



SERIES 500

Class 150 // PN 6/10/16

NPS 2–12 (DN 50–300)

Chemical industry

Aggressive media

Acids



PTFE LINED HIGH PERFORMANCE
BUTTERFLY VALVES

GENERAL INFORMATION - SERIES 500

GENERAL CHARACTERISTICS

- NPS 2–12 (DN 50–DN 300)
- Maximum working pressure: 145 psi
- 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. 1/8" 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:

- ANSI/FCI 70-2, Class VI
- ISO 5208, Rate A
- EN 12266-1, Rate A

Face To Face Acc.:

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

Top Flange:

- ISO 5211

Connection Between Flanges:

- ASME B16.5
- EN 1092-1

Working Standard:

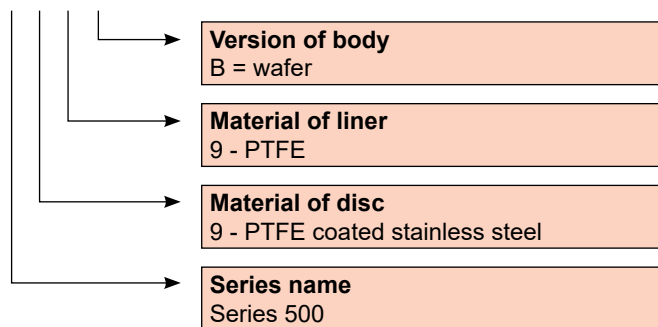
- EN 593 + A1

Marking:

- MSS SP-25
- 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.

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.

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.

ENERGIZER

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

FUNCTIONAL AREAS

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

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.

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.

BALL SEALING PRINCIPLE

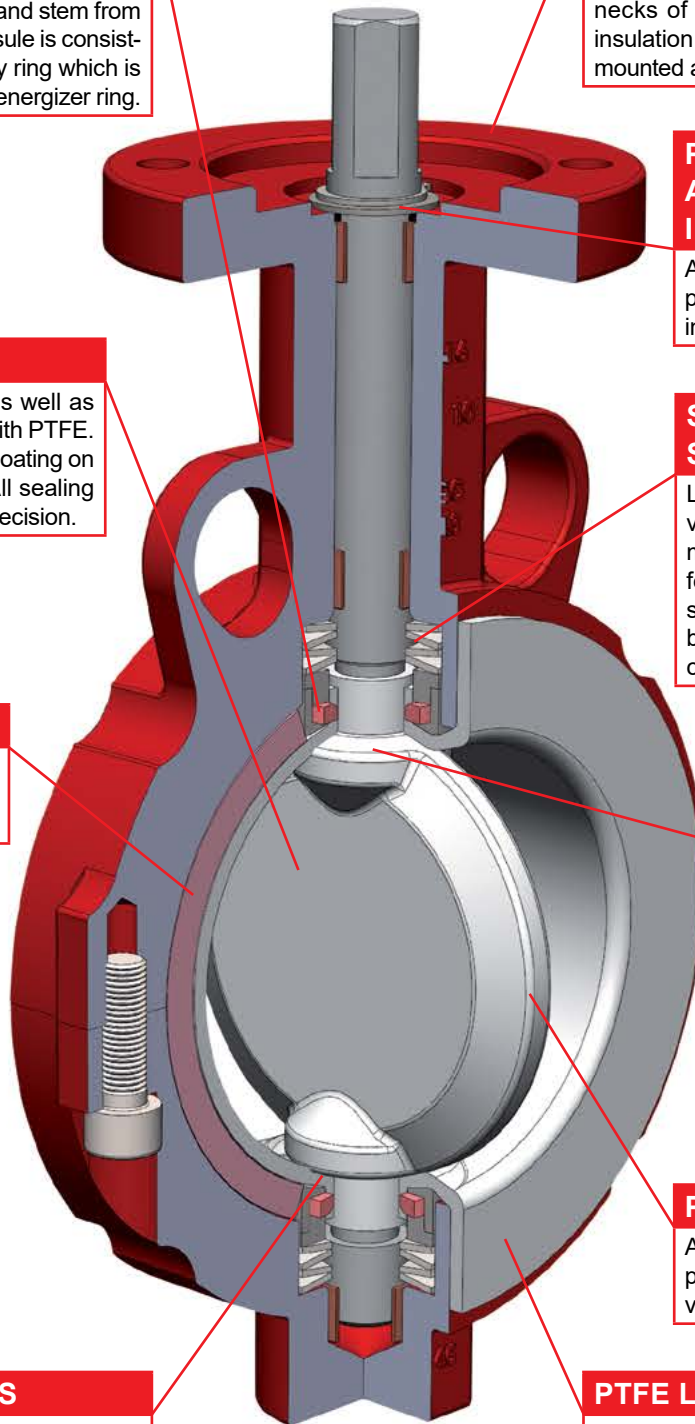
Sealing surface of the Teflon liner in the shaft area has a defined ball geometry which accurately reproduces the disc geometry, does not include critical transitions, and thus ensures long-term operations.

PROFILED DISC

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

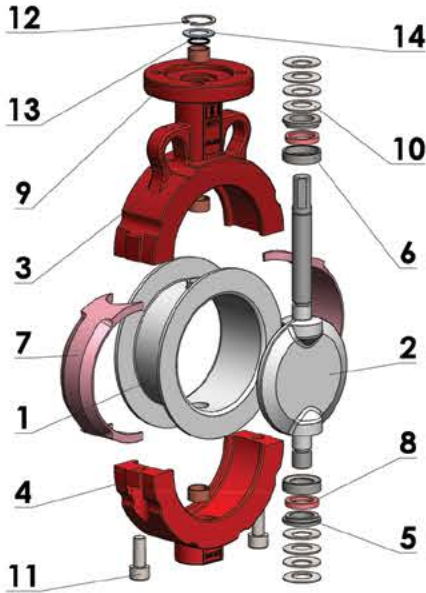
PTFE LINER

The Teflon liner is min. 1/8" 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 with shaft	Stainless steel ASTM A890 A5, PTFE coated
3	Upper body part	Ductile iron ASTM A395 60-40-18
4	Lower body part	Ductile iron ASTM A395 60-40-18
5	Pressure element	Stainless steel ASTM A276 420
6	Seal capsule	Stainless steel ASTM A276 420
7	Energizer	Silicone rubber (MVQ)/ Viton® (FKM)
8	Ring	Silicone rubber (MVQ)
9	Sliding gland ring	Steel, PTFE coated
10	Disc spring	Alloy spring ASTM A322 6150
11	Screw	Stainless steel ASTM A240 316
12	Retaining ring	Stainless steel ASTM A240 304
13	O-ring	NBR
14	Lock Washer	Stainless steel ASTM A240 304

Execution in other material types can be provided upon request. Please always consult with the manufacturer regarding material selection and process conditions.

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 (NPS 2-12)

Vers.	Flange / NPS	2	2 ½	3	4	5	6	8	10	12
B	Class 150									
	PN 6									
	PN 10									
	PN16									
	JIS 10 K									
	JIS 16 K									

standard

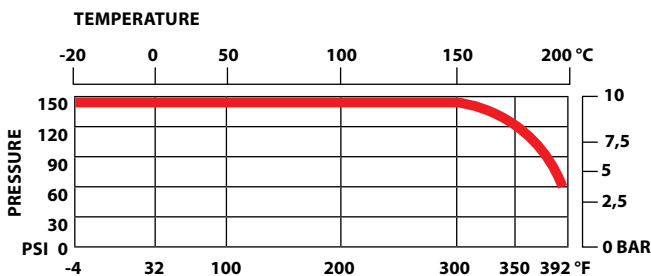
COATING OPTIONS

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

WORKING CONDITIONS

- Maximum working pressure: 145 psi
- Temperature range: -4 °F to + 392 °F, depending on medium



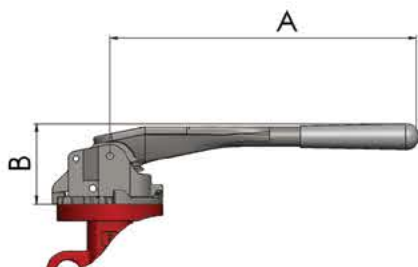
ACTUATION & TORQUES

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 NPS 2 and 2 ½, F07 for sizes NPS 3–8, respectively.

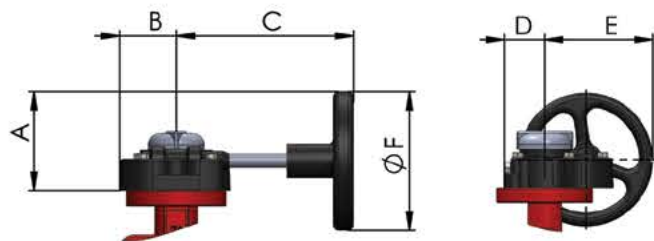


NPS	2-2 ½	3-5	6-8
DN	50-65	80-125	150-200
A	10.63 / 270		14.25 / 362
B	29.52 / 750	3.14 / 80	3.54 / 90
Weight	2.73 / 1.24		3.00 / 1.40

Dimensions mentioned in inch/mm, weight in lbs/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.



NPS	2-5	6-8	10-12
DN	50-125	150-200	250-300
A	2.75 / 70	3.00 / 78	5.23 / 133
B	1.37 / 35	1.81 / 46	2.25 / 57
C	3.58 / 91	4.33 / 110	6.14 / 156
D	1.5 / 38	1.81 / 46	2.36 / 60
E	3.3 / 84	3.58 / 91	6.10 / 155
F	3.93 / 100		7.87 / 200
Weight	3.53 / 1.6	8.10 / 3.7	14.55 / 6.6

Dimensions mentioned in inch/mm, weight in lbs/kg.

ACTUATORS

- PNEUMATIC ACTUATORS – ABO 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.

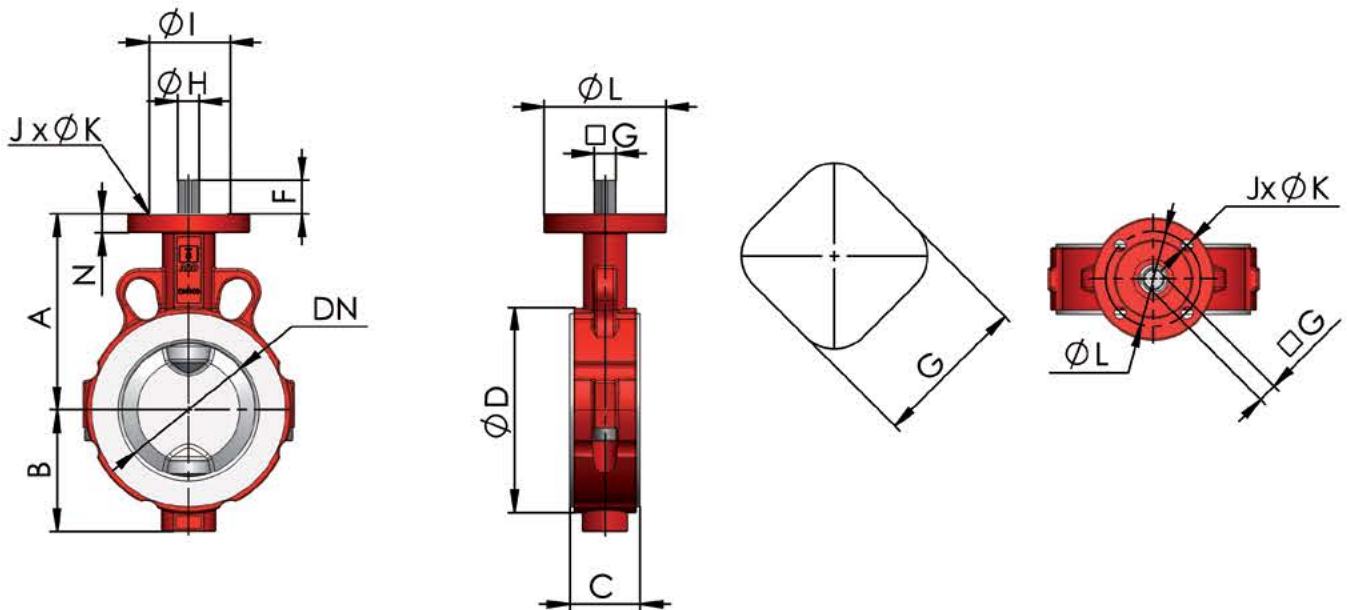
OPERATING TORQUES vs. WORKING PRESSURE (LBF.IN vs. PSI / NM vs. BAR)

NPS	2	2 ½	3	4	5	6	8	10	12
DN	50	65	80	100	125	150	200	250	300
pMAX 145 psi	301	363	584	752	1000	1354	2496	3133	4160
pMAX 10 bar	34	41	66	85	113	153	282	354	470

* pMAX – maximum allowable pressure

For pressure 145 psi – water at 68°F only. Operating torques are mentioned without safety reserve.

DIMENSIONS



NPS	2	2 ½	3	4	5	6	8	10	12	
DN	50	65	80	100	125	150	200	250	300	
Version B	A	4.72 / 120	5.05 / 128	5.31 / 135	5.7 / 145	6.45 / 164	6.92 / 176,5	9.22 / 234	10.78 / 274	13 / 330
	B	2.4 / 61	2.91 / 74	3.08 / 78	3.55 / 90	4.17 / 106	4.95 / 126	5.98 / 152	5.7 / 186	8.4 / 214
	C	1.69 / 43	1.81 / 46		2.05 / 52	2.2 / 56		2.36 / 60	2.75 / 70	3 / 76
	D	3.78 / 96	4.53 / 115	5.16 / 131	5.98 / 152	7.13 / 181	8.16 / 207	10.13 / 257	12.33 / 314	14.33 / 364
Endshaft dimensions	F	0.99 / 25						1.21 / 31		
	G	0.43 / 11			0.55 / 14			0.67 / 17	0.86 / 22	
	H	-								
Top Flange	I	1.96 / 50		2.75 / 70			4.02 / 102			
	J	4								
	K	0.28 / 7		4 / 9			0.47 / 12			
Flange dimensions	L	2.75 / 70		3.54 / 90			4.93 / 125			
	N	0.55 / 14						0.71 / 18	0.67 / 17	
	Weight	5.07 / 2.3	6.61 / 3.0	7.72 / 3.5	11.02 / 5.0	14.33 / 6.5	17.2 / 7.8	29.10 / 13.2	52.03 / 23.6	68.1 / 30.9
ISO Flange	F05		F07				F10			



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

All statements, technical information in this brochure are tentative and for general use only and do not constitute a recommendation or guarantee for any specific service or application requirement. Consult ABO representative or factory for specific requirements and material selection for your intended application. The right to change or modify product design or product without prior notice is reserved. Binding specification will be provided in each offer. ABO valve accepts no liability for damages caused by bad interpretation or use of the information included in this brochure.

30.4.2019

Data subject to change.

Company HQ – Czech Republic:
ABO valve, s.r.o.
Dalimilova 285/54, 783 35 Olomouc
Tel.: +420 585 224 087
Email: export@abovalve.com
www.abovalve.com

Germany:
ABO Armaturen GmbH
Mönchengladbach
Tel.: +49 162 417 45 47
Email: d.beckers@abovalve.com
www.abo-armaturen.de

Russia:
ABO ARMATURA Ltd.
Smolensk
Tel.: +7(4812) 240 020
Email: aboarmatura@yandex.ru
www.aboarmatura.ru

Brazil:
ABO do Brasil Válvulas Industriais Eireli
Valinhos
Email: sales@abovalve.com
www.abovalve.com

Singapore:
ABO Valve Pte. Ltd.
Singapore
Tel.: +65 9169 4562
Email: lsw@abovalve.com
www.abovalve.com

Turkey:
ABO Armaturen LTD STI
Istanbul
Tel.: +90-216 527 36 34
Email: m.sahin@abovalve.com
www.abovalve.com

China:
ABO Flow Control
Shanghai
Tel.: +86 13601522831
Email: wen@abovalve.com
www.abovalve.com

Slovakia:
ABO Slovakia s.r.o.
Banská Bystrica
Tel.: +421 484 145 633
Email: aboslovakia@aboslovakia.sk
www.aboslovakia.sk

United Arab Emirates:
ABO UAE
Abu Dhabi
Tel.: +971 56 9207964
Email: bharti@abovalve.com
www.abovalve.com

Ukraine:
ABO Ukraine LLC
Dnipro
Tel.: +38 056 733 95 70
Email: a.marushchak@abovalve.com
www.abovalve.com.ua

Bahrain:
ABO Middle East
Manama
Tel.: +973-3444 9065
Email: jimnichien@abovalve.com
www.abovalve.com

USA:
ABO Controls, LLC
Houston
Tel.: +1 (281) 930-7126
Email: salesUSA@abovalve.com
www.abocontrols.com