

**Centred disc butterfly valve
with AMRING[®]
elastomer liner
for H.V.A.C. applications**

DN 20 to 600

**PS 16 and 10 bar
Manual and electric
actuation**

Applications

- Heating, ventilation, air conditioning.

Working conditions

- Temperature range: the working temperature depends on the media and the nature of the elastomer used: from -10 °C up to + 130 °C: E.P.D.M.-XU.
- Allowable pressure (PS):
 - 16 bar: DN 20 to 200 at ambient temperature,
 - 10 bar: DN 250 to 600 at ambient temperature.
- Differential pressure: identical to p_s .
- Vacuum service down to 0,2 absolute bar.
- Maximum fluid velocity under PS: 4 m/s.

Materials

See page 2.

Design

- Semi-lug type body (Type 2).
- Possible downstream pipe dismantling and dead-end service.
- Extended neck allowing insulation.
- Thermal isolating device facilitating the clamping of the insulating jacket around the plate skirt.
- E.P.D.M. liner: an extra volume of rubber, located at the shaft passage areas, provides by compression between the valve body and the disc edge a perfect leak-tightness at the shaft passages.
- Spherical machined disc ensures perfect upstream/downstream sealing: zero leakage visible to the naked eye.
- Tightness towards the exterior, downstream/upstream tightness and hydraulic testing in accordance with: EN 12266-1 leak level A, ISO 5208 category A.

- Face-to-face dimensions in accordance with: ISO 5752 series 20, EN 558-1 series 20.
- Mounting plate meeting the following standard: ISO 5211.
- Flange connection standard: PN 6, 10 and 16. For DN 20 to 300, one body allows 3 connections.
- Marking in accordance with EN 19.
- Design in accordance with EN 593.
- This valve cannot be dismantled.
- Contains no asbestos, CFC, superchlorinated biphenylene, substances impairing paint wetting.
- Polyurethane paint, 80 μ m thickness, colour orange ref. RAL 2002.
- The valves meet the safety requirements of the pressure Equipments Directive 97/23/EC (PED) appendix 1 for fluids of the group 2.

Standard variant

- BOAXMAT[®]-N valves with electrical actuators ACTELEC.
- Washed and packed valves without substances impairing paint wetting.
- Pneumatic actuator ACTAIR / DYNACTAIR
- Electric actuator ACTELEC
- Position detection AMTROBOX
- Pneumatic distribution for On-Off function AMTRONIC
- Positioner and control unit SMARTRONIC

Remarks

- Operating instructions 8417.8/-90

Data to be supplied when ordering

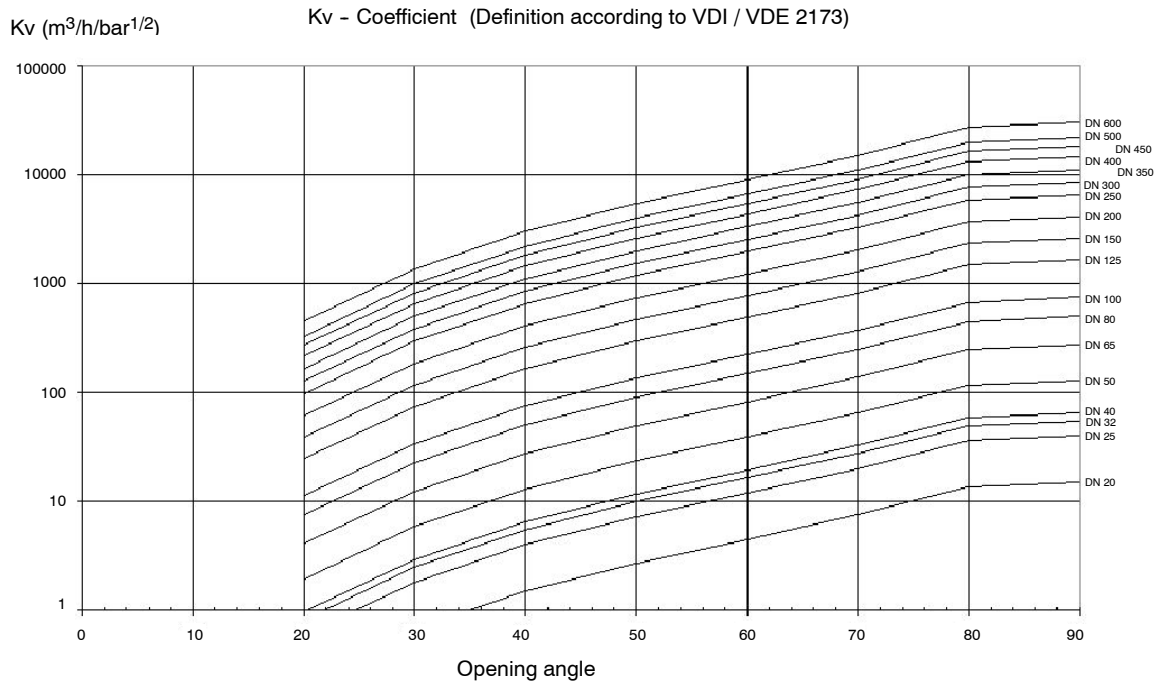
- BOAX[®]-N valve in accordance with type series booklet 8413.1/17-10
- Size.
- Working conditions: nature of fluid, pressure, temperature.
- Actuation.



Materials

Body	KSB code
Type 2: Spheroidal graphite cast iron JS 1030	3g
Shaft	KSB code
Stainless steel 1.4029 (13 % Cr)	6k
Disc	KSB code
Spheroidal graphite cast iron JS 1030, nickel coated DN 20 to 300	3j
Spheroidal graphite cast iron JS 1030, paint coated DN 350 to 600	3g
AMRING® liner	KSB code
Heat E.P.D.M	XU

Hydraulic characteristics



Coefficients Kv values

DN	Kv in function of opening angle								
	10 °	20 °	30 °	40 °	50 °	60 °	70 °	80 °	90 °
20	0	0,23	0,68	1,5	2,7	4,5	7,5	13,5	15
25	0	0,6	1,8	4	7,2	12	20	36	40
32	0	0,8	2,5	5,5	9,9	16,5	27,5	49,5	55
40	0	1,0	2,9	6,5	11,7	19,5	32,5	58,5	65
50	0,1	2,0	5,9	13	23,4	39	65	117	130
65	0,3	4,1	12,4	27,5	49,5	82,5	137,5	247,5	275
80	0,5	7,5	22,5	50	90	150	250	450	500
100	0,8	11,3	33,8	75	135	225	375	675	750
125	1,7	24,8	74,3	165	297	495	825	1485	1650
150	2,6	39	117	260	468	780	1300	2340	2600
200	4,1	61,5	184,5	410	738	1230	2050	3690	4100
250	6,6	98,3	294,8	655	1179	1965	3275	5895	6550
300	8,6	128,3	384,8	855	1539	2565	4275	7695	8550
350	11,1	166,5	499,5	1110	1998	3330	5550	9990	11100
400	14,6	219	657	1460	2628	4380	7300	13140	14600
450	18,2	273	819	1820	3276	5460	9100	16380	18200
500	22,1	331,5	994,5	2210	3978	6630	11050	19890	22100
600	30,2	453	1359	3020	5436	9060	15100	27180	30200

Zeta - Values

DN	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
Zeta- Values	1,14	0,39	0,55	0,97	0,59	0,38	0,26	0,28	0,14	0,12	0,15	0,15	0,18	0,19	0,19	0,20	0,20	0,23

Construction

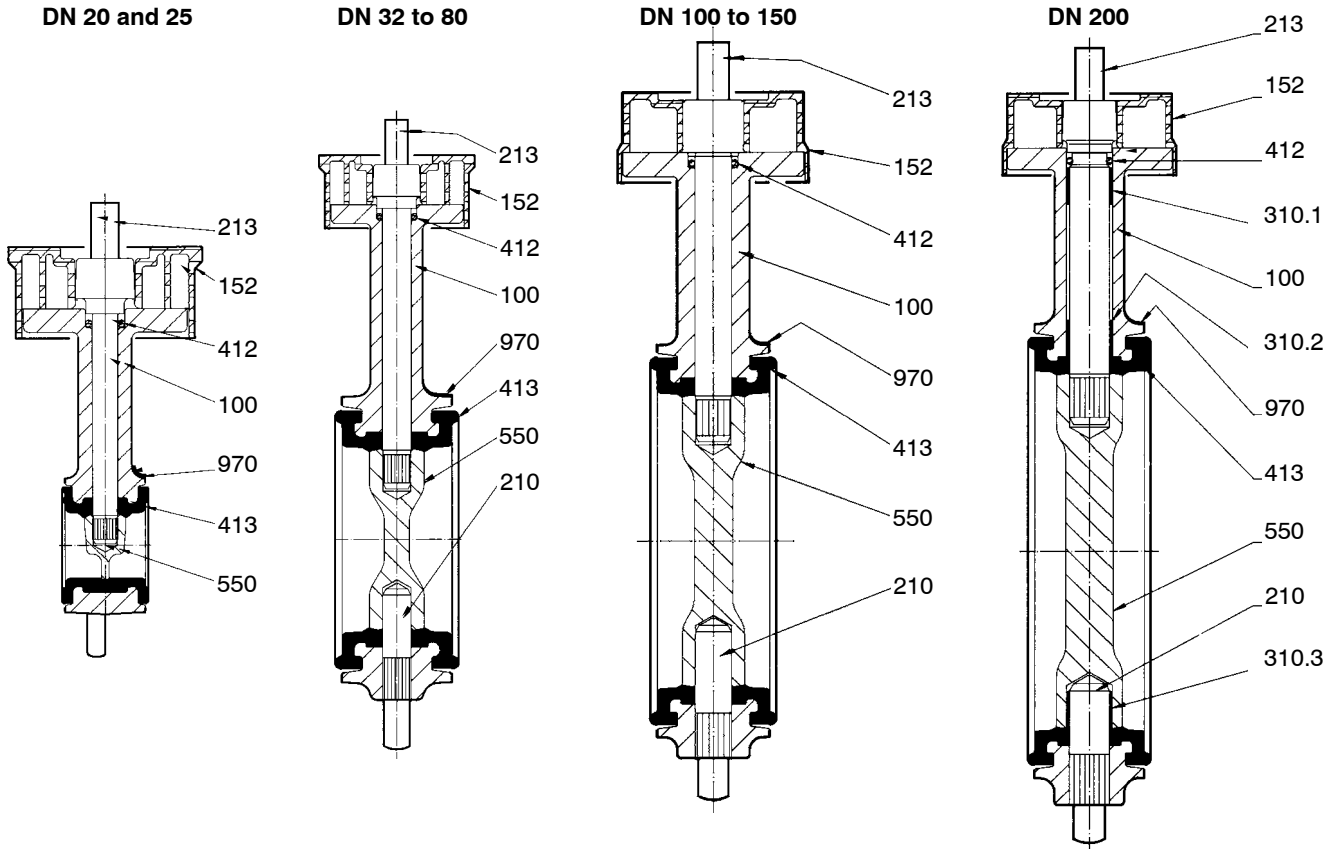
DN 20 to 200

DN 20 and 25

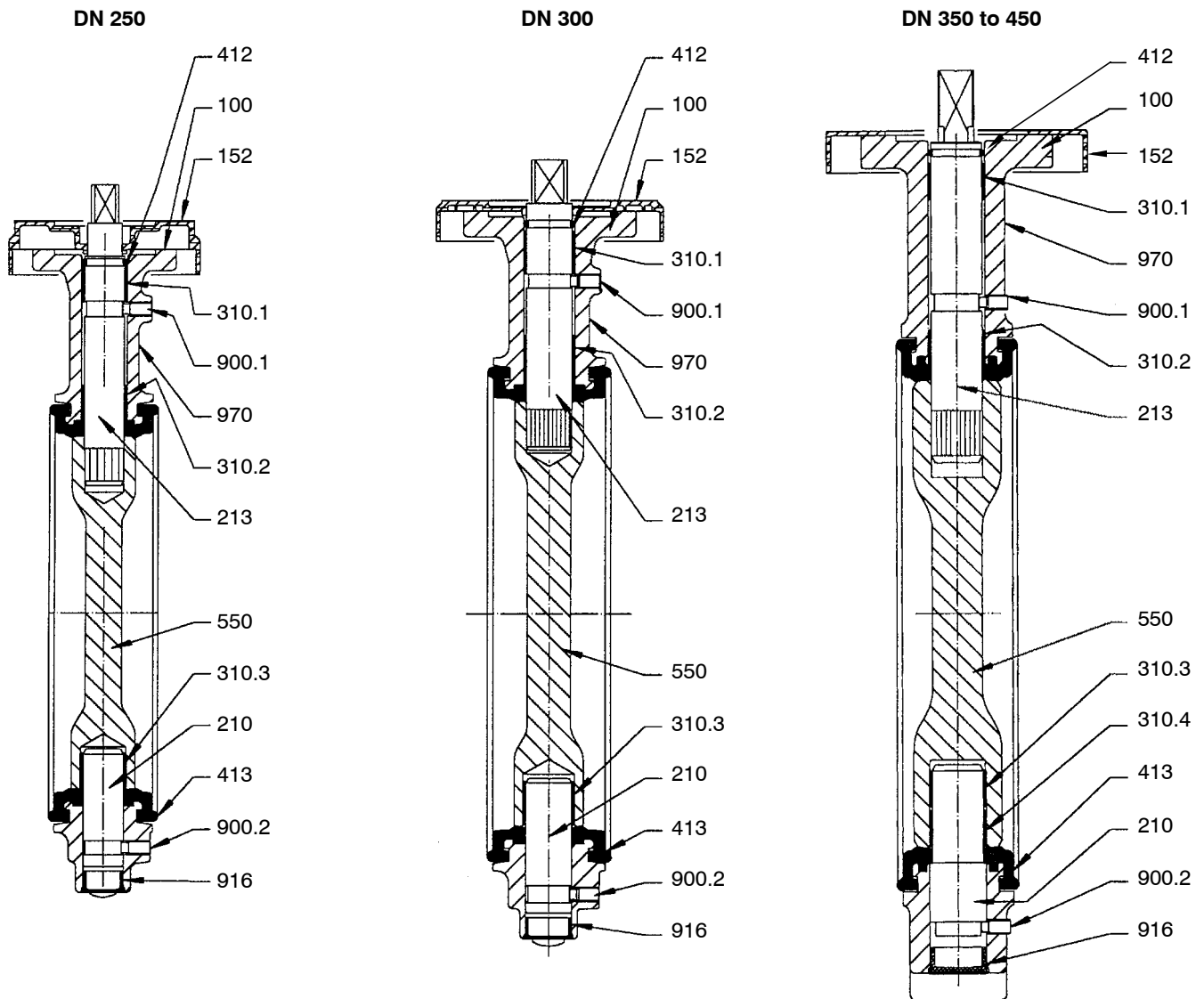
DN 32 to 80

DN 100 to 150

DN 200



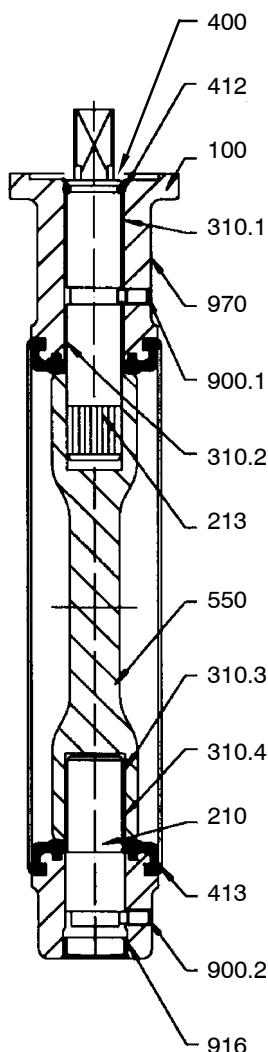
Item	Designation	DN	Materials
100	Body	20 to 200	Spheroidal graphite cast iron JS 1030
152	Thermal isolating device	20 to 200	Polyamid fiber glass filled
210	Shaft	20 to 200	13 % chromium stainless steel
213	Driving shaft	20 to 200	13 % chromium stainless steel
310.1	Plain bearing	200	PTFE filled on steel casing
310.2	Plain bearing	200	PTFE filled on steel casing
310.3	Plain bearing	200	PTFE filled on steel casing
412	O-ring	20 to 200	E.P.D.M.
413	Liner	20 to 200	E.P.D.M.-XU
550	Disc	20 to 200	Spheroidal graphite cast iron JS 1030 nickel coated
970	Identification plate	20 to 200	Adhesive polyester coated

Construction
DN 250 to 450


Item	Designation	DN	Materials
100	Body	250 to 450	Spheroidal graphite cast iron JS 1030
152	Thermal isolating device	250 to 450	Polyamid fiber glass steel
210	Shaft	250 to 450	13 % chromium stainless steel
213	Driving shaft	250 to 450	13 % chromium stainless steel
310.1	Plain bearing	250 to 450	PTFE filled on steel casing
310.2	Plain bearing	250 to 450	PTFE filled on steel casing
310.3	Plain bearing	250 to 450	PTFE filled on steel casing
310.4	Plain bearing	250 to 450	PTFE filled on steel casing
412	O-ring	250 to 450	E.P.D.M.
413	Liner	250 to 450	E.P.D.M.-XU
550	Disc	250 - 300 350 to 450	Spheroidal graphite cast iron JS 1030 nickel coated Spheroidal graphite cast iron JS 1030 paint coated
900.1	Screw	250 to 450	Stainless steel
900.2	Screw	250 to 450	Stainless steel
916	Plug	250 to 450	Polyamid
970	Identification plate	250 to 450	Adhesive polyester coated

Construction

DN 500 and 600

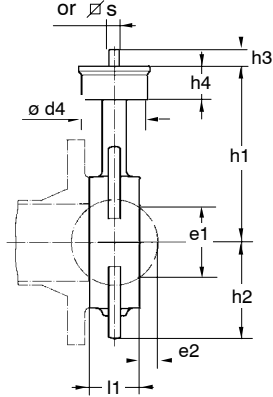


Item	Designation	DN	Materials
100	Body	500 and 600	Spheroidal graphite cast iron JS 1030
210	Shaft	500 and 600	13 % chromium stainless steel (1.4029)
213	Driving shaft	500 and 600	13 % chromium stainless steel (1.4029)
310.1	Plain bearing	500 and 600	PTFE filled on steel casing
310.2	Plain bearing	500 and 600	PTFE filled on steel casing
310.3	Plain bearing	500 and 600	PTFE filled on steel casing
310.4	Plain bearing	500 and 600	PTFE filled on steel casing
400	Flat gasket	500 and 600	Polypropylene
412	O-ring	500 and 600	E.P.D.M.
413	Liner	500 and 600	E.P.D.M.-XU
550	Disc	500 and 600	Spheroidal graphite cast iron JS 1030 paint coated
900.1	Screw	500 and 600	Stainless steel
900.2	Screw	500 and 600	Stainless steel
916	Plug	500 and 600	Polyethylene
970	Identification plate	500 and 600	Adhesive polyester coated

Valve without actuator

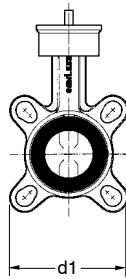
Overall dimensions (mm) and weights (kg)

Flat end s machined in Øz
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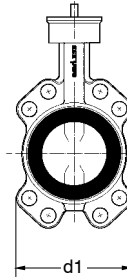
DN 200

DN 20 to 65



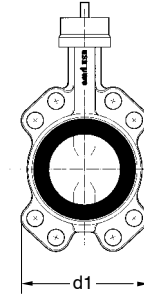
DN 250

DN 80

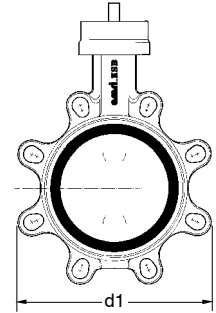


DN 300

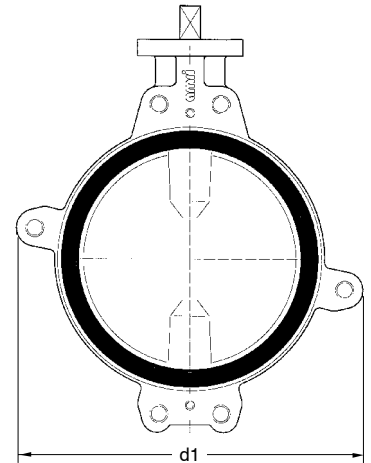
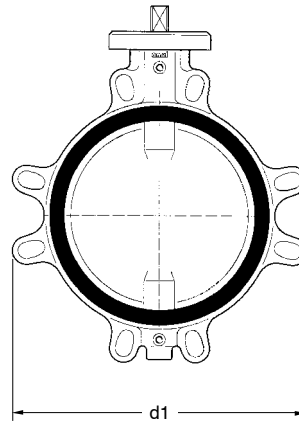
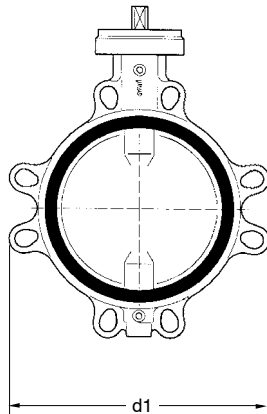
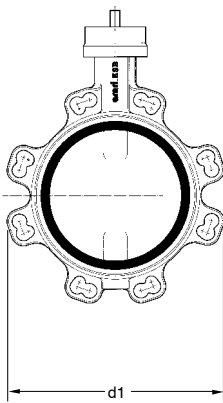
DN 100



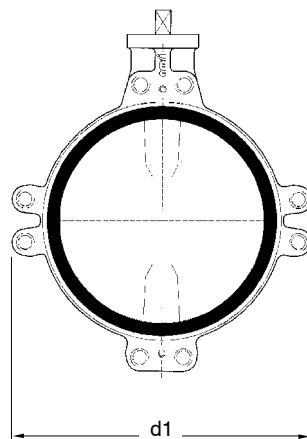
DN 125 and 150



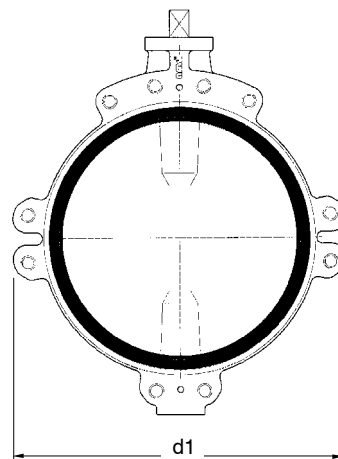
DN 350 to 450



DN 500



DN 600



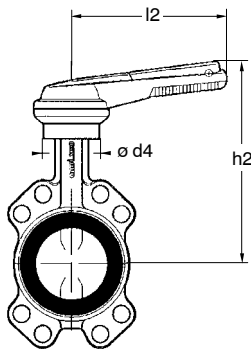
Valve without actuator
Overall dimensions (mm) and weights (kg)

DN	Face to face l1					Mounting plate ISO 5211		Flat shaft end			Square shaft end		Disc clearance		Weight kg
		d1	d4	h1	h2	N°	h4	s	øz	h3	∇ s	h3	e1	e2	
20	27	76		101	38			9	12	14			-	-	0,5
25	27	84		104	42			9	12	14			15	2	0,6
32	27	101		108	51			9	12	14			31	5	0,9
40	33	108	60	126	54	F04	29	9	12	18			32	4	1,2
50	43	118		131	60			9	12	18			33	4	1,5
65	46	132		157	67			9	12	24			55	11	2,2
80	46	138		163	89			9	12	24			71	17	2,8
100	52	150		191	99			11	14	24			90	23	4,4
125	56	234	70	205	112	F05	38	11	14	24			119	35	5,6
150	56	260		224	130			17	22	25			144	46	7,8
200	60	322	95	252	161	F07	42	17	22	25			196	69	11,9
250	68	394	133	275	197	F10	38						19	25	249
300	78	462	158	290	231	F12	28,5						22	29	297
350	78	538	183	338	269	F12	29						25	40	326
400	102	604	183	383	302	F14	29						36	50	370
450	114	656	183	410	329	F14	29						36	55	422
500	127	716	-	440	359	F14	29						36	55	478
600	154	836	-	495	439	F16	29						50	65	566
														215	220,0

Manual control

Overall dimensions (mm) and weight (kg)

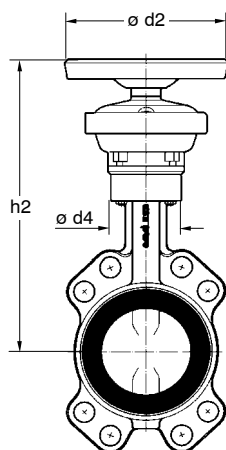
LP ¼ turn handle - DN 20 to 250



DN	l2	LP ¼ turn handle operation		
		h2	d4	Weight*
20	165	153	60	1,0
25		156		1,1
32		160		1,4
40		178		1,7
50		183		2,0
65		209		2,7
80		215		3,3
100	230	253	70	5,1
125		266		6,3
150		298		8,8
200	330	326	95	12,9
250		374		133

* The indicated weights are those of the valve + the handle.

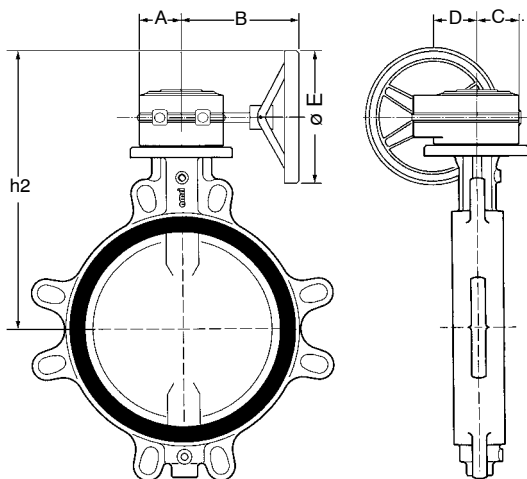
Manual actuator MA - DN 20 to 250



DN	Type	Manual actuator MA				
		d2	h2	d4	Weight*	
20	MA 12	140	195	60	2,0	
25			198		2,1	
32			202		2,4	
40			220		2,7	
50			225		3,0	
65			251		3,7	
80			257		4,3	
100			285		70	5,9
125			299			7,1
150			355			10,8
200	MA 25	225	383	95	14,9	
250			406	133	20,8	

* The indicated weights are those of the valve + the actuator.

Manual actuators MN and MR - DN 300 to 600



DN	Type	Manual actuators MN and MR						Weight*
		A	B	C	D	ØE	h2	
300	MN 40	70	225	60	60	200	434	35,4
350	MN 80	90	230	70	75	250	490	64,6
400	MR100	86	233	88	88	350	595	93,6
450							625	123,6
500							677	164,0
600	MR200	120	270	108	117	350	743	248,0

* The indicated weights are those of the valve + the actuator.

BOAXMAT®-N - Valve with electric actuation
Actuator selection

DN	Single phase A. C. 230 V, 50 Hz			
	ACTELEC type	Standard operating time	ACTELEC type	Standard operating time
20	LEA-2	20 s	OA 3	11 s
25				
32				
40				
50	LEA-3	20 s	OA 6	6 s
65	LEB-4	6 s		
80	LEB-10	35 s	OA 8	6 s *
100			OA 15	15 s *
125			AS 25	10 s *
150			AS 50	30 s *
200			BS 100	60 s *
250				
300				
350				
400	BS 100	60 s *		
450				
500				

* For other operating time, please consult us.

DN	3-phase A. C. 400 V, 50 Hz	
	ACTELEC type	Standard operating time
20	OA 6	6 s
25		
32		
40		
50		
65		
80		
100	OA 8	6 s *
125	OA 15	15 s *
150	AS 25	10 s *
200		
250	AS 50	30 s *
300		
350		
400	BS 100	60 s *
450		
500		

* For other operating time, please consult us.

BOAXMAT®-N - Valve with electric actuation

Main electrical equipments

ACTELEC type	LEA-2	LEA-3	LEB-4	LEB-10	OA 3	OA 6	OA 8	OA 15	AS 25	AS 50	BS 100	
Opening and closing limit switches	Standard											
Adjustable extreme position mechanical stops	Standard											
Opening and closing torque limit switches	Standard								Standard			
Protection by thermic switch				Standard								
Manual override	Standard											
Visual position indicator	Standard											
Heating resistance	Integrated			To be cable								

Electrical characteristics

ACTELEC type	Single phase A. C. 230 V, 50 Hz										
	LEA-2	LEA-3	LEB-4	LEB-10	OA 3	OA 6	OA 8	OA 15	AS 25	AS 50	BS 100
Nominal intensity (A)	0,1	0,14	0,8	0,5	0,7	0,6	1,2	0,6	1,8	1,2	1,2
Starting intensity (A)	0,24	0,3	0,9	0,6	0,9	0,9	1,7	0,9	2,5	1,7	1,7
Power (W)	35,0	45,0	30,0	15,0	27,0	30,0	60,0	30,0	100,0	60,0	60,0

ACTELEC type	3-phase A. C. 400 V, 50 Hz					
	OA 6	OA 8	OA 15	AS 25	AS 50	BS 100
Nominal intensity (A)	0,3	0,6	0,3	0,8	0,3	0,6
Starting intensity (A)	0,5	1,1	0,5	1,6	0,8	1,1
Power (W)	30,0	100,0	30,0	150,0	60,0	100,0

Electric actuators OA, AS and BS: all markets (Type Series Booklet 8521.12/-10)

- Rated current:
 - single phase 230 V, 50 Hz : all types
 - 3-phase 230 V or 400 V, 50 Hz: all types except OA 3
- Intermittent duty: S4-30 %
- Protection degree: IP 67
- Working temperature: from - 20 °C to + 70 °C
- On request: (Please consult us):
 - Explosion-proof protection,
 - Contacts supplémentaires réglables
 - Electrical motor with built-in thermal protection and epoxy paint finish,
 - Regulation function for OA8, AS25 and AS 50,
 - Feed-back position,
 - Potentiometer
 - Control boxes,
 - Other voltages.

Electric actuators LEA and LEB: Only building market (Type Series Booklet 8521.16/-10)

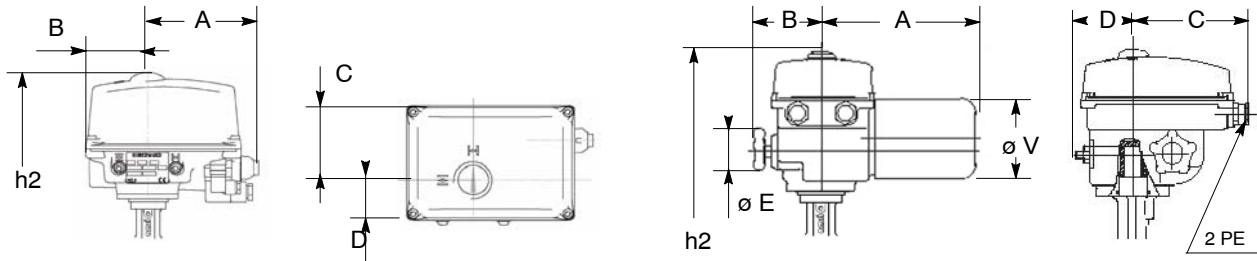
- Rated current:
 - single phase 230 V, 50 Hz-60 Hz : all types
- Intermittent duty: S4-30 %
- Protection degree: IP 65

BOAXMAT[®]-N - Valve with electric actuation

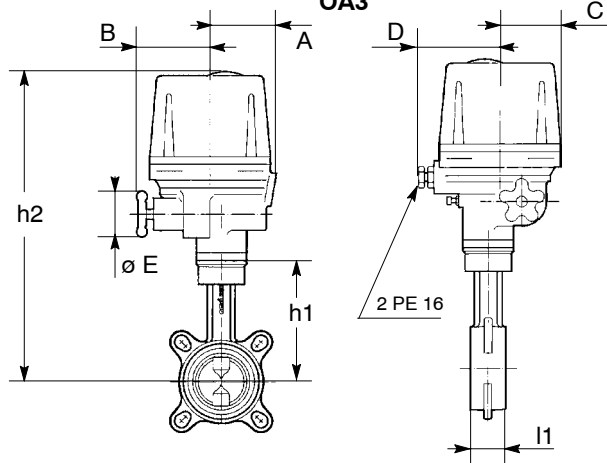
Overall dimensions (mm) and weight (kg)

LEA-2 and LEA-3

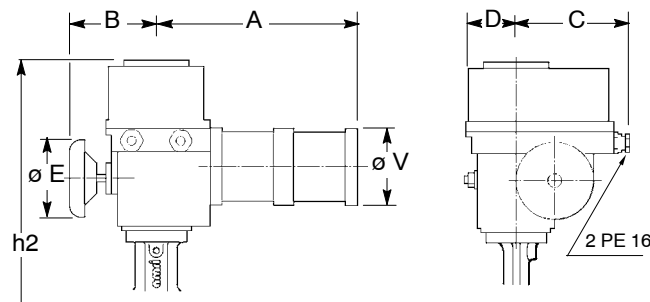
LEB-4 and LEB-10



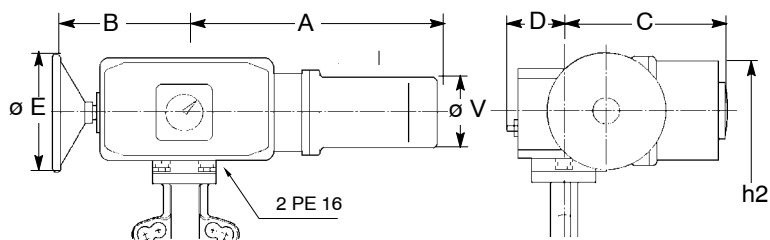
OA3



OA6, OA8 and OA15



AS25, AS50 and BS100



BOAXMAT®-N - Valve with electric actuation
Overall dimensions (mm) and weight (kg)

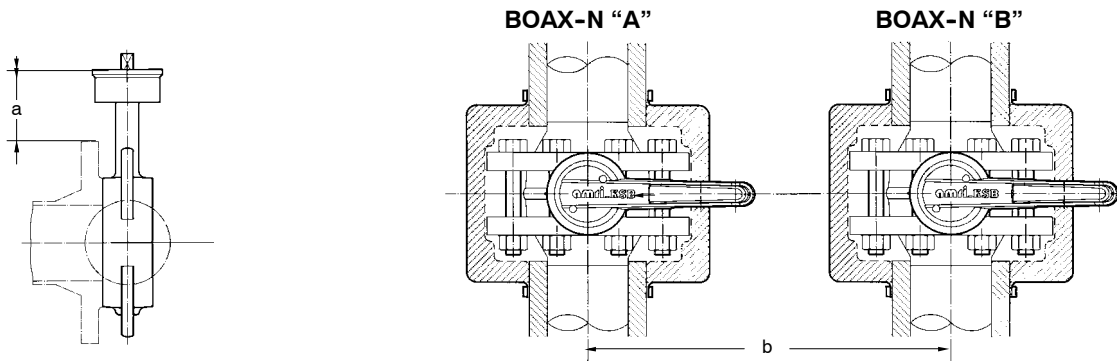
DN	ACTELEC type	l1	h1	h2	A	B	C	D	Ø E	Ø V	Weight* kg
20	LEA-2	27	101	236	118	65	77	41	-	-	2,1
25		27	104	239							2,2
32		27	108	243							2,5
40		33	126	261							2,8
50	LEA-3	43	131	266	118	65	77	41	-	-	3,1
65	LEB-4	46	157	341	148	90	140	65	60	106	7,2
80	LEB-10	46	163	347	191	90	140	65	60	106	8,3
100		52	191	375							9,9
125		56	205	389							11,1
20	OA 3	27	101	346	59	134	90	93	60	-	5,5
25		27	104	349							5,6
32		27	108	353							5,9
40		33	126	371							6,2
50		43	131	376							6,5
65		46	157	402							7,7
20	OA 6	27	101	317	200	90	145	65	60	106	6,2
25		27	104	320							6,3
32		27	108	324							6,6
40		33	126	342							6,9
50		43	131	347							7,2
65		46	157	373							7,9
80		46	163	379							8,5
100		52	191	389							10,1
125	OA 8	56	205	420	200	90	145	65	60	106	12,4
150	OA 15	56	224	439	260	112	145	65	100	106	15,3
200	AS 25	60	252	429	312	187	226	89	165	139	29,9
250		68	275	452							35,8
300	AS 50	78	289,5	467	340	187	226	89	250	139	50,0
350		78	338	515							78,0
400	BS 100	102	383	547	392	187	284	134	250	139	100,0
450		114	410	577							136,0
500		127	440	607							175,0

* The indicated weights are those of the valve + the actuator.

Thermal insulator dimensions a and sizes of flange coupling screws

DN	Flanges according to					
	EN 1092 (PN 6)		EN 1092 (PN 10) Type 11		EN 1092 (PN 16) Type 11	
	a	Screw size	a	Screw size	a	Screw size
Screw / Nut						
20	56,0	4 x M 10 x 75	48,5	4 x M 12 x 80	48,5	4 x M 12 x 80
25	54,0	4 x M 10 x 75	46,5	4 x M 12 x 80	46,5	4 x M 12 x 80
32	48,0	4 x M 12 x 80	38,0	4 x M 16 x 85	38,0	4 x M 16 x 85
40	61,0	4 x M 12 x 80	51,0	4 x M 16 x 85	51,0	4 x M 16 x 85
50	60,5	4 x M 12 x 90	48,0	4 x M 16 x 100	48,0	4 x M 16 x 100
65	77,0	4 x M 12 x 90	64,5	4 x M 16 x 100	64,5	4 x M 16 x 100
80	68,0	4 x M 16 x 100	63,0	8 x M 16 x 110	63,0	8 x M 16 x 110
100	86,0	4 x M 16 x 110	81,0	4 x M 16 x 110	81,0	8 x M 16 x 110
125	84,5	8 x M 16 x 115	79,5	4 x M 16 x 120	79,5	8 x M 16 x 120
150	91,5	8 x M 16 x 115	81,5	8 x M 20 x 130	81,5	8 x M 20 x 120
200	92,0	8 x M 16 x 125	82,0	8 x M 20 x 130	82,0	12 x M 20 x 130
250	87,5	12 x M 16 x 135	77,5	12 x M 20 x 150	72,5	12 x M 24 x 150
300	69,5	12 x M 20 x 150	67,0	12 x M 20 x 160	59,5	12 x M 24 x 160
Tie-rods						
350			90,0	(10xM20x180)+(12xM20x50)	82,5	(10xM24x195)+(12xM24x55)
400			100,5	(10xM24x210)+(12xM24x50)	93,0	(10xM27x230)+(12xM27x60)
450			105,5	(12xM24x230)+(16xM24x55)	93,0	(12xM27x260)+(16xM27x70)
500			108,0	(12xM24x240)+(16xM24x55)	85,5	(12xM30x285)+(16xM30x75)
600			107,0	(10xM27x290)+(20xM27x60)	77,0	(10xM33x340)+(20xM33x90)

If threaded rods or studs are used, add at least one nut length to the above-mentioned screw lengths.


Minimum deviations on distributor

The minimum deviations between the distribution loops are defined by the requirements applicable to heating installations, regardless of the control handles or reduction gears used.

		Minimum deviations b (mm)																		
		BOAX-N "A"																		
DN	20	25	32	40	50	65	80	100	125	150	200	250	300	350	400	450	500	600		
BOAX-N "B"	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	

End of line and downstream dismantling

Use as end of line and downstream dismantling of the standard valves at room temperature for DN and the differential pressure (ΔPS) defined hereafter:

hazardous**	Gas or liquids		Liquids*	
	hazardous**	non hazardous**	hazardous**	non hazardous**
All DN: non allowed	DN \leq 200: $\Delta PS = 10$ bar max. DN 250 to 500: $\Delta PS = 7$ bar max. Upper DN: on request	DN \leq 200: $\Delta PS = 10$ bar max. DN 250 to 500: $\Delta PS = 7$ bar max. Upper DN: on request	DN \leq 200: $\Delta PS = 12$ bar max. DN 250 to 500: $\Delta PS = 7$ bar max. Upper DN: on request	DN \leq 200: $\Delta PS = 12$ bar max. DN 250 to 500: $\Delta PS = 7$ bar max. Upper DN: on request

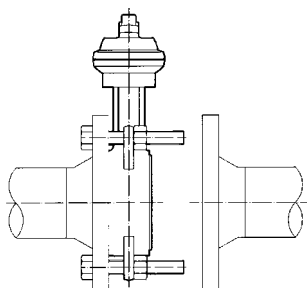
* Liquids having a vapour pressure at the maximum allowable temperature of not more than 0,5 bar above normal atmospheric pressure 1013 mbar.

** Fluids hazardous and not hazardous according to PED.

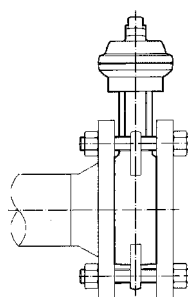
Nota : A valve fitted at the end of a pipe with a blind flange downstream is not to be considered as an end of pipe service.

The BOAX®-N valve is fitted between pipe flanges by tie-rods, without gasket. It is bi-directional and can be mounted in all positions.

Downstream dismantling

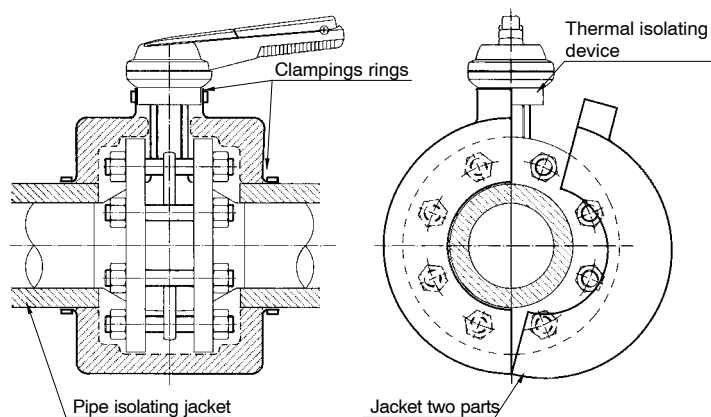


End of line mounting



Heat insulation

The extended neck and the thermal isolating device allow for easy clamping of an insulating jacket.



Product features - to our customer' benefit

Padlockable and/or lead sealable control handle (DN 20-250)

- Safety against unauthorized operation.

Thermal isolating device

- Quick and easy installation of thermal insulating jacket.
- No thermal loss.
- No condensation water.

Extended neck

- Possibility of thermal insulation in accordance with the requirements applicable to heating installations.

Wafer type body with tapped lugs

- Possibility of end of line and downstream dismantling.
- Small overall dimensions.
- Possibility of mounting between flanges PN 6/10/16.

Reducer

- Possibility of mounting in the open air owing to its protection class IP 67.
- Small size, hence reduced overall dimensions.

Disc with spherical machining

- Ensures permanent tightness at shaft passage way.

