ABO

GRIP THAT HOLDS

SERIES 3E

// DN 80 - 500 (3“ - 20“)
// Oil & Gas
// Power Generation
// Processing Industry

TRIPLE OFFSET BUTTERFLY VALVES

WWW.ABOVALVE.COM

GENERAL INFORMATION

GENERAL CHARACTERISTICS

- Triple offset design
- Shut-off and regulating device
- Metal/Metal sealing
- High opening & closing performance
- Zero leakage (no visible leakage when tested at high pressure with water and low pressure with air according to current international standards)
- Easy repair & maintenance
- Easy installation & mounting

APPLICATIONS

High performance applications such as chilled water, water, utility lines, gasoline, natural gas, air, oil, jet fuels and process lines, such as:

- Oil Tankers
- Refineries
- Power Generation
- Oil & Gas
- Steel & Mining
- Pulp & Paper
- Chemical & Petrochemical Industry
- Food & Beverage

STANDARDS

LEAK TEST:
- EN 12266-1, Rate A/B*
- ISO 5208, Rate A/B*
- API 598, TAB. 5
- ANSI (FC) 70-2, Class VI

FACE TO FACE ACC.:
- EN 558, SERIES 20
- ISO 5752, SERIES 20
- API 609, TAB. 3

CONNECTION BETWEEN FLANGES:
- EN 1092-1, 2
- DIN 2631 - 35
- ASME B16.5

ATEX OPTION:
- Zone - outside 1, 21, inside 0
- Gr.II Cat.1G/2GD TX
- Mining area Gr.1 Cat. M1

WORKING STANDARD:
- EN 593 + A1

TOP FLANGE:
- EN ISO 5211

MARKING:
- EN19

*For tightness rate A, please consult with the manufacturer.

TYPE DESIGNATION

3E-3 5 L 4 B 150

DN

Version of body
B = wafer
T = lug

Material of disc
7 - Stainless steel 1.4539 (Uranus B6)
5 - Carbon steel 1.0446, 1.0619, 1.0625 (A216 WCB) nitridated
5s - Carbon steel 1.0446, 1.0619, 1.0625 (A216 WCB) + Stellite
4 - Stainless steel 1.4408 / 1.4021 / 1.4401 nitridated
4s - Stainless steel 1.4408 / 1.4021 / 1.4401 + Stellite

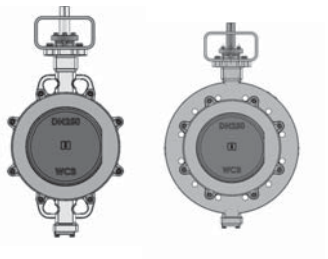
Material of seat
L - lameral version - Stainless steel 1.4401 (AISI 316) + Graphite

Material of body
7 - Stainless steel 1.4539 (Uranus B6)
6 - Low carbon content steel 1.1156 (A352 LCC)
5 - Carbon steel 1.0625 (A216 WCB)
4 - Stainless steel 1.4408 (A351 CF8M)

Series name
Series 3E

Models

Wafer type B Lug type T



PRODUCT QUALITY AND CONTROL

ABO production facilities are certified in accordance to ISO 9001 quality system, which ensures product quality and precision in manufacturing as well as strict product testing. Quality control guidelines and procedures include number of steps in 3 main areas: Incoming materials control, In-production control and After-production control.

- Test procedures are established according to: EN 12266-1, ISO 5208, API 598, ANSI/FCI 70-2
- Manufacture according to the requirements of the European Directive 97/23/CE – Equipment under pressure (Category III, modul B)
- All ABO valves pass pressure tests to 110% of rated pressure to ensure bubble tigh shutoff
- All actuators are calibrated and cycle tested before shipment
- Material Traceability Rule – Certification is provided for all supplied valves as per customer's request
- Positive Material Identification – All materials are subjected to PMI testing in order to verify Material Traceability Certificate
- API 609 Monogram can be placed on the valve upon request

Certificates - Complete list of certificates can be found on www.abovalve.com.

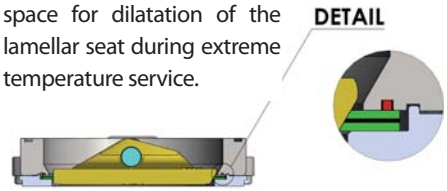
DESIGN BENEFITS

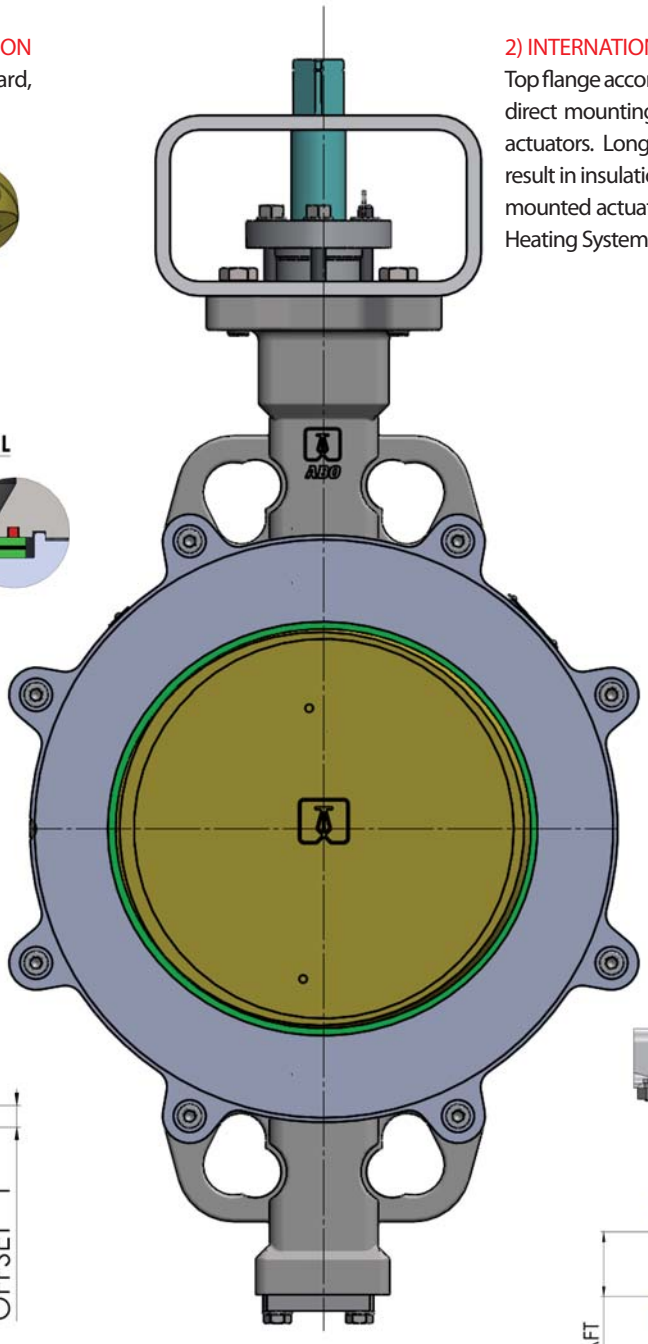
1) NITRIDATED OR STELLITED DISC OPTION

Disc is provided nitridated as standard, stellited disc is an option.

3) SPIRAL SEAT

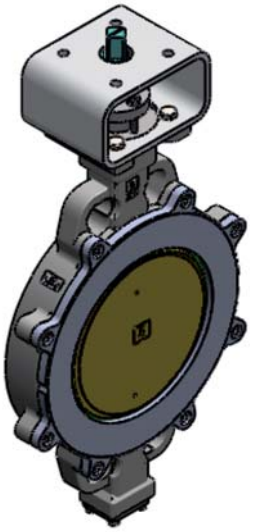
The gasket is spiral wound SS/Graphite for zero leakage. Spiral seat ensures free space for dilatation of the lamellar seat during extreme temperature service.





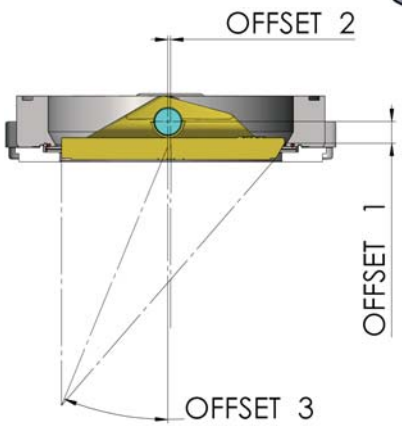
2) INTERNATIONAL STANDARD COMPATIBILITY

Top flange according to Standard ISO 5211 enables direct mounting of manual operators and power actuators. Longer necks of ABO butterfly valves result in insulation of ISO top flange (protection of mounted actuator), and further in complying with Heating Systems Regulation standards.



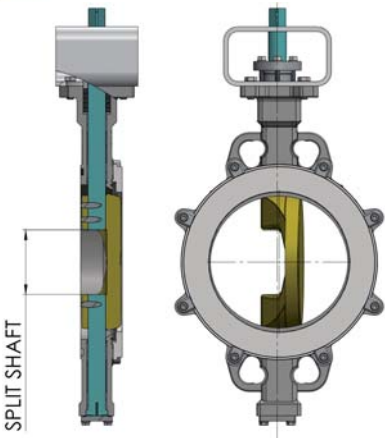
4) TRIPLE OFFSET

Triple offset design ensures safe function and tightness even in case of changing temperatures or case pressure peak. This geometry ensures that the bodies seal contacts the disc only at the final shut-off position without rubbing or galling.



5) SPLIT SHAFT

Split shaft ensures favourable Cv/Kv and pressure loss factor.

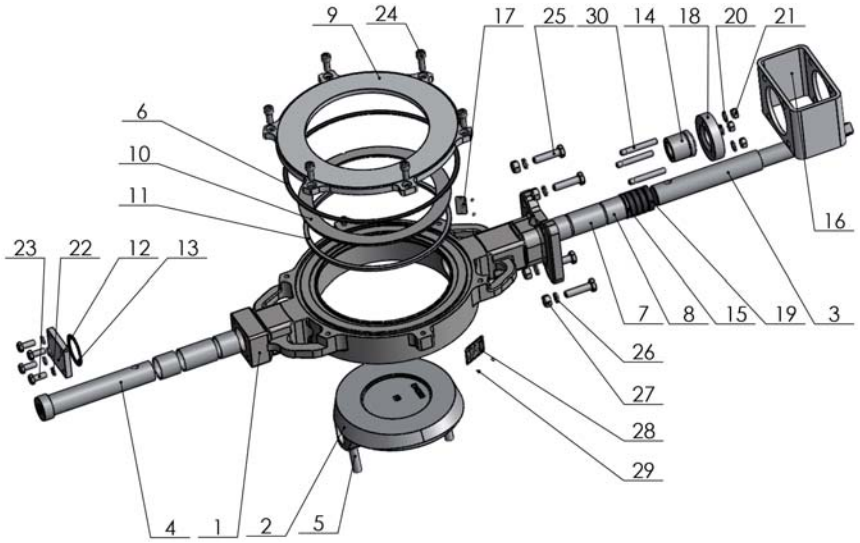


WHY TRIPLE ECCENTRIC VALVE?

- As cost of raw materials continues rising, a global shift towards more material and energy efficient products and technologies can be observed. In the valve industry, butterfly valves provide for significant cost savings over conventional valves such as ball, gate or globe valves due to an inherent reduction in materials and weight.
- With concentric butterfly valves; however, friction is constantly present throughout the operation cycle, thus subsequently reducing the life expectancy of such a valve. Double offset butterfly valves greatly decrease the friction to within the final degrees of closure, still resulting in a reduced life expectancy.
- ABO third offset design eliminates practically all friction throughout the operation cycle, therefore providing increased life expectancy and overall valve performance. Such friction elimination is possible thanks to conical machining profile of critical sealing components resulting in properly angled cone. This ensures friction free stroking throughout the entire operating cycle. Metal sealing components are never in contact with each other until final degree of valve closure with the 90° angle acting as a mechanical stop; resulting in “no over – travel” of the disc seat.

MATERIALS & TECHNICAL INFORMATION

DRAWING & MATERIALS



Execution in other material types can be provided upon request. Choice of the seat and disc materials for various media will be recommended upon specific enquiry.

Item	Name	Material
1	Body	7-Stainless steel 1.4539 (Uranus B6) 6-Low carbon content steel 1.1156 (A352 LCC) 5-Carbon Steel 1.0625 (A216 WCB) 4-Stainless Steel 1.4408 (A351 CF8M)
2	Disc	7 - Stainless steel 1.4539 (Uranus B6) 5 - Carbon steel 1.0446, 1.0619, 1.0625 (A216 WCB) nitridated 5s - Carbon steel 1.0446, 1.0619, 1.0625 (A216 WCB) + Stellite 4 - Stainless steel 1.4401 (AISI 316) - for ss body up to DN 300 Stainless steel 1.4021 (AISI 420) - for WCB body DN 350-400 Stainless steel 1.4408 (CF8M) - for ss body DN 350-400 - all discs are nitridated (on customer's request can be Stellited: 4s)
3	Shaft	Stainless steel 1.4021 (AISI 420)/ 1.4462 Duplex
4	Pivot	Stainless steel 1.4021 (AISI 420)/ 1.4462 Duplex
5	Pin	Stainless steel 1.4021 (AISI 420)/ 1.4462 Duplex
6	Flange seal	Graphite 98%
7	Sleeve	Stainless steel 1.4404 (AISI 316L)
8	Sleeve	Stainless steel 1.4404 (AISI 316L) + Ni
9	Flange	Carbon steel 1.0553 (A441) + Zn/ Stainless steel 1.4404 (AISI 316L)
10	Seat	L-Stainless steel 1.4401 (AISI 316) + Graphite 98%
11	Seal	Graphite
12	Cover	Carbon steel 1.0553 (A441) / Stainless steel 1.4401 (AISI 316)

Item	Name	Material
13	Cover seal	Graphite 98%
14	Packing gland	Stainless steel 1.4401 (AISI 316)
15	Lock washer	Stainless steel 1.4401 (AISI 316)
16	Bracket	Carbon steel 1.0553 (A441)
17	Plate	-
18	Gland flange	Stainless steel 1.4301 (CF8)
19	Packing	Graphite
20	Washer	Stainless steel A4
21	Hex nut	Stainless steel A4
22	Washer	Stainless steel A4
23	Bolt	Stainless steel A4
24	Screw	Stainless steel A4
25	Bolt	Stainless steel A4
26	Washer	Stainless steel A4
27	Hex nut	Stainless steel A4
28	Name plate	-
29	Rivet	Stainless steel A4
30	Stud	Stainless steel A4

Other material upon request.

COATING

- Black painting FINALUX Decklack 872-75 – 60 - 80 µm
- Based on customer's request, higher degree of coating can be provided

INSTALLATION BETWEEN FLANGES (DN 80-500) TYPE B

DN	80	100	125	150	200	250	300	350	400	500
INCH	3"	4"	5"	6"	8"	10"	12"	14"	16"	20"
ISO PN 6		●	●	●	●	●	●	●	●	●
ISO PN 10								●	●	●
ISO PN 16										
ISO PN 25										
ISO PN 40										
ANSI 150										
ANSI 300								x	x	x
JIS 10K					●		●	●	●	●
JIS 16K				●						

standard

x *not suitable*

● *suitable with additional machining*

For lug type (T) installation, please specify in the inquiry.

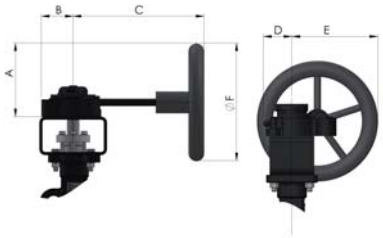
ACTUATION & TORQUES

ACTUATION POSSIBILITIES

All ABO handles, manual gear operators, pneumatic and electric actuators can be mounted directly to ABO butterfly valves, thus eliminating brackets or couplings. This allows for simple installtion in the field, minimizes possible misalignment and decreases overall height.

MANUAL GEARBOX WITH HANDWHEEL

ABO gearbox series of manual actuators combines state of art production technology, with cast iron and pressed steel construction, to provide a smooth and trouble-free operation for heavy duty on-off and throttling service of ABO valves. The rugged, cast iron body seals is weatherproof to IP65. A self-locking gearing holds the valve in the desired position. Further features include a readily accessible handwheel, adjustable stopcrew for closed position, removable splined drive bush with indexing facility and a facility to lock handwheel with padlock and chain. Gearboxes, as well as handlevers, can be supplemented with contacts for signalization of endpoints.

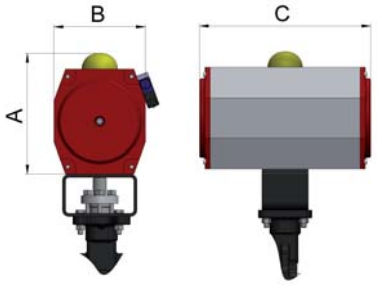


DN	80	100	125	150	200	250	300	350	400	500
A	77,5	77,5	133,5	155	155	213	213	275	275	359
B	55	55	58	66	66	83	83	99	126	195
C	110	110	157	272	272	345	345	285	337	470
D	51,5	51,5	59	59	59	70	70	86	114	170
E	90	90	155	177	177	242	242	315	348	482
F	100	100	200	250	250	350	350	450	450	600
Weight	3,7	3,7	5	3,7	3,7	6,6	6,6	14,5	27,2	65

Dimensions mentioned in mm, weight in kg. Weight is approximate, it depends on the customers' selection of gearbox.

ACTUATORS

- ELECTRIC ACTUATORS - ABO series 97 electric actuators are designated for quarter turn operating application. Electric actuators of 24V, 230V and 400V can be installed on ABO butterfly valves.
- PNEUMATIC ACTUATORS - ABO pneumatic actuators Series 95 are rack and pinion, opposed-piston actuators available in two versions: single acting & double acting



DN	125	150	200	250	300	350	400	500
A	140	140	140	198	255	302	360	360
B	120	120	120	172	224	272	224	360
C	291	291	291	332	422	603	683	683
Weight	8,35	8,35	8,35	15,78	37,75	70,6	107	114

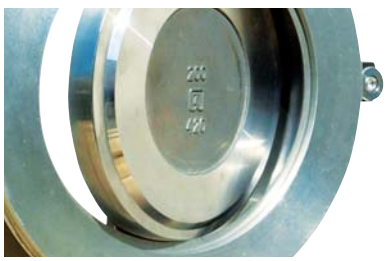
Dimensions mentioned in mm, weight in kg.

OPERATING TORQUES UPON WORKING PRESSURE (NM)

Open torques (Nm)

DN	80	100	125	150	200	250	300	350	400	500
10 bar	35	65	70	110	280	283	600	1 100	1 600	2 750
16 bar	42	70	82	140	330	418	900	1 500	2 270	3 100
20 bar	57	70	85	190	370	460	1 030	1 900	2 430	3 600
25 bar	70	85	95	210	490	656	1 150	2 500	3 100	4 890
30 bar	85	100	120	261	550	-	-	-	-	-
40 bar	91	125	140	350	-	-	-	-	-	-

Operating torques are mentionged without safety reserve.



DN	80	100	125	150	200	250	300	350	400	500
Closed torque (water)	63	140	175	220	450	420	400	450	500	1 100
Closed torque (air)	63	140	175	220	450	565	550	1 000	1 300	1 450
Max. torque on shaft - 35Lx	200	343	433	635	635	1 097	1 742	2 800	5 078	8 300
Max. torque on shaft - 34Lx	150	257	324	476	476	822	1 300	2 300	3 800	6 530

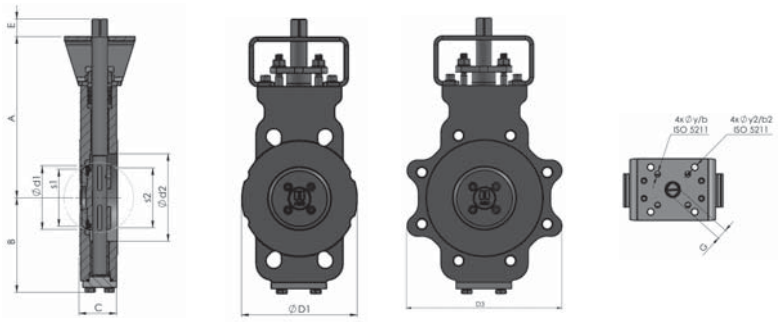
Operating torques are mentionged without safety reserve.

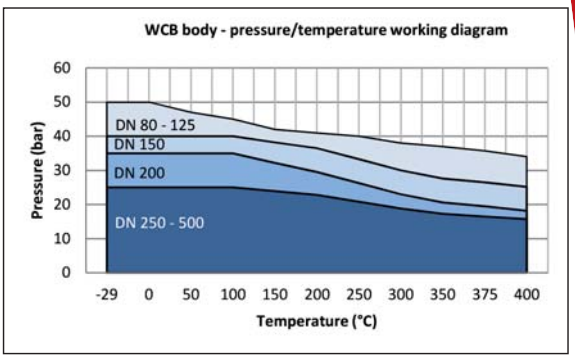
WORKING CONDITIONS, DIMENSIONS
DN 80 - 500 (3“ - 20“), PN 10 & 16

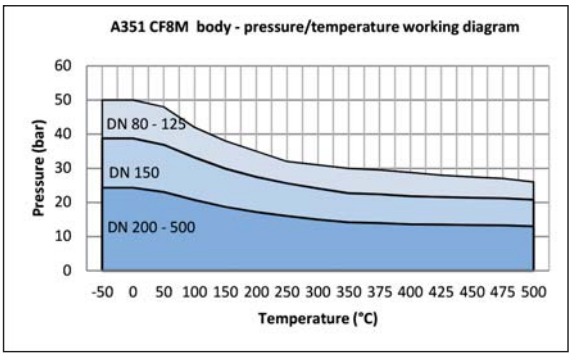
WORKING CONDITIONS

Working pressure	DN 80 - 125: 50 bar DN 150: 40 bar DN 200: up to 30 bar DN 250 - DN 500: 25 bar	**Working temperature**	max temperature range: - 100°C + 500°C with WCB body - 29°C + 425°C with CF8M body - 100°C + 500°C

Max. temperatures for each material of seat are accepted only for a specific medium and short time exposure.







DN		d1	d2	A	B	C	D1	D3	S1	S2	E	G	ISO 5211	y	b	Weight (kg)	
mm	inch															Version B	Version T
80	3"	77	100	173,5	117,9	47	139,5	193	61	70,8	25	14	F07	9	70	8	15
100	4"	90	123,5	228,5	132,4	53	163	217,6	73	83,2	25	17	F07/F10	9/11	70/102	12	15
125	5"	110	146	248	155	57	193	250	96	106	25	17	F07/F10	9/11	70/102	17	20
150	6”	146	155	307	214	57	252	318	136	143	25	17	F10	11	102	21	28
200	8”	194	204	339	246	61	305	381	185	193	25	17	F10	11	102	29	41
250	10”	238	259	395	275	69	349	450	224	236	31	22	F12	13	125	46	70
300	12”	287	309	460	313	79	393	521	270	284	31	27	F14	17	140	67	105
350	14”	323	342	508	355	92	448	557	300	308	45	27	F16	22	165	91	140
400	16”	385	405	556	402	103	542	657	342	360	58	36	F16	22	165	132	211
500	20”	440	502	638	432	127	615	775	420	439	110	18x11	F25	8x18	254	275	354,3

Other dimensions upon request.

EUROPEAN UNION
European Regional Development Fund
Operational Programme Enterprise
and Innovations for Competitiveness

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Data subject to change.

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