	1589	2011	2483	3004	3576
30°	54	120	220	340	510	637	832	1053	1300	1573	1871	2547	2924	3327	4211	5197	6288	7484
40°	95	220	380	610	860	1142	1492	1888	2331	2821	3357	4569	5245	5968	7553	9325	11283	13428
50°	150	340	590	950	1460	1936	2529	3200	3951	4781	5689	7744	8890	10114	12801	15803	19121	22756
60°	240	550	950	1550	2320	3110	4062	5141	6347	7680	9140	12440	14281	16248	20564	25389	30720	36560
70°	400	950	1550	2580	3780	5010	6544	8288	10224	12371	14723	20040	23005	26174	33127	40897	49485	58892
80°	620	1380	2410	3960	5850	8969	11714	14826	18303	22147	26357	35875	41183	46857	59303	73214	88588	105428
90°	710	1630	2840	4640	6880	10407	13592	17203	21238	25698	30583	41626	47785	54369	68811	84953	102792	122332

NOTE

1. Rated K_v = the volume of water in m³/hr that will pass through a given valve opening at a pressure drop of 1 bar.

MAXIMUM ALLOWABLE SHAFT TORQUES in Nm

Shaft material	Size in mm																	
	100	150	200	250	300	350	400	450	500	550	600	700	750	800	900	1000	1100	1200
*	160	320	545	970	970	1760	2012	3472	3858	3858	6587	7685	8234	8782	15949	22956	29843	29843
**	180	305	620	1100	1100	1632	2012	3311	3858	3858	6587	7685	8234	8782	15949	22956	29843	29843

* Stainless steel

** Carbon steel

NOTES

1. The given maximum allowable torques are applicable for standard type valves.
2. In ISO 5211/2 a table is listed representing the maximum torques which can be transmitted through the mounting flange. If the maximum transmittable torque is lower than the allowable shaft torque, please contact factory.

DYNAMIC TORQUE FACTORS F_T FOR METRIC UNITS

Disc opening	Size in mm																	
	100	150	200	250	300	350	400	450	500	550	600	700	750	800	900	1000	1100	1200
10°	2.7	6.1	13	28	39	-	-	-	-	-	-	-	-	-	-	-	-	-
20°	3.4	8.7	20	40	61	21	32	46	63	83	108	172	211	256	365	500	665	864
30°	4.8	13	30	61	95	64	96	137	188	250	324	515	633	768	1094	1500	1198	2592
40°	6.4	20	47	94	153	124	186	264	363	483	626	995	1223	1485	2114	2900	3860	5011
50°	10	30	71	141	230	236	352	501	688	915	1188	1887	2320	2816	4010	5500	7320	9504
60°	15	48	112	220	380	416	621	884	1213	1614	2095	3327	4092	4966	7071	9700	12911	16762
70°	24	76	176	350	610	733	1094	1558	2138	2845	3694	5865	7214	8755	12466	17100	22760	29549
80°	34	112	260	520	890	1346	2010	2861	3925	5224	6782	10770	13247	16077	22891	31400	41793	54259

NOTES

1. Dynamic operating torque formula:

$$T_D = F_T \times \Delta P$$

T_D = Dynamic torque (Nm)

ΔP = Pressure drop across disc at desired disc-opening (bar)

F_T = Dynamic torque factor (see table)

2. The above mentioned dynamic torque includes all frictional resistances.
3. The dynamic torque is tending to close the disc.

ACTUATOR SELECTION

Actuator type	Figure	Remark
Handle	F412	-
Gear	F455	Recommended for DN 200 and larger

For other actuator selection, please contact your local sales outlet

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VALVE DATA

SIZING TORQUES in Nm

ΔP in bar	Size in mm																	
	100	150	200	250	300	350	400	450	500	550	600	700	750	800	900	1000	1100	1200
I*																		
7	40	88	164	271	387	559	773	1032	1342	1623	2128	3164	3786	4482	5672	7551	9382	11662
10	44	99	188	315	451	660	923	1247	1636	1979	2637	3972	4779	5688	7198	9670	12110	15053
14	49	113	219	374	536	795	1124	1533	2029	2454	3315	5049	6104	7296	9233	12496	15748	19575
16	51	120	235	403	578	862	1225	1676	2225	2691	3654	5587	6766	8100	10250	13909	17566	21835
II*																		
7	45	100	185	303	434	623	856	1138	1472	1780	2315	3419	4078	4815	6093	8071	9984	12411
10	49	111	208	347	498	724	1007	1352	1766	2136	2824	4226	5072	6021	7619	10190	12712	15802
14	54	125	240	406	583	858	1208	1638	2159	2611	3502	5303	6396	7629	9654	13016	16349	20323
16	56	132	255	435	625	926	1308	1781	2355	2849	3841	5842	7059	8433	10671	14429	18168	22584
III*																		
7	50	112	206	336	481	686	939	1243	1602	1937	2502	3673	4371	5148	6514	8591	10586	13159
10	54	122	229	380	545	787	1090	1457	1896	2293	3011	4481	5364	6354	8040	10710	13315	16551
14	59	136	261	439	629	922	1291	1774	2289	2768	3689	5558	6689	7961	10075	13536	16952	21072
16	61	143	276	468	672	989	1391	1887	2485	3006	4028	6097	7351	8765	11092	14949	18771	23333

* Application I, II, III

NOTES

1. **Application I :**

Water, seawater, lubricating types of hydrocarbons. Temp.: 0-80°C;

Valve opens at least once a month.

Application II :

All other liquid applications and lubricating gasses.

Application III :

Non lubricating and dry media.

- The charted maximum sizing operating torque is the sum of all friction and resistance for opening and closing of the disc against the indicated pressure differential.
- The effect of dynamic torque is not considered in tabulation.
- In sizing operators it is not necessary to include safety-factors.
- In ISO 5211/2 a table is listed representing the maximum torques which can be transmitted through the mounting flange. If the maximum transmittable torque is lower than the sizing torque, please contact factory.

PRESSURE-TEMPERATURE DIAGRAM

Seat material	Disc material	Body material	Size range DN (mm)	Valve function Wafer/End of Line	Temperature in °C											Notes
					-40	-30	-20	-15	0	50	100	120	130	150	160	
EPDM and EPDM A	all	CI	all	W / EOL	10 bar / 10 bar											1
EPDM and EPDM A	all	DI	all	W / EOL	16 bar / 16 bar											2
NBR	all	CI	all	W / EOL	10 bar / 10 bar											3
NBR	all	DI	all	W / EOL	16 bar / 16 bar											4

PRESSURE-TEMPERATURE DIAGRAM

Note	Trims							
1	101	102	131	215	276	574	594	677
2	111	112	135	217	288	648	753	
3	105	106	133	216	274	678		
4	115	116	137	218	289	673		

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MATERIAL SELECTION/MATERIAL SPECIFICATION

MATERIAL SELECTION

Body	Disc	Seat	Shaft	Trim no.	Sizes (mm)
Cast iron	Ductile iron	EPDM	Carbon steel	101	100 - 1200
			Stainless steel	276	100 - 1200
		NBR	Carbon steel	105	100 - 1200
			Stainless steel	274	100 - 1200
Cast iron	Ductile iron coated	EPDM	Carbon steel	215	100 - 1200
			Stainless steel	677	100 - 1200
		NBR	Carbon steel	216	100 - 1200
			Stainless steel	678	100 - 1200
Cast iron	NiAlBz	EPDM	Stainless steel	131	100 - 1200
		NBR	Stainless steel	133	100 - 1200
		EPDM-A	Stainless steel	574	100 - 1200
Cast iron	Stainless steel	EPDM	Stainless steel	102	100 - 1200
		NBR	Stainless steel	106	100 - 1200
		EPDM-A	Stainless steel	594	100 - 1200
Ductile iron	Ductile iron	EPDM	Carbon steel	111	100 - 1200
			Stainless steel	288	100 - 1200
		NBR	Carbon steel	115	100 - 1200
			Stainless steel	289	100 - 1200
Ductile iron	Ductile iron coated	EPDM	Carbon steel	217	100 - 1200
			Stainless steel	648	100 - 1200
		NBR	Carbon steel	218	100 - 1200
			Stainless steel	673	100 - 1200
Ductile iron	NiAlBz	EPDM	Stainless steel	135	100 - 1200
		NBR	Stainless steel	137	100 - 1200
		EPDM-A	Stainless steel	868	100 - 1200
Ductile iron	Stainless steel	EPDM	Stainless steel	112	100 - 1200
		NBR	Stainless steel	116	100 - 1200
		EPDM-A	Stainless steel	753	100 - 1200

MATERIAL SPECIFICATION

Part name	Material	Designation	EN/DIN mat. no.	Remark
Body	Cast iron	GJL-250	EN JS-1040	Max. pressure 10 bar
	Ductile iron	GJS-400-15	EN JS-1030	
Disc	Ductile iron	GJS-400-15	EN JS-1030	CTD = Epoxy coated Comparable with BS 1400 AB2
	Ductile iron	CTD GJS-400-15	EN JS-1030	
	NiAlBz	CuAl10Fe5Ni5	EN CC333G	
	Stainless steel	GX5CrNiMo19-11-2	EN 1.4408	
Seat	Uranus (B6)	G-X2NiCrMoCuN25-20	DIN 1.4536	Casting quality (SEW 410) of 1.4539
	EPDM			Compound number MS 512 FDA approved
	NBR			Compound number MS 511 FDA approved
Shaft	Stainless steel	X5CrNiMo17-12-2	EN 1.4401	Sizes 100 - 300 mm
		X17CrNi16-2	EN 1.4057	Sizes 350 - 1200 mm
	Carbon steel	C45-QT	EN 1.0503 QT	
Disc screw	Stainless steel	X5CrNiMo17-12-2	EN 1.4401	Sizes 100 - 300 mm
		X2CrNiMoN22-5-3	EN 1.4462	Sizes 350 - 1200 mm
Disc screw O-ring	NBR			
Bushing	Polyacetal			
Plug	Carbon steel	C45-QT	EN 1.0503 QT	
Plug O-ring	NBR			
Circlip	Springsteel			According DIN 472
Dirt scraper	NBR steel			
Key	Steel			According DIN 6885
				Sizes 350 - 1200 mm