# SERIES 500

ABsOlute flow control

## SERIES 500

// PN 6/10/16/Classs 150
// DN 50 - 200 (2“ - 8“)
// Chemical industry
// Aggressive media
// Acids

PTFE LINED HIGH PERFORMANCE BUTTERFLY VALVES

# GENERAL INFORMATION - SERIES 500

## GENERAL CHARACTERISTICS

- DN 50 – DN 200
- Maximum working pressure: **10 bar**
- Concentric design with epoxy coated body
- Shut-off and regulating device
- No limits in position in piping (horizontal/vertical)
- Excellent shut off protection (buble tight shut off) and high KV values
- Disc has 3 mm thickness of pure virgin PTFE
- 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 impregnated steel bearing ensures precision alignment of the upper and lower stem
- Vacuum service possible depending on medium and temperature - consult with manufacturer
- Top flange acc. to ISO 5211 allows connection with various kinds of actuators (electric, pneumatic, hydraulic etc.)

## APPLICATIONS

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

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

## STANDARDS

| LEAK TEST: | FACE TO FACE ACC.: | TOP FLANGE: | CONNECTION BETWEEN FLANGES: | WORKING STANDARD: | MARKING: |
|---|---|---|---|---|---|
| • EN 12266-1, Rate A<br>• ISO 5208, Rate A<br>• API 598, TAB. 5 | • EN 558, SERIES 20<br>• ISO 5752, SERIES 20<br>• API 609, TAB. 2 | • EN ISO 5211 | • EN 1092-1<br>• DIN 2631-32<br>• ASME B16.5 | • EN 593 + A1 | • EN 19 |

## TYPE DESIGNATION

5 9 9 B

- **Version of body**
  B = wafer
- **Material of liner**
  9 - PTFE
- **Material of disc**
  9 - PTFE coated stainless steel
- **Series name**
  Series 500

**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 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 valves pass pressure tests to 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 as per customer's request
- Positive Material Identification – All materials are subjected to PMI testing in order to verify Material Traceability Certificate

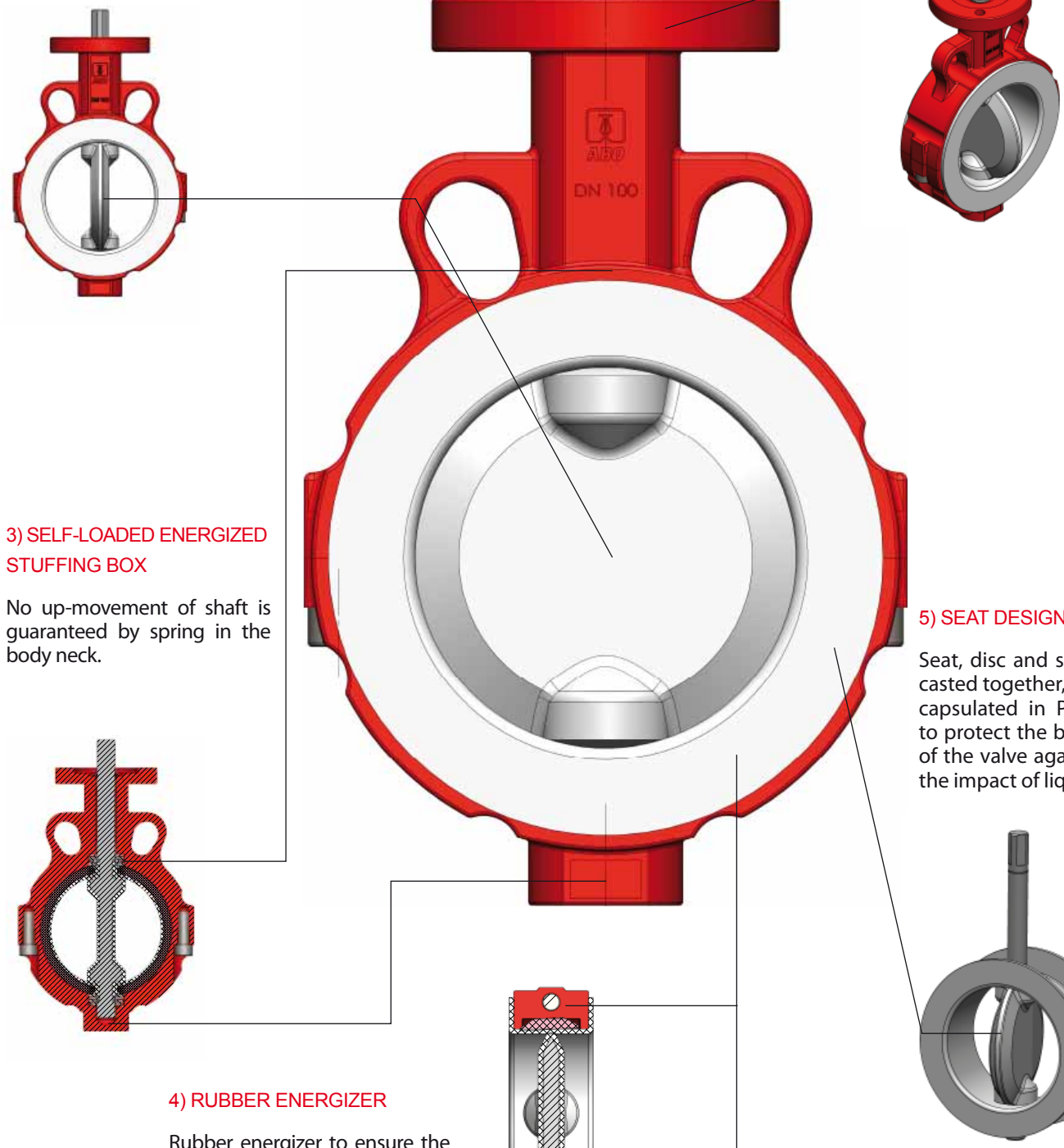
# DESIGN BENEFITS

## 1) SHAFT DESIGN

Splitted shaft system and highly profiled disc ensure high Kv (Cv) value and lower pressure drop. The splitted shaft system also offers bigger cross section area comparing to single-pieced shaft versions.

## 2) INTERNATIONAL STANDARD COMPATIBILITY

Top flange according to Standard ISO 5211 enables direct mounting of manual operators and power actuators. Longer necks of the butterfl y valves result in insulation of ISO top flange (protection of mounted actuator) and meeting Heating Systems Regulation standards.




## 3) SELF-LOADED ENERGIZED STUFFING BOX

No up-movement of shaft is guaranteed by spring in the body neck.

## 4) RUBBER ENERGIZER

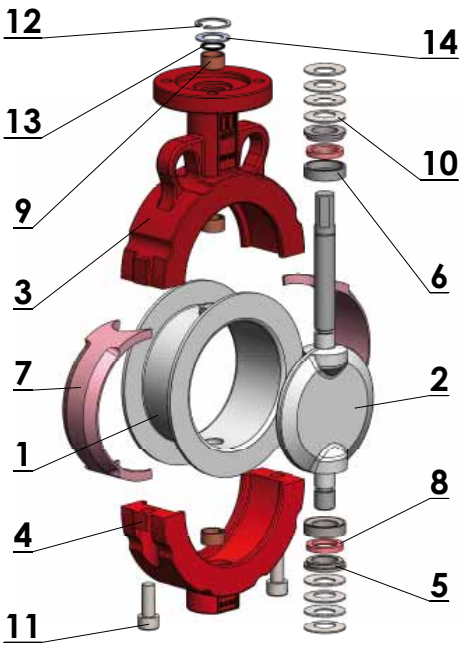
Rubber energizer to ensure the even tension against the whole perimeter of the disc.

## 5) SEAT DESIGN

Seat, disc and stem casted together, en-capsulated in PTFE to protect the body of the valve against the impact of liquid.

# MATERIALS & TECHNICAL INFORMATION

## DRAWING & MATERIALS




| Item | Name | Material |
|---|---|---|
| 1 | Liner | PTFE |
| 2 | Disc with shaft | Stainless steel 1.4469, PTFE coated |
| 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 1.4408 (CF8M) |
| 6 | Seal capsule | Stainless steel 1.4408 (CF8M) |
| 7 | Energizer | Silicone rubber / VITON |
| 8 | Ring | Silicone rubber |
| 9 | Sliding gland ring | SKF PTFE |
| 10 | Disc spring | Carbon steel 1.8159 |
| 11 | Screw | Stainless steel A4 |
| 12 | Retaining ring | Stainless steel 1.4122 |
| 13 | O-ring | NBR |
| 14 | Lock Washer | Stainless steel 1.4404 (AISI 316L) |

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. Max. temperatures for each material of seat are accepted only for a specific medium and short time exposure. Please always consult material selection with the manufacturer.

## ABO VIRGIN PTFE PROPERTIES

In order to assure long-life span and superior quality, all PTFE parts (seats as well as encapsulated discs) for the 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.

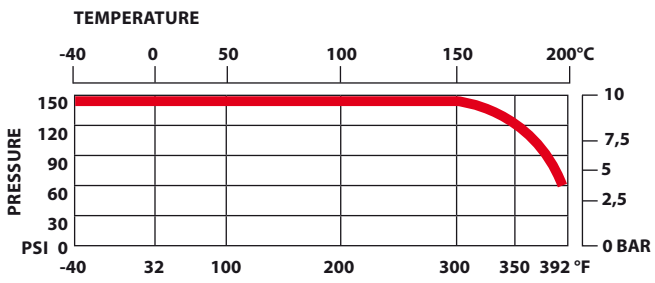
## INSTALLATION BETWEEN FLANGES (DN 50 - 200)

| Vers. | PN / DN | 50 | 65 | 80 | 100 | 125 | 150 | 200 |
|---|---|---|---|---|---|---|---|---|
| B | PN 6 | | | | | | | |
| | PN 10 | | | | | | | |
| | PN 16 | | | | | | | |
| | Class 150 | | | | | | | |
| | JIS 10K | | | | | | | • |
| | JIS 16K | | | | | | • | • |

standard • upon request

## WORKING CONDITIONS

- Maximum working pressure: 10 bar
- Temperature range - max: -40°C + 200°C (-40°F + 392°F), depending on medium




## COATING OPTIONS

The standard product offers valve bodies with an epoxy coating, providing excellent wear as well as corrosion resistance to the valve's surface. The epoxy coating is executed in orange finish RAL 2002 – 80 µm. Based on customer requirement, other customer specific coatings or colors are available. The epoxy coating has the following features:

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

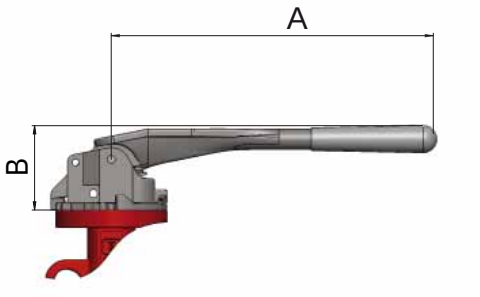
# ACTUATION & TORQUES

## ACTUATION POSSIBILITIES

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

## MANUAL ACTUATION: HANDLEVER

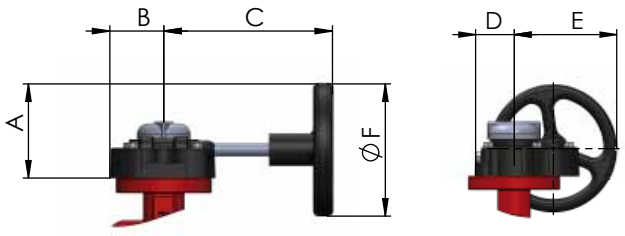
For manual actuation, the offers levers in carbon steel material with protective coating for excellent corrosion, abrasion and impact resistance. A lever in stainless steel material is an option. ISO top flange connection is F05 for sizes DN 50 and 65, and F07 for sizes DN 80-200, respectively.




| DN | mm | 50-65 | 80-125 | 150-200 |
|---|---|---|---|---|
| | inch | 2″-2 1/2″ | 3″-5″ | 6″-8″ |
| **A** | | 270 | 270 | 362 |
| **B** | | 75 | 80 | 90 |
| **Weight (kg)** | | 1,24 | 1,24 | 1,24 |

## MANUAL GEARBOX WITH HANDWHEEL

The 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 the valves. The rugged, cast iron body seal is weatherproof to IP65. 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 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 |
|---|---|---|---|
| | inch | 2″ - 5″ | 6″ - 8″ |
| **A** | | 89 | 155 |
| **B** | | 51 | 66 |
| **C** | | 152 | 272 |
| **D** | | 44 | 58,5 |
| **E** | | 101 | 177 |
| **F** | | 125 | 250 |
| **Gearbox** | | Series SE07 | Series SE10 |

## ACTUATORS

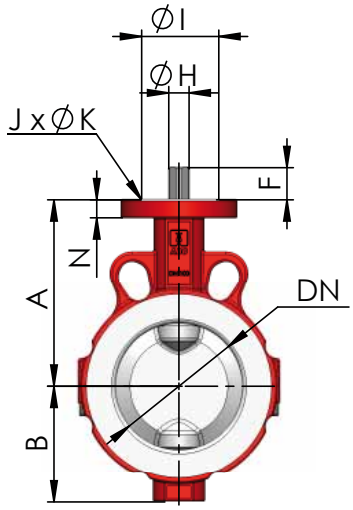
- PNEUMATIC ACTUATORS - The pneumatic actuators Series 95 are rack and pinion, opposed-piston actuators available in two versions: single acting & double acting
- ELECTRIC ACTUATORS - The series 97 electric actuators are designated for quarter turn operating application. Electric actuators of 24V, 230V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

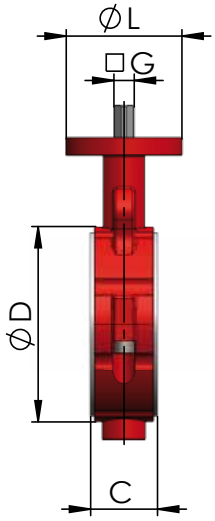
## OPERATING TORQUES UPON WORKING PRESSURE (NM)*

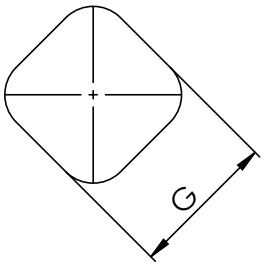
| DN | mm | 50 | 65 | 80 | 100 | 125 | 150 | 200 |
|---|---|---|---|---|---|---|---|---|
| | inch | 2″ | 2″ 1/2 | 3″ | 4″ | 5″ | 6″ | 8″ |
| **PMA 10bar** | | 34 | 41 | 66 | 85 | 113 | 153 | 195 |

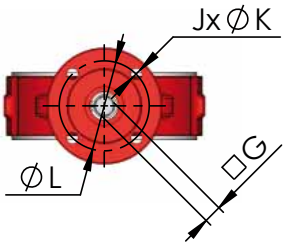
For pressure 10 bar - water at 20°C only.

# DIMENSIONS DN 50 - 200 (2“ - 8“), PN 6/10/16




| DN | mm | 50 | 65 | 80 | 100 | 125 | 150 | 200 |
|---|---|---|---|---|---|---|---|---|
| | inch | 2“ | 2“1/2 | 3“ | 4“ | 5“ | 6“ | 8“ |
| **Version B** | A | 120 | 128 | 135 | 145 | 164 | 176,5 | 234 |
| **Valve dimensions** | B | 61 | 74 | 78 | 90 | 106 | 126 | 152 |
| | C | 43 | 46 | 46 | 52 | 56 | 56 | 60 |
| | D | 96 | 115 | 131 | 152 | 181 | 207 | 257 |
| **Endshaft dimensions** | F | 25 | 25 | 25 | 25 | 25 | 25 | 25 |
| | G | 11 | 11 | 14 | 14 | 14 | 14 | 17 |
| | H | - | - | - | - | - | - | - |
| **Top Flange** | I | 50 | 50 | 70 | 70 | 70 | 70 | 70 |
| | J | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | K | 7 | 7 | 9 | 9 | 9 | 9 | 9 |
| **Flange dimensions** | L | 70 | 70 | 90 | 90 | 90 | 90 | 90 |
| | M | - | - | - | - | - | - | - |
| | N | 14 | 14 | 14 | 14 | 14 | 14 | 14 |
| **Weight (kg)** | | 2,3 | 3,0 | 3,5 | 5,0 | 6,5 | 7,8 | 13,2 |
| **ISO Flange** | | F05 | F05 | F07 | F07 | F07 | F07 | F07 |

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