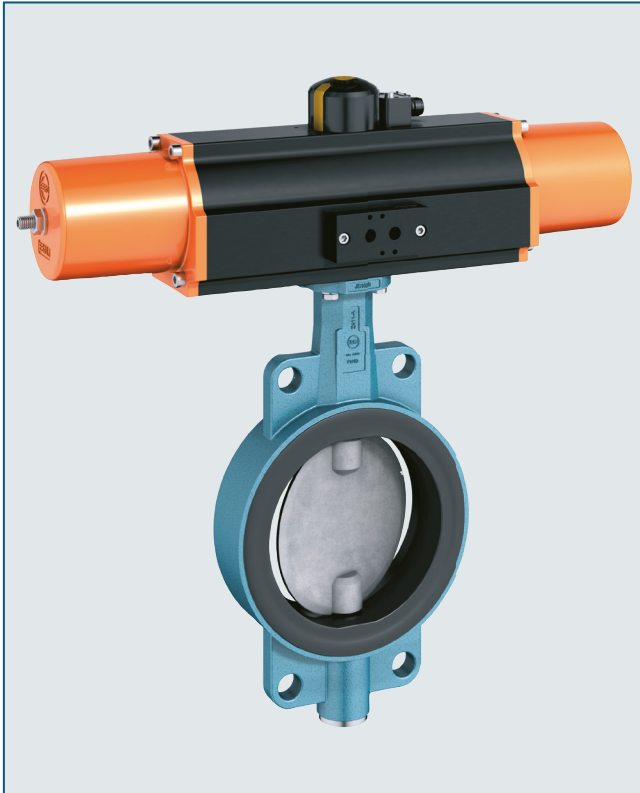


WAFER TYPE BUTTERFLY VALVE Z 411-A



Resilient seated, centrally mounted wafer type valve with reduced inside diameter for PE/PP piping systems.

TECHNICAL DATA

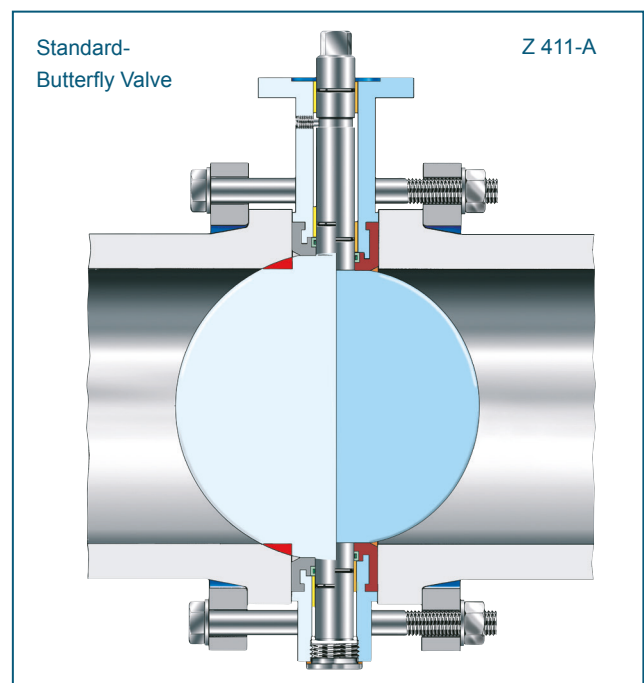
Nominal diameter:	da 50 (DN 40) - da 630 (DN 600) (SDR11) da 50 (DN 40) - da 500 (DN 500) (SDR17 / SDR17,6 / SDR33)
Face-to-face:	EN 558 Series 20 ISO 5752 Series 20 API 609 Table 1
Flange accommodation:	EN 1092 PN 10
Top flange:	EN ISO 5211
Marking:	EN 19
Tightness check:	EN 12266 (Leakage rate A) ISO 5208, Category 3
Temperature range:	-10°C to +160°C (depending on pressure, medium and material)
Operating pressure:	max. 10 bar SDR 11,0 (PE-80) max. 10 bar SDR 17,0 (PE-100) max. 6 bar SDR 17,6 (PE-80) max. 5 bar SDR 33,0 (PE-100)

FEATURES

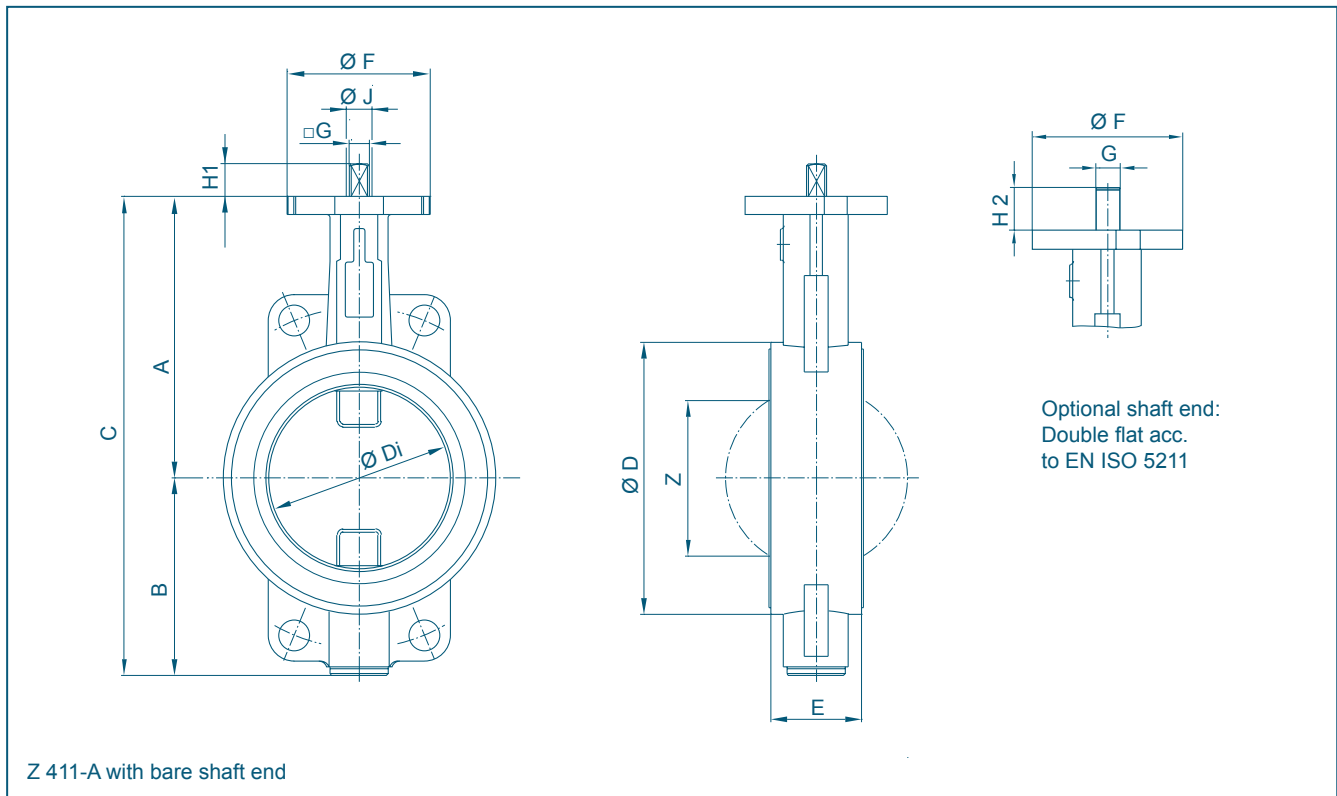
- Adapted butterfly valve for PE/PP piping systems
- The disc diameter corresponds to the inside diameter of PE HD and PP pressure pipes (SDR11 / SDR17 / SDR17,6 / SDR33)
- Short stubs must not be removed by boring. The plant reliability will not be reduced
- There is no need to manufacture and install complicated spacers
- Can be mounted in any desired position
- Triple shaft bearings prevent shaft deflection and guarantee optimum guidance even after many years of operational service
- Interchangeable seat
- Maintenance-free
- Can be disassembled, material-specific recycling possible
- For max. pressure, a through-going shaft (TS) is mounted for sizes \geq da 400

GENERAL APPLICATIONS

- Where PE/PP pipes are used



WAFER TYPE BUTTERFLY VALVE Z 411-A



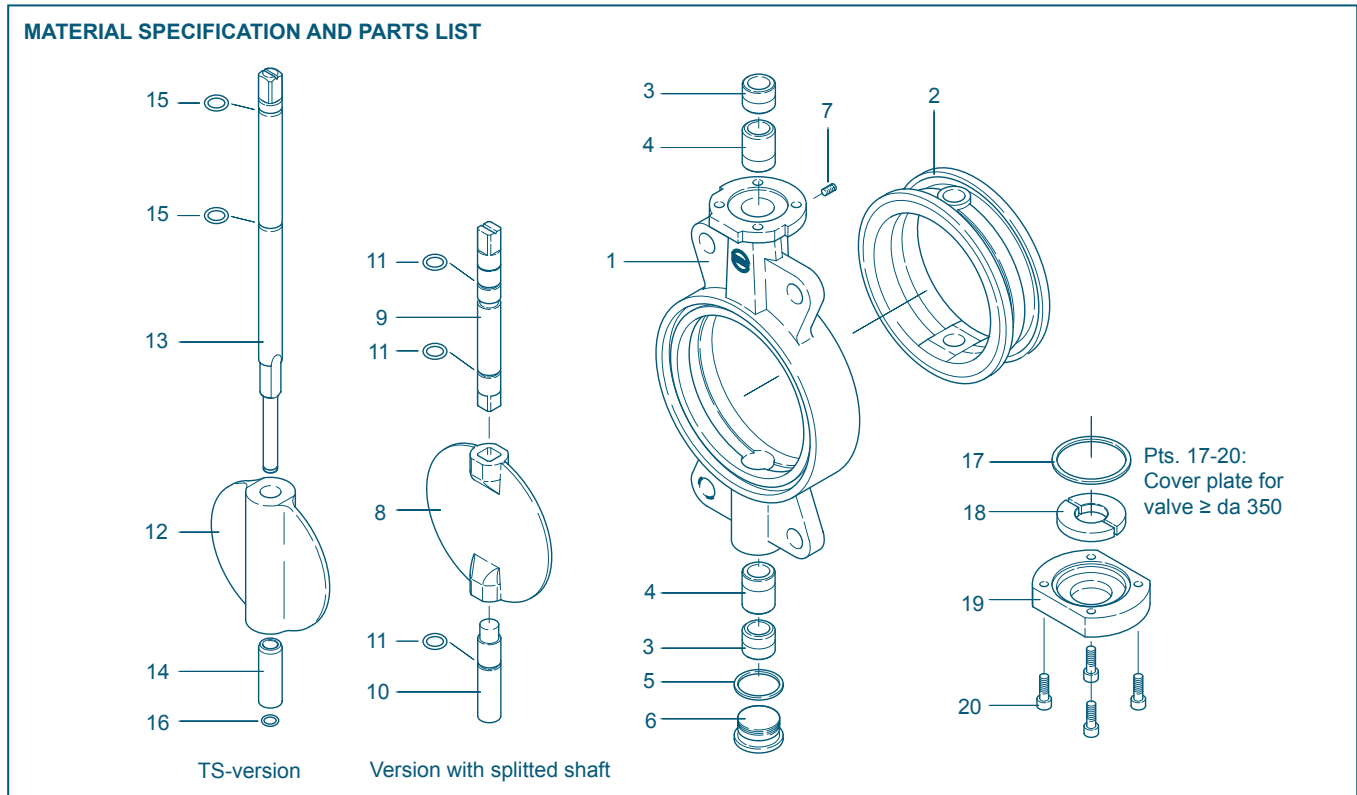
DN [mm]	Ø = da [mm]	Dimensions [mm]																	Weight [kg]		
		A	B	C	SDR 11			SDR 17/ 17,6			SDR 33			E	ØF	Flange	G	H1		H2	ØJ
40	50	113	66	179	80	37	22	80	37	22	80	37	22	33	54	F04	11	12	19	14	1,8
50	63	126	84	210	95	48,5	25	95	48,5	25	95	48,5	25	43	54	F04	11	12	19	14	2,2
65	75	134	93	227	115	63,5	45	115	63,5	45	115	63,5	45	46	54	F04	11	12	19	14	2,9
80	90	157	104	261	138	78,5	65	138	78,5	65	138	78,5	65	46	65	F05	14	16	25	18	4,0
100	110	167	115	282	158	98,5	85	158	98,5	85	158	98,5	85	52	65	F05	14	16	25	18	5,2
100	125	167	115	282	158	98,5	85	158	98,5	85	158	98,5	85	52	65	F05	14	16	25	18	7,5
125	140	180	127	307	166	111,2	98	188	123,5	111	188	123,5	111	56	65	F05	14	16	25	18	8,5
150	160	203	150	353	186	123,2	111	186	123,2	111	212	148	139	56	90	F07	17	19	30	22	10,0
150	180	203	150	353	212	148	139	212	148	139	212	148	139	56	90	F07	17	19	30	22	10,8
200	200	228	176	404	226	161,5	151	226	161,5	151	250	182	173	60	90	F07	17	19	30	22	11,2
200	225	228	176	404	250	182	173	268	198,2	190	268	198,2	190	60	90	F07	17	19	30	22	12,5
250	250	266	212	478	268	198,2	188	268	198,2	188	308	224,3	215	68	90	F07	17	19	30	22	19,0
250	280	266	212	478	315	224,3	215	320	248	240	320	248	240	68	125	F10	22	24	39	30	20,5
300	315	293	237	528	358	255	244	358	255	244	358	279,6	270	78	125	F10	22	24	39	30	28,0
350	355	332	269	601	365	285,7	272	392	311,4	299	392	311,4	299	92	125	F10	22	24	39	30	36,0
400	400	363	314	677	428	327	312	437	349,6	336	437	349,6	336	102	150	F12	**	**	-	40	75,0*
500	450	437	405	842	454	365,8	345	454	365,8	345	508	409	390	127	150	F12	**	**	-	40	105,0*
500	500	437	405	842	508	409	390	546	439,6	422	546	439,6	422	127	150	F12	**	**	-	40	112,0*
600	560	475	418	893	530	426	412	-	-	-	-	-	-	127	210	F16	**	**	-	50	120,0*
600	630	475	418	893	574	488	473	-	-	-	-	-	-	127	211	F16	**	**	-	50	135,0*

* through going shaft only (TS-version)

** according to the mounted actuator

Subject to change without notice

WAFER TYPE BUTTERFLY VALVE Z 411-A



Pt.	Description	Material	Material-No.	ASTM	Pt.	Description	Material	Material-No.	ASTM
1	Body				12	TS-disc da 250 - da 630			
	Aluminiumalloy*	G-AISI9Cu3	3.2163	B 380.1		Nodular Cast Iron	GGG-40	0.7040	60-40-18
	Nodular Cast Iron	GGG-40	0.7045	60-40-18		Stainless Steel	X6CrNiMo10-20	1.4408	CF8M
2	Seat					Aluminium Bronze	CuAl10Ni	2.0975	C 95800
	NBR	Nitrile butadiene rubber				Coating	Halar, Rilsan		
	EPDM	Ethylene propylene diene monomer rubber				Surface quality	electropolished, mirror finished		
	FPM	Fluorocarbon rubber			13	TS-shaft da 250 - da 630			
3/4	Bearing bush					Stainless Steel	X14CrMoS17	1.4104	430 F
	Brass	MS 58	2.0401	B 45			X39CrMo17-1	1.4122	
	Polyamide						X5CrNiMo17-12-2	1.4401	316
5	Seal DIN 7603				14	Sleeve			
	Stainless Steel	X5CrNiMo17-12-2	1.4401	316		Stainless Steel	X5CrNi18-10	1.4301	304
	PTFE				15	O-ring			
	Copper	Cu		Copper		NBR	Nitrile butadiene rubber		
6	Plug screw DIN 908					FPM	Fluorocarbon rubber		
	Stainless Steel	G-X6CrNiMo18-10	1.4408	CF8M	16	Retaining ring			
7	Set screw DIN 915					Stainless Steel	X39CrMo17-1	1.4122	
	Steel	45 H galvanized			17	O-ring da 400 - da 630			
	Stainless Steel	A4-70		B8M		NBR	Nitrile butadiene rubber		
8	Disc				18	Shaft retainer da 400 - da 630			
	Stainless Steel	X5CrNi18-10	1.4301	304		Brass	MS 58	2.0401	B 45
		X5CrNiMo18-10	1.4301	316	19	Cover plate da 400 - da 630			
		G-X6CrNiMo18-10	1.4408	CF8M		Gray Cast Iron	GG-25	0.6025	40 B
	Coating	Halar, Rilsan, NBR, EPDM			20	Screw da 400 - da 630			
	Surface quality	electropolished, mirror finished				Steel	45 H galvanized		
9/10	Shaft					Stainless Steel	A2-70		B 8
	Stainless Steel	X14CrMoS17	1.4104	430 F			A4-70		B8M
		X5/(X2)CrNiMo17-12-2	1.4404/1.4401	316					
11	O-ring								
	NBR	Nitrile butadiene rubber							
	FPM	Fluorocarbon rubber							
							Other materials upon request		

*da 63 - da 355 only

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WAFER TYPE BUTTERFLY VALVE Z 411-A

TORQUE

- The values listed in the table are initial breakaway torques, taken with liquids and lubricant media.

- Please regard these as approximate values, as the objective value depends on different factors like pressure, medium, rubber, quality, temperature ... etc.

- Our engineers look forward to help you with exact values for your application.

- Powdery (non-lubricant) media
Md x 1,3

- Dry gases/high viscous media
Md x 1,2

da [mm]	Size [in]	Adapted Disc Size Pressure Rating		
		SDR 11 10 bar disc	SDR 17 / 17,6 10 bar disc	SDR 33 6 bar disc
50	1½	6	6	6
63	2	7	7	7
75	2½	15	15	9
90	3	18	18	10
110	4	28	28	18
125	4	28	28	18
140	5	45	45	22
160	6	110	78	45
180	6	110	110	45
200	8	140	140	76
225	8	140	140	76
250	10	200	200	180
280	10	200	200	180
315	12	220	220	200
355	14	360	360	310
400	16	620	620	540
450	20	730	730	650
500	20	960	960	890
560	24	1580	-	-
630	24	2000	-	-

All values in Nm

K_v-VALUES

- The K_v-value [m³ per hour] is the flow of water at a temperature of 5°C to 30°C (41°F to 86°F) at Δp of 1 bar

- The K_v-values specified are based on tests carried out by the Delfter Hydraulics Laboratories, the Netherlands

- Permissible velocity of flow
V_{max} 4,5 m/s for liquids,
V_{max} 70 m/s for gases

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

- Avoid cavitation

For further values, please contact our engineers.

da [mm]	DN [mm]	Size [in]	SDR	Opening angle α°							
				20°	30°	40°	50°	60°	70°	80°	90°
50	40	1½	11	-	2,2	8	15	21	33	43	50
			17	-	2,2	8	15	21	33	43	50
			33	-	2,2	8	15	21	33	43	50
63	50	2	11	1,2	8	13	22	38	50	65	85
			17	1,2	8	13	22	38	50	65	85
			33	1,2	8	13	22	38	50	65	85
75	65	2½	11	2	9	22	42	77	115	170	215
			17	2	9	22	42	77	115	170	215
			33	2	9	22	42	77	115	170	215
90	80	3	11	8	24	50	95	150	240	330	420
			17	8	24	50	95	150	240	330	420
			33	8	24	50	95	150	240	330	420
110	100	4	11	13	28	65	130	180	340	550	800
			17	13	28	65	130	180	340	550	800
			33	13	28	65	130	180	340	550	800
125	100	4	11	13	28	65	130	180	340	550	800
			17	13	28	65	130	180	340	550	800
			33	13	28	65	130	180	340	550	800
140	125	5	11	19	46	98	183	272	445	720	950
			17	26	65	130	230	350	530	870	1010
			33	26	65	130	230	350	530	870	1010
160	150	6	11	26	65	130	230	350	530	870	1010
			17	26	65	130	230	350	530	870	1010
			33	35	90	200	360	640	900	1350	2100
180	150	6	11	35	90	200	360	640	900	1350	2100
			17	35	90	200	360	640	900	1350	2100
			33	35	90	200	360	640	900	1350	2100
200	200	8	11	37	120	240	429	740	1100	1870	2650
			17	37	120	240	429	740	1100	1870	2650
			33	41	160	310	520	900	1420	2480	3390
225	200	8	11	41	160	310	520	900	1420	2480	3390
			17	43	180	350	580	1000	1600	3000	4000
			33	43	180	350	580	1000	1600	3000	4000
250	250	10	11	43	180	350	580	1000	1600	3000	4000
			17	43	180	350	580	1000	1600	3000	4000
			33	85	270	510	840	1410	2400	4150	5200
280	250	10	11	85	270	510	840	1410	2400	4150	5200
			17	125	360	660	1100	1800	3100	5300	6400
			33	125	360	660	1100	1800	3100	5300	6400
315	300	12	11	133	390	710	1160	1900	3400	5500	6600
			17	133	390	710	1160	1900	3400	5500	6600
			33	170	480	870	1410	2300	4250	6650	7690
355	350	14	11	185	500	920	1480	2420	4500	7000	8000
			17	240	610	1110	1820	3000	5750	8400	9320
			33	240	610	1110	1820	3000	5750	8400	9320
400	400	16	11	285	680	1230	2050	3400	6680	9300	10200
			17	350	780	1400	2400	4000	8000	10800	11500
			33	350	780	1400	2400	4000	8000	10800	11500
450	500	20	11	395	870	1530	2630	4500	8900	11100	12500
			17	395	870	1530	2630	4500	8900	11100	12500
			33	480	1030	1800	3120	5500	10700	12700	16000
500	500	20	11	480	1030	1800	3120	5500	10700	12700	16000
			17	500	1070	2000	3300	5900	11300	14000	18800
			33	500	1070	2000	3300	5900	11300	14000	18800
560	600	24	11	540	1120	2100	3500	6300	11600	15000	21000
630	600	24	11	610	1300	2400	4100	7200	12500	17600	24000

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