

The Figure 15 offers a wide range of material combinations for those applications where large diameter valves are considered.

Features

- Actuator flange acc. ISO 5211.
- Top bushing absorbs actuator side thrust loads.
- The extended body neck allows pipe insulation.
- Body locating holes provide ease installation and a perfect centering of the valve between the flanges.
- Wafer type body design acc. ISO 5752/5 short. (DIN 3202, Part 3/K1)
- The thin disc provides the very minimum obstruction to flow.
- Rounded, polished disc edge gives full concentric sealing, lower torques, longer seat life and bubble-tight shut-off.
- Primary stem sealing by preloaded contact between flattened 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.
- A molded-in O-ring provides flange sealing and eliminates need for gaskets.
- The seat is field replaceable and isolates the body and stem from the flow.
- Dirtscraper prevents moisture penetrating into the shaft area.



General application

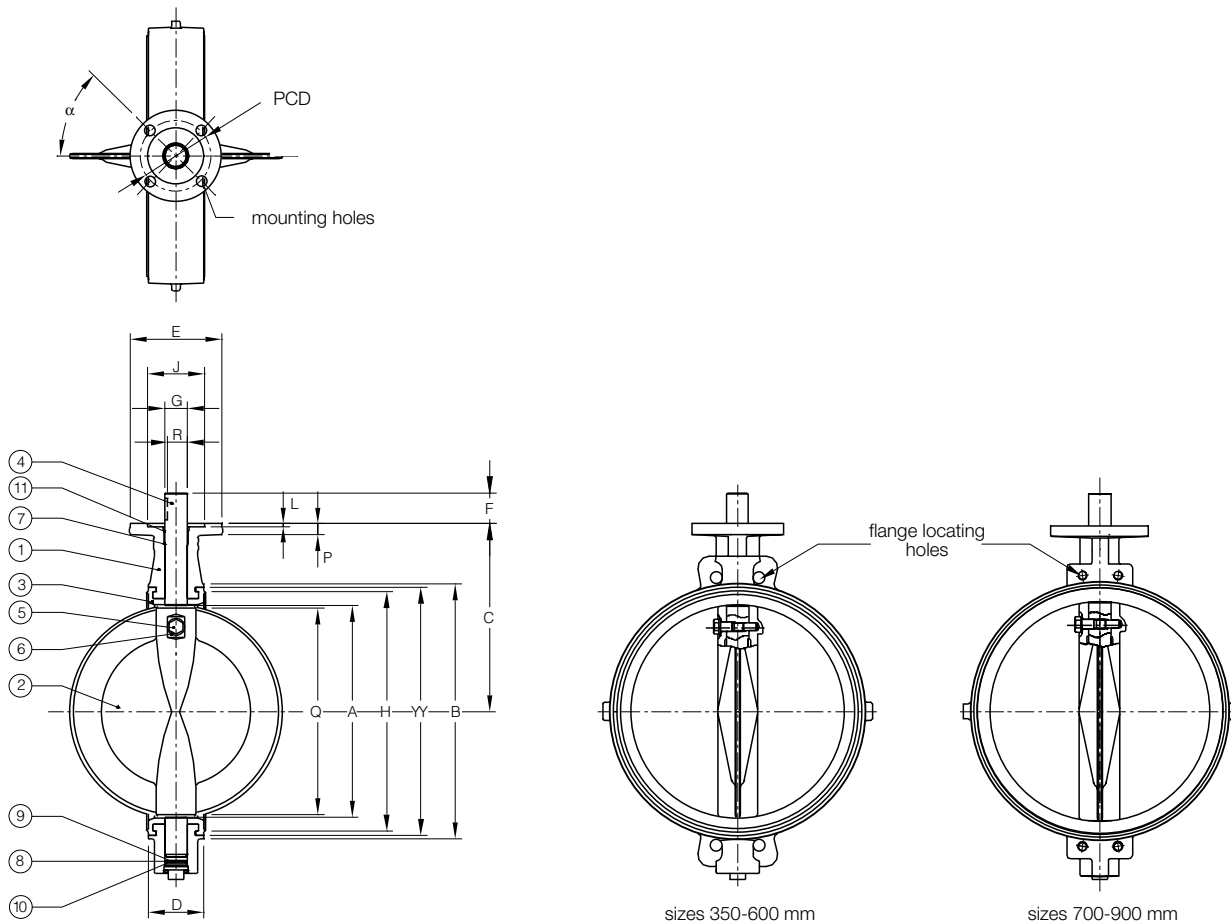
Food and beverage processing, dry bulk conveying, paper mills, slurry handling etc. These valves are for any service where a bubble-tight shut-off with maximum flow area is required. It has smooth flow characteristics, abrasion, erosion and corrosion resistance and a crevice free internal contour.

Technical data

Pressure (bar)	: 10
Temperature (°C)	: -40 + 120
Sizes (mm)	: 350-900
Flange accommodation	: PN 10/16 ANSI 150 Others on request

Butterfly Valve Figure 15

350-900 mm



Valve dimensions in mm

Size	Shaft dimensions											Actuator flange acc. ISO 5211/1							Mass (kg)		
	A	B	C	D	H	YY	Q	F	G _{H9}	R	height	Type	E	J	L	P	PCD hole	holes		α	
350	325	413	325	78	378	398	319	70	35	30,0	10 x 8	F12	150	85	4	18	125	13,5	4	45,0	42
400	380	470	360	102	435	455	369	70	40	35,0	12 x 8	F16	210	130	6	25	165	22,0	4	45,0	64
450	434	530	395	114	495	515	422	70	40	35,0	12 x 8	F16	210	130	6	25	165	22,0	4	45,0	85
500	486	584	430	127	549	569	472	70	50	44,5	14 x 9	F16	210	130	6	25	165	22,0	4	45,0	107
600	585	685	500	154	650	670	569	*70	*50	*44,5	*14 x 9	F16	210	130	6	25	165	22,0	4	45,0	147
700	685	795	570	165	755	775	669	100	70	62,5	20 x 12	F25	300	200	6	30	254	17,5	8	22,5	247
750	735	855	605	190	816	835	715	100	70	62,5	20 x 12	F25	300	200	6	30	254	17,5	8	22,5	300
800	785	900	640	190	860	880	766	100	70	62,5	20 x 12	F25	300	200	6	30	254	17,5	8	22,5	330
900	855	1000	715	203	960	980	865	100	80	71,0	22 x 14	F25	300	200	6	30	254	17,5	8	22,5	448

* in case of super seat F = 100, G = 60, R = 53, keysize 18 x 11

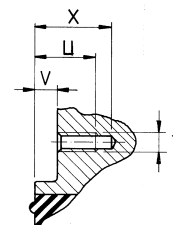
Actuator selection

Actuator type	Figure	Remark
Gear	F455	-
Pneumatic	F79E	-
Gear/Pneumatic	F454/79E	Declutchable gearunit provides manual override for the Keystone pneumatic actuator
Electric	F778	-

Dimensions of locating holes in mm

Size	PN 10				PN 16			
	T	U	V	X	T	U	V	X
700	M27	59.5	22.5	67.5	M33	55.5	22.5	62.5
750	M30	68.0	30.0	75.0	M33	63.0	30.0	70.0
800	M30	63.0	25.0	70.0	M36	61.0	25.0	70.0
900	M30	56.5	6.5	76.5	M36	60.5	6.5	76.5

Note: T = thread type, U = full thread + V, X = max. bore depth.



Part name

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

Notes

1. Flange accommodation must be specified when ordering.
2. Q is the disc chordal dimension at face of valve for disc clearance into pipe fitting or equipment.
3. Specify size, figure number, part name, material and flange accommodation when ordering spareparts.
4. Valve size shown is the 500 mm.

Butterfly Valve Figure 15

valve data

Note

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

Notes

- The given maximum allowable shaft torques are applicable for standard type valves.
- In ISO 5211/2 a table is listed representing the maximum torques which can be transmitted through the mounting flange. These values are based upon specific criteria and can be lower than the maximum allowable shaft torques. In this case the criteria can be changed in order to reach the maximum allowable shaft torques.

Notes

- 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)

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

Notes

- 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.

K_v values

disc opening \ size in mm	350	400	450	500	600	700	750	800	900
5°	51	66	84	104	149	203	234	266	336
10°	119	155	196	242	349	475	545	620	785
15°	220	288	364	450	648	887	1012	1151	1457
20°	304	397	503	621	894	1216	1396	1589	2011
25°	441	576	729	900	1295	1763	2024	2303	2915
30°	637	832	1053	1300	1871	2547	2924	3327	4211
35°	858	1121	1419	1752	2522	3433	3941	4484	5675
40°	1142	1492	1888	2331	3357	4569	5245	5968	7553
45°	1497	1956	2475	3056	4400	5989	6875	7822	9900
50°	1936	2529	3200	3951	5689	7744	8890	10114	12801
55°	2457	3209	4062	5015	7221	9829	11283	12838	16248
60°	3110	4062	5141	6347	9140	12440	14281	16248	20564
65°	3841	5017	6350	7839	11288	15365	17638	20068	25399
70°	5010	6544	8288	10224	14723	20040	23005	26174	33127
75°	6716	8772	11102	13706	19736	26864	30838	35087	44407
80°	8969	11714	14826	18303	26357	35875	41183	46857	59303
85°	9913	12947	16386	20230	29131	39651	45518	51789	65546
90°	10407	13592	17203	21238	30583	41626	47785	54369	68811

Maximum allowable shaft torques in Nm

shaft mat. \ size in mm	350	400	450	500	600	700	750	800	900
Stainless steel	1760	2012	3472	3858	6587	7685	8234	8782	8782
Carbon steel	1632	2012	3311	3858	6587	7685	8234	8782	8782

Dynamic torque factors F_T for metric units

disc opening \ size in mm	350	400	450	500	600	700	750	800	900
5°	-	-	-	-	-	-	-	-	-
10°	-	-	-	-	-	-	-	-	-
15°	8,6	12,8	18,2	25,0	43,2	68,6	84,4	102,4	145,8
20°	21,4	32,0	45,6	62,5	108,0	171,5	210,9	256,0	364,5
25°	42,9	64,0	91,1	125,0	216,0	343,0	421,9	512,0	729,0
30°	64,3	96,0	136,7	187,5	324,0	514,5	632,8	768,0	1093,5
35°	94,3	140,8	200,5	275,0	475,2	754,6	928,1	1126,4	1603,8
40°	124,3	185,6	264,3	362,5	626,4	994,7	1223,4	1484,8	2114,1
45°	171,5	256,0	364,5	500,0	864,0	1372,0	1687,5	2048,0	2916,0
50°	235,8	352,0	501,2	687,5	1188,0	1886,5	2320,3	2816,0	4009,5
55°	321,6	480,0	683,4	937,5	1620,0	2572,5	3164,1	3840,0	5467,5
60°	415,9	620,8	883,9	1212,5	2095,2	3327,1	4092,2	4966,4	7071,3
65°	544,5	812,8	1157,3	1587,5	2743,2	4356,1	5357,8	6502,4	9258,3
70°	733,2	1094,4	1558,2	2137,5	3693,6	5865,3	7214,1	8755,2	12465,9
75°	1050,4	1568,0	2232,6	3062,5	5292,0	8403,5	10335,9	12544,0	17860,5
80°	1346,3	2009,6	2861,3	3925,0	6782,4	10770,2	13246,9	16076,8	22890,6
85°	913,2	1363,2	1941,0	2662,5	4600,8	7305,9	8985,9	10905,6	15527,7
90°	-	-	-	-	-	-	-	-	-

Sizing torques in Nm

ΔP in bar \ size in mm	350	400	450	500	600	700	750	800	900
Application I									
3,5	492	672	889	1146	1789	2625	3123	3679	4654
7	559	773	1032	1342	2128	3164	3786	4482	5672
10	660	923	1247	1636	2637	3972	4779	5688	7198
Application II									
3,5	555	755	994	1276	1976	2880	3416	4011	5076
7	623	856	1138	1472	2315	3419	4078	4815	6093
10	724	1007	1352	1766	2824	4226	5072	6021	7619
Application III									
3,5	619	839	1100	1406	2163	3135	3708	4344	5497
7	686	939	1243	1602	2502	3673	4371	5148	6514
10	787	1090	1457	1896	3011	4481	5364	6354	8040

Butterfly Valve Figure 15

valve data - material selection

Pressure-Temperature Diagram

Seat material	Disc material	Body material	Size range DN (mm)	Valve function Wafer/End of Line	Temperature in °C											Note
					-40	-30	-20	-15	0	50	100	120	130	150	160	
EPDM	all	Cl DI/CS	all all	W W	10 Bar											1
					10 Bar											2
NBR and White NBR	all	all	all	W	10 Bar											3

Pressure-Temperature Diagram

Note	Trims															
1	101	102	131	261												
2	111	112	135	140	141	264	350	351	359	380						
3	105	106	115	116	133	137	144	145	169	177	262	265	354	355	360	361

	Body	Disc	Shaft	Seat	Trim no.	Sizes(mm)
Cast Iron	Ductile Iron		Carbon Steel	EPDM	101	350-900
				NBR	105	350-900
	Ductile Iron (nickel plated)		Carbon Steel	EPDM	261	350-900
				NBR	262	350-900
NiAlBz		Stainless Steel	EPDM	131	350-900	
			NBR	133	350-900	
Stainless Steel		Stainless Steel	EPDM	102	350-900	
			NBR	106	350-900	
			White NBR	169	350-900	
Cast Steel	Stainless Steel	Stainless Steel	EPDM	141	350-900	
			NBR	145	350-900	
NiAlBz		Stainless Steel	EPDM	140	350-900	
			NBR	144	350-900	
Ductile Iron	Ductile Iron	Carbon Steel	EPDM	111	350-900	
			NBR	115	350-900	
	Ductile Iron (nickel plated)	Carbon Steel	EPDM	264	350-900	
			NBR	265	350-900	
	NiAlBz	Stainless Steel	EPDM	135	350-900	
NBR			137	350-900		
Stainless Steel	Stainless Steel	EPDM	112	350-900		
		NBR	116	350-900		
		White NBR	177	350-900		
Ductile Iron Heat Treated*	Ductile Iron (nickel plated)	Carbon Steel	EPDM	350	350-900	
			NBR	354	350-900	
	Ductile Iron (nickel plated)	Carbon Steel	EPDM	380	350-900	
			NBR	381	350-900	
	NiAlBz	Stainless Steel	EPDM	359	350-900	
NBR			360	350-900		
Stainless Steel	Stainless Steel	EPDM	351	350-900		
		NBR	355	350-900		
		White NBR	361	350-900		

*certificate provided