GENERAL INFORMATION - SERIES 2E-5

GENERAL CHARACTERISTICS
- DN 50–DN 600 (2"–24")
- Double offset design
- Shut-off and regulating device
- Splitted shaft
- High opening & closing performance
- More strength with less weight
- Easy repair & maintenance
- Easy installation & mounting
- Vacuum max 0.01 bar (R-PTFE version)
- Top flange acc. to ISO 5211 allows connection with various kinds of actuators (electric, pneumatic, hydraulic etc.)

APPLICATIONS
High performance butterfly valves Series 2E-5 are designed to work in demanding conditions in industries such as:
- Oil & Gas
- Power Generation
- District Heating
- Heavy Industry
- Steam and Vacuum Services
- Potable Water
- Chemistry & Petrochemistry
- Hydrocarbon Processing
- Airport Refueling
- Purified Gas

STANDARDS
LEAK TEST – R-PTFE & FIRE SAFE VERSION:
- EN 12266-1, CLASS A*
- ISO 5208, CLASS A
- API 598, TAB.5

LEAK TEST – VERSION METAL-METAL:
- DN 50–125: EN 12266-1, CLASS C
- ISO 5208, CLASS A
- API 598, TAB.5

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

ATEX OPTION:
- Version according to ATEX 94/9/EC
- Zone 1 and 21 – GR II, Cat. 2 G/D

TOP FLANGE:
- EN ISO 5211

MARKING
- EN19

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

WORKING STANDARD:
- EN 593 + A1

PRODUCT QUALITY AND CONTROL
- ABO production facilities are certified in accordance to ISO 9001 (ISO 14001, OHSAS 18001) quality system
- Test procedures are established according to: ANSI/FCI 70-2, API 598, ISO 5208, EN 12266-1
- Manufacture according to the requirements of the European Directive 2014/68/EU – Equipment under pressure (Category III, Module H)
- All ABO 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 on customer request
- Positive Material Identification – All materials are subjected to PMI testing in order to verify Material Traceability
- API 609 Monogram can be placed on the valve upon request
- Certificates – A complete list of certificates can be found on www.abovalve.com

TYPE DESIGNATION

MODELS

Wafer type (B)  
Lug type (T)
SAFT DESIGN

a) 2-PIECED SHAFT
Splitted shaft design ensures high Kv (Cv) value and lower pressure drop. ABO splitted shaft system also offers bigger cross
section area comparing to single-pieced shaft versions. Taper pins are precision fit into reamed holes.

b) SELF-LOADED STUFFING BOX AS OPTION
Perfect tightness of shaft, no up-movement of shaft as well as reduced torque for low pressure applications is guaranteed by self-loaded stuffing box in the body neck.

c) GRAPHITE PACKING
As standard, a graphite packing is installed around the upper shaft providing additional safety in case of medium overheating.
d) ADJUSTABLE SHAFT PACKING
ABO shaft packing system allows for easy access to adjusting the hex head nuts without requiring removal of the actuator.
e) BLOW-OUT PROOF STEM
A retaining ring is installed between the machined shaft groove and gland retainer step.

f) SHAFT BEARINGS
Top and bottom bearing consisting of TP Igu fabric liner providing for excellent resistance to distortion, high temperatures and mechanical loading forces.
g) EXTENDED NECK
Extended neck ensures pipe insulation.

INTERNATIONAL STANDARD COMPATIBILITIY

Top flange according to ISO 5211 enables direct mounting of manual operators and actuators. Longer neck of ABO butterfly valves results in insulation of ISO top flange, for protection of mounted actuator and meeting heating system requirements.

DISC DESIGN

Disc has been engineered to maximize flow and minimize resistance providing a high Kv/Cv. Stainless steel material selection is standard.

DOUBLE OFFSET DESIGN

Double offset design ensures safe function and tightness even in case of changing temperatures or if the case of peak pressure. ABO double offset design reduces seat wear and secures zero leakage shut off throughout the full pressure range. To allow displacement of the seat, the shaft is offset from the center line of the disc seat and body seal (offset one), and the center line of the bore (offset two). The offset disc produces a cam-like action, pulling the disc from the seat resulting in friction during the first 10 degrees of opening and final 10 degrees of closing. While in open position, the disc is not in contact with the sealing, thus seat service life is increased and operating torques are reduced. As the valve closes, the cam-like action transforms the revolving motion of the disc to a linear one, and effectively pushes the disc into the valve seat. ABO double offset design further prevents undesirable build-up of material from slurries and suspended solids, via “wiping” action of the offset disc against the seat.

SEAT DESIGN

a) R-PTFE VERSION
Perfectly profiled seat ring ensures total tightness and also high number of cycles. PTFE seat is reinforced by 25% glass fibre which decreases wear and increases temperature resistance of the valve. The seat does not rely on any secondary support components to hold it in place which allows for longer service life with less maintenance required.

b) OVER-TRAVEL STOP
Over-travel stop is designed to prevent over-travel of the disc and minimize possible seat damage, thus provide for extended service life of the seat.
MATERIALS & TECHNICAL INFORMATION

DRAWING (FOR R-PTFE VERSION) & MATERIALS

**WORKING CONDITIONS**
- Maximum working pressure: 50 bar
- Temperature range (depending on material execution) – max: -100 °C + 500 °C (\(-148 °F + 932 °F\))
- Standard tightness from not-preferential side is 10 bar

**PAINTING OPTIONS**
- High temperature resistant painting RAL 9005 (up to 600 °C): 50–60 μm
- Based on customer’s request, higher degree of painting can be provided

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**Other materials 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.**

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**Pos.** | **Name** | **Material**
---|---|---
1 | Body | 4 – Stainless steel 1.4408 (CF8M) 5 – Carbon steel 1.0625 (A216 WCB) 6 – Low carbon content steel 1.1156 (A352 LCC)
2 | Disc | DN 50–125: Stainless steel 1.4404 (AISI 316L) DN 150–300: Stainless steel 1.4021 (AISI 420) / 1.4401 (AISI 316) DN 350–600: Stainless steel 1.4021 (AISI 420) / 1.4408 (CF8M)
3 | Ring flange | Stainless steel 1.0553 (A441) / 1.4404 (AISI 316L)
4 | Shaft | 54XX, 56XX – Stainless steel 1.4462 55XX – Stainless steel 1.4401 (AISI 316)
5 | Pivot | DN 50–125: Stainless steel 1.4462 DN 150–600: Stainless steel 1.4021 (AISI 420)
6 | Cover | DN 50–125: Stainless steel 1.4404 DN 150–600: Stainless steel 1.4021 (AISI 316)
7 | Pin | DN 50–125: Stainless steel 1.4404 DN 150–600: Stainless steel 1.4401 (AISI 316) + graphite
8 | Seat | XX90 – R-PTFE reinforced by 25% glass fibre PTFE XX90 – FIRE SAFE (R-PTFE + INCONEL) XX70 – DN 50–125: M/M: 2.4668 INCONEL 718, DN 150–600: M/M: Stainless steel 1.4401 (AISI 316) + graphite
9 | Lock washer | Stainless steel 1.4404 (AISI 316L)
11 | Gland flange | DN 50–125: 55XX, 54XX: Stainless steel 1.4404 (AISI 316L), 56XX: 1.4301 (AISI 304) DN 150–600: Stainless steel 1.4301 (AISI 304)*
12 | Stud | Stainless steel A4
13 | Hex nut | Stainless steel A4
14 | Washer | Stainless steel A4
15 | Flange seal | Graphite min 98%
16 | Cover seal | Graphite
17 | Bracket | Stainless steel 1.0553 (A441)
18 | Bolt | Stainless steel A4
19 | Retaining sleeve | Stainless steel 1.4401 (AISI 316)
20 | Screw | Stainless steel A4
21 | Sleeve | XX90 – TP IGUS XX70, XX80 – Stainless steel 1.4404 (AISI 316L) + Ni
22 | Packing | Graphite min 98%
23 | Lock washer | Stainless steel A4
24 | Hex nut | Stainless steel A4
25 | Bolt | Stainless steel A4
26 | Rivet | Stainless steel A4
27 | Name plate | Graphite min 98%
28 | Bandage | Stainless steel 1.4404 (AISI 316L) – for R-PTFE and Fire Safe version only
29 | Seat | Inconel – for Metal and Fire Safe version only
ACTUATION POSSIBILITIES

All ABO handles, manual gear operators, pneumatic and electric actuators can be mounted directly to ABO butterfly valves, which ensures compatibility between the actuator and the valve. This allows for simple installation in the field, minimizes possible misalignment and decreases overall height.

MANUAL ACTUATION: HANDLEVER

MANUAL GEARBOX WITH HANDWHEEL

ACTUATORS

- PNEUMATIC ACTUATORS – ABO Series 95 are rack and pinion, opposed-piston actuators available in two versions: single acting spring-return & double acting.
- 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.

OPERATING TORQUES UPON WORKING PRESSURE (NM)

1) R-PTFE SEAT

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Dimensions mentioned in mm, weight in kg.

2) METAL / METAL SEAT – FIRE SAFE SEAT

OPERATING TORQUES UPON WORKING PRESSURE (NM)

16 bar
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Dimensions mentioned in mm, weight in kg. Weight is approximate, and is dependent on the customers’ selection of gearbox.

Operating torques are mentioned without safety reserve.

INSTALLATION BETWEEN FLANGES (DN 50–600) TYPE B
DIMENSIONS DN 50 – 600 (2" – 24"), PN 10/16

EUROPEAN UNION

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7. 2. 2018

Data subject to change.