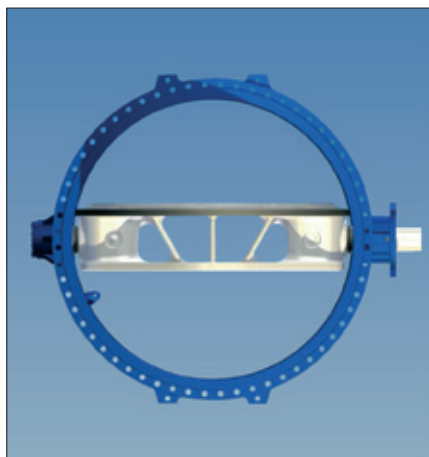
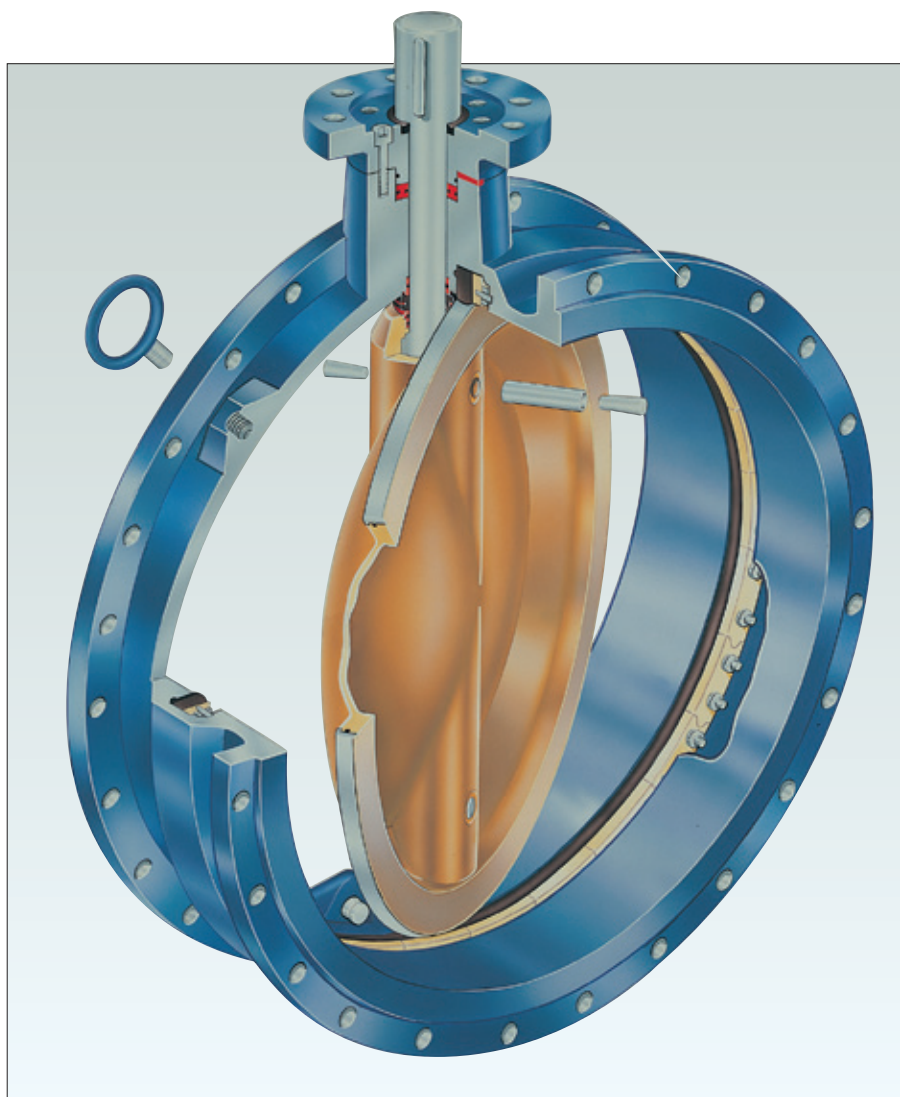


KEYSTONE

The Keystone Figure 56 is a valve for use in power generation plants, municipal water treatment and industrial applications.

Features

- Designed basically for the waterworks industry, Fig. 56 is in full compliance with ISO 5752, series 13 (short) and 14 (long) with actuator flange acc. ISO 5211
- It is a cast double flanged butterfly valve, which can be drilled acc. various flange standards (JIS, BS, DIN, ANSI) and also provide dead-end service capability with down stream piping removed.
- Body and disc protective coatings or rubber linings are available for sea water or corrosive services as well as for external protection.
- The low head loss and inherent hydraulic stability of the double offset disc design provide energy efficient flow control.
- The special seat and disc edge contours reduce seating torque, provide better shut-off and longer service life.
- The seat is adjustable in order to optimize the required shut-off tightness with the accompanying torque, both for unidirectional or bidirectional operation. This seat is replaceable without special tooling, dismantling or removing the valve from the line.
- A stainless steel disc edge resists against corrosion and avoids encrust build-up for consistent sealing.
- Full diameter stub shafts remain dry and provide a positive disc control with a minimum flow restriction.
- High strength stub shafts have full 1½ diameter penetration into disc-hubs with close tolerance-fit.
- Mounting base plates for easy installation available.



- Self lubricating sleeve bearings allow valve installation with the shaft horizontal or vertical.
- Non metallic bearing material has an extremely low friction coefficient to reduce operating torques and eliminate galvanic corrosion.

Furthermore the Fig. 56 offers a dry shaft design, direct mounting of actuation integrally-cast adjustable travel stop and a wide range of material combinations. The valve has a loose actuator flange design, so that flange sizes can be chosen based on the application. The actuator flange is not provided with bearings to take actuator side thrust and is not in contact with the medium due to the dry shaft design.

Technical data

Pressure (bar)	: 10/16*
Temperature (°C)	: -40 to +120
Sizes (mm)	: 700 - 3000
Flange acc.	: PN 10/16**

* Sizes 1300-2000 require a reinforced disc for 16 bar; above 2000 mm, 10 bar only.

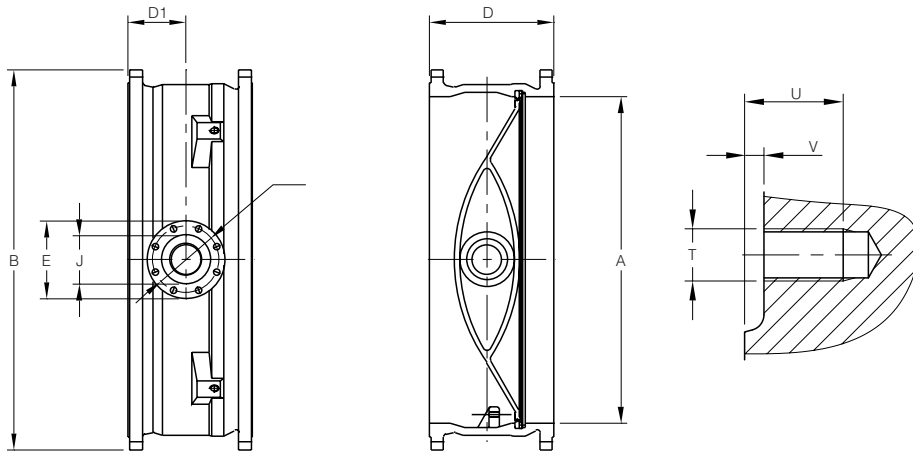
** Other drillings, contact factory.

General application

The Figure 56 design offers an excellent, low cost solution for municipal water treatment, desalination, power generation and industrial applications.

Butterfly Valve Figure 56

700-3000 mm

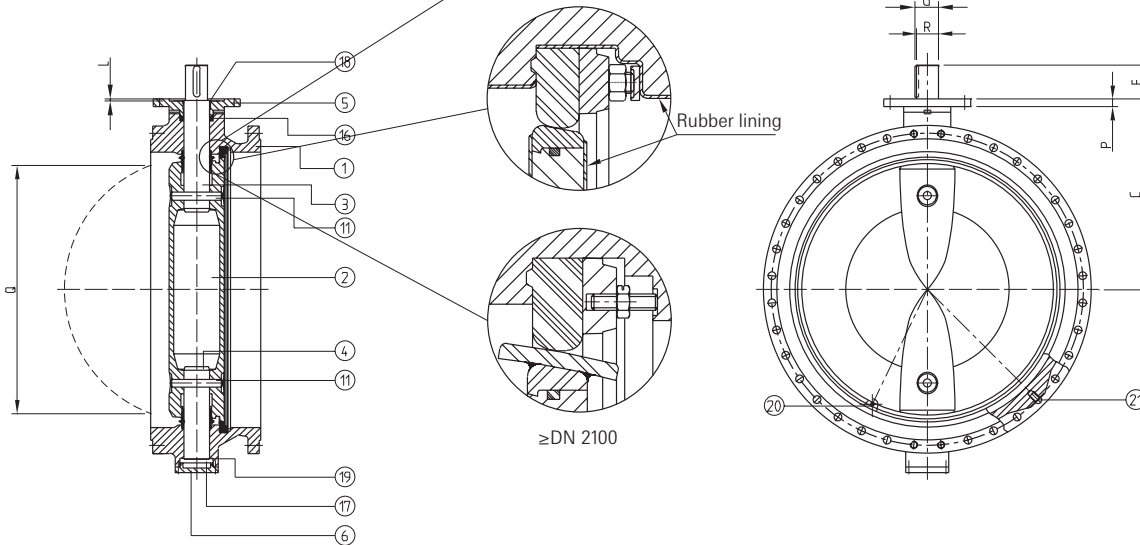
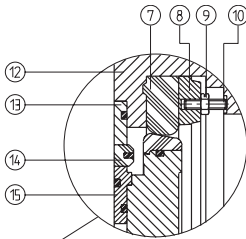


Dimensions of tapped flange locating holes (in mm)

DN	PN 10			PN 16		
	T	U*	V	T	U*	V
700	M27	44.5	3.5	M33	44.5	3.5
750	M30	48.5	3.5	M33	48.5	3.5
800	M30	48.5	3.5	M36	48.5	3.5
900	M30	45	3.5	M36	45	3.5
1000	M33	54	4	M39	54	4
1100	M33	-	4	M39	-	4
1200	M36	-	4	M45	-	4
1300	M39	64	4	M45	64	4
1400	M39	64	4	M45	64	4
1500	M39	-	5	M52	-	5
1600	M45	-	5	M52	-	5
1800	M45	75	5	M52	75	5

Notes:

1. T = thread type, U = full thread + V, V = raised face
 2. Only applicable for short face to face version
 3. Not applicable for sizes > 2000
 4. 4x tapped at one side of the body
- * Denotes: drilled-through tapped hole



Valve dimensions in mm

Size	A	B ¹⁾	C	D ²⁾	D1	Q	G ³⁾	Actuator flange acc. ISO 5211	Mass (kg)
700	700	895	623	292	86	658	60	F-14/F-16	470
750	750	965	598	318	105	703	70	F-16/F-25	530
800	800	1015	623 ⁴⁾	318	99	757	70	F-16/F-25	620
900	900	1115	673 ⁴⁾	330	97	859	80	F-16/F-25	750
1000	1000	1230	730	410	159	934	90	F-25/F-30	1030
1100	1100	1340	798	470	197	1012	100	F-25/F-30	1270
1200	1200	1455	848	470	185	1129	100	F-30/F-35	1520
1300	1300	1575	918	530	212	1216	120	F-30/F-35	1875
1400	1400	1675	968	530	219	1319	120	F-30/F-35	2240
1500	1500	1785	1038	600	250	1405	140	F-35/F-40	2630
1600	1600	1915	1088	600	243	1518	140	F-35/F-40	3160
1800	1800	2115	1210	670	286	1711	160	F-35/F-40	4100
2000	2000	2325	1333	760	350	1884	180	F-40/F-48	5490
2100	2100	2440	1397 (790)	340	1887	200	200	F-48/F-60	6145
2200	2200	2550	1447 (830)	360	2070	200	200	F-48/F-60	6800
2400	2400	2760	1569 (910)	433	2208	200	200	F-48/F-60	8050
2600	2600	2960	1689.5	990	484	2360	220	F-48/F-60	13000
2800	2800	3180	1785	1070	537	2470	240	F-48/F-60	15650
3000	3000	3405	1938	1150	583.5	2740	260	F-48/F-60	18000

Part Name

1. Body
2. Disc
3. Upper shaft
4. Lower shaft
5. Actuator flange
6. Cover plate
7. Seat
8. Seat retaining segment
9. Seat adjusting nut
10. Seat retaining screw
11. Disc pin
12. Bearing
13. Sleeve body/shaft
14. Shaft seal
15. Sleeve disc/shaft
16. Seal ring
17. Axial positioning ring
18. Dirtscraper
19. Axial bearing (reinforced PTFE)
20. Travel stop
21. Supporting lug (4x)

- 1) PN 10 flanges. For other flanges contact factory.
- 2) ISO 5752 Basic series 13. Basic series 14 also available. For other patterns contact factory.
- 3) Stemhead diameter to be selected according application.
- 4) For topplate F-25 only.

Butterfly Valve Figure 56

Valve data 700-3000 mm

K _v values										
Disc opening	Size in mm	700	750	800	900	1000	1100	1200	1300	1400
5°		369	424	483	611	754	912	1086	1274	1478
10°		761	873	994	1258	1553	1879	2236	2624	3043
15°		1196	1373	1562	1977	2440	2953	3514	4124	4783
20°		1718	1972	2243	2839	3505	4241	5048	5924	6870
25°		2218	2546	2897	3666	4526	5477	6518	7649	8871
30°		2870	3295	3749	4745	5857	7088	8435	9899	11481
35°		3805	4368	4970	6290	7765	9396	11182	13123	15220
40°		4870	5591	6361	8051	9939	12026	14312	16797	19481
45°		6218	7138	8122	10279	12690	15355	18274	21447	24873
50°		7827	8985	10223	12939	15974	19329	23003	26996	31309
55°		9915	11382	12950	16390	20234	24483	29137	34196	39659
60°		12306	14127	16073	20343	25115	30389	36165	42444	49225
65°		15394	17671	20106	25447	31416	38013	45239	53093	61575
70°		18764	21540	24508	31018	38294	46335	55143	64716	75056
75°		23091	26507	30159	38170	47124	57020	67858	79639	92363
80°		26439	30351	34533	43706	53958	65289	77699	91188	105757
85°		28831	33096	37656	47659	58838	71194	84727	99436	115323
90°		30962	35543	40440	51181	63187	76456	90989	106786	123846
		1500	1600	1800	2000	2200	2400	2600	2800	3000
5°		1696	1930	2443	3016	3650	4344	5098	5913	6788
10°		3494	3975	5031	6211	7515	8934	10485	12160	13959
15°		5491	6247	7906	9761	11812	14057	16497	19133	21964
20°		7887	8973	11357	14021	16964	20189	23694	27479	31545
25°		10184	11587	14665	18105	21908	26073	30600	35488	40739
30°		13179	14995	18978	23430	28351	33740	39598	45924	52719
35°		17472	19879	25159	31061	37582	44726	52491	60877	69884
40°		22363	25444	32203	39757	48104	57248	67187	77921	89450
45°		28554	32488	41117	50762	61421	73097	85787	99493	114214
50°		35942	40894	51756	63897	77313	92009	107983	125234	143764
55°		45527	51800	65559	80937	97935	116551	136786	158639	182111
60°		56508	64294	81372	100459	121556	144662	169777	196901	226034
65°		70686	80425	101788	125664	152053	180955	212371	246300	282742
70°		86161	98032	124071	153175	185341	220572	258866	300223	344644
75°		106029	120637	152681	188496	228079	271433	318557	369450	424114
80°		121405	138132	174823	215831	261153	310794	364751	423025	485616
85°		132386	150626	190635	235352	284775	338906	397744	461289	529541
90°		142170	161758	204725	252747	305825	363958	427145	495387	568684

Notes

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.
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 accommodations when ordering spare parts.
4. Closing clockwise.
5. Standard inner body coating: epoxy. For other coatings and rubber linings contact factory.
6. For buried service applications contact factory.

Actuator flange dimensions in mm

Type	Actuator flange dimensions acc. ISO 5211							Shaft dimensions	
	E	J	L	P	PCD	Hole ø	No of holes	F	G _{H9}
F14	175	100	5	20	140	17.5	4	60	60/70
F16	210	130	6	25	165	22	4	75	70/80
F25	300	200	6	30	254	17.5	8	105	80/90/100
F30	350	230	6	35	298	22	8	125	90/100
F35	415	260	6	40	356	33	8	175	120/140/160
F40	475	300	9	45	406	39	8	195	140/160/180
F48	560	370	9	50	483	39	12	245	160/180/200
F60	686	470	9	50	603	39	20	305	220/240/260/280

Keyway dimensions in mm

G _{H9}	50	60	70	80	90	100	120	140	160	180	200	220	240
Key size N9	14x 9	18x11	20x12	22x14	25x14	28x16	32x18	36x20	40x22	45x25	45x25	50x28	56x32
R	44,5	53	62.5	71	81	90	109	128	147	165	185	203	220

Butterfly Valve Figure 56

Materials

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	all	all	700 - 2000	W / EOL					10 bar / 10 bar								1
	all	DI	≥ 2000	W / EOL					10 bar / 10 bar								2
	all	DI	700 - 1200	W / EOL					16 bar / 16 bar								3
	all (reinforced disc)	DI	1300 - 2000	W / EOL					16 bar / 16 bar								4
NBR	all	all	700 - 2000	W / EOL					10 bar / 10 bar								5
	all	DI	≥ 2000	W / EOL					10 bar / 10 bar								6
	all	DI	700 - 1200	W / EOL					16 bar / 16 bar								7
	all (reinforced disc)	DI	1300 - 2000	W / EOL					16 bar / 16 bar								8

Pressure-temperature diagram

Note	Trims							
1	102	131	148	162	112	135	152	164
2	112	135	152	164				
3	112	135	152	164				
4	112	135	152	164				
5	106	133	150	163	116	137	154	165
6	116	137	154	165				
7	116	137	154	165				
8	116	137	154	165				

Material selection

	Body	Disc	Shaft	Seat	Trim no.	Sizes (mm)	
Cast iron	Stainless steel	Stainless steel	Stainless steel	EPDM	102	700-2000	
				NBR	106	700-2000	
		NiAlBz	Stainless steel	Stainless steel	EPDM	131	700-2000
					NBR	133	700-2000
	Ductile iron + L. edge	Stainless steel	Stainless steel	EPDM	148	700-2000	
				NBR	150	700-2000	
	Ductile iron + L. edge	Carbon steel	Carbon steel	EPDM	162	700-2000	
				NBR	163	700-2000	
Ductile iron	Stainless steel	Stainless steel	Stainless steel	EPDM	112	700-3000	
				NBR	116	700-3000	
		NiAlBz	Stainless steel	Stainless steel	EPDM	135	700-3000
					NBR	137	700-3000
	Ductile iron	Stainless steel	Stainless steel	EPDM	152	700-3000	
				NBR	154	700-3000	
	Ductile iron	Carbon steel	Carbon steel	EPDM	164	700-3000	
				NBR	165	700-3000	

Material specification

Part name	Material	Designation	EN/DIN mat nr.	Comparable with	Remarks
Body	Cast iron	GJL-250	EN JS-1040	DIN 0.6025 GG 25	Sizes 700-2000
	Ductile iron	GJS-400-15	EN JS-1030	DIN 0.7040 GGG 40	
	Cast steel	GP240GH	EN 1.0619	DIN 1.0619 GSC 25N	
Disc	Ductile iron + L.E.	GJS-400-15	EN JS-1030	DIN 0.7040 GGG 40	
	Stainless steel	GX5CrNiMo19-11-2	EN 1.4408		
	NiAlBz	CuAl10Fe5Ni5	EN CC333G	BS 1400 AB2 2.0975.01	
Disc pin part	Stainless steel	X2CrNiMoN22-5-3	DN 1.4462		
Disc pin tube	Stainless steel	X5CrNiMo17-12-2	EN 1.4401		
Shaft	Carbon steel	C45-QT	EN 1.0503 QT		
	Stainless steel	X17CrNi16-2	EN 1.4057		
Seat retaining segment	Stainless steel	GX5CrNiMo19-11-2	EN 1.4408		BS 1400 AB2 2.0975.01
	NiAlBz	CuAl10Fe5Ni5	EN CC333G		
Seat retaining screw	Stainless steel	X5CrNiMo17-12-2	EN 1.4401		
Seat retaining nut	Stainless steel	X5CrNiMo17-12-2	EN 1.4401		
Seat	EPDM				Compound number 512
	NBR				Compound number 511