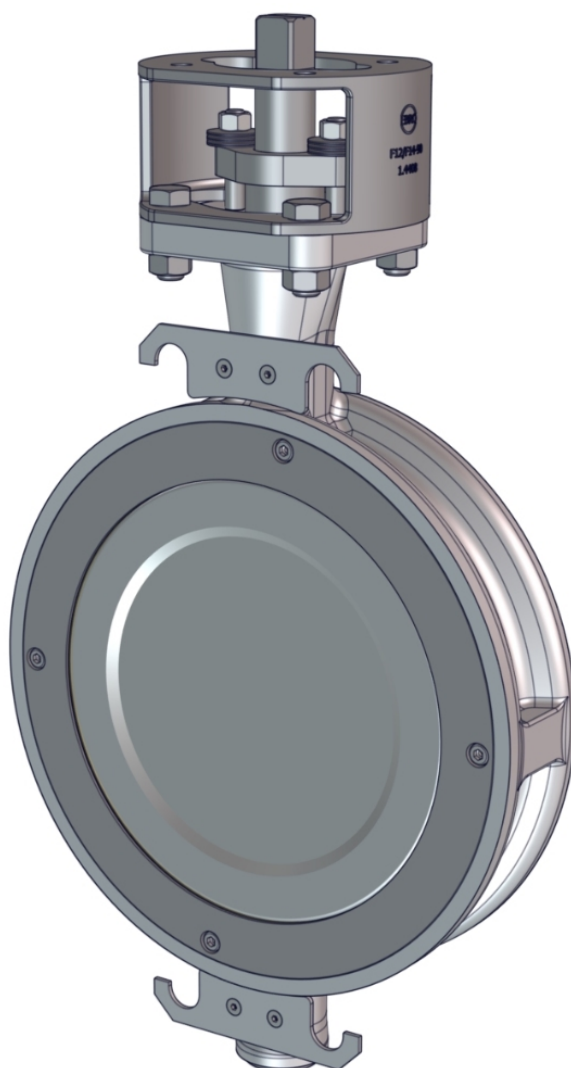


Technical data sheet

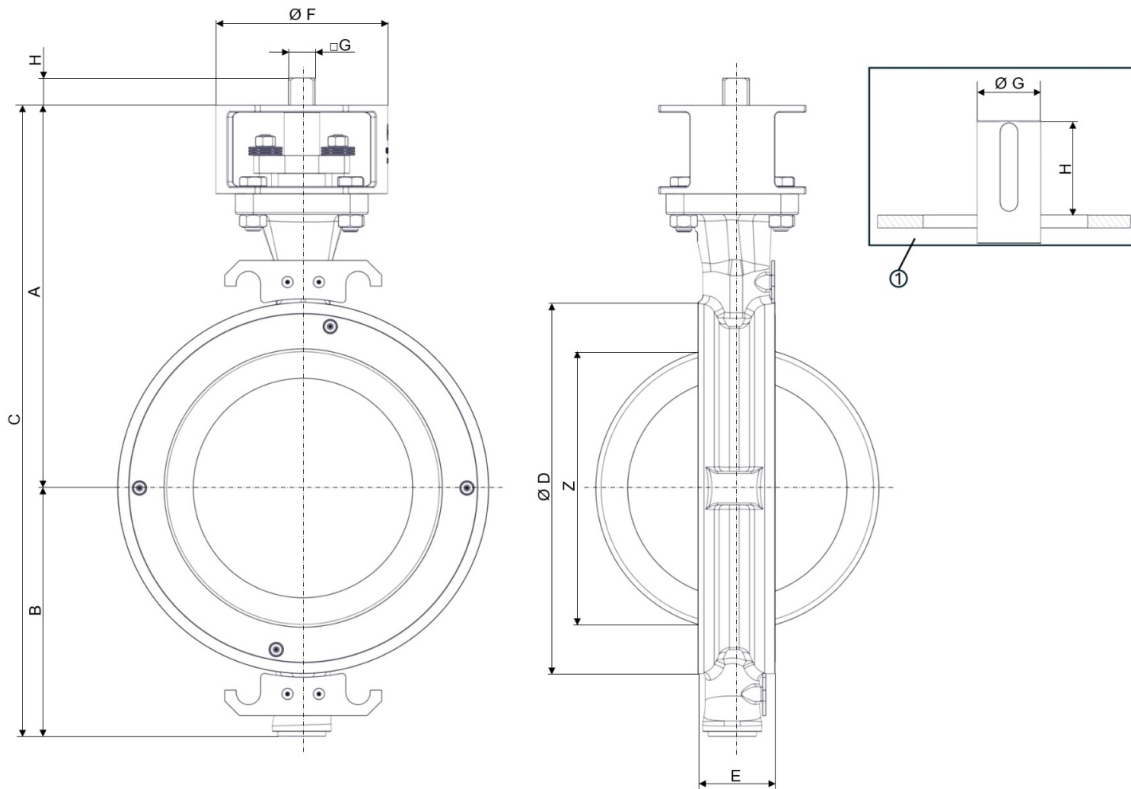
Wafer-type butterfly valve HP111 with bare shaft



WAFER-TYPE BUTTERFLY VALVE HP111
METAL-SEATED BUTTERFLY VALVE
 TECHNICAL DATA SHEET



Dimension sheet



DN	Size	Main dimensions [mm]											Weight [kg]
		A	B	C	ØD	E	F	Flange	G	H	Z	min. pipe-Ø	
50-65	2-2½	133	99	232	112	43	80	F05/F07	12	15	41	51	7
80	3	142	113	255	138	46	80	F05/F07	12	15	71	80	8
100	4	158	124	282	160	52	80	F05/F07	12	15	94	103	9
125	5	181	140	321	192	56	80	F07/F10	14	18	115	124	13
150	6	195	154	349	216	56	80	F07/F10	14	18	144	151	15
200	8	225	191	416	270	60	80	F10/F12	17	18	187	196	23
250	10	268	222	490	326	68	80	F10/F12	22	23	235	245	34
300	12	300	255	555	378	78	90	F12	27	28	281	296	48
350	14	345	304	649	438	92	100	F14	27	28	323	334	95
400	16	375	339	714	488	102	100	F16	36	36	372	385	115
450	18	412	340	752	530	114	120	F16	36	36	427	438	141
500	20	425	399	824	593	127	120	F16	46	46	469	484	186
550	22	456	405	861	635	154	200	F25	46	46	526	540	236
600	24	490	468	958	692	154	200	F25	55	55	544	560	310

WAFER-TYPE BUTTERFLY VALVE HP111
METAL-SEATED BUTTERFLY VALVE
 TECHNICAL DATA SHEET



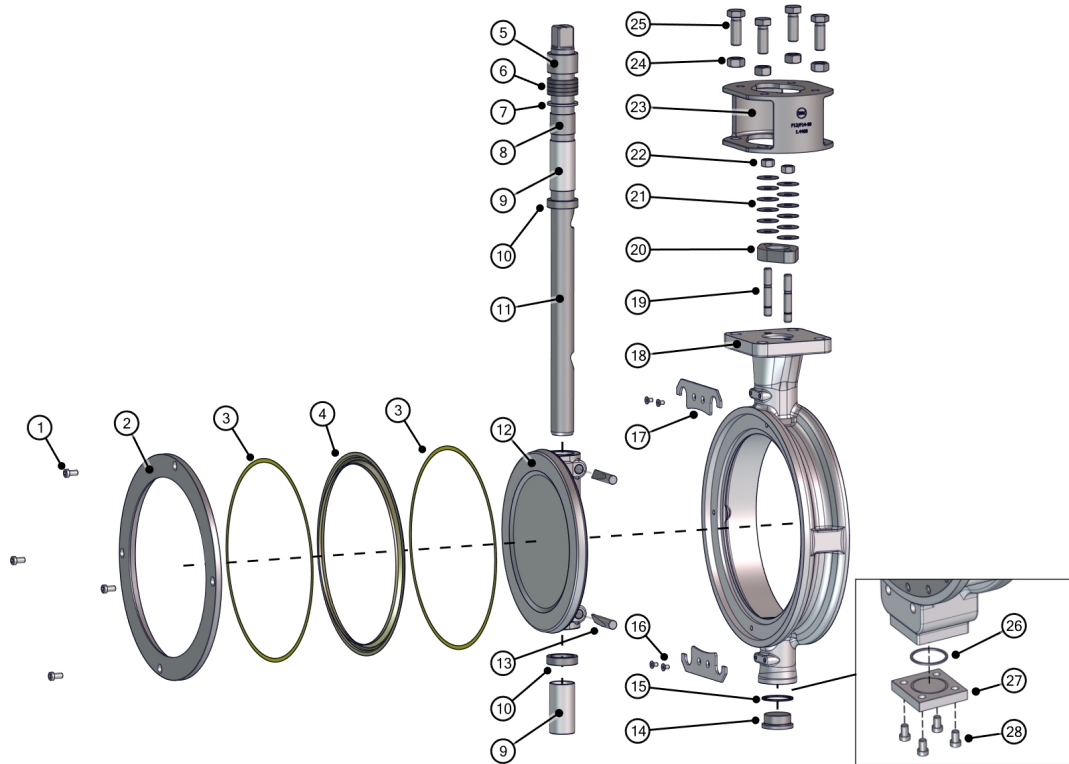
DN	Size	Main dimensions [mm]											Weight [kg]
		A	B	C	ØD	E	F	Flange	G	H	Z	min. pipe-Ø	
700	28	554	522	1076	820	165	200	F25	80	130	673	678	430
750	30	569	535	1104	857	165	200	F30	80	80	130	-	510
800	32	605	566	1171	902	190	200	F30	90	130	748	776	551
900	36	660	637	1297	1006	204	200	F30	100	145	847	876	732
1000	40	715	687	1402	1112	216	200	F30	100	145	944	975	802
1200	48	815	800	1615	1328		200	F35	110	185	1139	1175	1300

Item 1 = Round shaft with fitting key for butterfly valves ≥ DN 700

WAFER-TYPE BUTTERFLY VALVE HP111
METAL-SEATED BUTTERFLY VALVE
 TECHNICAL DATA SHEET



Material specifications & bill of materials



Item	Naming	Piece	Material group	Material no.
1	Cylinder head screw	4	Stainless steel	1.4401
2	Clamping ring	1	Stainless steel	1.4408
			Steel	
3	Graphite seal (for metallic seat)	2	Graphite	
4	Seat ring	1	R-PTFE	
			Inconel	
			FireSafe: 2-part seat ring of R-PTFE and Inconel	
			EBRODUR	
5	Compression ring	1	Stainless steel	1.4305
6	Shaft seal	4	PTFE	
			Graphite	
7	Support disc	1	Stainless steel	1.4571
8	Spacer sleeve	1	Stainless steel	1.4971
9	Shaft bearing	2	Stainless steel	1.4571
10	Bearing ring	2	Stainless steel	1.4571
11	Shaft	1	Stainless steel (< 300 °C)	1.4418
			Stainless steel (> 300 °C)	1.4980

WAFER-TYPE BUTTERFLY VALVE HP111
METAL-SEATED BUTTERFLY VALVE
 TECHNICAL DATA SHEET



Item	Naming	Piece	Material group	Material no.
12	Valve disc	1	Stainless steel	1.4408
13	Taper pin	2	Stainless steel	1.4418
14	Screw plug	1	Stainless steel	1.4408
15	Seal	1	PTFE	
			Graphite	
16	Countersunk screw	4	Stainless steel	1.4301
17	Centering piece	2	Stainless steel	1.4571
18	Valve body	1	Cast steel	1.0619
			Stainless steel	1.4408
19	Stud screw	2	Stainless steel	1.4408
20	Packing flange	1	Stainless steel	1.4408
21	Cup spring	12	Stainless steel	1.4310
22	Hexagon nut	2	Stainless steel	1.4301
23	Bracket	1	Steel	1.0038+N
24	Hexagon nut	4	Steel	
25	Hexagon head screw	4	Steel	
26	Seal ring ¹	1	PTFE	
			Graphite	
27	End cap ¹	1	Steel	10038+N
			Stainless steel	1.4408
28	Cylinder head screw ¹	4	Stainless steel	1.4308
¹ Configuration ≥ DN 350 Materials of the default configuration. Other materials and surface treatments available upon request.				

Temperature limits for HP valves

HP	PTFE	40 bar	max. 230 °C																		
	Inconel	40 bar	max. 600 °C																		
	PTFE	25 bar						max. 230 °C													
	Inconel	25 bar						max. 600 °C													
DN			50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	1200

Torques

NOTICE



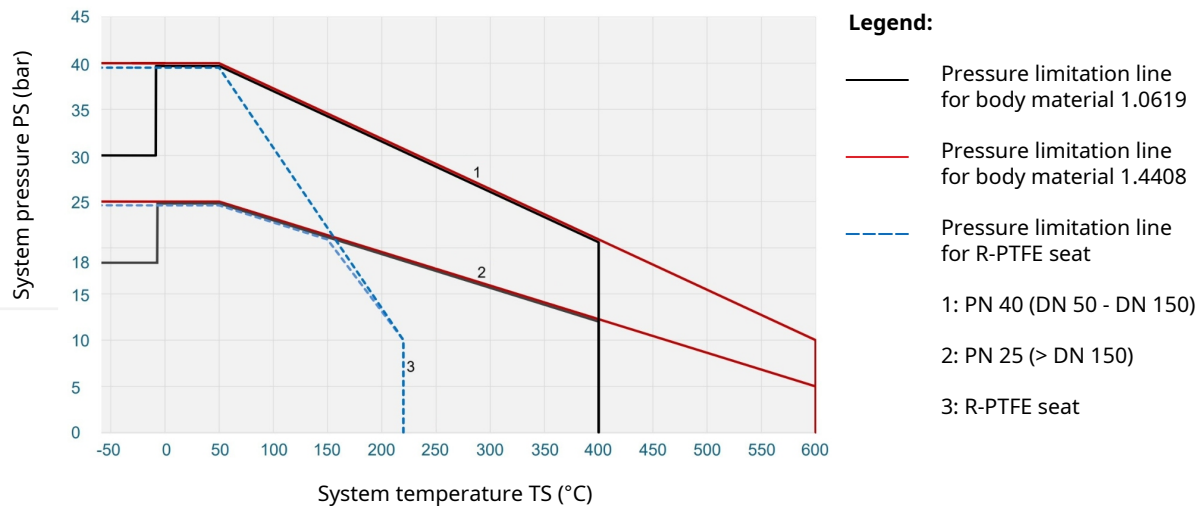
The values listed in the table are breakaway torques determined for liquid/ lubricating media from the position of the valve disc. They should be considered reference values since the actual torques depend on various factors such as operating pressure, medium, operating conditions, etc. The safety factor for the design of the actuator is also necessary. Valve discs in special configurations can be provided.

DN	NPS	Torque (Md) / pressure rating [Nm]							
		10 bar		16 bar		25 bar		40 bar	
		R-PTFE	Inconel	R-PTFE	Inconel	R-PTFE	Inconel	R-PTFE	Inconel
50-65	2-2½	27	35	28	42	30	58	31	66
80	3	28	55	30	65	34	90	38	100
100	4	51	90	61	100	80	120	93	140
125	5	63	150	83	172	95	220	125	285
150	6	125	170	136	220	168	300	220	360
200	8	205	350	260	430	280	505	-	-
250	10	485	505	550	620	600	860	-	-
300	12	584	740	700	970	855	1280	-	-
350	14	740	815	930	1050	1200	1370	-	-
400	16	1050	1530	1640	2240	2460	2900	-	-
450	18	1150	1700	1750	2500	2700	3500	-	-
500	20	1210	2010	1800	2760	2800	4260	-	-
550	22	3500	3750	4430	4550	6010	6800	-	-
600	24	4000	4500	4600	5740	6200	8080	-	-
700	28	5300	6000	6100	6800	8100	-	-	-
800	32	6400	8000	7400	9500	9800	-	-	-
900	36	7800	-	9000	-	12000	-	-	-
1000	40	9800	-	11300	-	15000	-	-	-
1200	48	14300	-	16500	-	22000	-	-	-

Additions for other media

- Measured at water 20 °C. The torques depends on the medium and temperature!

Pressure-temperature chart



K_v values

NOTICE



The K_v value [m³/h] indicates the water flow rate at a temperature of 5 °C to 30 °C and a Δp of 1 bar.
 The allowable flow velocity V_{max} is 4.5 m/s for liquids and 70 m/s for gases.
 At an opening angle of 30° to 70°, the valve disc is in the optimum control range. The curve is flat between 20° and 30° and between 70° and 90°, so that changing the opening angle has little effect on the flow control. Avoid cavitation.

		Opening angle α°							
DN	NPS	20°	30°	40°	50°	60°	70°	80°	90°
50	2	1.3	6	15	18	19	21	22	23
65	2½	1.5	7	18	22	23	24	25	25
80	3	7	30	50	68	82	97	113	115
100	4	22	60	97	119	164	199	223	251
125	5	45	100	152	195	256	346	452	493
150	6	63	109	162	250	391	588	814	845
200	8	96	168	301	509	742	1107	1581	1747
250	10	264	458	682	980	1421	2083	2882	2889
300	12	397	625	956	1368	1938	2778	3794	3940
350	14	460	720	1100	1650	2500	3400	4800	5400
400	16	550	870	1250	2000	3200	4800	6800	8080
450	18	730	1200	1800	3100	4600	6400	8400	10500
500	20	920	1600	2600	4100	6000	8500	12100	12800
550	22	1090	1950	3100	4600	7500	10200	14700	15300
600	24	1370	2250	3780	4950	9000	12500	17100	18500
700	28	1999	3182	4764	7738	11451	16283	22071	25000
800	32	2795	4450	6661	10821	16014	22770	30864	34960
900	36	3590	5715	8555	13898	20567	29243	39640	44900
1000	40	4677	7447	11147	18107	26796	38101	51646	58500
1200	48	7188	11444	17130	27826	41179	58552	79367	89900
Information in m ³ /h.									

Technical features

Designation	Description
Nominal sizes	The materials of the seat rings are designed for different nominal sizes: Inconel: DN 50 to DN 800 R-PTFE: DN 50 to DN 1200 Firesafe (R-PTFE and Inconel): DN 50 to DN 600 EBRODUR: DN 50 to DN 600
Temperature ranges ¹	The materials of the seat rings are designed for different temperature ranges: Inconel: -60 °C to +600 °C R-PTFE (carbon-reinforced): -60 °C to +250 °C R-PTFE (FDA): -60 °C to +230 °C Firesafe (R-PTFE and Inconel): -60 °C to +200 °C EBRODUR: -60 °C to +80 °C
Maximal allowable differential pressure	≤ DN 150 max. 40 bar > DN 150 max. 25 bar
Use with vacuum	Up to 1 mbar absolute
Notices ¹ lower temperatures upon request	

Standards

Designation	Description
Marking	DIN EN 19:2024-03
Top flange	DIN EN ISO 5211:2024-10
Face-to-face	DIN EN 558:2022-09 Series 20, optionally series 25
	ISO 5752:2021-06 Series 20
	API STD 609:2021-04 Table 1
Flange connection	DIN EN 1092-1:2018-12 PN 10/16/25/40 (up to DN 150)
	DIN EN 1092-1:2018-12 PN 10/16/25 (DN 200 - DN1200)
	ASME B16.5:2020 Class 150
	AS 4087:2011 PN 16/21

Tightness

Designation	Description
Examination	DIN EN 12266-1:2012-06 Leakage rate A (for R-PTFE seat ring)
	DIN EN 12266-1:2012-06 Leakage rate B (for Inconel seat ring)
	ISO 5208:2015-06, category 3 (for Inconel seat ring)

Certificates and approvals

Designation	Description
Pressure equipment	Directive 2014/68/EU module H
Fire safety	DIN EN ISO 10497:2024-04
Explosion protection	ATEX Directive 2014/34/EU IECEX VDI 2440:2021-06
International approvals	CRN TSSA SITIIAS UKCA

WAFER-TYPE BUTTERFLY VALVE HP111
METAL-SEATED BUTTERFLY VALVE
TECHNICAL DATA SHEET



Designation	Description
Shipbuilding	Bureau Veritas Det Norske Veritas Lloyds Register China Classification Society
Transport of dangerous goods	VDTÜV type test for GGVSEB/ADR/RID
Notice Further certificates and approvals available upon request. Applicable only for specific nominal sizes and material combinations (except for directive on pressure equipment and safety integrity level).	