

WAFER PATTERN BUTTERFLY TYP Z 011-A



A universally applicable wafer type valve acc. to EN 593. The large variety of basic materials allows applications in different industries.

TECHNICAL DATA

Nominal diameter:	DN 20 – DN 1200 (DN 20 only PN10/16)
Face-to-face:	EN 558 Series 20 (DIN 3202 T3 K1) ISO 5752 Series 20 API 609 Table 1 BS 5155 Series 4
Flange accommodation:	DIN 2501 PN 6/10/16 ANSI B 16.5, Class 150 MSS SP44 Class 150 AWWA C 207 AS 2129 Table D and E BS 10 Table D and E JIS B 2211-5 K JIS B 2212-10 K
Lap-joint flange:	DIN 2641 and DIN 2642
Weld-on flange:	DIN 2576
Flange Surface Design:	DIN 2526, Form A-E, ANSI RF
Top flange:	EN ISO 5211 NF E 29-402
Marking:	DIN EN 19
Tightness check:	DIN 3230 T3 BO, BN (Leakage Rate 1) ISO 5208, Category 3 API 598 Table 5 ANSI B 16-104, Class VI
Temperature range:	-20 °C to + 160 °C (depending on pressure, medium and material)
Operating pressure:	max. 16 bar
Differential pressure:	max 16 bar
Vacuum:	0,2 bar absolute (depending on medium and temperature)

FEATURES

- Absolutely tight sealing with flow in either direction
- The valve body and disc are accurately machined which results in low operating torque and long service life and reliability.
- Triple shaft bearings prevents shaft deflection and guarantees optimum guidance even after many years of operational service.
- Four flange mounting holes ensure correct valve location when installing.
- Single flange mounting is possible (please request details from our Technical Department).
- Can be installed in any desired position.
- Maintenance-free
- Can be disassembled, material-specific recycling possible

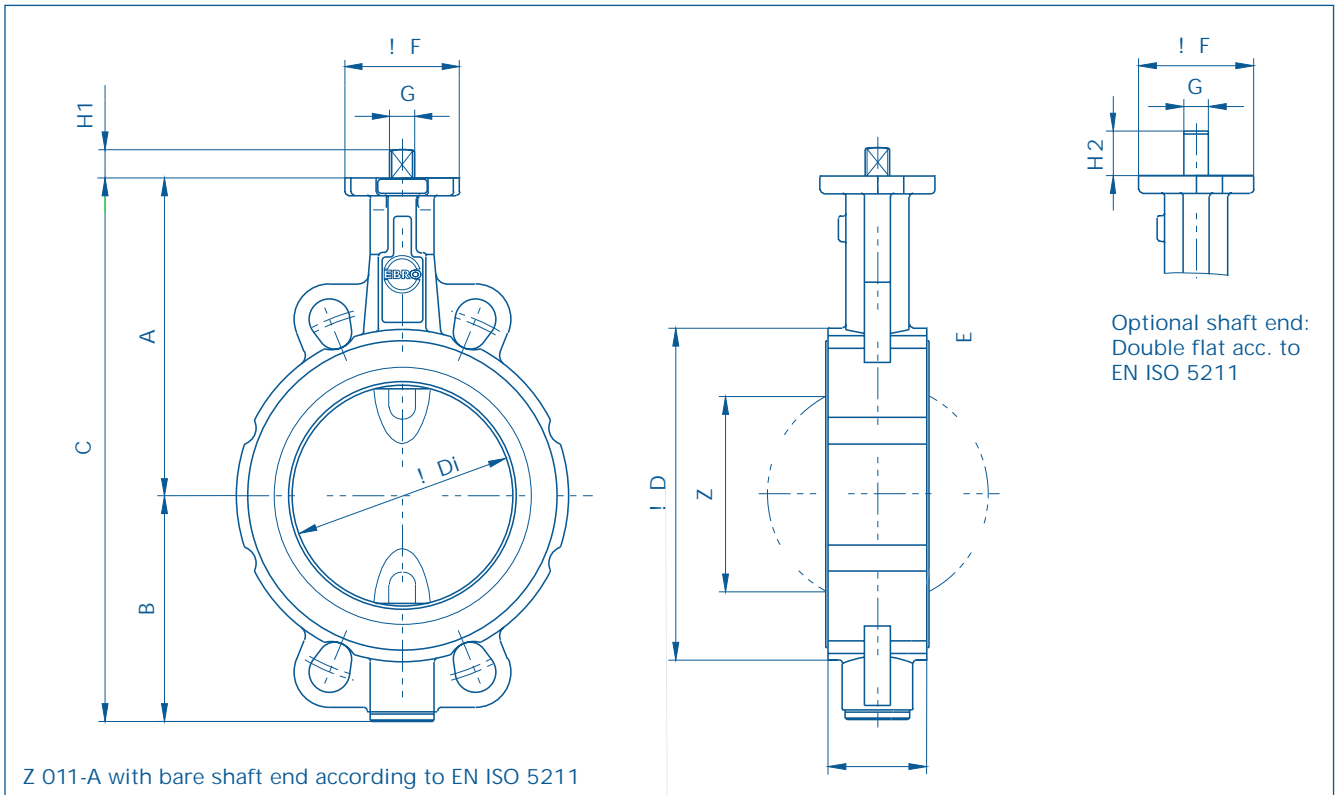
GENERAL APPLICATIONS

- Chemical and petrochemical industries
- Water and wastewater technology
- Pneumatic materials handling technology
- Shipbuilding
- Power generation industry
- Food industry
- Civil engineering
- For paint and laquers, a silicon-free Version is available.



Aluminium version. Available Sizes: DN 50 - DN 400

WAFER PATTERN BUTTERFLY TYP Z 011-A



DN [mm]	Size [in]	Dimensions [mm]													Weight [kg] (GG-25)	
		A	B	C	D	Di	E	F	Flange	G	H1	H2	Z	2 Piece Shaft	TS- Shaft	
20	3/4	104	45	149	59	31,5	33	54	F04	11	12	19	-	1,3	-	
25	1	104	45	149	63	31,5	33	54	F04	11	12	19	-	1,3	-	
32	1 1/4	104	50	154	68	31,5	33	54	F04	11	12	19	-	1,4	-	
40	1 1/2	113	66	179	80	38	33	54	F04	11	12	19	22	1,8	-	
50	2	126	84	210	95	48,5	43	54	F04	11	12	19	25	2,2	-	
65	2 1/2	134	93	227	115	63,5	46	54	F04	11	12	19	45	2,9	-	
80	3	157	104	261	138	78,5	46	65	F05	14	16	25	65	4,0	4,5	
100	4	167	115	282	158	98,5	52	65	F05	14	16	25	85	5,2	5,8	
125	5	180	127	307	188	123,5	56	65	F05	14	16	25	111	6,9	7,5	
150	6	203	150	353	212	148	56	90	F07	17	19	30	139	9,5	11,0	
200	8	228	176	404	268	199	60	90	F07	17	19	30	190	13,2	15,0	
250	10	266	212	478	320	248	68	125	F10	22	24	39	240	22,5	25,5	
300	12	291	237	528	370	296	78	125	F10	22	24	39	287	31,5	35,0	
350	14	332	269	601	408	338	78(92)**	150	F12	*	*	-	330	39,4	45,0	
400	16	363	314	677	470	388	102	150	F12	*	*	-	378	58,7	64,5	
450	18	397	335	732	530	430,5	114	210	F16	*	*	-	417	91,0	95,5	
500	20	437	405	842	574	494,5	127	210	F14/F16	*	*	-	474	107,0	113,5	
600	24	498	469	967	675	590	154	300	F16/F25	*	*	-	563	171,0	198,0	
700	28	581	507	1088	772	680	165	300	F16/F25	*	*	-	660	251,0	304,0	
800	32	630	556	1186	874	780	190	300	F25	*	*	-	757	355,0	375,0	
900	36	696	617	1313	973	880	203	300	F25	*	*	-	860	456,0	498,0	
1000	40	771	675	1446	1070	980	216	350	F30	*	*	-	956	570,0	718,0	
1200	48	880	810	1690	1510	1170	254	350	F30	*	*	-	1154	-	1156,0	

* according to the mounted actuator

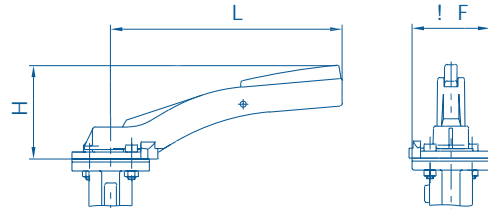
** face to face dim. acc. to EN 558 Tab. 20 (92 mm)

Subject to change without notice.

ACTUATORS Z 011-A

HAND LEVER

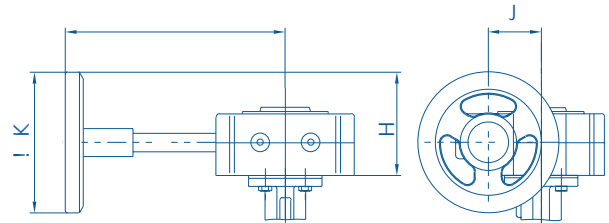
DN [mm]	Size [in]	Hand Lever	F	H	L	Weight [kg]
20-65	3/4-2 1/2	Size I	54	70	155	0,1
80-125	3-5	Size II	65	80	195	0,15
150-200	6-8	Size III	90	100	276	0,5



WORM GEAR

DN [mm]	Size [in]	Gear	H	J	K	L	Weight [kg]
20-65	3/4-2 1/2	Size I	89	39	125	152	1,9
80-125	3-5	Size II	89	39	125	159	1,4
150-200	6-8	Size III	129	47	200	202	2,3
250	10	Size IV	129	60	200	252	2,8
300-350	12-14	Size V	158	76	250	280	6,3
400-450	16-18	Size VI	228	90	356	322	16,0
500	20	Size VII	278	123	457	406	30,5
600	24	Size VIII	355	154	610	466	45,0

The dimensioning of actuators refers to an operating pressure of 10 bar.

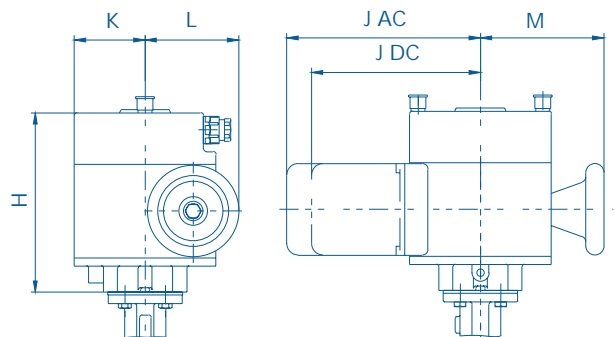


ELECTRIC ACTUATOR

DN [mm]	Size [in]	Actuator Type	H	J/DC	J/AC	K	L	M	Weight [kg]
20-150	3/4-6	E 60	158	171	171	62	82	110	5,0
200-250	8-10	E 100	183	206	246	74	121	131	11,5
300-350	12-14	E 150	200	238	278	105	189	155	21,0
400-500	16-20	E 200	212	313	313	124	283	220	34,0

AC = Alternating current
DC = Three phase current

The dimensioning of actuators refers to an operating pressure of 10 bar.



Other Actuators: See Documentation of the Manufacturer.

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ACTUATORS Z 011-A

PNEUMATIC DOUBLE ACTING

DN [mm]	Size [in]	Actuator	H	J	K	L	Weight [kg]
20-65	3/4-2 1/2	EB4	96	74	49	145	1,1
80-125	3-5	EB5	108	88	55	174	1,7
150	6	EB6	123	103	62	208	2,6
200	8	EB8	136	115	68	250	4,3
250-300	10-12	EB10	155	135	79	312	6,8
350-450	14-18	EB12	182	159	94	367	12,0
500	20	EB265	232	152	76	390	18,0
600-700	24-28	EB270	278	220	110	445	32,0
800-900	32-36	EB280	278	220	110	600	42,0

The dimensioning of actuators refers to the following operating conditions:

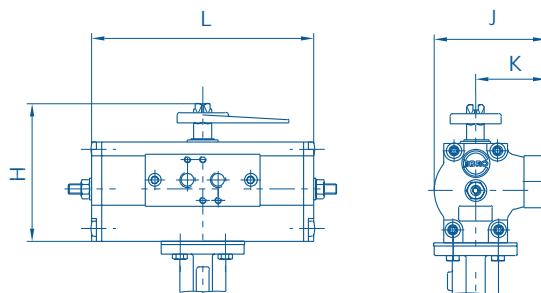
Control air Pressure: 6 bar

Operating Pressure: DN 20 - DN 300 10 bar

DN 350 6 bar

DN 400 - DN 900 3 bar

Dimensioning for other conditions: upon request



PNEUMATIC SPRING RETURN

DN [mm]	Size [in]	EBF Actuator	H	J	K	L	Weight [kg]
20-100	3/4-4	EB5	108	88	55	273	3,0
125	5	EB6	123	103	62	326	5,0
150	6	EB8	136	115	68	389	7,7
200	8	EB10	155	135	79	526	14,3
250-300	10-12	EB12	182	159	94	658	25,4
350-400	14-16	EB270	278	220	110	655	45,0
450-600	18-24	EB280	278	220	110	1020	68,0

The dimensioning of actuators refers to the following operating conditions:

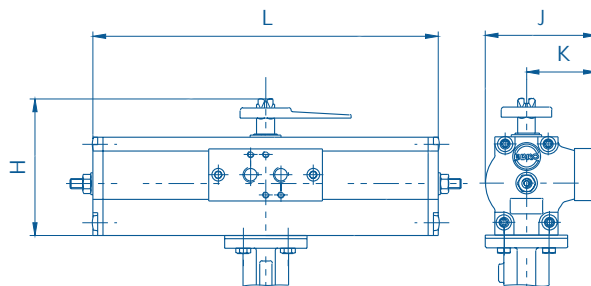
Control air Pressure: 6 bar

Operating Pressure: DN 20 - DN 300 10 bar

DN 350 6 bar

DN 400 - DN 900 3 bar

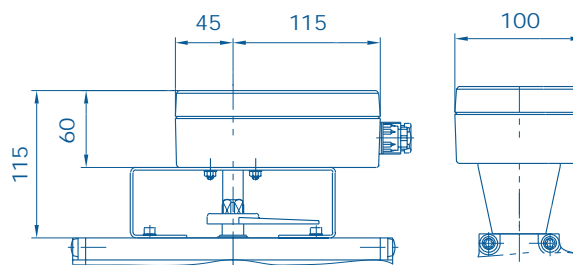
Dimensioning for other conditions: upon request



SWITCH BOX SERIES MSK/NSK

MSK: Switch box with integrated micro limit switches.

NSK: Switch box with integrated proximity switches.

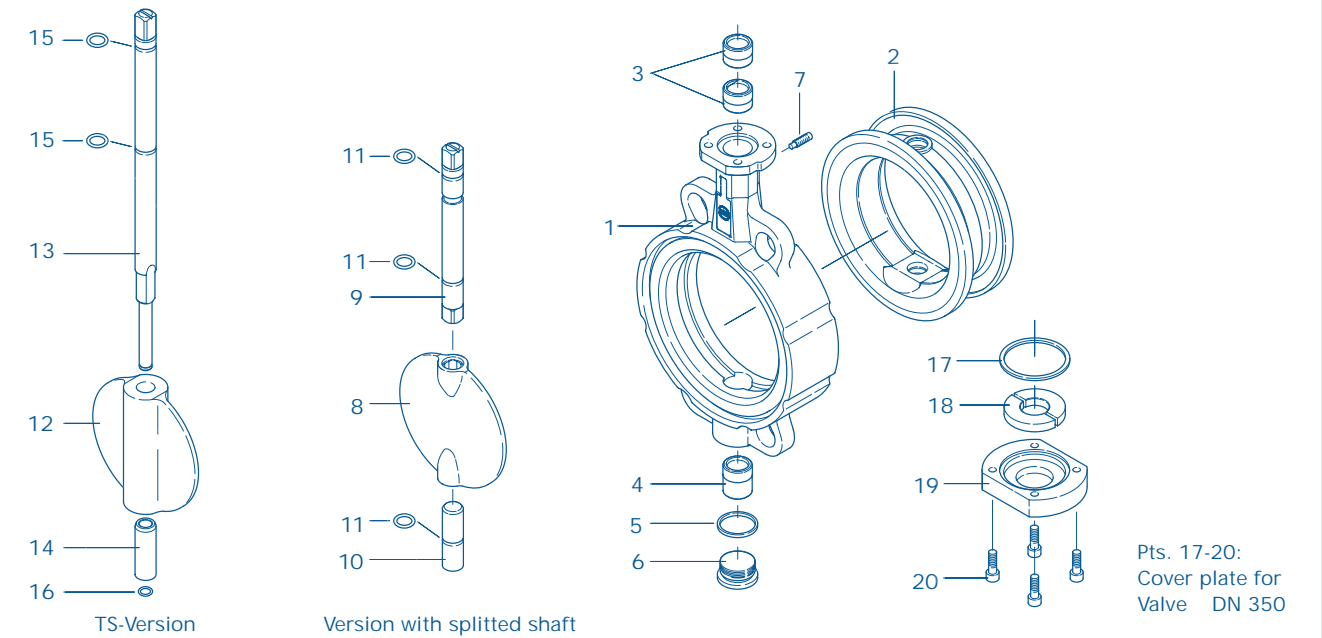


Other Actuators: See Documentation of the Manufacturer.

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MATERIAL SPECIFICATION AND PARTS LIST



Pt.	Description	Material	Material-No.	ASTM	Pt.	Description	Material	Material-No.	ASTM		
1	Body	Aluminiumalloy	G-AISI9Cu3	3.2163	B 380.1	9/10	Shafts	Stainless Steel	X39CrMo17-1	1.4122	
			G-AISI10Mg	3.2381	361.1				X14CrMoS17	1.4104	430 F
		Grey Cast Iron	GG-25	0.6025	40 B				X5CrNiMo17-12-2	1.4401	316
		Nodular Cast Iron	GGG-40	0.7040	60-40-18				Hastelloy	2.4883	Hastelloy
			GGG-40.3	0.7043				Aluminium Bronze	CuAl10Ni	2.0975	
		Carbon Steel	GS-C25	1.0619	WCB	11	O-ring				
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M				NBR	Acrylonitrile butadiene rubber	
		Aluminium Bronze	G-CuAl10Ni	2.0975	C 95800				FPM	Fluorocarbon caoutchouc	
2	Seat					12	TS-disc				
		NBR	Acrylonitrile butadiene rubber					Nodular Cast Iron	GGG-40	0.7040	60-40-18
		EPDM	Ethylene propylene caoutchouc					Stainless Steel	G-X5CrNiMo19-11-21.4408	CF8M	
		CSM	Chlorsulphonated polyethylene					Aluminium Bronze	G-CuAl10Ni	2.0975	C 95800
		FPM	Fluorocarbon caoutchouc					Coating	Halar, Rilsan		
		VSI	Silicon rubber					Surface			
		AU	Polyurethane elastomer					Quality	electropolished, mirror finished		
3/4	Bearing bush					13	TS-shaft				
		Brass	MS 58	2.0401	B45			Stainless Steel	X14CrMoS17	1.4104	430F
		Polyamide	PA 66						X39CrMo17-1	1.4122	
		PTFE	Polytetraflourethylen						X5CrNiMo17-12-2	1.4401	316
5	Seal DIN 7603							Aluminium Bronze	CuAl10Ni	2.0975	
		Copper	Cu		Copper	14	Sleeve				
6	Plug screw DIN 908							Stainless Steel	X5CrNi18-10	1.4301	304
		Stainless Steel	G-X5CrNiMo19-11-2	1.4408	CF8M	15	O-ring				
7	Set screw DIN 915								NBR	Acrylonitrile butadiene rubber	
		Steel	45 H galvanized						FPM	Fluorocarbon caoutchouc	
		Stainless Steel	A4-70		B8M	16	Retainin ring				
8	Disc							Stainless Steel	X39CrMo17-1	1.4122	
		Steel	St 52.3	1.0570	572-50	17	O-ring				
		Stainless Steel	G-X5CrNiMo19-11-2	1.4301	304				NBR	Acrylonitrile butadiene rubber	
			G-X6CrNiMo18-10	1.4408	CF8M	18	Shaft retainer				
			X2CrNiMo17-12-2	1.4404	316 L			Brass	MS 58	2.0401	B45
			X6CrNiMoTi17-12-2	1.4571	316 Ti	19	Cover plate				
			G-X2CrNiMoN26-7-4	1.4469	F 51			Grey Cast Iron	GG-25	0.6025	40 B
			Hastelloy	2.4883	Hastelloy	20	Screw				
		Aluminium Bronze	G-CuAl10Ni	2.0975	C 95800			Steel	45 H galvanized		
		Coating	Halar, Rilsan					Stainless Steel	A2-70		B8
		Surface							A4-70		B8M
		Quality	electropolished, mirror finished								
											Other materials upon request.

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WAFER PATTERN BUTTERFLY TYP Z011-A

TORQUE

- The torque values specified (MD) are based on liquid and lubricant media.
 - Powdery (non-lubricant) media
Md x 1,3
 - Dry gases/high viscous media
Md x 1,2
 - The values specified are based on the initial breakaway torque.
 - Dynamic torque specification available upon request.
- Regarding the dimensioning of actuators, please contact our engineers.

DN [mm]	Size [in]	Operating Pressure			
		3 [bar]	6 [bar]	10 [bar]	16 [bar]
20	3/4	Ɖ	Ɖ	5	Ɖ
25	1	Ɖ	Ɖ	5	Ɖ
32	1 1/4	Ɖ	Ɖ	5	Ɖ
40	1 1/2	Ɖ	Ɖ	6	8
50	2	5	7	7	9
65	2 1/2	7	9	15	18
80	3	8	10	18	24
100	4	9	18	28	37
125	5	15	22	45	59
150	6	36	45	110	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
700	28	1560	2240	3450	6100
800	32	2070	3800	6600	11200
900	36	2700	4900	7100	14500
1000	40	4600	6780	11500	24400
1200	48	7800	12000	21000	44000

All Values in Nm

K_v-VALUES

- The K_v-value (m³ per hour) is the flow of water at a temperature of 5_iC to 30_iC (41_iF to 86_iF) at p 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 Vmax 4,5 m/s for liquids and Vmax 70 m/s for gases.
 - The throttle function is linear at an angle 30_ito 70_i.
 - Avoid cavitation!
- For further values, please contact our engineers.

DN [mm]	Size [in]	Opening angle _i							
		20 _i	30 _i	40 _i	50 _i	60 _i	70 _i	80 _i	90 _i
20	3/4	Ɖ	1	4	8	11	19	27	32
25	1	Ɖ	1,5	5	10	15	24	32	36
32	1 1/4	Ɖ	1,5	5	11	16	27	35	40
40	1 1/2	Ɖ	2,2	8	15	21	33	43	50
50	2	1,2	8	13	22	38	50	65	85
65	2 1/2	2	9	22	42	77	115	170	215
80	3	8	24	50	95	150	240	330	420
100	4	13	28	65	130	180	340	550	800
125	5	26	65	130	230	350	530	870	1010
150	6	35	90	200	360	640	900	1350	2100
200	8	43	180	350	580	1000	1600	3000	4000
250	10	125	360	660	1100	1800	3100	5300	6400
300	12	200	550	1000	1600	2600	5000	7500	8500
350	14	350	780	1400	2400	4000	8000	10800	11500
400	16	490	1050	1800	3100	5500	11000	12000	14500
450	18	510	1080	2040	3350	6100	11500	14600	20500
500	20	520	1100	2200	3500	6200	12000	15100	21000
600	24	750	1400	2800	5100	8800	14000	22000	29300
700	28	770	1755	3260	5980	10600	17100	25300	36000
800	32	1200	2260	4550	8230	12900	20300	29300	44600
900	36	1540	2280	6030	10500	17600	29200	42150	59000
1000	40	2200	3970	8300	14480	24000	37100	60300	81500
1200	48	5050	7900	13800	19700	33500	53300	73050	102650