



Butterfly Valve

BOAX-S/SF

PN 6/10/16 (BOAX-S)
PN 10/16 (BOAX-SF)
DN 20 - 600

Type Series Booklet



Legal information/Copyright

Type Series Booklet BOAX-S/SF

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Butterfly Valves

Centred-disc Butterfly Valves

BOAX-S/SF



Main applications

- Hot-water heating systems
- Air-conditioning systems
- Domestic water supply
- Paint shops
- Swimming pools
- Rainwater harvesting
- Washing plants
- Pressure boosting
- General irrigation systems
- Spray irrigation systems

Fluids handled

- Drinking water
- Heating water
- Fresh water
- Cooling water
- Water/glycol mixtures

Operating data

Table 1: Characteristics

Characteristic	Value	
	BOAX-S	BOAX-SF
Body design	T2	T4
Nominal pressure	PN 6/10/16	PN 10/16
Nominal size	DN 20 - 600	DN 20 - 600
Max. permissible pressure [bar]	16	16
Min. permissible temperature [°C]	≥ -10	≥ -10
Max. permissible temperature [°C]	≤ +130	≤ +130
Temperature with ▪ XU liner ▪ K liner	▪ -10 °C to +130 °C ▪ -10 °C to +90 °C	
Actuation at ΔP at ambient temperature ▪ DN 20-200 ▪ DN 250-600	▪ 16 bar max. ▪ 10 bar max.	
Vacuum operation down to	0.2 bar absolute	
Max. permissible flow velocity at operating pressure	4 m/s (max.) for water	
Flanged ends to EN ISO	PN 6/10/16	PN 10/16
Downstream dismantling and dead-end service	Permissible	
Shaft end	DN < 300 = flat end and square end DN ≥ 350 = square end ISO 5211	

Design details

Design

- Semi-lug body - T2 (BOAX-S)
- Full-lug body with raised faces - T4 (BOAX-SF)
- Suitable for downstream dismantling and as dead-end valve (BOAX-S/SF)
- Extended neck allows insulation (in acc. with applicable German energy-saving regulation, for DN 20 to 200)
- Thermal barrier enables straightforward fastening of insulation at the top flange skirt.
- Elastomer liner: thicker elastomer in the area of the shaft passage ensures leak-proof sealing to atmosphere
- The spherically machined valve disc ensures perfectly tight shut-off.
- Shell and leak test to EN 12266-1, leakage rate A, and ISO 5208, category A
- Face-to-face length to ISO 5752-20 and EN 558-1-20
- Top flange and square valve shaft end to ISO 5211
- Marking in accordance with EN 19
- Valves manufactured without paint wetting impairment substances
- Body coating: polyurethane, 80 µm, RAL 2002 (orange)

Variants

- BOAX-S/SF THERMAX
The thermometer of BOAX-S/SF with lever can measure temperatures from 0 °C to +140 °C in heating systems and temperatures from -20 °C to +60 °C in cooling systems. DN 20-250, accuracy class 1.

Actuator variants

- Data of LP levers:
 - 4 handle lengths: 165 mm, 260 mm, 330 mm and 460 mm
 - Made of aluminium alloy
 - Coating:
 - Handle: polyurethane, thickness 80 µm, colour: RAL 9011, black
 - Toggle lever: polyurethane, thickness 80 µm, colour: RAL 2002, orange
 - Cannot be removed
 - Can be locked in 13 positions (2 limit positions and 11 intermediate positions)
- MA manual gearbox
- MS manual gearbox
- Electric actuators

Automation options

- AMTROBOX M limit switch box with MA manual gearbox

Valve body materials

Table 2: Overview of available materials

Material	Material number	KSB code
EN-GJS-400-15	5.3106	3g

Product benefits

- Thermometer of accuracy class 1 (optional). Please indicate when ordering the valve.
- Valve certified to
 - DVGW, ÖVGW, SVGW and BELGAQUA for drinking water applications, with EPDM elastomer liner, approved by KTW, ILP Nancy
- The spherical contact between valve disc and liner ensures durable and permanently tight shut-off.
- The extended neck between actuator and valve body enables insulation of the piping.
- Semi-lug or full-lug bodies with raised faces enable downstream dismantling.
- Actuation via padlockable or lead-sealable lever (DN 20-250)

Product information

Product information as per European Pressure Equipment Directive 2014/68/EU (PED)

The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Groups 1 and 2.

Product information as per UK Pressure Equipment (Safety) Regulations 2016

The valves satisfy the safety requirements of the UK Pressure Equipment (Safety) Regulations 2016 (PER) for fluids in Groups 1 and 2.

Product information as per Regulation No. 1907/2006 (REACH)

For information as per European chemicals regulation (EC) No. 1907/2006 (REACH) see <https://www.ksb.com/en-global/company/corporate-responsibility/reach>.

Certifications

Table 3: Overview

Label	Effective in:	Comment
	Worldwide	-
	Germany	Approved in accordance with the German drinking water regulation
	Switzerland	Approved in accordance with Swiss drinking water regulation
	Belgium	Approved in accordance with the Belgian drinking water regulation
	France	Approved in accordance with the French drinking water regulation
	United Kingdom	Approved in accordance with the UK drinking water regulation

Related documents

Table 4: Information/documents

Document	Reference number
Operating manual	8417.8
AMTROBOX M type series booklet	8523.1

Purchase order specifications

1. Type
2. Nominal pressure
3. Nominal size
4. Fluid handled
5. Flow rate / flow velocity
6. Operating temperature
7. Materials (body, valve disc, seat)
8. Line connection, flange facing and flange surface quality
9. Actuator / automation
10. Reference number

Technical data

Hydraulic data of the butterfly valve

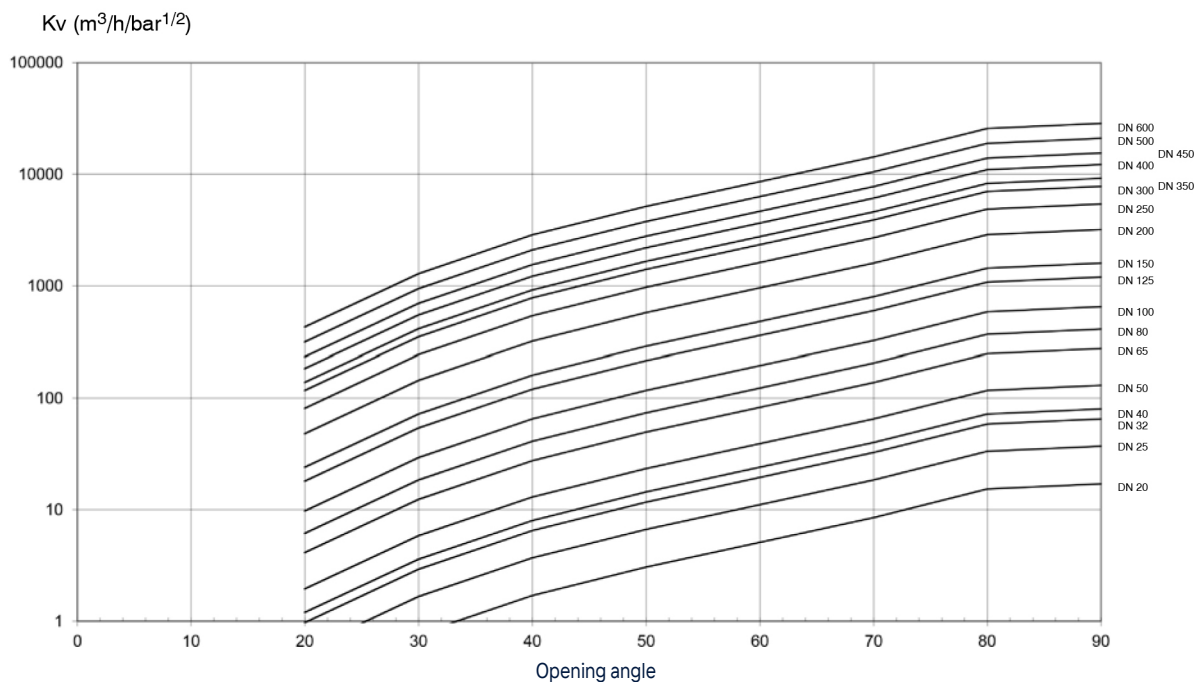


Illustration of hydraulic data

Table 5: Table of coefficients Kv [mm] and Zeta

DN	Kv as a function of opening angle									Zeta
	10 °	20 °	30 °	40 °	50 °	60 °	70 °	80 °	90 °	
20/25 ¹⁾	0	0,6	1,7	4	6,7	11	19	33	37	0,46
20 ²⁾	0	0,26	0,77	1,7	3,1	5,1	8,5	15,3	17	0,88
25 ²⁾	0	0,6	1,7	4	6,7	11	19	33	37	0,46
32	0	1,0	2,9	6,5	11,7	19,5	32,5	58,5	65	0,40
40	0	1,2	3,6	8,0	14,4	24	40	72	80	0,64
50	0,1	2	5,9	13	23,4	39	65	117	130	0,59
65	0,3	4,1	12,4	27,5	49,5	82,5	137,5	247,5	275	0,38
80	0,4	6,2	18,5	41	74	123	205	369	410	0,39
100	0,7	9,8	29,3	65	117	195	325	585	650	0,38
125	1,2	18	54	120	216	360	600	1080	1200	0,27
150	1,6	24	72	160	288	480	800	1440	1600	0,32
200	3,2	48	144	320	576	960	1600	2880	3200	0,25
250	5,4	81	243	540	972	1620	2700	4860	5400	0,21
300	7,8	117	351	780	1404	2340	3900	7020	7800	0,21
350	9,2	138	414	920	1656	2760	4600	8280	9200	0,28
400	12,2	183	549	1220	2196	3660	6100	10980	12200	0,27
450	15,5	232,5	698	1550	2790	4650	7750	13950	15500	0,27
500	21	315	945	2100	3780	6300	10500	18900	21000	0,23
600	28,6	429	1287	2860	5148	8580	14300	25740	28600	0,25

1 BOAX-S
2 BOAX-SF

Materials

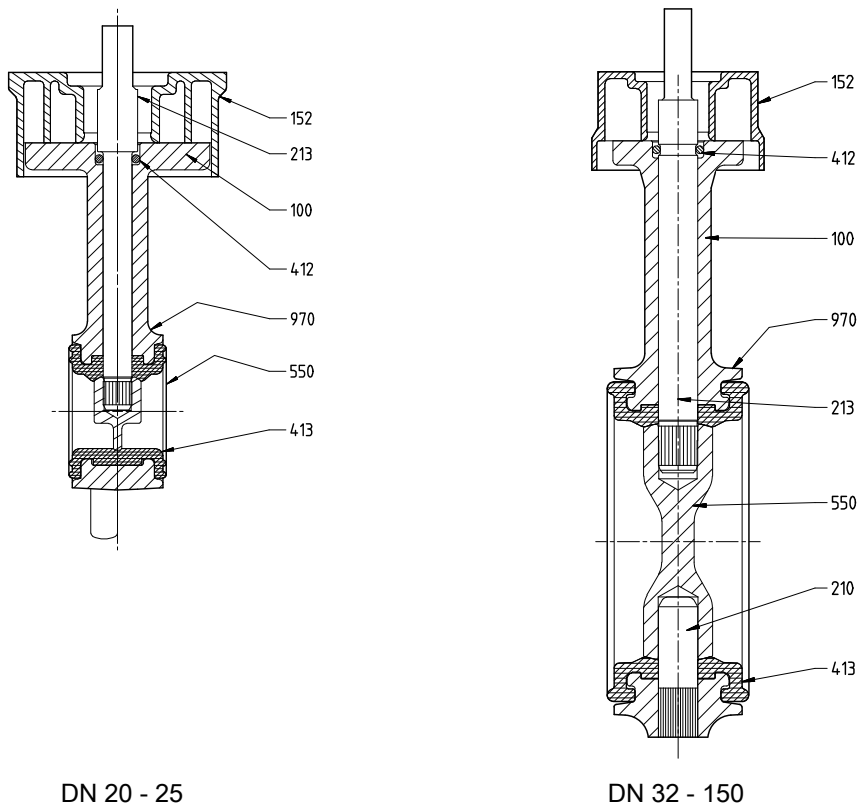


Fig. 1: Sectional drawings of BOAX-S/SF DN 20 to DN 150

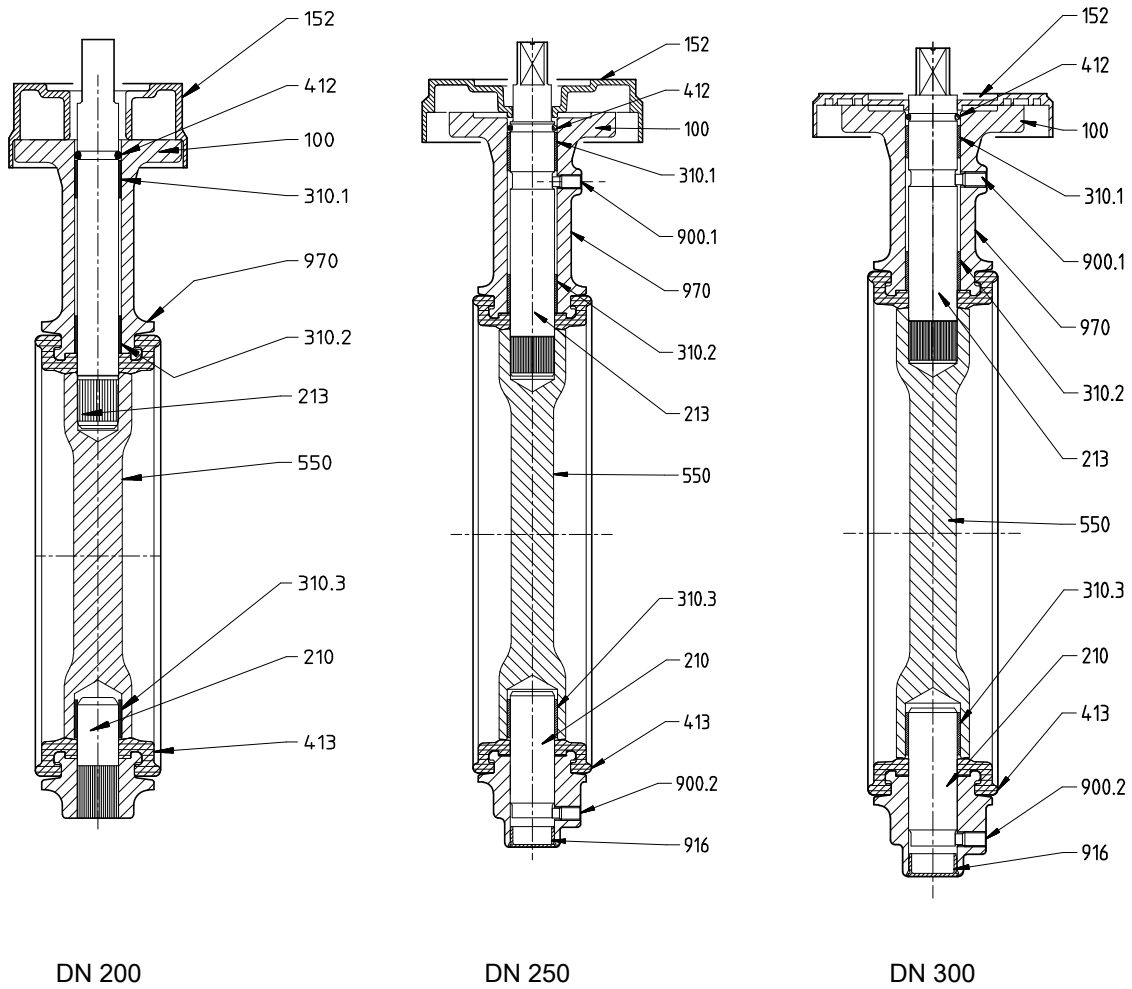


Fig. 2: Sectional drawings of BOAX-S/SF DN 200 to DN 300

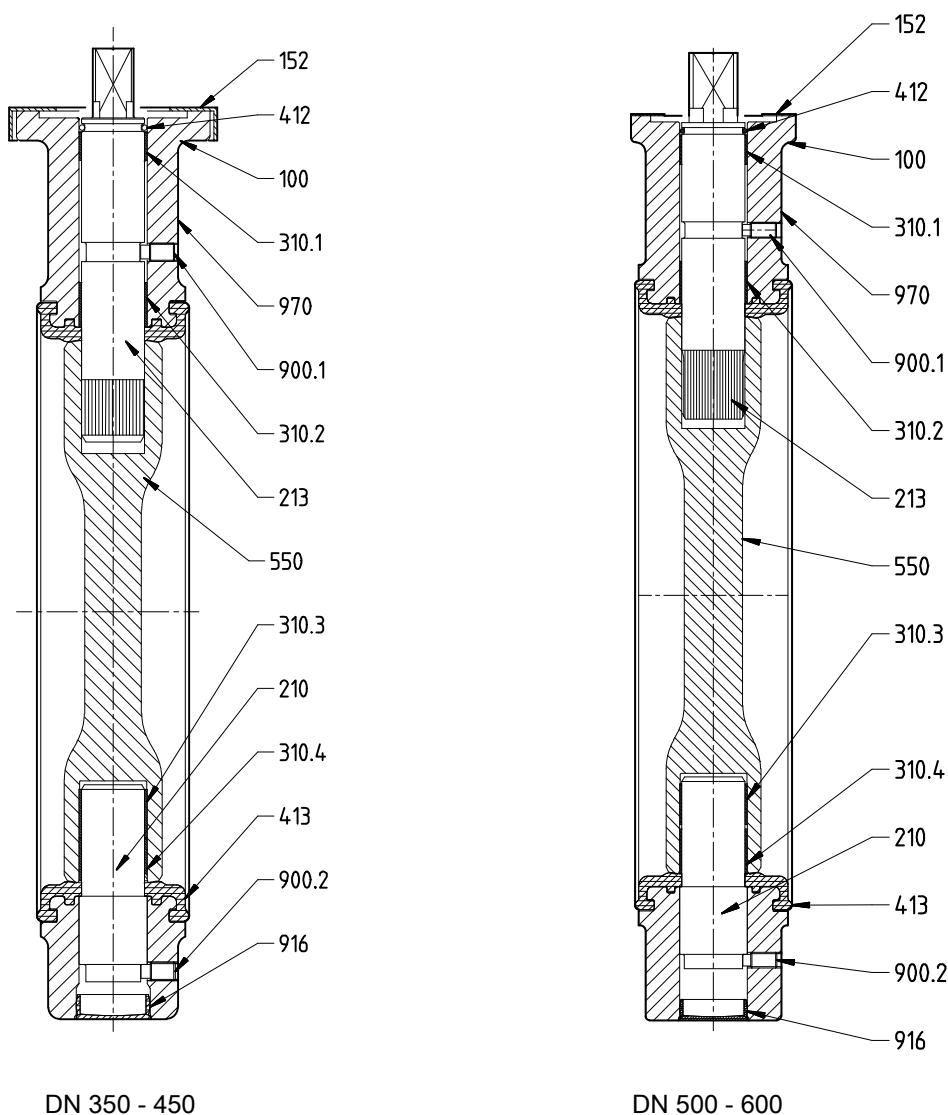


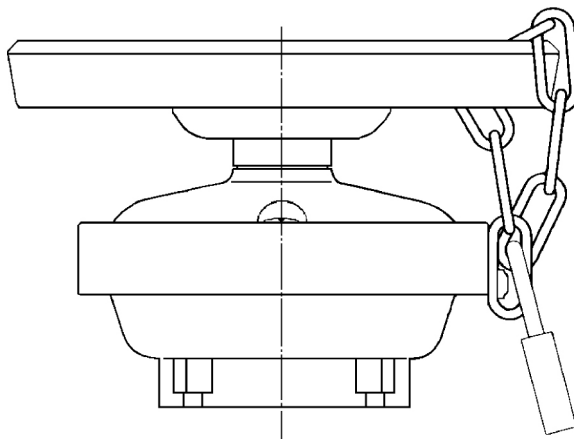
Fig. 3: Sectional drawings of BOAX-S/SF DN 350 to DN 600

Table 6: List of components

Part No.	Description	DN	Materials	KSB code
100	Body	20 - 600	Nodular cast iron JS1030	3g
152	Thermal barrier	20 - 450	Polyamide, glass-fibre reinforced	
210	Shaft	20 - 600	Stainless steel (13 % chrome) - 1.4029	6k
213	Actuating shaft	20 - 600	Stainless steel (13 % chrome) - 1.4029	6k
310.1	Plain bearing	200 - 600	Steel with reinforced PTFE coating	
310.2	Plain bearing	200 - 600	Steel with reinforced PTFE coating	
310.3	Plain bearing	200 - 600	Steel with reinforced PTFE coating	
310.4	Plain bearing	350 - 600	Steel with reinforced PTFE coating	
400	Gasket	500 - 600	Polypropylene	
412	O-ring	250 - 600	EPDM	
413	Liner	20 - 600	EPDM	XU
		20 - 600	High-grade nitrile	K
550	Valve disc	20 - 600	Stainless steel 1.4301/1.4308 (18-10)	6g
901.1	Bolt	250 - 600	Stainless steel	
901.2	Bolt	250 - 600	Stainless steel	
916	Plug	250 - 600	Polyethylene	
970	Name plate	20 - 600	Adhesive label, polyester-coated	

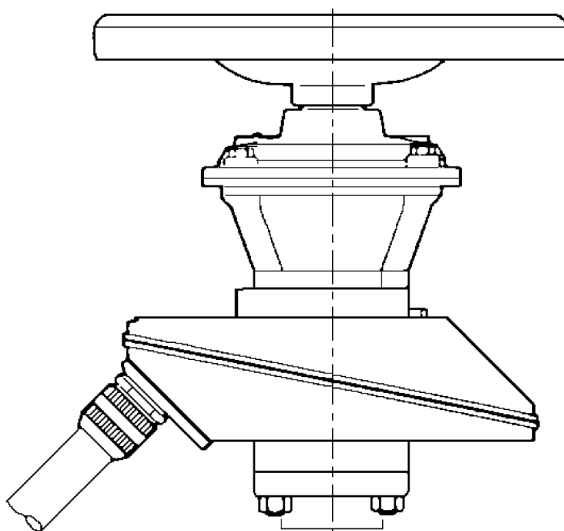
Variants

Locking by chain



Locking arrangement of MA manual gearbox (chain and padlock)

AMTROBOX limit switch box



AMTROBOX M limit switch box for MA manual gearbox

Dimensions and weights

Dimensions and weights of BOAX-S

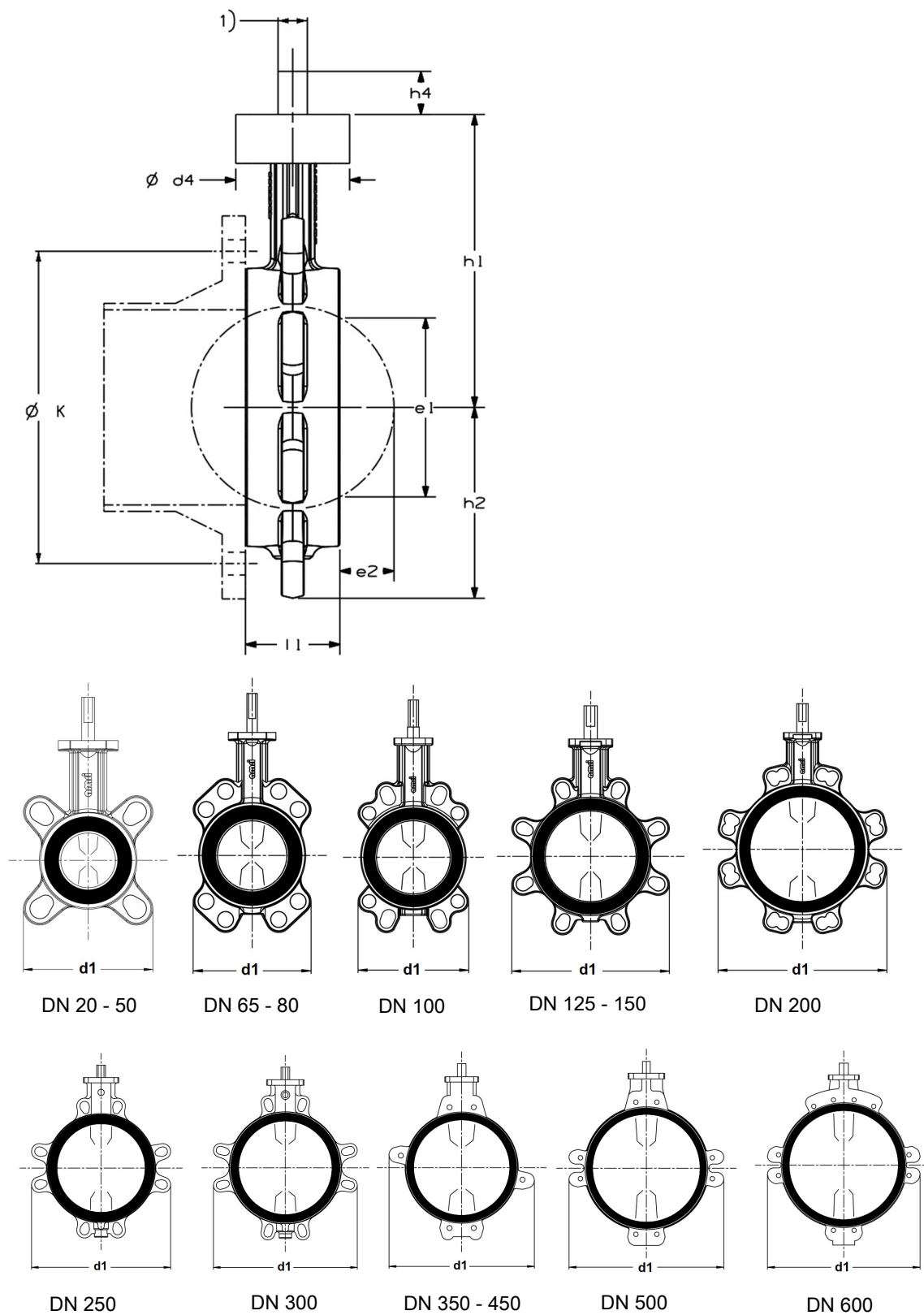


Fig. 4: Sectional drawings of BOAX-S

Table 7: Dimensions and weights

DN	l1	d1	d4	h1	h2	Top flange to ISO 5211		Flat shaft end			Square shaft end to ISO 5211		Valve disc		[kg]
						No.	h4	∅ s	Ø z	h3	∅ s	h3	e1	e2	
	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
20/25	27	84	70	111	41,5	F05	40	H9	12	11	-	-	15	2	0,6
32	27	101	70	115	50,3	F05	40	H9	12	11	-	-	31	5	0,9
40	33	108	70	133	53,9	F05	40	H9	12	15	-	-	32	4	1,2
50	43	118	70	137,5	58,8	F05	40	H9	12	15	-	-	33	4	1,5
65	46	132	70	164	82	F05	40	H9	12	21	-	-	55	11	2,2
80	46	138	70	170	88,9	F05	40	H9	12	21	-	-	71	17	2,8
100	52	150	70	191	103	F05	40	H11	14	24	-	-	90	23	4,4
125	56	234	70	204,5	117,3	F05	40	H11	14	24	-	-	119	35	5,6
150	56	260	95	224	130	F07	42	H17	22	25	-	-	144	46	7,8
200	60	322	95	252	161	F07	42	H17	22	25	-	-	196	69	11,9
250	68	394	133	275	197	F10	38	-	-	-	L19 ³⁾	25	249	92	17,8
300	78	462	158	290	231	F12	28,5	-	-	-	L22 ³⁾	29	297	111	32,0
350	78	538	183	338	269	F12	29	-	-	-	L27	29	326	127	60,0
400	102	604	183	383	302	F14	29	-	-	-	L36	38	370	140	80,0
450	114	656	183	413	329	F14	29	-	-	-	L36	38	422	160	110,0
500	127	716	-	440	359	F14	29	-	-	-	L36	38	478	178	145,0
600	154	836	-	495	439	F16	29	-	-	-	L46	48	566	215	220,0

3 Square shaft end not to ISO 5211

Connection in acc. with EN 1092-1 for BOAX-S

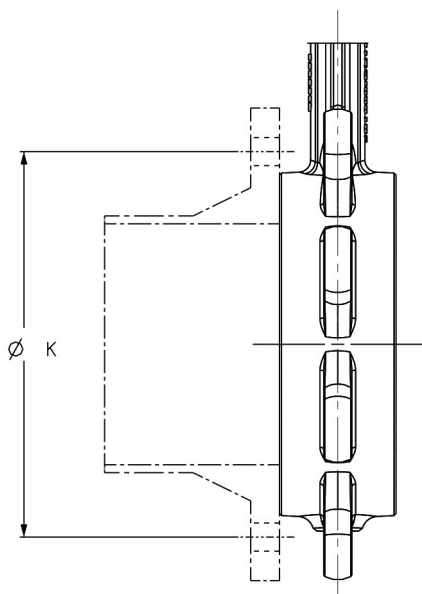


Fig. 5: Connection for BOAX-S

Table 8: Bolt circle diameter [mm]

DN	Bolt circle diameter Ø K		
	PN 6	PN 10	PN 16
20/25	75	85	85
32	90	100	100
40	100	110	110
50	110	125	125
65	130	145	145
80	150	160	160
100	170	180	180
125	200	210	210
150	225	240	240
200	280	295	295
250	335	350	355
300	395	400	410
350	-	460	470
400	-	515	525
450	-	565	585
500	-	620	650
600	-	725	770

Dimensions and weights of BOAX-SF

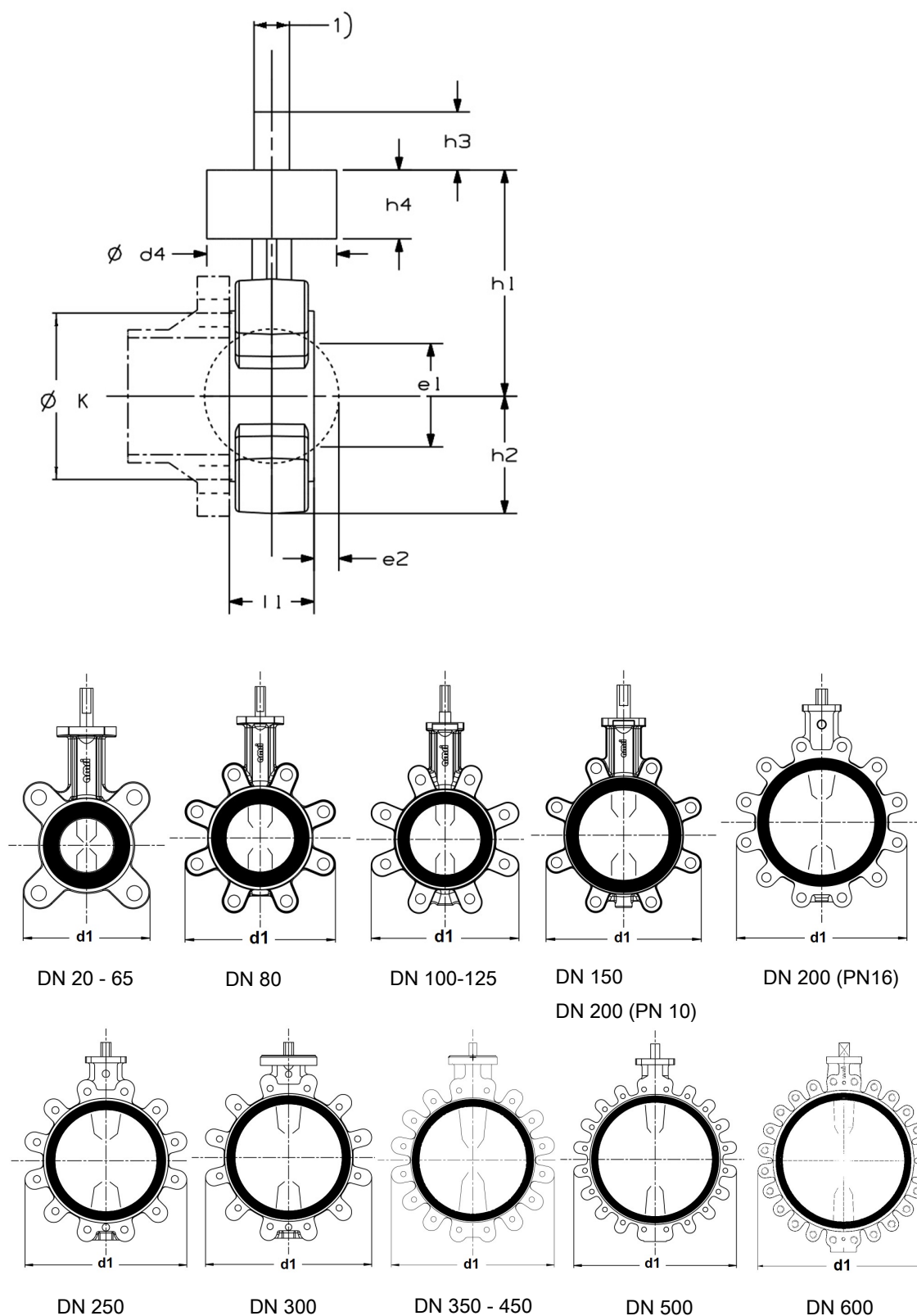


Fig. 6: Sectional drawings of BOAX-SF

Table 9: Dimensions and weights

DN	PN	I1	d1	d4	h1	h2	Top flange to ISO 5211	Flat shaft end				Square shaft end to ISO 5211		Valve disc		[kg]	
								No.	h4	∇ s	Ø z	h3	∇ s	h3	e1		e2
20	10/16	27	88	70	111	41,5	F05	40	H9	12	11	-	-	15	2	1,0	
25	10/16	27	88	70	111	41,5	F05	40	H9	12	11	-	-	15	2	1,0	
32	10/16	33	108	70	133	50,3	F05	40	H9	12	11	-	-	31	5	2,0	
40	10/16	33	108	70	133	53,9	F05	40	H9	12	15	-	-	32	4	2,0	
50	10/16	43	120	70	137,5	58,8	F05	40	H9	12	15	-	-	33	4	2,5	
65	10/16	46	134	70	164	82	F05	40	H9	12	21	-	-	55	11	3,0	
80	10/16	46	178	70	170	88,9	F05	40	H9	12	21	-	-	71	17	4,5	
100	10/16	52	210	70	191	103	F05	40	H11	14	24	-	-	90	23	5,5	
125	10/16	56	236	70	204,5	117,3	F05	40	H11	14	24	-	-	119	35	9,0	
150	10/16	56	260	95	224	130	F07	42	H17	22	25	-	-	144	46	11,0	
200	10	60	312	95	252	156	F07	42	H17	22	25	-	-	196	69	24,0	
200	16	60	322	95	252	161	F07	42	H17	22	25	-	-	196	69	25,0	
250	10	68	396	133	275	198	F10	38	-	-	-	L19 ⁴⁾	25	249	92	39,0	
300	10	78	466	158	290	233	F12	28,5	-	-	-	L22 ⁴⁾	29	297	111	46,0	
350	10	78	530	183	338	265	F12	29	-	-	-	L27	29	326	127	70,0	
400	10	102	598	183	383	296	F14	29	-	-	-	L36	38	370	140	101,0	
450	10	114	656	183	413	329	F14	29	-	-	-	L36	38	422	160	160,0	
500	10	127	708	-	440	359	F14	27	-	-	-	L36	38	478	178	179,0	
600	10	154	822	-	495	439	F16	27	-	-	-	L46	48	566	215	256,0	

4 Square shaft end not to ISO 5211

Connection in acc. with EN 1092-1 for BOAX-SF

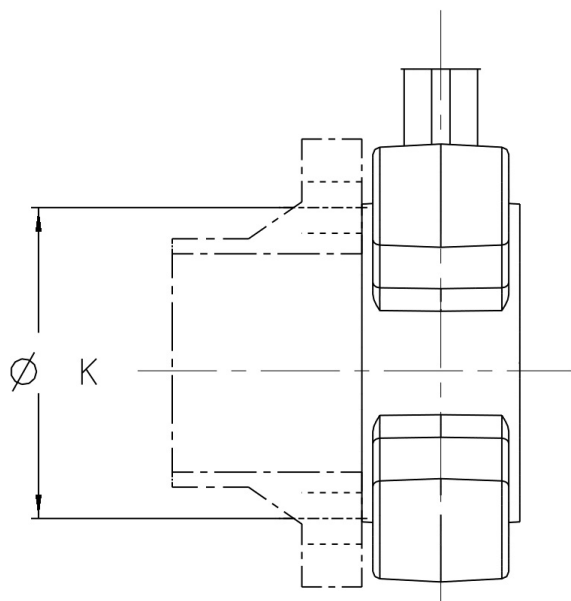


Fig. 7: Connection for BOAX-SF

Table 10: Bolt circle diameter Ø K

DN	PN 10	PN 16
20	75	75
25	85	85
32	100	100
40	110	110
50	125	125
65	145	145
80	160	160
100	180	180
125	210	210
150	240	240
200	295	295
250	350	355
300	400	410
350	460	470
400	515	525
450	565	585
500	620	650
600	725	770

Dimensions and weights of BOAX-S/SF + LP lever

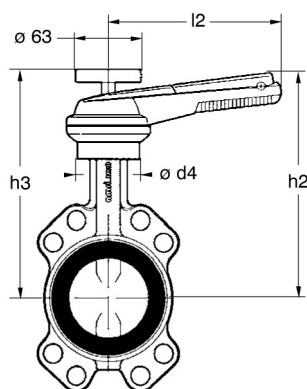


Fig. 8: Unit comprising BOAX-S + LP lever

Table 11: Dimensions and weights of BOAX-S/SF + LP lever

DN	l2 [mm]	h2 [mm]	h3 [mm]	d4 [mm]	BOAX-S [kg] ⁵⁾	BOAX-SF [kg] ⁵⁾
20/25	165	163,1	156	70	1,1	-
20	165	163,1	156	70	-	1,3
25	165	163,1	156	70	-	1,3
32	165	167,1	178	70	1,5	2,6
40	165	185,1	178	70	1,8	2,6
50	165	189,6	183	70	2,1	3,1
65	165	216,1	209	70	2,8	3,6
80	165	222,1	215	70	3,4	5,1
100	230	253	253	70	5,2	6,3
125	230	256	266	70	6,2	9,8
150	330	298	298	95	9,1	12,3
200	330	326	326	95	13,2	25,3
250	460	374	374	133	20,1	41,3

⁵ The weights given refer to the valve + actuating element.

Dimensions and weights of BOAX-S/SF + MA manual gearbox

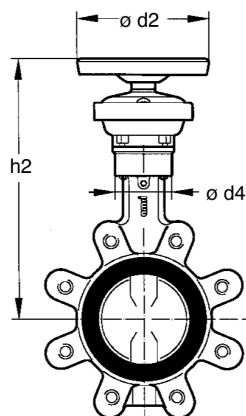


Fig. 9: Unit comprising BOAX-SF + MA manual gearbox

Table 12: Dimensions and weights of BOAX-S/SF with MA manual gearbox – DN 20 - 250

DN	Type	d2 [mm]	h2 [mm]	d4 [mm]	BOAX-S [kg] ⁶⁾	BOAX-SF [kg] ⁶⁾
20/25	MA12	140	198	60	2,1	-
20	MA12	140	195	60	-	2,5
25	MA12	140	198	60	-	2,5
32	MA12	140	202	60	2,4	3,5
40	MA12	140	220	60	2,7	3,5
50	MA12	140	225	60	3,0	4,0
65	MA12	140	251	60	3,7	4,5
80	MA12	140	257	60	4,3	6,0
100	MA12	140	285	70	5,9	7,0
125	MA12	140	299	70	7,1	10,5
150	MA25	225	355	95	10,8	14,0
200	MA25	225	383	95	14,9	27,0
250	MA25	225	406	133	20,8	42,0

⁶ The weights given refer to the valve + actuating element.

Dimensions and weights of BOAX-S/SF + MS manual gearbox

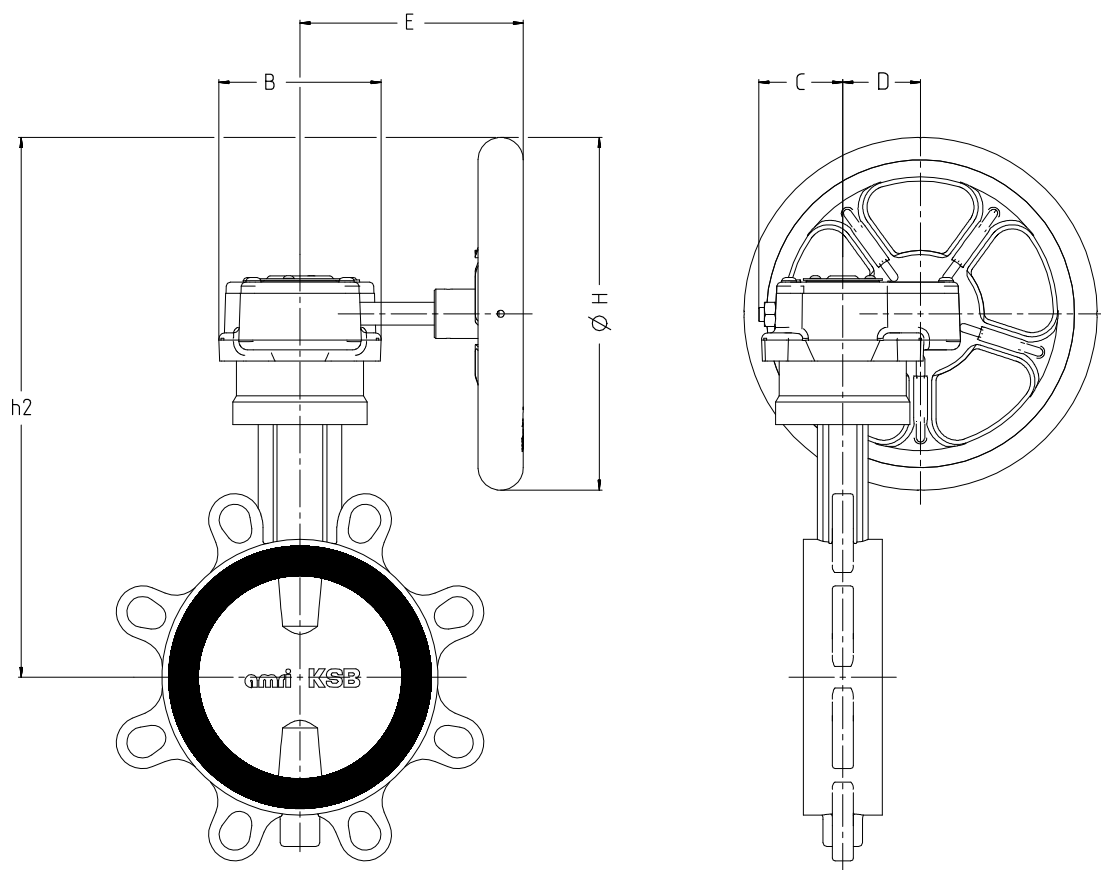


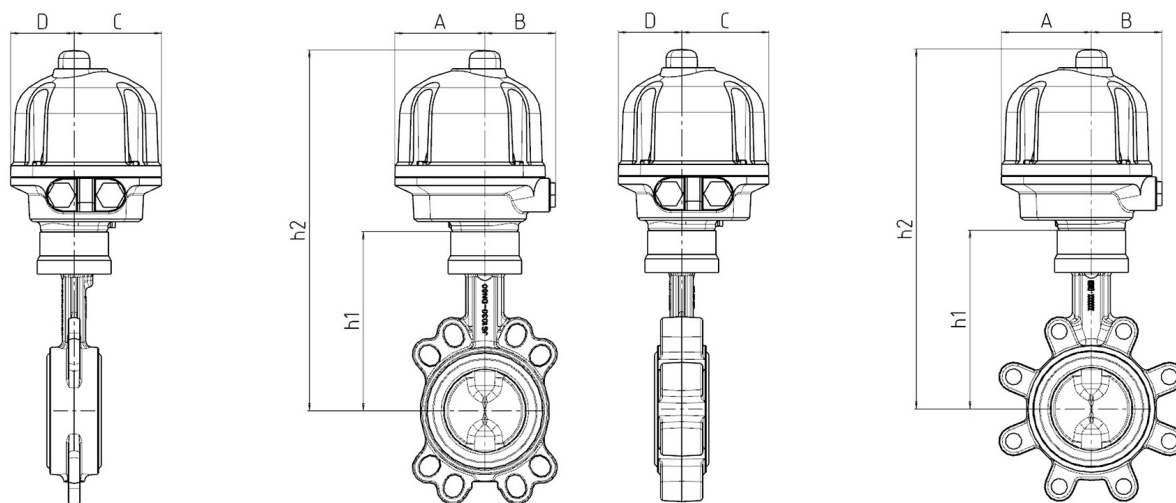
Fig. 10: Unit comprising BOAX-S + MS manual gearbox

Table 13: Dimensions and weights of BOAX-S/SF with MS manual gearbox – DN 150 – 600

DN	Type	B [mm]	C [mm]	D [mm]	E [mm]	ØH [mm]	h2 [mm]	BOAX-S [kg] ⁷⁾	BOAX-SF [kg] ⁷⁾
150	MS50	110,5	57	55	245	250	382,5	13,2	16,5
200	MS50	110,5	57	55	245	250	410,5	17,3	29,5
250	MS50	110,5	57	55	245	250	433,5	23,2	44,5
300	MS50	110,5	57	55	245	250	448,5	37,5	51,5
350	MS50	110,5	57	55	245	250	496,5	65,5	75,5
400	MS100	135	66,4	68,8	298	400	620,5	89	110
450	MS100	135	66,4	68,8	298	400	650,5	119	169
500	MS100	135	66,4	68,8	298	400	677,5	154	188
600	MS200	156	77	81,03	276	500	797,5	233	269

⁷ The weights given refer to the valve + actuating element.

Dimensions and weights of BOAX-S and BOAX-SF with electric actuator



BOAX-S + AQL

BOAX-SF + AQL

Fig. 11: Sectional drawings of BOAX-S/SF with AQL

Table 14: Dimensions and weights of BOAX-S/SF with AQL

DN	PS [bar]	Type	A (230V)	B [mm]	C [mm]	D [mm]	h1 [mm]	h2 [mm]	BOAX-S [kg] ⁸⁾	BOAX-SF [kg] ⁸⁾
20/25	10/16	AQ1L	67	85	83	60	104	277	3,1	-
20	10/16	AQ1L	67	85	83	60	104	277	-	3,5
25	10/16	AQ1L	67	85	83	60	104	277	-	3,5
32	10/16	AQ1L	67	85	83	60	108	281	3,4	4,5
40	10/16	AQ1L	67	85	83	60	126	299	3,7	4,5
50	10/16	AQ3L	67	85	83	60	131	304	4,0	5,0
65	10/16	AQ3L	67	85	83	60	157	330	4,7	5,5
80	10/16	AQ7L	67	85	83	60	163	354	5,8	7,5
100	10/16	AQ7L	67	85	83	60	191	382	7,4	8,5
125	10/16	On request								

⁸ The weights given refer to the valve + actuating element.

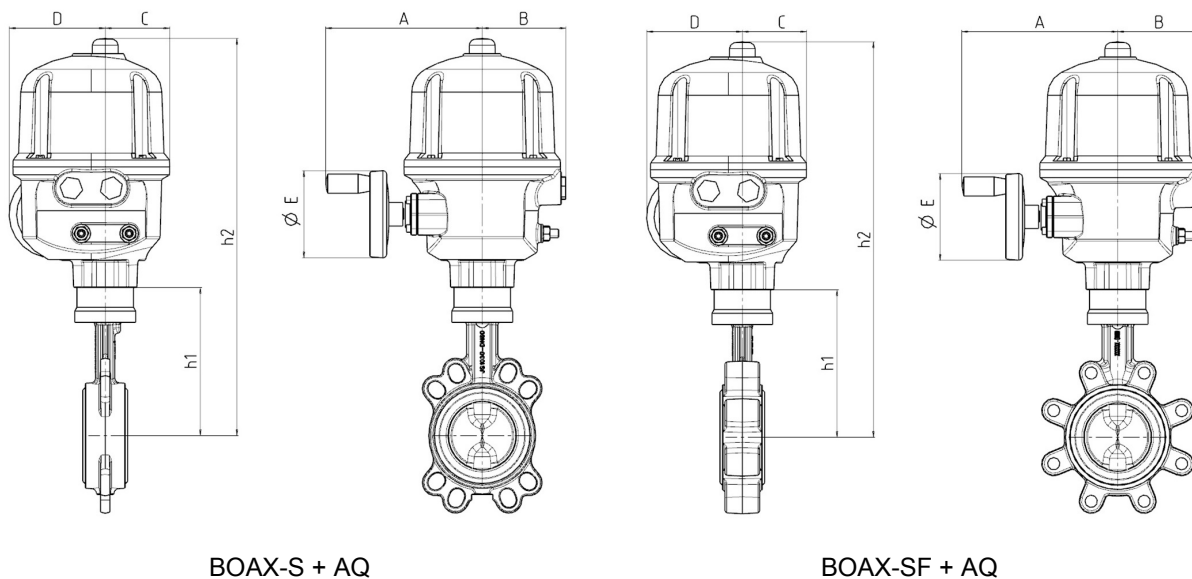


Fig. 12: Sectional drawings of BOAX-S/SF with AQ

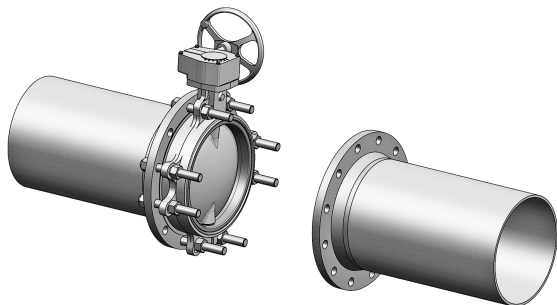
Table 15: Dimensions and weights of BOAX-S/SF with AQ

DN	PS	Type	A	B	C	D	E	h1	h2	BOAX-S	BOAX-SF
	[bar]		[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[kg] ⁸⁾	[kg] ⁸⁾
20/25	10/16	AQ5	180	96	74	110	100	104	390	10,6	-
20	10/16	AQ5	180	96	74	110	100	104	390	-	11,0
25	10/16	AQ5	180	96	74	110	100	104	390	-	11,0
32	10/16	AQ5	180	96	74	110	100	108	394	10,9	12,0
40	10/16	AQ5	180	96	74	110	100	126	412	11,2	12,0
50	10/16	AQ5	180	96	74	110	100	131	417	11,5	12,5
65	10/16	AQ5	180	96	74	110	100	157	443	12,2	13,0
80	10/16	AQ5	180	96	74	110	100	163	449	12,8	14,5
100	10/16	AQ10	180	96	74	110	100	191	477	14,4	15,5
125	10/16	AQ10	180	96	74	110	100	205	491	15,6	19,0
150	10/16	AQ15	180	96	74	110	100	224	510	17,8	21,0
200	10/16	AQ15	248	117	86	138	100	252	569	24,9	37,0
250	10	AQ25	248	117	86	138	100	275	603	30,8	52,0
300	10	AQ50	248	117	86	138	100	290	618	47,0	61,0
350	10	AQ50	310	117	86	174	200	338	666	75,0	85,0
400	10	AQ80	310	117	86	200	250	383	748	98,0	119,0
450	10	AQ80	310	117	86	200	250	413	778	128,0	178,0
500	10	AQ100	310	117	86	200	250	440	805	163,0	197,0

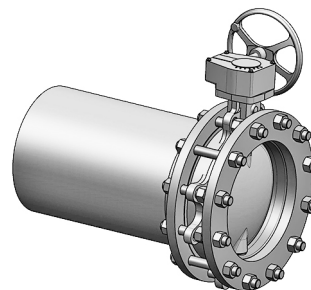
Installation information

Dead-end service and downstream dismantling of BOAX-S and BOAX-SF

BOAX-S

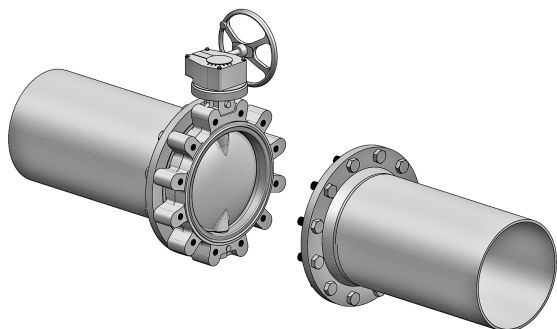


Downstream dismantling

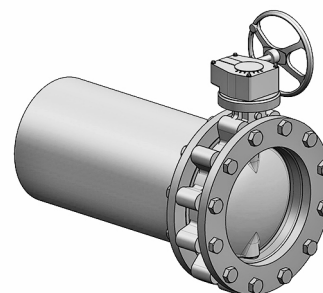


Dead-end service

BOAX-SF



Downstream dismantling



Dead-end service

Flange connection bolts

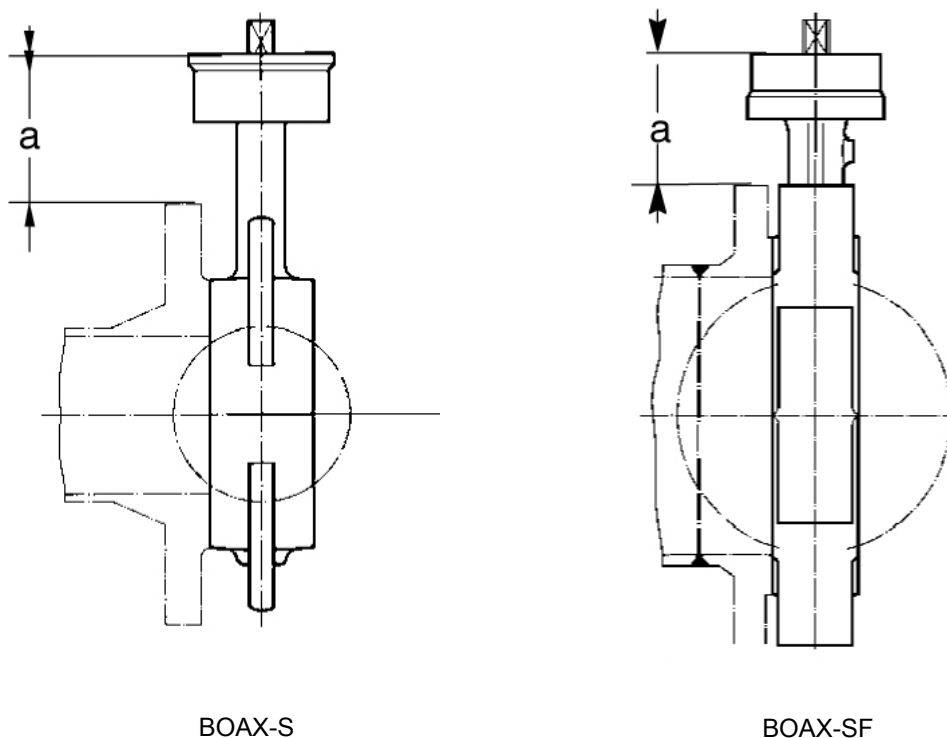


Fig. 13: Flange connection for BOAX-S and BOAX-SF

Table 16: BOAX-S – Dimensions [mm]

DN	EN 1092 PN 6 Type 11		EN 1092 PN 10 Type 11		EN 1092 PN 16 Type 11	
	a	Bolt size	a	Bolt size	a	Bolt size
Bolt/Nut						
20/25	54,0	4 x M10 x 75	46,5	4 x M12 x 80	46,5	4 x M12 x 80
32	48,0	4 x M12 x 80	38,0	4 x M16 x 85	38,0	4 x M16 x 85
40	61,0	4 x M12 x 80	51,0	4 x M16 x 85	51,0	4 x M16 x 85
50	60,5	4 x M12 x 90	48,0	4 x M16 x 100	48,0	4 x M16 x 100
65	77,0	4 x M12 x 90	64,5	8 x M16 x 100	64,5	8 x M16 x 100
80	68,0	4 x M16 x 100	63,0	8 x M16 x 110	63,0	8 x M16 x 110
100	86,0	4 x M16 x 110	81,0	8 x M16 x 110	81,0	8 x M16 x 110
125	84,5	8 x M16 x 115	79,5	8 x M16 x 120	79,5	8 x M16 x 120
150	91,5	8 x M16 x 115	81,5	8 x M20 x 130	81,5	8 x M20 x 120
200	92,0	8 x M16 x 125	82,0	8 x M20 x 130	82,0	12 x M20 x 130
250	87,5	12 x M16 x 135	77,5	12 x M20 x 150	72,5	12 x M24 x 150
300	69,5	12 x M20 x 150	67,0	12 x M20 x 160	59,5	12 x M24 x 160
Threaded rods						
350	-	-	90,0	(10 x M20 x 180) + (12 x M20 x 50)	82,5	(10 x M24 x 195) + (12 x M24 x 55)
400	-	-	100,5	(10 x M24 x 210) + (12 x M24 x 50)	93,0	(10 x M27 x 230) + (12 x M27 x 60)
450	-	-	105,5	(12 x M24 x 230) + (16 x M24 x 55)	93,0	(12 x M27 x 260) + (16 x M27 x 70)
500	-	-	108,0	(12 x M24 x 240) + (16 x M24 x 55)	85,5	(12 x M30 x 285) + (16 x M30 x 75)
600	-	-	107,0	(10 x M27 x 290) + (20 x M27 x 60)	77,0	(10 x M33 x 340) + (20 x M33 x 90)

When threaded rods or fully threaded studs are used, at least 1 nut height must be added to the above bolt lengths.

Table 17: BOAX-SF – Dimensions [mm]

DN	EN 1092 PN 10 Type 11		EN 1092 PN 16 Type 11	
	a	Bolt size	a	Bolt size
Bolt/Nut				
20	51,5	8 x M12 x 30	51,5	8 x M12 x 30
25	46,5	8 x M12 x 30	46,5	8 x M12 x 30
32	38,0	8 x M16 x 30	38,0	8 x M16 x 30
40	51,0	8 x M16 x 30	51,0	8 x M16 x 30
50	48,0	8 x M16 x 35	48,0	8 x M16 x 35
65	64,5	8 x M16 x 35	64,5	16 x M16 x 35
80	63,0	16 x M16 x 40	63,0	16 x M16 x 40
100	81,0	16 x M16 x 40	81,0	16 x M16 x 40
125	79,5	16 x M16 x 40	79,5	16 x M16 x 40
150	81,5	16 x M20 x 45	81,5	16 x M20 x 45
200	82,0	16 x M20 x 50	82,0	24 x M20 x 50
250	77,5	24 x M20 x 50	72,5	24 x M24 x 50
300	67,0	24 x M20 x 50	59,5	24 x M24 x 50
Threaded rods				
350	90,0	32 x M20 x 55	82,5	32 x M24 x 60
400	100,5	32 x M24 x 60	93,0	32 x M27 x 70
450	105,5	40 x M24 x 60	93,0	40 x M27 x 70
500	108,0	40 x M24 x 60	85,5	40 x M30 x 80
600	107,0	40 x M27 x 70	77,0	40 x M33 x 90
When threaded rods or fully threaded studs are used, at least 1 nut height must be added to the above bolt lengths.				

Insulation dimensions

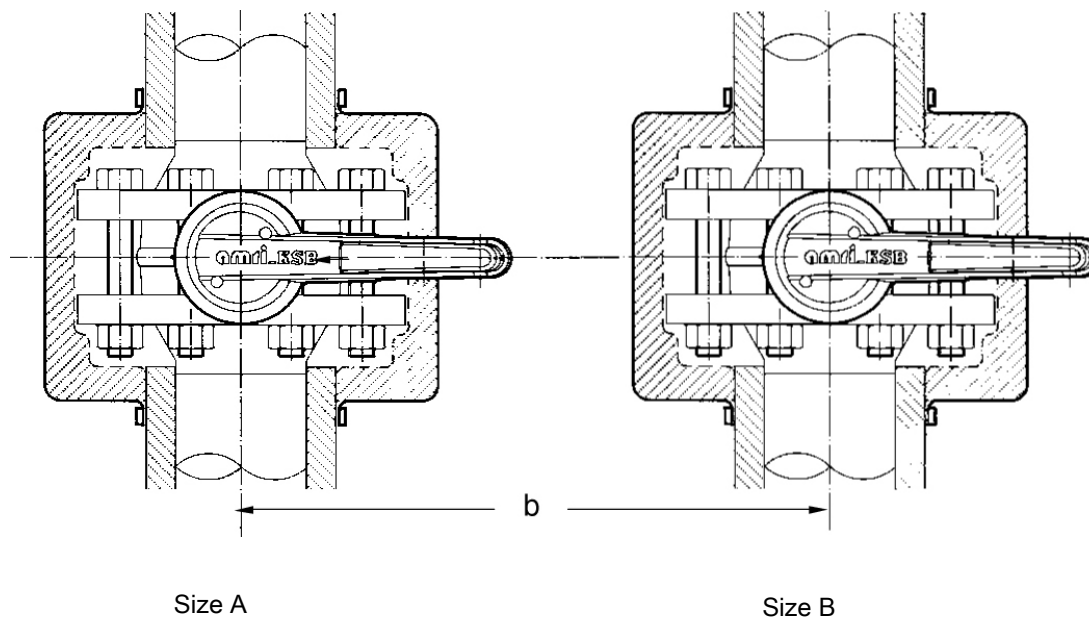


Fig. 14: Minimum spacing b between manifold branches

The minimum spacings b between the manifold branches must be provided as defined by heating system regulations, irrespective of the levers or manual gearboxes used.

Table 18: Minimum spacings b [mm]

Size	DN	BOAX-S/SF size A																		
		20/25	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
BOAX-S/SF size B	20/25	245	-	-	250	265	270	295	305	310	325	340	370	410	430	487	532	572	612	672
	20	-	240	240	245	265	270	295	300	310	325	340	370	405	430	484	530	570	610	670
	25	-	-	245	250	265	270	295	305	310	325	340	370	410	430	487	532	572	612	672
	32	-	-	-	255	270	275	300	305	315	330	345	370	415	435	491	536	576	618	678
	40	-	-	-	-	290	295	320	325	335	345	365	390	430	455	510	554	594	635	695
	50	-	-	-	-	-	300	325	330	340	350	370	400	435	460	514	560	600	640	700
	65	-	-	-	-	-	-	350	355	365	380	395	425	460	485	540	585	625	665	725
	80	-	-	-	-	-	-	-	365	370	385	400	430	470	490	546	591	631	673	733
	100	-	-	-	-	-	-	-	-	380	395	410	440	475	500	554	600	640	680	740
	125	-	-	-	-	-	-	-	-	-	410	425	450	490	515	570	614	654	695	755
	150	-	-	-	-	-	-	-	-	-	-	440	470	510	530	585	630	670	710	770
	200	-	-	-	-	-	-	-	-	-	-	-	500	540	560	619	658	700	740	800
	250	-	-	-	-	-	-	-	-	-	-	-	-	575	600	651	696	736	778	838
	300	-	-	-	-	-	-	-	-	-	-	-	-	-	620	675	720	760	800	860
	350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	730	775	815	855	915
	400	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	820	860	900	960
	450	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	900	940	1000
	500	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	980	1040
	600	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1100

Notes on commissioning/start-up

The butterfly valves are set and tested at the factory.

Prior to any actuation, run the valve disc to the middle position and check the direction of rotation and the correct function of the travel stops.

BERNARD operating manuals and wiring diagrams are supplied with the product.

Full motor protection is only assured if the temperature switch mounted in the winding has been connected correctly.

The actuators are stopped by means of the travel stops.

The torque switches of the actuators act as safety trips. They trip the actuator via the control unit in the event of a fault and simultaneously signal the fault.

The torque switches are momentary-contact switches.



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