



# ABO

## SERIES 500

Class 150 // PN 6/10/16  
DN 50–400 (NPS 2"–16")  
Chemical industry  
Aggressive media  
Acids



PTFE LINED HIGH PERFORMANCE  
BUTTERFLY VALVES

[WWW.ABOVALVE.COM](http://WWW.ABOVALVE.COM)

# GENERAL INFORMATION - SERIES 500

## GENERAL CHARACTERISTICS

- DN 50–400 (2"–16")
- Maximum working pressure: 10 bar
- Connection between flanges class 150
- Concentric design with epoxy coated body
- Shut-off and regulating device
- No position restrictions in piping (horizontal/vertical)
- Excellent shut-off (bubble tight) and high Cv (Kv) values
- Disc has min. 3 mm thickness of pure virgin PTFE coating
- Upper stem seal system prevents any environmental contaminants from entering the stem bore
- Extended neck design allows for piping insulation and enables easy access for actuator mounting
- PTFE encapsulated steel bearing ensures precision alignment of the upper and lower stem
- Top flange acc. to ISO 5211 allows connection with various kinds of actuators (electric, pneumatic, hydraulic etc.)

## APPLICATIONS

The Series 500 high performance butterfly valves are designed to work with aggressive media in industries such as:

- Chemical industry
- High purity water
- Food industry
- Pharmaceutical industry
- Sanitary industries
- Corrosive & toxic media
- Adhesives & acids
- Paper industry
- Chlorine production
- Mining industry
- Paint manufacture

## STANDARDS

### Leak Test:

- EN 12266-1, Rate A
- ISO 5208, Rate A

### Face to Face

#### Dimensions:

- EN 558-1, SERIES 20
- ISO 5752, SERIES 20

### Top Flange:

- EN ISO 5211

### Connection Between

#### Flanges:

- EN 1092-1
- DIN 2631-32
- ASME B16.5

### Working Standard:

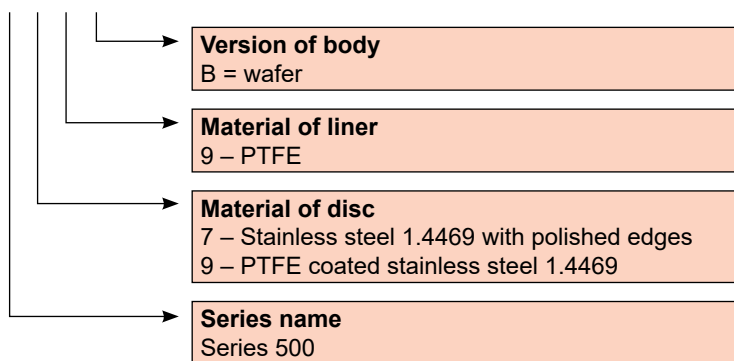
- EN 593 + A1

### Marking:

- EN 19

## TYPE DESIGNATION

5 9 9 B



### Models

Wafer type B

## PRODUCT QUALITY AND CONTROL

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

- Test procedures are established according to: ANSI/FCI 70-2, ISO 5208, EN 12266-1
- Manufacturing according to the requirements of the European Directive 2014/68/EU – Equipment under pressure (Category III, Module H)
- All ABO valves pass pressure tests at 110% of rated pressure to ensure bubble tight shutoff
- All actuators are calibrated and cycle tested before shipment
- Material Traceability Rule – Certification is provided for all supplied valves on customer's request
- Positive Material Identification – All materials are subjected to PMI testing in order to verify Material Traceability Certificates

**Certificates** – a complete list of certificates can be found at [www.abovalve.com](http://www.abovalve.com).

# DESIGN BENEFITS

## SAFETY FEATURES

A key element of the ABO butterfly valve Series 500 is the sealing capsule, which forms the secondary seal. This capsule fully isolates the valve body and stem from the working media. The capsule is consisting of a stainless steel safety ring which is supplemented by a silicone energizer ring.

## INTERNATIONAL STANDARDS 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).

## PROTECTION AGAINST ABRASIVE PARTICLE INTRUSIONS

A duster in an „O“ ring shape protects shaft bearings against intrusion of abrasive particles.

## DISC

The one-piece shaft/disc as well as the safety seat are coated with PTFE. The thickness of the PTFE coating on the disc is at least 3 mm. All sealing surfaces are machined to precision.

## SPRING LOADING STUFFING BOX

Loaded springs situated in the valve neck prevent axial movement of the shaft. A standard feature is a double seal on both shaft passages. The stuffing box is supplemented with a silicone energizer.

## ENERGIZER

An elastic energizer secures constant pressure around the perimeter of the liner.

## BALL SEALING PRINCIPLE

Sealing surface of the Teflon liner in the shaft area has a defined ball geometry which accurately reproduces the disc geometry, does not include critical transitions, and thus ensures long-term operations.

## PROFILED DISC

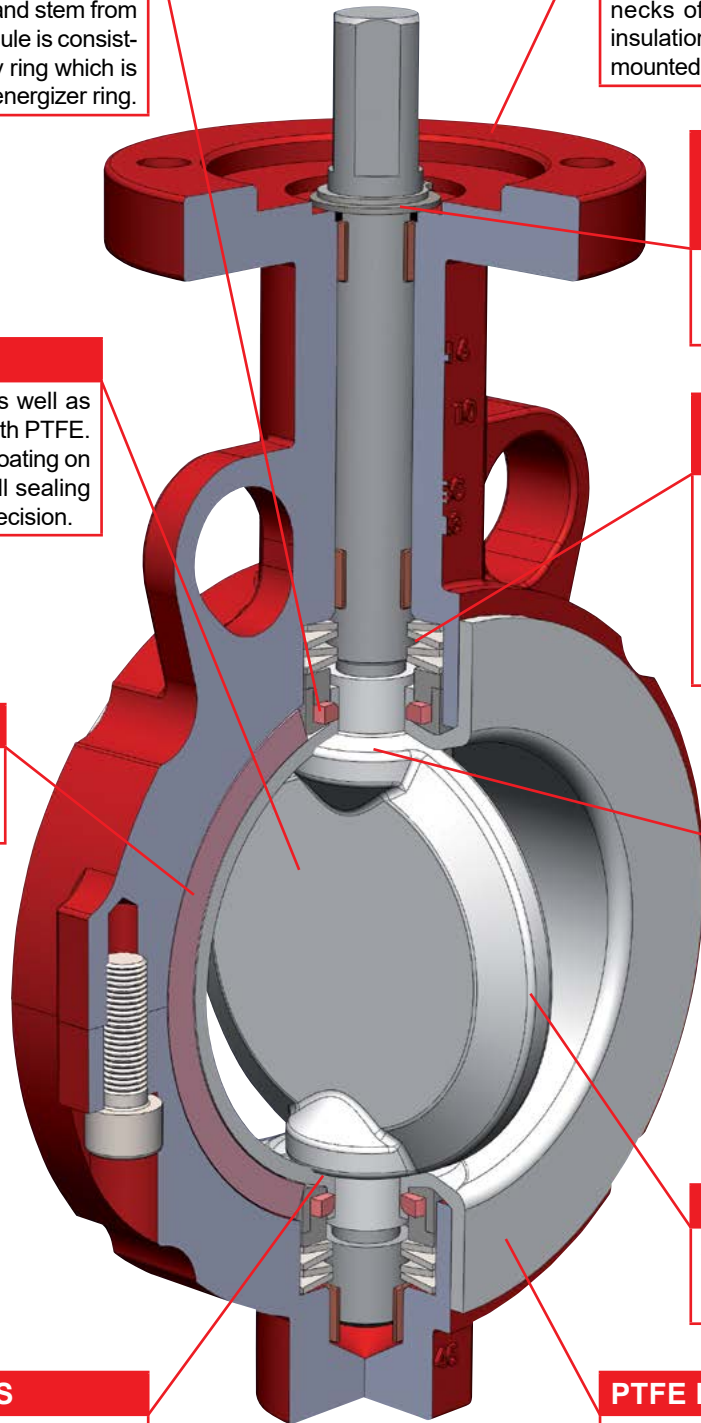
A profiled disc assures lower pressure drops and higher Cv/Kv values.

## FUNCTIONAL AREAS

The sealing element around the shaft (functional areas) is secured via precise machining and exact alignment of the sealing components.

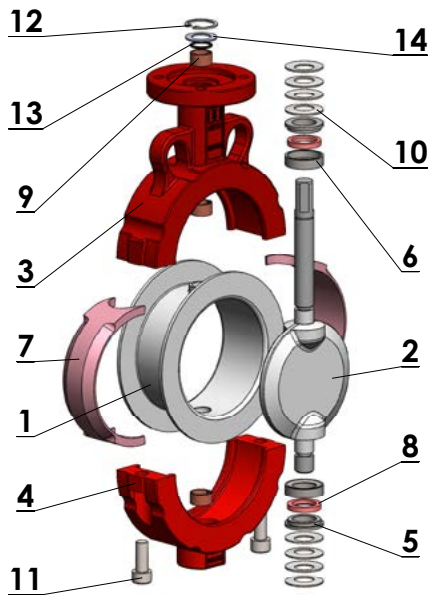
## PTFE LINER

The Teflon liner is min. 3 mm thick and is manufactured via isostatic pressing. The sealing strips function as doubled-sided flange seals.



# MATERIALS & TECHNICAL INFORMATION

## DRAWING & MATERIALS



Item	Name	Material
1	Liner	PTFE
2	Disc	PTFE coated stainless steel 1.4469 / Stainless steel 1.4469 with polished edges
3	Upper body part	Ductile iron 0.7043 (GGG40.3)
4	Lower body part	Ductile iron 0.7043 (GGG40.3)
5	Pressure element	Stainless steel 1.4021 (AISI 420)
6	Seal capsule	Stainless steel 1.4021 (AISI 420)
7	Energizer	Silicone rubber / VITON
8	Ring	Silicone rubber
9	Bearing	Steel, PTFE coated
10	Disc spring	Carbon steel 1.8159
11	Screw	Stainless steel A4
12	Retaining ring	Stainless steel A2
13	O-ring	NBR
14	Lock washer	Stainless steel A2

Other material execution upon request. Please consult with us material selection suitable for various media.

## ABO VIRGIN PTFE PROPERTIES

In order to assure long-life span and superior quality, all PTFE parts (seats as well as encapsulated discs) for ABO Series 500 valves are moulded from pure, virgin PTFE material. Virgin PTFE provides for an excellent chemical resistance and can be used with aggressive media. Typical characteristics of fluoropolymer resins include chemical inertness, exceptional dielectric properties, toughness and flexibility, low coefficient of friction, negligible water absorption and non-stick characteristics. All these properties provide increased protection against permeation of the line media. Further, low coefficient of friction reduces valve operation torque.

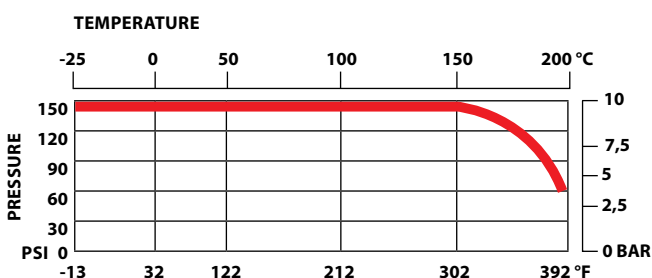
## INSTALLATION BETWEEN FLANGES (DN 50–400)

Vers.	PN / DN	50	65	80	100	125	150	200	250	300	350	400
B	PN 6											
	PN 10											
	PN 16											
	Class 150											
	JIS 10 K											
	JIS 16 K											

standard

## WORKING CONDITIONS

- Maximum working pressure: 10 bar
- Temperature range: max. -25 °C to +200 °C (-13 °F to +392 °F), depending on medium



## COATING OPTIONS

ABO's standard product offers valve bodies with a high quality epoxy coating, providing excellent wear and corrosion resistance. ABO epoxy coating is executed in orange finish RAL 2002 with a minimum thickness of 80 µm. Based on customer requirement, other customer specific coatings or colors are available. ABO epoxy coating has the following features:

- Excellent corrosion and wear resistance
- Resistance of chemicals including diluted acids and alkalis, petroleum solvents, alcohols, greases and oils
- Resistance to humidity & water
- Resistance to ultraviolet radiation
- Excellent resistance to abrasion
- Impact resistance without chipping or cracking



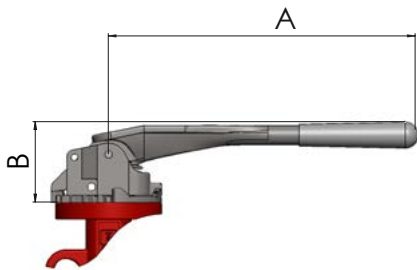
# ACTUATION & TORQUES

## ACTUATION POSSIBILITIES

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

## HANDLEVER

For manual actuation, ABO offers levers in carbon steel material with protective coating for excellent corrosion, abrasion and impact resistance. A lever in stainless steel material is an option. ISO top flange connection is F05 for sizes DN 50 and 65, and F07 for sizes DN 80-200, respectively.

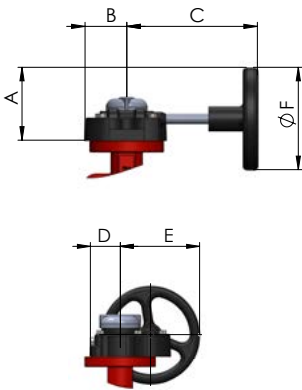


DN	mm	50-65	80-125	150-200	250
	inch	2"-2 1/2"	3"-5"	6"-8"	10"
<b>A</b>		270	270	362	750
<b>B</b>		75	80	90	105
<b>Weight (kg)</b>		1,24	1,24	1,4	2,2

Dimensions mentioned in mm, weight in kg.

## MANUAL GEARBOX WITH HANDWHEEL

ABO gearbox series of manual actuators combines state of the 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 seal is weatherproof to IP 67. A self-locking gearing holds the valve in the desired position. Further features include a readily accessible handwheel, adjustable stopscrew for closed position, removable splined drive bush with indexing facility and a facility to lock the handwheel with padlock and chain. Gearboxes, as well as handlevers, can be supplemented with contacts for signalization of endpoints.



DN	mm	50-125	150-200	250	300	350	400
	inch	2"-5"	6"-8"	10"	12"	14"	16"
<b>A</b>		70	78	133	133	287	287
<b>B</b>		35	46	57	62,5	77,5	77,5
<b>C</b>		91	110	156	156	275	335
<b>D</b>		38	46	60	62,5	181	181
<b>E</b>		84	91	155	155	319	319
<b>F</b>		100	100	200	200	500	500
<b>Weight (kg)</b>		1,6	3,7	6,6	6,6	10	10,5

Dimensions mentioned in mm, weight in kg. Weight is approximate – total weight depends on the customer's selection of gearbox.

## ACTUATORS

- PNEUMATIC ACTUATORS – ABO pneumatic actuators series 95 are rack and pinion, opposed-piston pneumatic actuators available in two versions: single acting spring-return & double acting.
- ELECTRIC ACTUATORS – ABO Series 97 electric actuators are designed for quarter-turn operating application. Electric actuators of 24V, 110V, 230V and 400V can be installed on ABO butterfly valves.

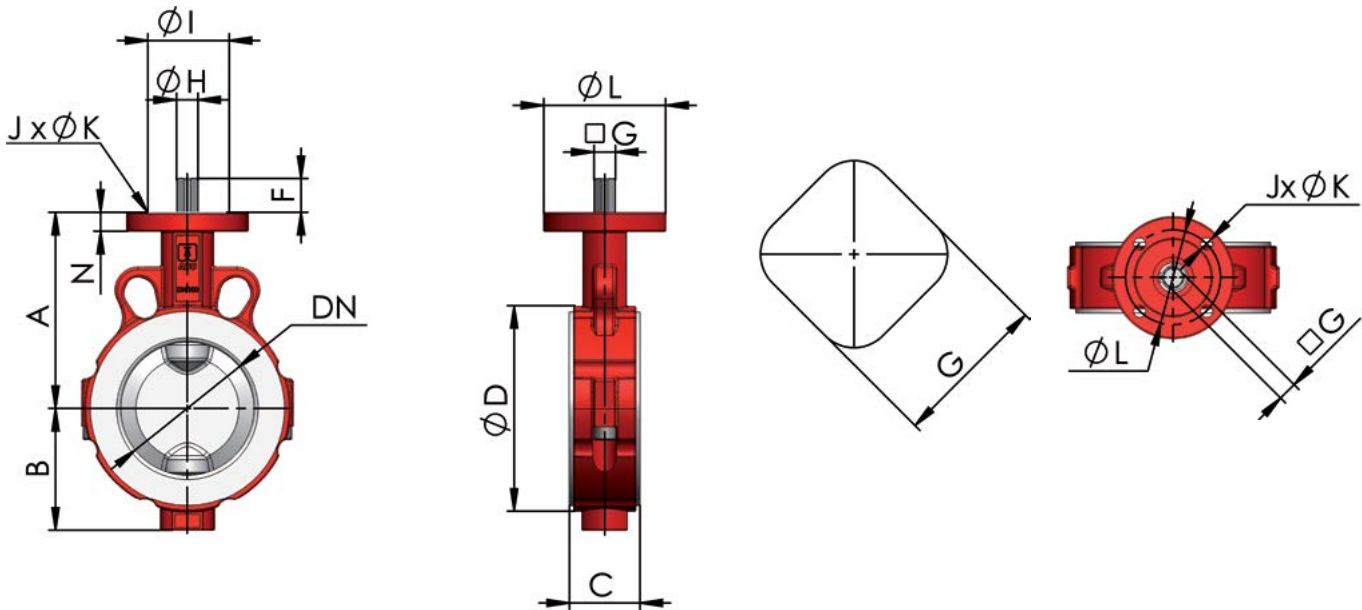
## OPERATING TORQUES [Nm] vs. WORKING PRESSURE [bar]

DN	50	65	80	100	125	150	200	250	300	350	400
NPS	2"	2 1/2"	3"	4"	5"	6"	8"	10"	12"	14"	16"
pMAX 10 bar	34	41	66	85	113	153	195	354	470	850	1 000

\* pMAX – maximum allowable pressure

For pressure 10 bar – water at 20 °C only. Operating torques are mentioned without safety reserve.

# DIMENSIONS



DN	mm	50	65	80	100	125	150	200	250	300	350	400	
	inch	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	
<b>Version B</b>	<b>A</b>	120	128	135	145	164	176,5	234	274	299	331	361	
<b>Valve dimensions</b>	<b>B</b>	61	74	78	90	106	126	152	186	214	245	280	
	<b>C</b>	43	46	46	52	56	56	60	70	76	78	102	
	<b>D</b>	96	115	131	152	181	207	257	314	364	408	468	
	<b>E</b>	106	115	131	152	181	207	257	314	364	408	468	
<b>Endshaft dimensions</b>	<b>F</b>	25	25	25	25	25	25	25	31	31	42	42	
	<b>G</b>	11	11	14	14	14	14	17	22	22	27	27	
	<b>H</b>	-											
<b>Top flange</b>	<b>I</b>	50	50	70	70	70	70	70	102	102	125	125	
	<b>J</b>	4	4	4	4	4	4	4	4	4	4	4	
	<b>K</b>	7	7	9	9	9	9	9	12	12	14	14	
<b>Flange dimensions</b>	<b>L</b>	70	70	90	90	90	90	90	125	125	155	155	
	<b>M</b>	-											
	<b>N</b>	14	14	14	14	14	14	14	14	18	20	20	20
	<b>ISO flange</b>	F05	F05	F07	F07	F07	F07	F07	F07	F10	F10	F12	F12
<b>Weight (kg)</b>		2,3	3,0	3,5	5,0	6,5	7,8	13,2	23,6	30,9	40,1	59,7	



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Data subject to change.

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