

Technical data sheet

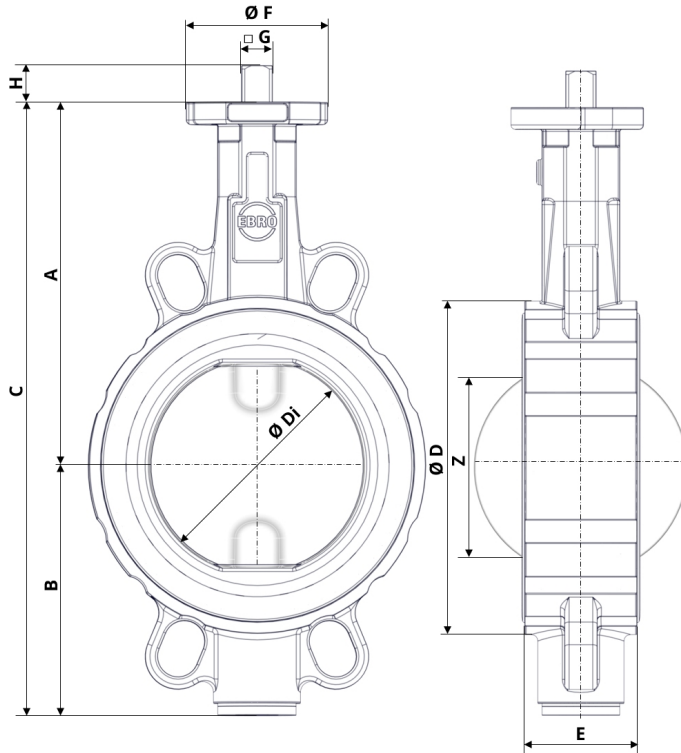
Wafer-type butterfly valve Z011-B with bare shaft



WAFER-TYPE BUTTERFLY VALVE Z011-B
RESILIENT-SEATED WAFER-TYPE BUTTERFLY VALVE
 TECHNICAL DATA SHEET



Dimension sheet



		Main dimensions [mm]											Weight [kg]	
DN	NPS	A	B	C	Ø D	Ø Di	E	Ø F	Flange	□ G	H	Z	Split shaft	TS shaft
50	2	126	84	210	95	49	43	54	F04	11	14	25	2.5	-
65	2½	135	93	227	115	64	46	54	F04	11	14	45	3.0	-
80	3	157	104	261	138	79	46	65	F05	14	17	65	4.0	4.5
100	4	168	115	282	158	99	52	65	F05	14	17	85	5.0	5.6
125	5	180	127	307	188	124	56	65	F05	14	17	111	7.0	7.6
150	6	203	151	354	212	148	56	88	F07	17	20	139.8	9.5	11.0
200	8	229	177	405	268	199	60	88	F07	17	20	190	13.5	15.3
250	10	266	212	478	320	248	68	125	F10	22	24	240	22.5	25.5
300	12	291	240	531	370	296	78	125	F10	22	24	287	30.5	34.0
350	14	332	270	602	415	338	78	150	F12	27	29	330	43.5	49.1
400	16	363	314	677	473	390	102	150	F12	27	29	378	62.0	67.8
450	18	397	335	732	530	426	114	175	F16	36	38	417	98.0	102.5
500	20	437	371	808	574	489	127	175/210	F14/F16	36	38	474	110.0	116.5
600	24	498	435	933	675	582	154	210/300	F16/F25	46	48	563	185.0	212.0

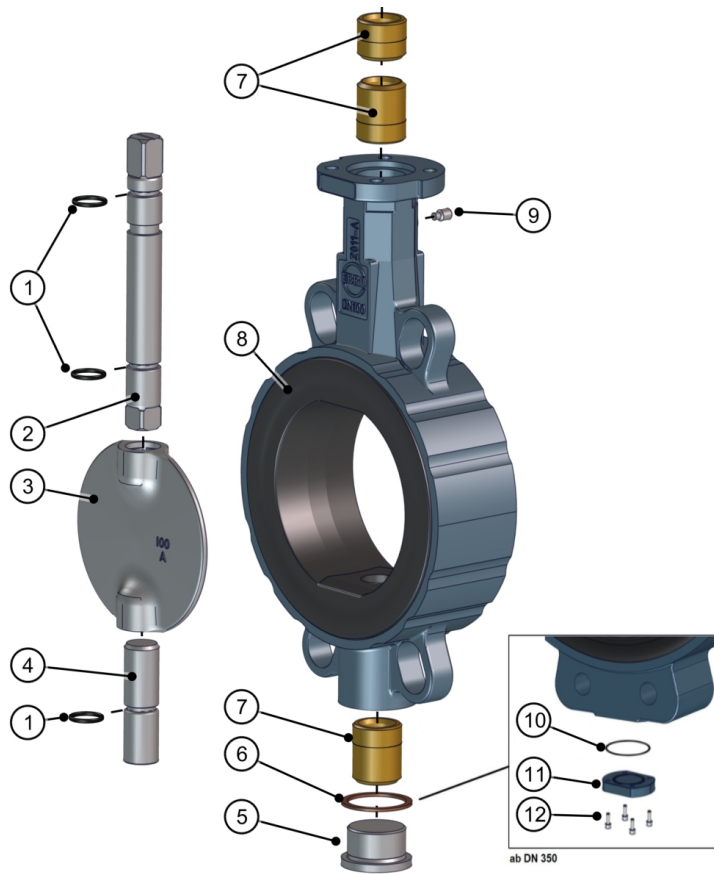
Subject to technical changes.

WAFER-TYPE BUTTERFLY VALVE Z011-B
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Material specifications & bill of materials

Split-shaft version



Item	Naming	Piece	Material group ¹	Material no.
1	O-ring	3	NBR	
			FKM	
			EPDM	
2	Upper shaft	1	Stainless steel	1.4122, 1.4104, 1.4401/1.4404, 1.4418, 1.4462, 1.4410
			Hastelloy®	2.4610
3	Valve disc ²	1	Stainless steel	1.4408, 1.4404, 1.4462, 1.4469
			Hastelloy®	2.4686
			Aluminum bronze	2.0975
			Cast iron	5.3106
			Coatings:ECTFE, PA11, EPDM, NBR, SBR, FKM, EBRODUR	
4	Lower shaft	1	Stainless steel	1.4122, 1.4104, 1.4401/1.4404, 1.4418, 1.4462, 1.4410
			Hastelloy®	2.4610
5	Screw plug	1	Stainless steel	

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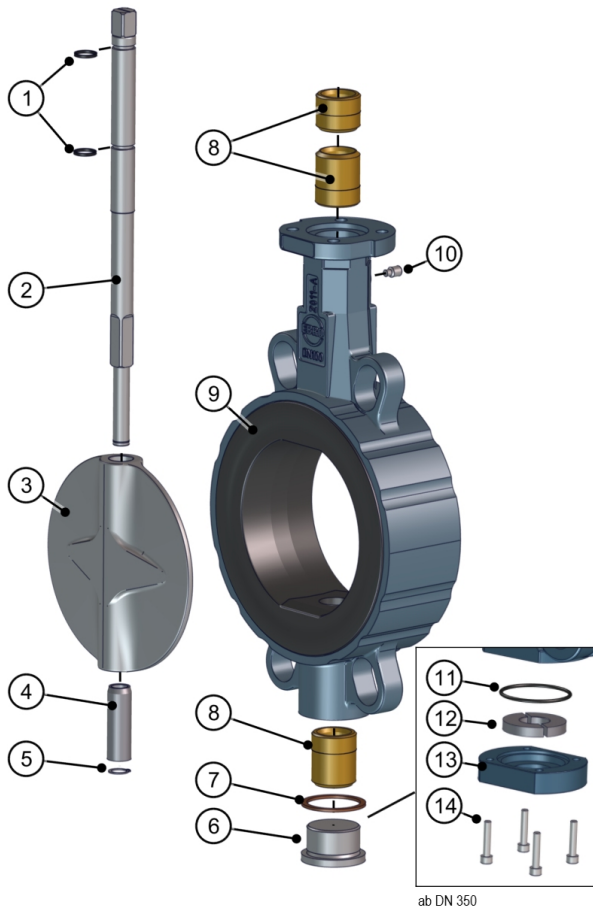


Item	Naming	Piece	Material group ¹	Material no.
6	Seal ring	1	Copper	
7	Bearing bushing	2/3	Brass	
			Polyamide	
			Nitrided steel	
			Aluminum bronze	
8	Valve body with vulcanized liner	1	Aluminum alloy	3.2163, 3.2161
			Cast iron	5.1301, 5.3103, 5.3106
			Cast steel	1.0619
			Stainless steel	1.4408
9	Blow-out protection ³	1	Stainless steel	
10	O-ring ⁴	1	NBR	
			FKM	
11	End cap ⁴	1	Cast iron	
			Stainless steel	
			Aluminum alloy	
12	Screw ⁴	4	Steel	
			Stainless steel	
¹ Materials in the default version. Other materials and surface treatments available upon request ² Additional surface treatments such as electropolished and mirror-polished are available as options ³ Operation without blow-out protection not allowable! ⁴ From DN 350 onwards				

WAFER-TYPE BUTTERFLY VALVE Z011-B
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TS version with through-going shaft



Item	Naming	Piece	Material group ¹	Material no.
1	O-ring	2	NBR	
			FKM	
			EPDM	
2	TS-shaft	1	Stainless steel	1.4122, 1.4104, 1.4401/1.4404, 1.4462, 1.4410
3	TS-valve disc ²	1	Stainless steel	1.4408, 1.4469
			Aluminum bronze	2.0975
			Hastelloy®	2.4686
			Cast iron	5.3106
			Coatings: ECTFE, PA11, EPDM, NBR, SBR, FKM, EBRODUR	
4	Bushing	1	Stainless steel	
5	Blow-out protection ³	1	Stainless steel	
6	Screw plug	1	Stainless steel	
7	Seal ring	1	Copper	

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Item	Naming	Piece	Material group ¹	Material no.
8	Bearing bushing	2/3	Brass	
			Polyamide	
			Nitrided steel	
			Aluminum bronze	
9	Valve body with vulcanized liner	1	Cast iron	5.1301, 5.3103, 5.3106
			Cast steel	1.0619
			Stainless steel	1.4408
10	Screw plug	1	Stainless steel	
11	O-ring ⁴	1	NBR	
			FKM	
12	Blow-out protection ^{3, 4}	1	Brass	2.0401
13	End cap ⁴	1	Cast iron	
			Stainless steel	
			Aluminum alloy	
14	Screw ⁴	4	Steel	
			Stainless steel	
¹ Materials in the default version. Other materials and surface treatments available upon request. ² Additional surface treatments such as electropolished and mirror-polished are available as options. ³ Operation without blow-out protection not allowable! ⁴ From DN 350 onwards				

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 actuation is also necessary.

Valve discs in special designs can be provided.

		Torque (Md) / pressure rating [Nm]			
DN	NPS	3 bar	6 bar	10 bar	16 bar
50	2	9	9	9	9
65	2½	18	18	18	18
80	3	24	24	24	24
100	4	18	18	28	37
125	5	15	22	45	59
150	6	36	45	78	125
200	8	59	76	140	200
250	10	150	180	200	240
300	12	200	240	280	360
350	14	350	540	610	700
400	16	420	620	750	850
450	18	720	746	860	1500
500	20	900	1100	2255	3690
600	24	1050	2100	3000	5830
Additions for other media - Powder (non-lubricating) media $Md \times 1.3 + \text{safety factor}$ - Dry gases/high viscosity liquids $Md \times 1.2 + \text{safety factor}$					

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.

DN	NPS	Opening angle α°							
		20°	30°	40°	50°	60°	70°	80°	90°
50	2	3.84	10.1	20.7	34.4	49.7	65.2	79.5	91.2
65	2½	9.5	16.6	39.1	72.6	113	157	199	235
80	3	15.6	20.6	51.4	102	165	234	304	368
100	4	24.9	39.8	96.5	183	288	398	503	589
125	5	51.8	67.2	135	256	428	652	926	1250
150	6	76.5	97.3	197	375	629	957	1360	1830
200	8	137	187	373	697	1160	1760	2510	3400
250	10	227	271	563	1090	1850	2830	4010	5390
300	12	287	409	820	1550	2610	4050	5880	8120
350	14	399	488	1070	2110	3590	5480	7760	10400
400	16	557	703	1360	2600	4470	7060	10400	14600
450	18	716	907	1810	3440	5830	8980	13000	17800
500	20	875	1110	2250	4280	7180	10900	15500	20900
600	24	1230	1550	3150	6010	10090	15400	21800	29400

Information in m³/h.

Technical features

Designation	Description
Nominal size ¹	DN 50 - DN 600
Body design	Wafer-type (1-piece)
Temperature range ²	-10 °C to +120 °C
Maximum allowable pressure (PS) ³	16 bar
Use with vacuum	Up to 0.001 bar absolute
Notices ¹ DN 20 only PN 10/16 ² Depending on pressure, medium, and material selection ³ A through-going shaft (TS version) is supplied from DN 200 onwards for maximum pressure	

Standards

Designation	Description
Standard of use	DIN EN 593:2018-01
Marking	DIN EN 19:2024-03
Top flange	DIN EN ISO 5211:2024-10
Face-to-face	DIN EN 558:2022-09 Series 20
	ISO 5752:2021-06 Series 20
	API STD 609:2021-04 Table 1
Flange connection ¹	DIN EN 1092-1:2018-12 (Form A/B) PN 6/10/16
	ASME B16.3:2021 Class 150 (RF, FF)
	AS 4087:2011 PN 16
Tightness test ¹	DIN EN 12266-1:2012-06 (Leakage rate A)
	ISO 5208:2015-06, category AA
Notices ¹ Others upon request	

Certificates and approvals

Designation	Description
Tank equipment	DIN EN 14432
Pressure equipment	TSG D7002-2006
Explosion protection	ATEX 2014/34/EU, IECEX, VDI 2263:1990, DIN EN 14460:2018-04, DIN EN 15089:2009-07
Shipbuilding	DNV, Lloyds Register
Safety integrity level	IEC 61508 Level 2 (SIL 2)
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).	