

HIGH PERFORMANCE BUTTERFLY VALVE HP 111



Wafer type butterfly valve in double-eccentric construction. Reliable sealing even with extreme temperature and pressure conditions.

TECHNICAL DATA

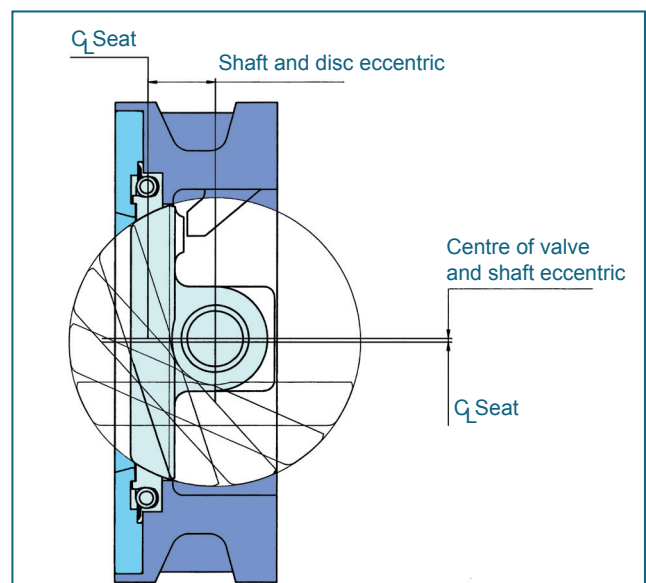
Nominal diameter:	2 inch - 48 inch (larger nominal diameter on request)
Face-to-face:	EN 558 Series 20 ISO 5752 Series 20 API 609 Table 1
Flange accommodation:	EN 1092 PN 10/16/25/40 (to DN 150) EN 1092 PN 10/16/25 (DN 200-DN 600) ASME Class 150/300 AS 4087 PN16/21
Flange Surface Design:	EN 1092, Form A/B, ASME RF,FF
Top flange:	EN ISO 5211
Marking:	EN 19
Tightness check	
- for R-PTFE seat:	EN 12266 (Leakage rate A)
- for Inconel seat:	EN 12266 (Leakage rate B) ISO 5208, Category 3
Temperature range:	-76°F to +1,112°C
Differential pressure:	≤ 6 inch max. 600 psi > 6 inch max. 350 psi
Vacuum:	up to 1mbar absolute

FEATURES

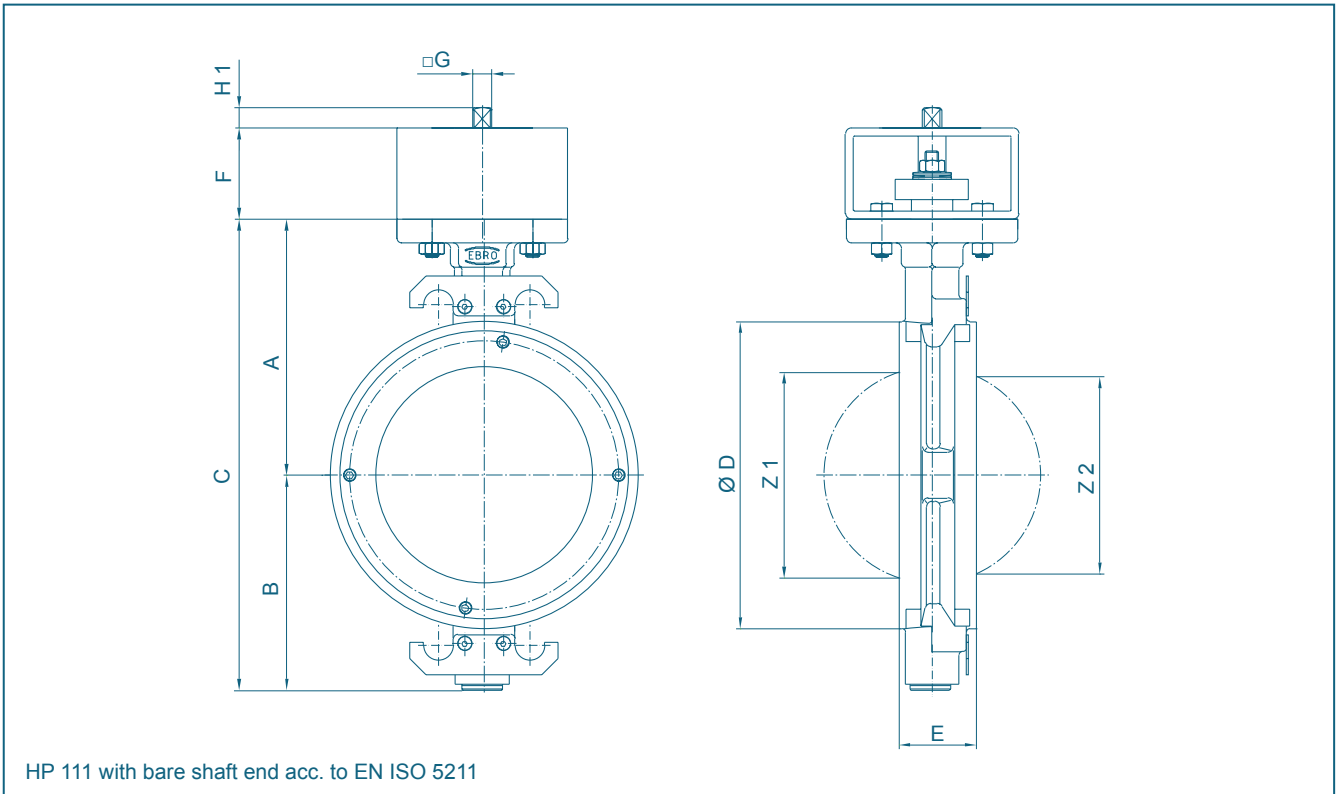
- Shut-off and control of gaseous and liquid media
- Disc and shaft have double-eccentric bearing
- Centering pieces can be used as installation aid
- Two seat ring systems available: R-PTFE and Inconel
- Seal variants:
 - soft-sealing (R-PTFE) max. 446°F
 - metallic sealing (Inconel) max. +1,112°F
- Maintenance-free
- Long service life, even at high switching frequencies

GENERAL APPLICATIONS

- Chemical and petrochemical industry
- Hot water and steam systems
- District heat supply
- Vacuum systems
- Shipbuilding
- Gas process technology
- Heavy duty services



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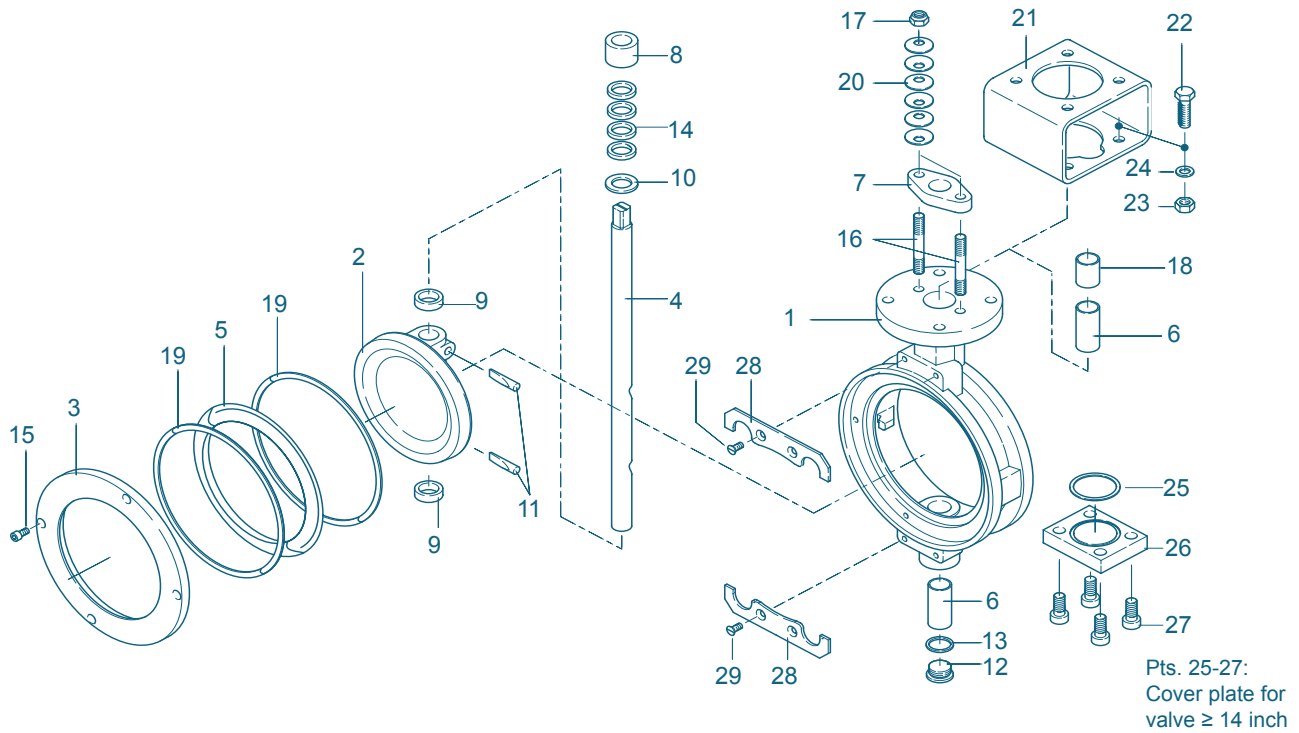
HP 111 with bare shaft end acc. to EN ISO 5211

DN [mm]	Size [in]	Dimensions [in]											min. pipe-Ø	Weight [lb]
		A	B	C	D	E	F	Flange	G	H1	Z1	Z2		
50	2	5.24	3.90	9.13	4.41	1.69	3.15	F05	0.47	0.59	1.61	-	2.01	16.30
65	2½	5.24	3.90	9.13	4.41	1.69	3.15	F05	0.47	0.59	1.61	-	2.01	16.30
80	3	5.59	4.45	10.04	5.43	1.81	3.15	F05	0.47	0.59	2.78	2.14	3.15	17.60
100	4	6.22	4.88	11.10	6.30	2.05	3.15	F05	0.47	0.59	3.71	3.21	4.06	19.00
125	5	7.13	5.51	12.64	7.56	2.20	3.15	F07	0.55	0.71	4.51	4.15	4.88	27.80
150	6	7.68	6.06	13.74	8.50	2.20	3.15	F07	0.55	0.71	5.65	5.33	5.94	32.60
200	8	8.86	7.52	16.38	10.63	2.36	3.15	F10	0.67	0.71	7.38	7.13	7.72	50.50
250	10	10.55	8.74	19.29	12.83	2.68	3.15	F12	0.87	0.91	9.26	9.01	9.65	73.90
300	12	11.81	10.04	21.85	14.88	3.07	3.54	F12	1.06	1.10	11.05	10.86	11.65	105.80
350	14	13.58	11.97	25.55	17.24	3.62	3.94	F14	1.06	1.10	12.71	12.44	13.15	208.80
400	16	14.76	13.35	28.11	19.21	4.02	3.94	F14	1.42	1.42	14.63	14.33	15.16	253.50
450	18	16.22	13.39	29.61	20.87	4.49	4.72	F16	1.42	1.42	16.80	16.80	17.24	310.80
500	20	16.73	15.71	32.44	23.35	5.00	4.72	F16	1.81	1.81	18.45	18.35	19.06	410.10
550	22	17.95	15.94	33.90	25.00	6.06	7.87	F25	1.81	1.81	20.70	20.70	21.26	520.30
600	24	19.29	18.43	37.72	27.24	6.06	7.87	F25	2.17	2.17	21.43	21.35	22.05	683.40
700	28	21.81	20.55	42.36	32.28	6.50	7.87	F25	3.15	5.12	26.50	25.94	26.69	948.00
800	32	23.82	22.28	46.10	35.51	7.48	7.87	F30	3.54	5.12	29.45	28.98	30.55	1214.70
900	36	25.98	25.08	51.06	39.61	8.03	7.87	F30	3.94	5.71	33.35	32.80	34.49	1613.80
1000	40	28.15	27.05	55.20	43.78	8.50	7.87	F30	3.94	5.71	37.17	36.81	38.39	1768.10
1200	48	32.09	31.50	63.58	52.28	0.00	7.87	F35	4.33	7.28	44.84	44.69	46.26	2866.00

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MATERIAL SPECIFICATION AND PARTS LIST



Pt.	Description	Material	Material No.	ASTM	Pt.	Description	Material	Material No.	ASTM
1	Body	Carbon Steel	GS-C25N	1.0619	WCB	14	Shaft seal		
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M		PTFE		
2	Disc						Graphite		
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M	15	Hex.-socket screw		
3	Clamping ring					Stainless Steel	A4-70	1.4401	B8M
		Steel	St37-2	1.0037	283-C	16	Threaded pin		
4	Shaft	Stainless Steel	X5CrNiMo17-12-2	1.4401	316	Stainless Steel	A2-70	1.4301	B 8
		Stainless Steel	X4CrNiMo16-5-1	1.4418		17	Hex. nut		
5	Seat ring					Stainless Steel	A 2	1.4301	8
		R-PTFE	PTFE-Compound			18	Spacer sleeve		
6	Shaft bearing	Inconel	Inconel 625			Stainless Steel	X6CrNiMoTi17-12-2	1.4971	316 Ti
						19	Graphite seal (for metal seat)		
7	Gland flange					Graphite			
		Steel	St37-2	1.0037	283-C	20	Belleville spr. washer		
8	Thrust collar	Stainless Steel	X5CrNi18-10	1.4301	304	Spring Steel	50CrV4	1.8159	6150
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M	Stainless Steel	X10CrNi18-8	1.4310	301 Ti
9	Bearing ring					21	Bracket		
		Stainless Steel	X6CrNiMoTi17-12-2	1.4571 chr-pld	316 Ti	Steel	St37-2 galvanized	1.0037	283-C
10	Suppor. washer					22	Hex. bolt		
		Stainless Steel	X6CrNiMoTi17-12-2	1.4571	316 Ti	Steel	St galvanized		CS
11	Taper pin					23	Hex. nut		
		Stainless Steel	X4CrNiMo16-5-1	1.4418		Steel	St galvanized		CS
12	Plug screw DIN 908					24	Washer		
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M	Steel	St galvanized		CS
13	Seal					25	Seal		
		PTFE				Graphite			
14	Shaft seal					26	Cover plate		
		Graphite				Steel	St37-2 galvanized	1.0037	283-C
15	Hex.-socket screw					27	Hex.-socket screw		
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M	Stainless Steel	A2-70	1.4301	B 8
16	Threaded pin					28	Centering piece		
		Stainless Steel	X4CrNiMo16-5-1	1.4418		Stainless Steel	X6CrNiMoTi17-12-2	1.4571	316 Ti
17	Hex. nut					29	Countersunk screw		
		Stainless Steel	X5CrNi18-10	1.4301	304	Stainless Steel	A 2	1.4301	SS
18	Spacer sleeve								
		Stainless Steel	X6CrNiMoTi17-12-2	1.4571	316 Ti				
19	Graphite seal (for metal seat)								
		Graphite							
20	Belleville spr. washer								
		Spring Steel	50CrV4	1.8159	6150				
21	Bracket								
		Steel	St37-2 galvanized	1.0037	283-C				
22	Hex. bolt								
		Steel	St galvanized		CS				
23	Hex. nut								
		Steel	St galvanized		CS				
24	Washer								
		Steel	St galvanized		CS				
25	Seal								
		Graphite							
26	Cover plate								
		Steel	St37-2 galvanized	1.0037	283-C				
27	Hex.-socket screw								
		Stainless Steel	A2-70	1.4301	B 8				
28	Centering piece								
		Stainless Steel	X6CrNiMoTi17-12-2	1.4571	316 Ti				
29	Countersunk screw								
		Stainless Steel	A 2	1.4301	SS				
Other materials upon request									

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TORQUE

- The values specified are based on the initial breakaway torque. (disc disengages from seat, torque then drops)

DN [mm]	Size [in]	Operating pressure							
		150 [psi]		200 [psi]		350 [psi]		600 [psi]	
		R-PTFE	Inconel	R-PTFE	Inconel	R-PTFE	Inconel	R-PTFE	Inconel
50-65	2-2½	247	320	214	320	256	496	284	604
80	3	256	503	229	496	290	769	348	915
100	4	467	824	465	763	683	1025	851	1282
125	5	577	1373	633	1312	812	1880	1144	2609
150	6	1144	1556	1037	1678	1435	2563	2014	3295
200	8	1877	3204	1983	3280	2392	4314	-	-
250	10	4440	4623	4195	4729	5126	7347	-	-
300	12	5346	6774	5340	7399	7305	10936	-	-
350	14	6774	7460	7094	8009	10252	11705	-	-
400	16	9611	14005	12510	17087	21017	24776	-	-
450	18	10527	15561	13349	19070	23067	29902	-	-
500	20	11076	18399	13731	21054	23922	36395	-	-
550	22	32038	34326	33792	34708	51346	58096	-	-
600	24	36615	41192	35089	43785	52969	69031	-	-
700	28	48515	54922	46531	51871	69202	-	-	-
800	32	58584	73230	56448	72467	83726	-	-	-
900	36	71399	-	68653	-	102522	-	-	-
1000	40	89706	-	86197	-	128152	-	-	-
1200	48	130898	-	125864	-	187956	-	-	-

All values in Inch Lbs

C_v VALUES

- The C_v Value [US Gallon per minute] is the flow of water at a temperature of 41°F to 86°F with a pressure drop of 1 psi.

- The throttle function is linear at an angle 30° to 70°

- Avoid cavitation

For further values, please contact our engineers.

DN [mm]	Size [in]	Opening angle α°							
		20°	30°	40°	50°	60°	70°	80°	90°
50	2	1,5	1,5	17	21	22	24	26	27
65	2½	1,7	1,7	21	26	27	28	29	29
80	3	8	8	58	79	95	113	131	134
100	4	26	26	113	138	191	231	259	292
125	5	52	52	177	227	298	402	526	573
150	6	73	73	188	291	455	684	947	983
200	8	112	112	350	592	863	1287	1838	2031
250	10	307	307	793	1140	1652	2422	3351	3359
300	12	462	462	1112	1591	2253	3230	4412	4581
350	14	535	535	1279	1919	2907	3953	5581	6279
400	16	640	640	1453	2326	3721	5581	7907	9395
450	18	849	849	2093	3605	5349	7442	9767	12209
500	20	1070	1070	3023	4767	6977	9884	14070	14884
550	22	1267	1267	3605	5349	8721	11860	17093	17791
600	24	1593	1593	4395	5756	10465	14535	19884	21512
700	28	2324	3700	5539	8998	13316	18933	25664	29070
800	32	3250	5175	7746	12583	18620	26476	35888	40651
900	36	4174	6646	9948	16160	23915	34004	46092	52209
1000	40	5439	8659	12961	21055	31158	44304	60054	68023
1200	48	6777	10790	16152	26238	38828	55209	74836	104535

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