VALVECONTROL KFT
The specialist

# SERIES 900 industrial line

## CONCENTRIC BUTTERFLY VALVES

| | |
|---|---|
| **Body design** | |
| Interflanged | **WAFER** type with through holes<br>**LUG** type with threaded holes |
| Double flanged | With through / threaded holes |
| **Nominal size** | |
| Interflanged | DN32 - DN600 |
| Double flanged | DN700 - DN1600 (Series 20)<br>DN50 - DN2200 (Series 13) |
| **Working pressure** | 6 bar / 10 bar / 16 bar |
| **Flange connection** | PN6/PN10/PN16/Class 150 |
| **Working temperature** | -40°C / +150°C |
| **Working media** | Potable water<br>Waste water<br>Hot industrial water<br>Heating water<br>Sea water<br>Chemicals<br>Gas / Oil and gas<br>Oil / Oil derivates<br>Loose materials<br>Air<br>Beverages / Food<br>Malt<br>Sugar juice |
| **Tightness** | Class A |
| **Features** | **Concentric design**<br>**Bidirectional valve**<br>Body with safety plug (up to DN400)<br>Body with pin cover (DN450-DN600)<br>Demountable valve<br>**Easy service** |

# GENERAL VALVE DESCRIPTION

**Wafer/Lug/Double flanged concentric butterfly valves of Series 900** are resistant soft-sealing valves designed for industrial applications like:

- purification, treatment and distribution of potable or waste water, waste slurry treatment
- heating, heating water distribution
- ventilation, air conditioning
- conveying and distribution of sea and industrial water
- distribution of light chemicals, pharmaceuticals, oils and oil derivatives
- distribution of sugar juice, food industry applications
- conveying loose materials
- pulp and paper industry
- gas distribution
- dust or gas explosive environment (zones 0, 1; 20 and 21; except mining environment)

## Basic properties

- concentric design, bidirectional
- wafer/lug type with split stem
- disc is moved by stem with diagonally fit square-end stem
- pivot plug enables to dismantle the valve (valid for wafer/lug valves up to DN 400), pin cover at DN450-DN600
- body long neck according to the regulations of thermoprocessing equipment
- red epoxy coating acc. RAL 2002-80 µm
- certified by DWGV for potable water and gas
- ABS certified - PED certificate
- ACS certification

## Based on customers' special requests we offer:

- bonded seat - for vacuum systems with maximum absolute pressure of 200 mbar
- NBR conduct - ATEX design for group II, category 1/2 GD TX
- special seat types certified by FDA for food industry
- WRAS certification for potable water
- material certificates 3.1/3.2
- customer tailored valve design - special body or disc coatings, stem extensions for non-standard valve control etc.

## Type designation

**9 2 4 B**

**Body design**
B - Wafer body with through holes
T - Lug body with tapped holes
U - Double flanged body with short face-to-face length (ISO 5752, Series 20)
F - Double flanged body with long face-to-face length (ISO 5752, Series 13)
** upon request the valve body can be coated with various types of special protecting coatings (Rilsan/Halar/A4 etc.)*

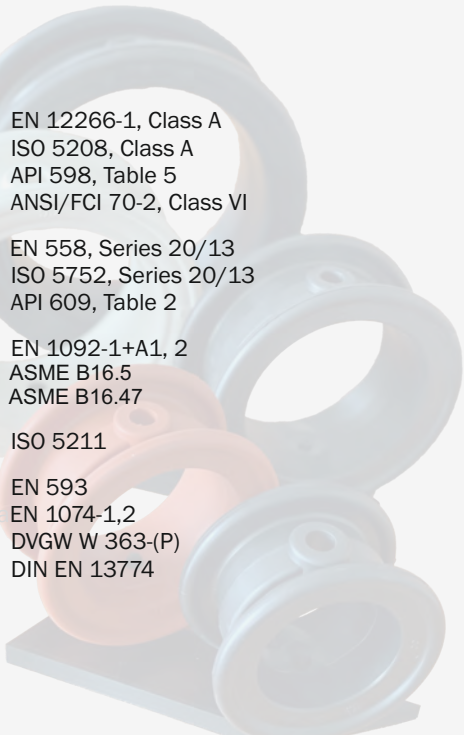
**Disc material**
0 - Brass 2.0402
1 - Aluminium bronze 2.0975 (C95800)
2 - Stainless steel 1.4308 (CF8)
3 - Ductile iron 0.7040 (GGG40)*
4 - Stainless steel 1.4408 (CF8M)*
5 - HASTELLOY
6 - Stainless steel 1.4539 (Uranus B6)
7 - Titanium
** upon request the disc can be coated with special coatings (Rilsan/Halar)*

**Seat material**
1 - NBR
2 - EPDM
3 - NBR Carboxyle (XNBR)
4 - VITON (FPM)
5 - Steam silicone (MVQ)
6 - Silicone (VMQ)
7 - Epichlorhydrin (ECO)
8 - HYPALON® (CSM)
9 - NBR 70-AG
- NBR conduct
** other materials upon request*

**Series designation**
Series 900

## Standards

| | |
|---|---|
| **Leak test** | EN 12266-1, Class A<br>ISO 5208, Class A<br>API 598, Table 5<br>ANSI/FCI 70-2, Class VI |
| **Face to face length** | EN 558, Series 20/13<br>ISO 5752, Series 20/13<br>API 609, Table 2 |
| **Flange connection** | EN 1092-1+A1, 2<br>ASME B16.5<br>ASME B16.47 |
| **Top flange** | ISO 5211 |
| **Working standard** | EN 593<br>EN 1074-1,2<br>DVGW W 363-(P)<br>DIN EN 13774 |



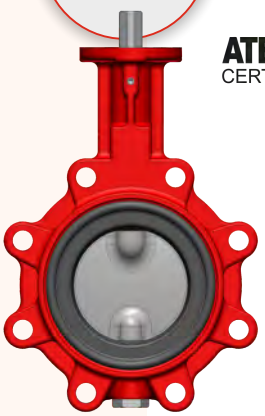
# DESIGN MODELS

**B**
**WAFER**
DESIGN

**DN32-DN600**

**T**
**LUG**
DESIGN

ATEX CERTIFIED



**DN32-DN600**

**U**
**WAFER/LUG**
DESIGN

**DN700-DN1600**
short face-to-face length
SERIES 20

**F**
**WAFER/LUG**
DESIGN

ATEX CERTIFIED
WRAS

**DN50-DN2200**
long face-to-face length
SERIES 13


**DN32-DN400**

**DN32-DN300**

## Quality control

- ABO valve production facilities are certified in accordance with ISO 9001:2015 (ISO 14001, 45001)
- tightness test procedures according to standards EN 12266-1, ISO 5208, ANSI/FCI 70-2
- production in accordance with the Pressure Equipment Directive 2014/68/EU - Equipment operating under pressure (Category III, module H)
- all the ABO valves are tested under the pressure of 110% max. working pressure to ensure leak tightness according to standards - the 3.1, 3.2 material certificates can be issued
- all the actuators are adjusted and tested while assembled
- manual actuator, if delivered, is adjusted and tested while assembled
- all the certificates can be downloaded from **www.abovalve.com**

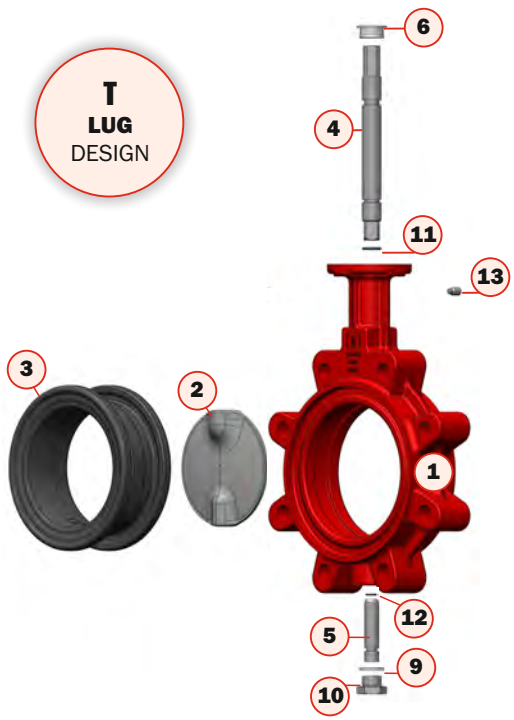
**For natural gas interflanged distribution systems** are offered gas versions valves of the Series 99xx. The gas valves are fitted with a control lever with a yellow sleeve. The valves are designed for natural gas, are supplied with a special set of seat with **DVGW** certification, tightness class A, working pressure max. 10 bar.

**For distribution of potable water** are offered valves of Series 900 with special set of seats with **DVGW/WRAS** certification. The valves are designed for cold water, inc. potable water, tightness class A, working pressure 10/16 bar. The valves are equipped with control lever with a green sleeve.

**As a lightweight variant** (valves with lower weight) are offered valves of Series 900 with aluminimum body, working pressure 10/16 bar, working temperature: -40°C/+150°C.

# MATERIAL PERFORMANCE

INTERFLANGED DESIGN


| Pos. | Name | Material |
|---|---|---|
| 1 | **Body** | Ductile iron 0.7040 (GGG40) epoxy coated<br>Carbon steel 1.0446 (A216 WCB)<br>Stainless steel 1.4408 (CF8M)<br>Low carbon steel 1.1156 (LCC)<br>Aluminium EN AC 4300 (C95500)<br>Aluminium bronze 2.0975 (C95800) |
| 2 | **Disc** | 0 - Brass 2.0402 (UNS C38000)<br>1 - Aluminium bronze 2.0975 (C95800)<br>2 - Stainless steel 1.4308 (CF8)<br>3 - Ductile iron 0.7040 (GGG40) epoxy coated<br>4 - Stainless steel 1.4408 (CF8M)<br>5 - HASTELLOY<br>6 - Stainless steel 1.4539 (Uranus B6)<br>7 - Titanium |

| Pos. | Name | Material |
|---|---|---|
| 3 | **Seat** | 1 - NBR<br>2 - EPDM<br>3 - NBR Carboxyl<br>4 - Viton Bio<br>5 - Silicone steam (MVQ)<br>6 - Silicone (VMQ)<br>7 - Epichlorohydrin<br>8 - HYPALON® (CSM)<br>9 - NBR 70-AG<br>- NBR conduct |
| 4 | **Stem** | Stainless steel 1.4021 (AISI 420) |
| 5 | **Pivot** | Stainless steel 1.4021 (AISI 420) |
| 6 | **Bushing** | Delrin (to DN 300)<br>Brass (from DN 350) |
| 9 | **Seal** | Klingersil C-4400 |
| 10 | **Plug** | Stainless steel A2 |
| 11 | **Stem O-ring** | NBR, EPDM, optionally VITON |
| 12 | **Pivot O-ring** | NBR, EPDM, optionally VITON |
| 13 | **Retaining bolt** | Stainless steel A2 |

*Other materials upon request.*
*Seat and disc materials are recommended based on particular inquiry.*

# INSTALLATION BETWEEN FLANGES

## Installation between flanges DN32 to DN600 - Wafer/Lug design

| | DN | 32/40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | PN6 | | | | | | | | | | | • | • | • | • | • |
| | PN10 | | | | | | | | | | | | | | | |
| | PN16 | | | | | | | | | | | | | • | | |
| | Class 150 | | | | | | | | | | | • | • | • | • | • |
| T | PN6 | • | • | • | • | • | • | • | • | • | • | • | • | x | x | x |
| | PN10 | | | | | | | | | | | | | • | • | • |
| | PN16 | | | | | | | | • | • | • | • | • | • | • | • |
| | Class 150 | • | • | • | • | • | • | • | • | • | • | • | • | • | • | • |

standard • upon request x impossible

## Installation between flanges DN700 to DN1600 - Double flanged design - Series 20

| | DN | 700 | 800 | 900 | 1000 | 1100 | 1200 | 1300 | 1400 | 1500 | 1600 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| U | PN6 | • | • | • | • | • | • | • | • | • | • |
| | PN10 | | | | | | | | | | |
| | PN16 | • | • | • | • | • | • | • | • | • | • |
| | Class 150 | • | • | • | • | • | • | • | • | • | • |

standard • upon request

## Installation between flanges DN50 - DN2200 - Double flanged design - Series 13

| | DN | 50 - 2200 |
|---|---|---|
| F | PN6 | • |
| | PN10 | |
| | PN16*) | • |
| | Class 150 | • |

• upon request

standard

*) PN16 for nominal sizes DN50-300 is standard, for nominal sizes bigger than DN300 PN16 upon request

# VALVE ACTUATION

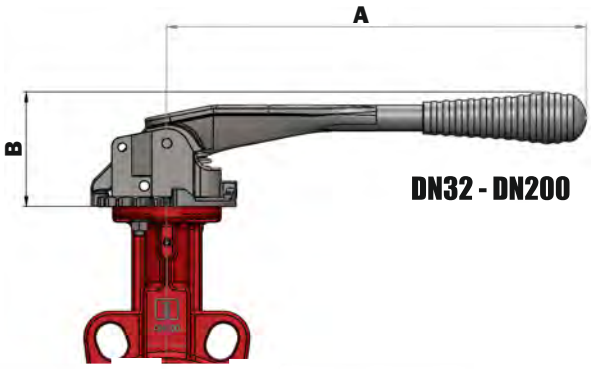
All the ABO valves can be equipped with hand levers, worm gears, pneumatic and electric actuators. The top flange design according to the standard ISO 5211 enables to directly assemble actuators on valves. Thus compatibility between valves and actuators is guaranteed.

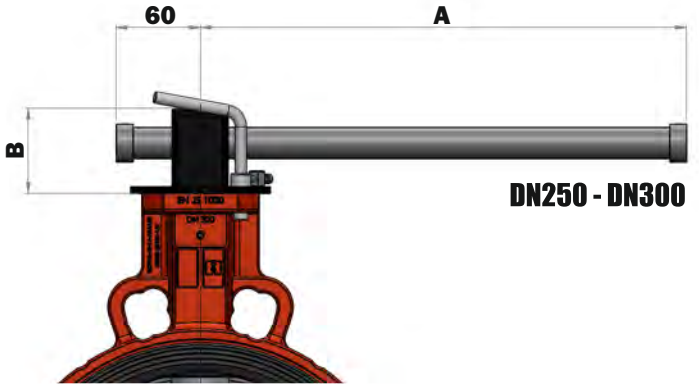
## Handlever

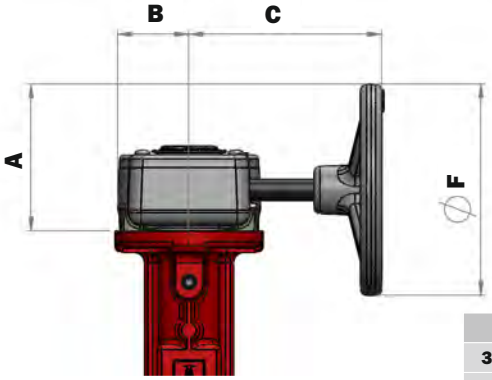
For manual actuation ABO offers carbon steel lever suitably painted to improve resistance to corrosion, abrasion and shock. Stainless lever on request. Top flange connection according to ISO standards F05 for DN50 to DN65 and F07 for DN80 to DN200. Controlled lever upon request. The levers can be equipped with a lock to ensure an optimized position. The levers can be supplemented with limit switches.

*Dimensions are mentioned in mm, weight in kg.*

| DN | 32-100 | 125 | 150-200 | 250 | 300 |
|---|---|---|---|---|---|
| A | 270 | 270 | 362 | 450 | 750 |
| B | 75 | 75 | 75 | 135 | 135 |
| Weight | 1,24 | 1,26 | 1,40 | 2,20 | 3,10 |
| Shaft | 14x14 | 17x17 | 17x17 | 22x22 | 22x22 |

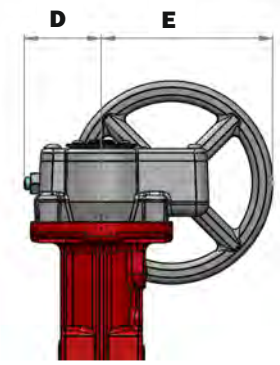



## Worm gear with handwheel

Manual gearbox casing is made from cast iron with suitable surface treatment and protection degree class IP 67. Self-locking design of the worm gear enables both to set basic positions open/shut and to control (throttle) media flow. The worm gearbox is simply controlled hand-wheel of a suitable diameter. End positions of the worm gearbox are adjusted by screws. The gearbox can be equipped with a lockable system secured by a padlock. The worm gearbox as well as the hand lever can be completed with limit switch boxes.




| DN | PN | ISO FLANGE | SHAFT | A | B | C | D | E | F | Kg |
|---|---|---|---|---|---|---|---|---|---|---|
| 32/40 | 16 | F05 | 14x14 | 70 | 35 | 91 | 38 | 84 | 100 | 1,2 |
| 50 | 16 | F05 | 14x14 | 70 | 35 | 91 | 38 | 84 | 100 | 1,2 |
| 65 | 16 | F05 | 14x14 | 70 | 35 | 91 | 38 | 84 | 100 | 1,2 |
| 80 | 16 | F05 | 14x14 | 70 | 35 | 91 | 38 | 84 | 100 | 1,2 |
| 100 | 16 | F05 | 14x14 | 70 | 35 | 91 | 38 | 84 | 100 | 1,2 |
| 125 | 16 | F07 | 17x17 | 127,5 | 46 | 139 | 59 | 141 | 200 | 2,2 |
| 150 | 16 | F07 | 17x17 | 127,5 | 46 | 139 | 59 | 141 | 200 | 2,2 |
| 200 | 16 | F07 | 17x17 | 127,5 | 46 | 139 | 59 | 141 | 200 | 2,2 |
| 250 | 16 | F10 | 22x22 | 134 | 57 | 156 | 60 | 155 | 200 | 4,2 |
| 300 | 16 | F10 | 22x22 | 134 | 57 | 156 | 60 | 155 | 200 | 4,2 |
| 350 | 10 | F12 | 27x27 | 183 | 57 | 210 | 95 | 205 | 300 | 4,5 |
| 350 | 16 | F12 | 27x27 | 238 | 67 | 255 | 131 | 267 | 400 | 6,5 |
| 400 | 10 | F14 | 27x27 | 292 | 78 | 350 | 169 | 331 | 500 | 11,0 |
| 400 | 16 | F14 | 27x27 | 341 | 78 | 350 | 219 | 381 | 600 | 12,0 |
| 450 | 10 | F14 | ø38 | 348 | 110 | 346 | 196 | 405 | 600 | 26,0 |
| 450 | 16 | F14 | ø38 | 348 | 110 | 346 | 196 | 405 | 600 | 26,0 |
| 500 | 10 | F14 | ø42 | 348 | 110 | 346 | 196 | 405 | 600 | 26,0 |
| 500 | 16 | F14 | ø42 | 405 | 143 | 387 | 220 | 480 | 700 | 35,0 |
| 600 | 10 | F16 | ø50 | 405 | 143 | 387 | 220 | 480 | 700 | 35,0 |
| 600 | 16 | F16 | ø50 | 455 | 143 | 387 | 270 | 530 | 800 | 37,0 |

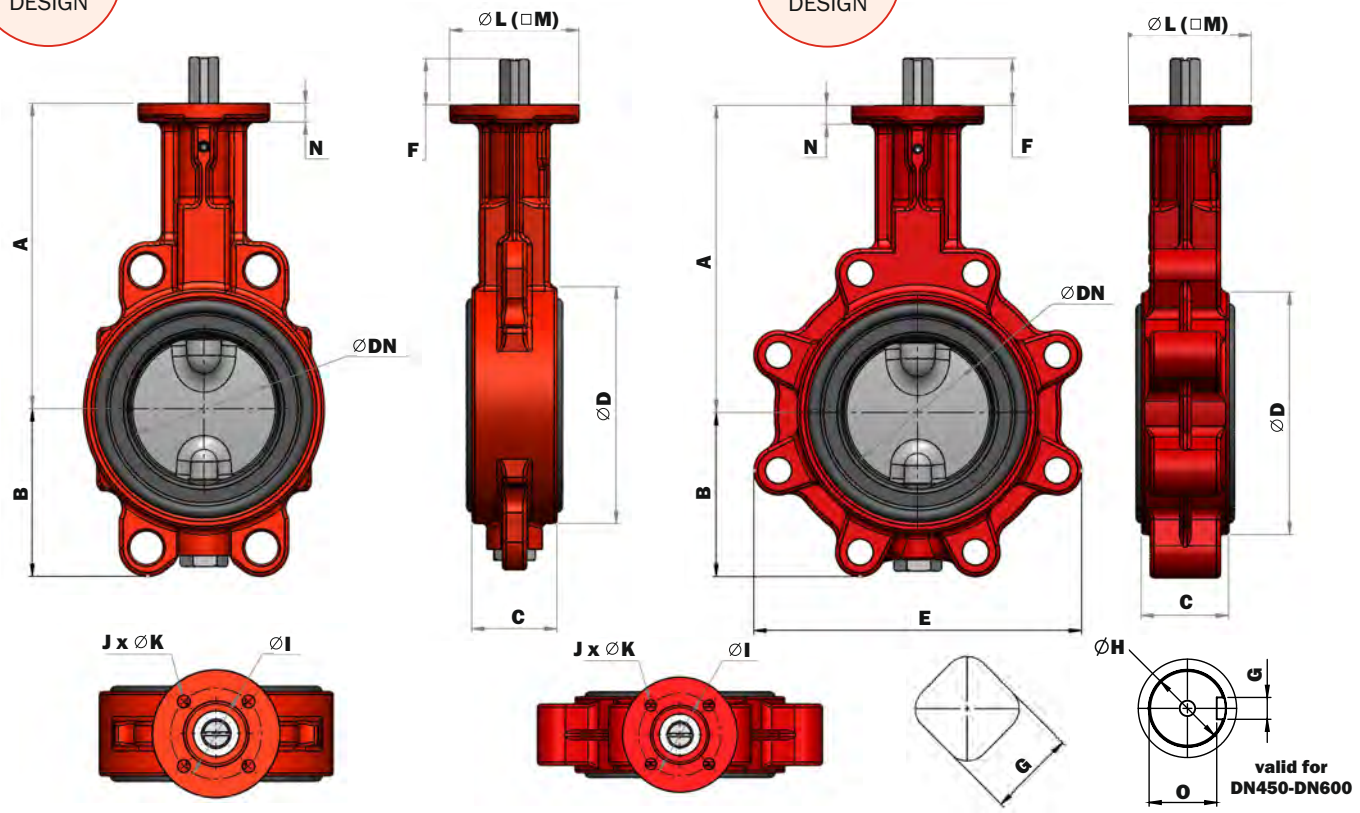
*Dimensions are mentioned in mm.*

# VALVE BASIC DIMENSIONS

INTERFLANGED DESIGN

**B**
**WAFER**
DESIGN

**T**
**LUG**
DESIGN



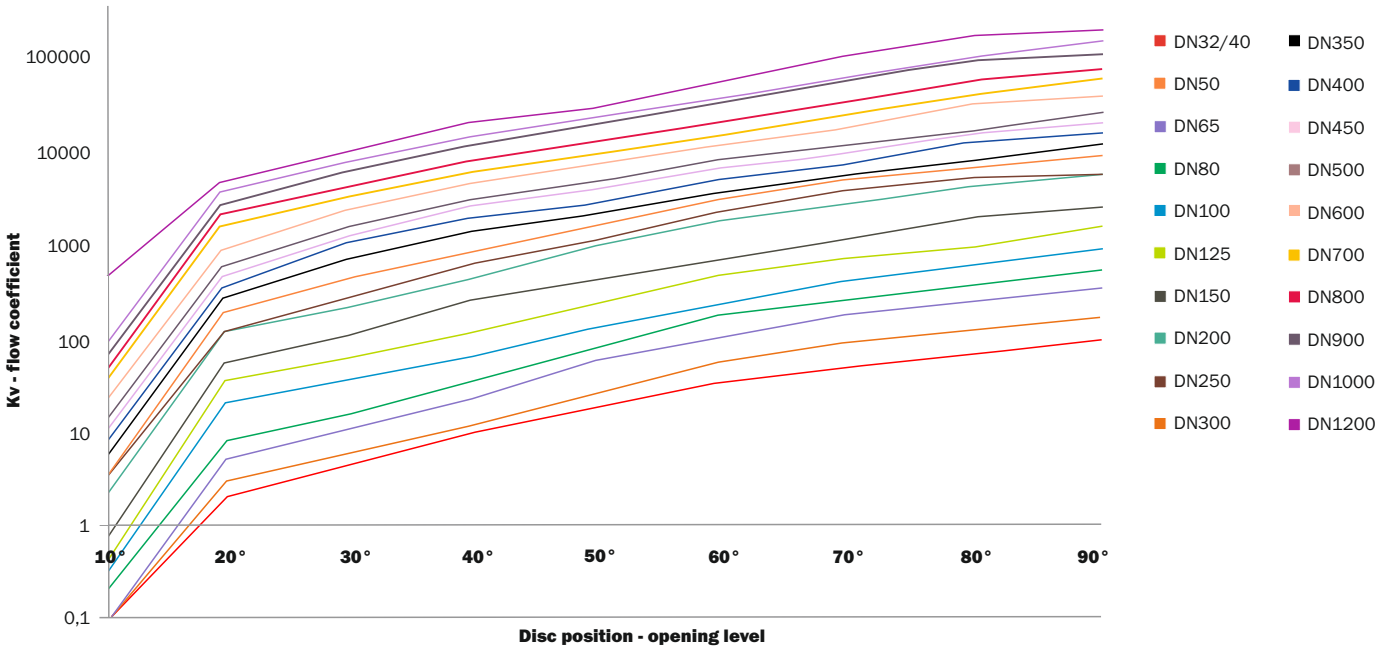

| | DN | 32/40 | 50 | 65 | 80 | 100 | 125 | 150 | 200 | 250 | 300 | 350 | 400 | 450 | 500 | 600 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Valve dimensions** | **A** | 136 | 146 | 154 | 163 | 173 | 193 | 205 | 234 | 270 | 310 | 325 | 365 | 375 | 485 | 565 |
| | **B** | 54 | 64 | 72 | 89 | 105 | 119 | 130 | 166 | 202 | 237 | 271 | 314 | 330 | 368 | 464 |
| | **C** | 33 | 43 | 46 | 46 | 52 | 56 | 56 | 60 | 68 | 78 | 78 | 102 | 114 | 127 | 154 |
| | **D** | 78 | 96 | 113 | 128 | 150 | 184 | 212 | 268 | 320 | 378 | 435 | 488 | 544 | 590 | 695 |
| | **E** | 110 | 115 | 129 | 174 | 204 | 234 | 255 | 319 | 396 | 465 | 509 | 590 | 610 | 682 | 810 |
| **Endshaft dimensions** | **F** | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 25 | 30 | 30 | 36 | 36 | 80 | 80 | 80 |
| | **G** | 14 | 14 | 14 | 14 | 14 | 17 | 17 | 17 | 22 | 22 | 27 | 27 | 10 | 12 | 14 |
| | **H** | - | - | - | - | - | - | - | - | - | - | - | - | ø38 | ø42 | ø50 |
| | **O** | - | - | - | - | - | - | - | - | - | - | - | - | 33,3 | 37,1 | 44,5 |
| **Flange dimensions** | **I** | 50/70 | 50 | 50 | 50 | 50 | 70 | 70 | 70 | 102 | 102 | 125 | 140 | 140 | 140 | 165 |
| | **J** | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 | 4 |
| | **K** | 7 | 7 | 7 | 7 | 7 | 9 | 9 | 9 | 11 | 11 | 14 | 18 | 18 | 18 | 23 |
| | **L** | - | 70 | 70 | 70 | 70 | - | - | - | - | - | - | - | 175 | 175 | 210 |
| | **M** | 70 | - | - | - | - | 70 | 70 | 70 | 105 | 105 | 130 | 140 | - | - | - |
| | **N** | 8 | 8 | 8 | 8 | 8 | 12 | 12 | 14 | 17 | 17 | 17 | 21 | 22 | 27 | 27 |
| **Weight (kg)** | **Ver. B** | 1,9 | 2,7 | 3,2 | 3,7 | 4,7 | 6,7 | 8,4 | 13,3 | 22,0 | 29,3 | 46,4 | 69,8 | 83,0 | 112,0 | 216,0 |
| | **Ver. T** | 2,3 | 3,0 | 3,7 | 4,8 | 6,1 | 9,2 | 10,2 | 15,3 | 28,4 | 41,2 | 62,0 | 96,3 | 130,0 | 149,0 | 288,0 |
| **ISO Flange** | | F05/07 | F05 | F05 | F05 | F05 | F07 | F07 | F07 | F10 | F10 | F12 | F14 | F14 | F14 | F16 |

*Dimensions are mentioned in mm.*

# NOMINAL FLOW VALUES

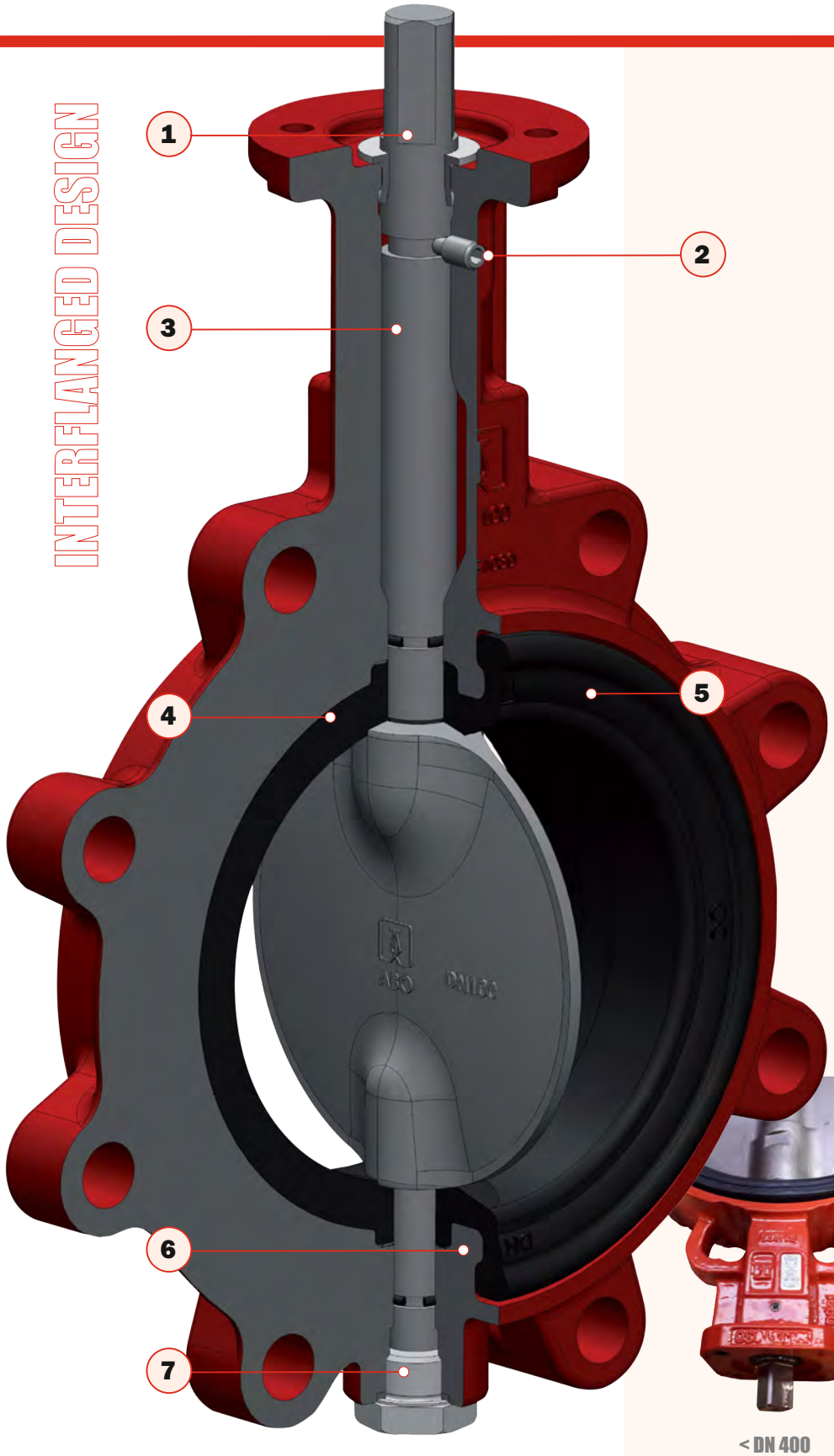
| DN | 10° | 20° | 30° | 40° | 50° | 60° | 70° | 80° | 90° |
|---|---|---|---|---|---|---|---|---|---|
| 32/40 | 0,1 | 2 | 4 | 9 | 17 | 30 | 45 | 61 | 84,4 |
| 50 | 0,1 | 3 | 6 | 11 | 23 | 50 | 81 | 110 | 147 |
| 65 | 0,1 | 5 | 10 | 21 | 53 | 90 | 160 | 210 | 290 |
| 80 | 0,2 | 8 | 15 | 33 | 76 | 160 | 238 | 340 | 450 |
| 100 | 0,3 | 20 | 35 | 60 | 122 | 220 | 362 | 520 | 730 |
| 125 | 0,4 | 35 | 60 | 110 | 223 | 430 | 626 | 797 | 1260 |
| 150 | 0,7 | 54 | 105 | 248 | 400 | 640 | 987 | 1630 | 1990 |
| 200 | 2 | 120 | 210 | 410 | 915 | 1630 | 2331 | 3446 | 4396 |
| 250 | 3 | 129 | 274 | 590 | 1037 | 2000 | 3210 | 4164 | 4500 |
| 300 | 3 | 188 | 424 | 820 | 1500 | 2710 | 4180 | 5433 | 6800 |
| 350 | 5 | 265 | 685 | 1327 | 1990 | 3214 | 4690 | 6292 | 8900 |
| 400 | 7 | 345 | 1000 | 1825 | 2550 | 4383 | 6090 | 9779 | 11500 |
| 450 | 9 | 449 | 1200 | 2518 | 3680 | 5929 | 7840 | 11925 | 15000 |
| 500 | 12 | 586 | 1511 | 2909 | 4340 | 7167 | 9508 | 12762 | 18800 |
| 600 | 19 | 847 | 2217 | 4203 | 6560 | 9863 | 14614 | 23621 | 27600 |
| 700 | 31 | 1554 | 3118 | 5686 | 8569 | 12810 | 19511 | 29904 | 42416 |
| 800 | 39 | 2045 | 4105 | 7486 | 11815 | 17633 | 29902 | 41231 | 52776 |
| 900 | 53 | 2614 | 5767 | 10917 | 17326 | 27849 | 44987 | 68209 | 74979 |
| 1000 | 72 | 3584 | 7194 | 13117 | 20702 | 30991 | 47201 | 72344 | 102614 |
| 1200 | 390 | 4597 | 10146 | 19195 | 26221 | 43873 | 79092 | 119966 | 131962 |

1KV = 0,854701 CV



# DESIGN ADVANTAGES

INTERFLANGED DESIGN




apx.1

## 1. International standard compatibility

- according to the standard ISO 5211 top flange enables to directly mount any manual operators and actuators. Valve long neck enables to use insulation and protects control elements on the ISO flange. The design meets require ments on heating system control fittings.

## 2. Blow-out proof shaft system

- a retaining bolt disables a stem movement upwards.

## 3. Splitted stem

- with the divided stem the valve reaches better Kv/Cv values and thus a low pressure loss.

## 4. Seat design

- seat profile in the body (groove and tongue system) prevents the seat to slip out from the body when the disc moves.

## 5. Dougle side profile

- enables to correctly fit the seat in the body.

## 6. Groove shape

- the seat is inserted in the stem position inside the body profile to enable better support.

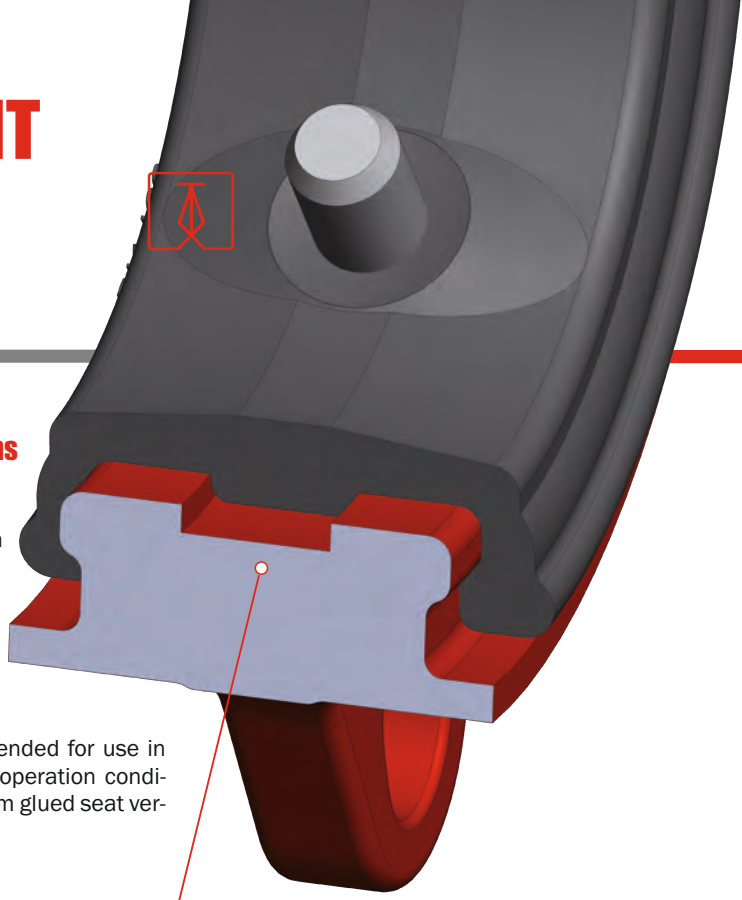
## 7. Demountable design

- enables to simply change the seal.

< DN 400 retaning washer against stem movement

> DN 400 retaining bolt against stem blow-out

# BODY SURFACE TREATMENT / SEAT ANCHORING



## Body surface treatment

### Epoxy coating

Standard ABO high quality epoxy coating system, complying with the C2 corrosion aggressiveness degree according to the standard ČSN EN ISO 12944-1, minimum coating thickness 80 µm.

### Marine environment coating

Resistant coating suitable for marine environment or high corrosion risk environment. Available are variants resistant to corrosion aggresiveness grades C3, C4 and C5.

### Rilsan

Highly resistant coating for very demanding applications of high flexibility, elasticity and excellent corrosion resistance. This coating option is recommended for applications such as seawater, cement, process water, food or media contaminated with chemicals.

### Halar

Thermoplastic Fluoroplast coating to be installed in pipelines with aggressive media. The coatings of high chemical resistance are suitable also for joining material, sealing washers and similar.

### Inter Zone 954

Coating provides superior protection in sea water environment. The coating is designed for bodies exposed to high humidity or other very arduous climate conditions. It is highly resistant to acid and solvent vapours and sprinkles, common and salt water.

## Seat anchoring options

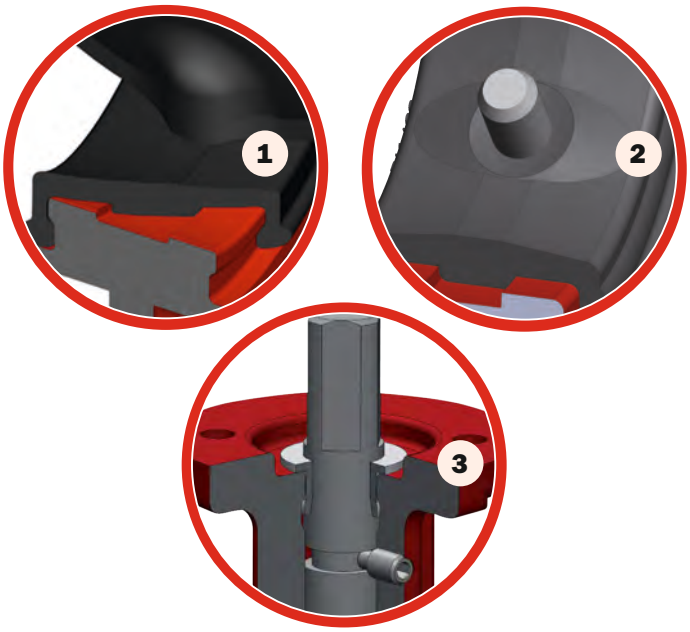
### Groove/tongue
**STANDARD**

- groove/tongue system prevents seat movement
- reliability
- simple replacing seat

### Vulcanized (bonded) seat
**UPON REQUEST**

- vulcanized seat is intended for use in vacuum and difficult operation conditions. For lower vacuum glued seat version can be used.

The seat is anchored by **a groove/tongue system** enabling stable guiding and prevents unwanted seat movement.




**3-stage sealing system** guarantees 100% tightness, long term product lifespan and safe operation in the most demanding applications.

### 1. Primary sealing

- sealing surface of the seat in the contact area with disc, stem and pivot has a precisely defined geometry

### 2. Secondary sealing

- secondary sealing is created by the stem and pivot disc overlap depending on the seat diameter

### 3. Tertiary sealing

- stems and pivots are equipped with safety O-rings that further enhance operational performance and reliability
- O-rings protect stem bearings against penetration of abrasive particles from environment

# VALVES FOR SPECIAL PURPOSES

## Valves with stem extension for special actuation requirements at inaccessible places

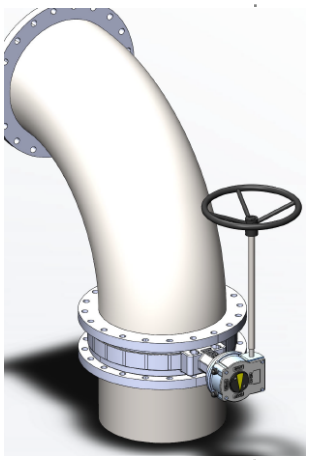
Stem extensions of various lengths are installed on valve stems according to particular projects. For inaccessible installations in vats, pits etc.

## Aluminium bronze valve discs for seawater treatment systems

Specially designed for maritime and marine environment where a maximum product reliability is required in highly saline environment.

## Polyurethane coated valve bodies

Specially designed for underground applications. Polyurethane coating protects the valve body against corrosion.



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