



# ABO valve

we make processes work

## INDUSTRIAL VALVES MANUFACTURER

WE ARE ON THE MARKET MORE THAN 25 YEARS

**ABO valve, Czech Republic** is a major manufacturer of concentric and eccentric butterfly valves used for handling of variety media, delivered in various material combinations and comes complete with actuation.

We are a European producer of high-performance solutions able to deliver valves of a standard design or according to particular customers' requirements.

ABO valve, Czech Republic offers all the services connected with production, assembly and supervision on site, technical consulting, assembly works and engineering services.

The company production range includes:

- concentric butterfly valves
- double and triple offset butterfly valves
- check valves
- knife gate valves, gate valves
- ball valves
- Y-strainers
- actuators
- accessories

Our products are exported to more than 100 countries worldwide. The company headquarters is located in Olomouc in the region of North Moravia.

The company services are offered world-wide in cooperation with 10 subsidiaries (Slovakia, Russia, Germany, Ukraine, Singapore, China, India, Bahrain, UAE, Turkey).

### Professional solutions for your industrial applications

Within the scope of our technical consultancy we are ready to prepare tailored solutions meeting your specific requirements according to particular projects. Our products are offered for various industrial processes like:

- water management
- potable water distribution
- heating, hot water distribution
- industrial water treatment
- seawater treatment
- natural gas, biogas distribution
- air distribution, air conditioning
- food and beverage industry
- metallurgical industry
- chemical industry
- waste water and sludge purification
- oil industry, petrochemistry
- fuel, oil, lubricants and grease processing
- cement and lime industries
- conveying powdery materials
- systems of pure steam production and distribution
- heat recovery
- pulp and paper industry
- bitumen processing
- pharmaceutical industry
- sanitary industry
- mining industry
- distribution and conveying systems
- shipbuilding industry
- aircraft refuelling
- heat and nuclear power industry
- production of dyes and chlorine

ABO facilities include engineering and design departments, a test room and all manufacturing and assembly workshops with all the equipment for mechanical manufacture, final assembly and products shipment.

### Quality control

We at ABO valve place great emphasis on quality and innovation. Our products are certified by numerous European and international authorities like TUV Nord, TUV SUD, Lloyd's Register, ABS, API, etc.

ABO manufacturing facilities are certified in accordance with the ISO 9001:2015 Quality Management System. This certification ensures high quality of ABO products, their durability, as well as meeting of strict safety and environmental regulations by ABO production. Quality management is an integral part of ABO. Quality control is ensured by the in-house quality control department as well as independent third parties.

**Contact us with your inquiry**  
**We are ready to prepare**  
**a price offer for you**

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# OUR PRODUCTS

## Concentric Valves



Series 600



Series 900



Series 500

## Double and Triple Offset Valves



Series 2E



Series 3E



Series 2E3

## Knife Gate Valves / Ball Valves / Gate Valves / Etc.



Series 200/300



Series ART



Series 400

## WE ARE LOCATED WORLDWIDE

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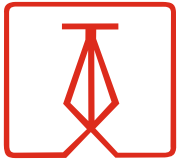
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# ABO valve

*we make processes work*

## INTERFLANGED BUTTERFLY VALVES

### Body design

Interflanged	WAFER type with through holes LUG with tapped holes
Double flanged	With through / tapped holes

### Nominal size

Interflanged	DN32 - DN600
Double flanged	DN700 - DN1600 (Series 20) DN50 - DN2200 (Series 13)

<b>Working pressure</b>	6 bar / 10 bar / 16 bar
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<b>Flange connection</b>	PN6/PN10/PN16/Class 150
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<b>Working temperature</b>	-25 °C / +130 °C
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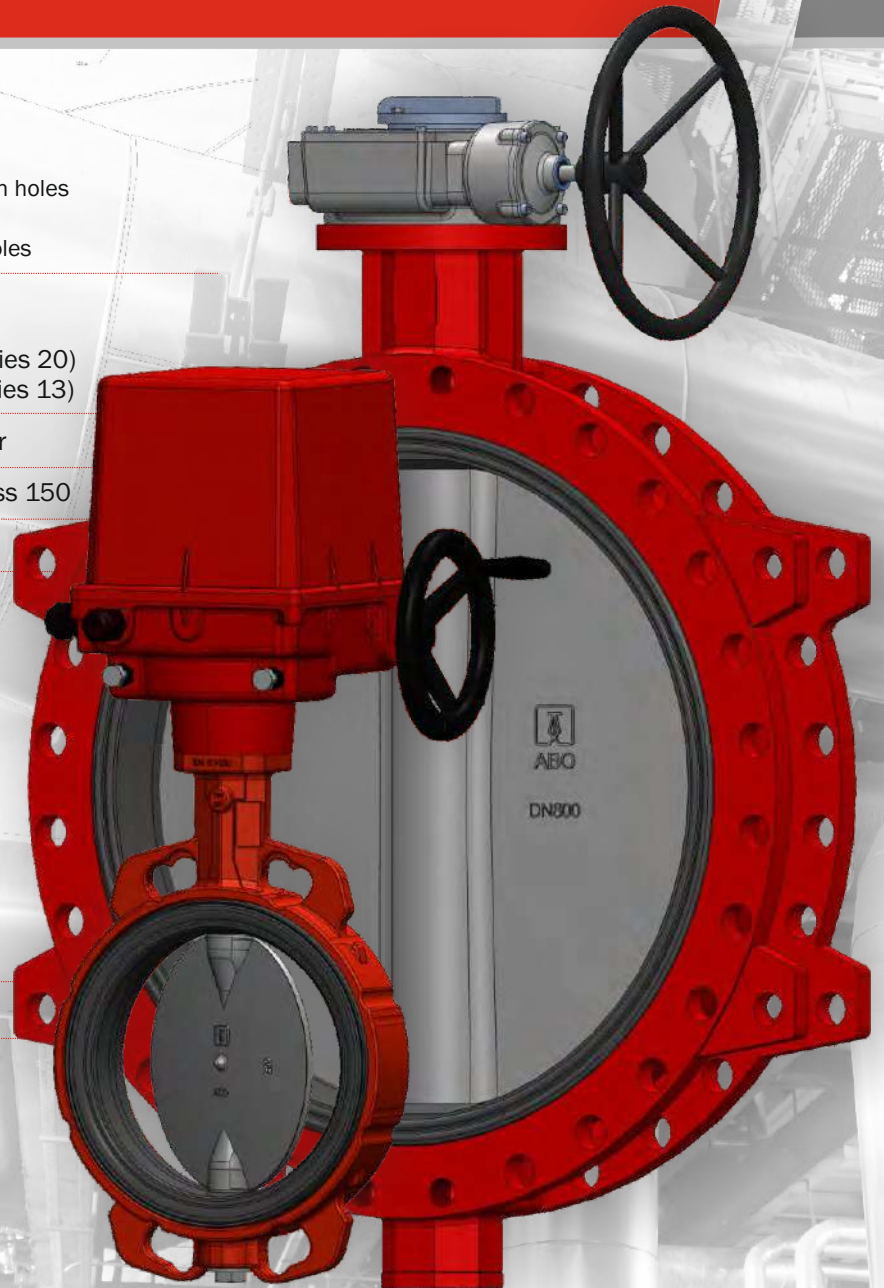
### Working media

Potable water  
Waste water  
Hot industrial water  
Heating water  
Sea water  
Chemicals  
Gas / Oil and gas  
Oil / Oil derivatives  
Loose materials  
Air  
Beverages / Food  
Malt  
Sugar juice

<b>Tightness</b>	Class A
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### Features

**Concentric design**  
**Bidirectional valve**  
Body with safety plug (up to DN400)  
Body with pin cover (DN450-DN600)  
Demountable valve  
**Easy service**



# SERIES 900

industrial line

[www.abovalve.com](http://www.abovalve.com)

# GENERAL VALVE DESCRIPTION

Czech Industrial Valve Manufacturer

**Wafer/Lug/Double flanged concentric shut-off butterfly valves of Series 900** are resistant soft-sealing fittings 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
- suitable for shut-off valves
- 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  $\mu\text{m}^*$ )
- certified by DWGV for potable water and gas
- ABS certified - PED certificate
- ACS certification

## Based on customers' special requests we offer:

- glued 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
- another body coating grade
- customer tailored valve design - special body or disc coatings, lengthening bars 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)

*\* on request the valve body can be coated with various types of special protecting coatings (Rilsan/Halar/Asphalt mixtures 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

*\* on 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 -  $-10^{\circ}\text{C} + 90^{\circ}\text{C}$   
- NBR conduct -  $-10^{\circ}\text{C} + 90^{\circ}\text{C}$

*\* other types by particular medium*

### Series designation

Series 900

## Standards

### Leak test

EN 12266-1, Class A  
ISO 5208, Class A  
API 598, Table 5  
ANSI/FCI 70-2, Class VI

### Face to face length

EN 558, Series 20/13  
ISO 5752, Series 20/13  
API 609, Table 2

### Flange connection

EN 1092-1+A1, 2  
ASME B16.5  
ASME B16.47

### Top flange

ISO 5211

### Working standard

EN 593  
EN 1074-1,2  
DVGW W 363-(P)  
DIN EN 13774

# DESIGN MODELS



INTERFLANGED DESIGN

**B**  
WAFFER DESIGN



DN32-DN600

**T**  
LUG DESIGN



DN32-DN600



DOUBLE FLANGED DESIGN

**U**  
WAFFER/LUG DESIGN



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

**F**  
WAFFER/LUG DESIGN



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



DVGW CERTIFICATION  
GAS / POTABLE WATER



DN32-DN400



ALUMINIUM BODY



DN32-DN300

## Quality control

- ABO valve production facilities are certified in accordance with ISO 9001 (ISO 14000, OHSAS 18000) quality control standards
- 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 are downloadable from [www.abovalve.com](http://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 in temperature range -20 °C/+60 °C. The valves are supplied with a special set of **NBR-70-AG** seat with **DVGW** certification (operating temperature rating for gas: -5 °C/+50 °C, tightness class A, working pressure max. 10 bar).

## For distribution of potable water

are offered valves of Series 924 with special set of seat **EPDM - Sunaflex T 8165**, also with **DVGW** certification. The valves are designed for cold water, inc. potable water in temperature rating 0 °C/+40 °C, tightness class A, working pressure 10/16 bar). The valves are equipped with control lever with a green sleeve.

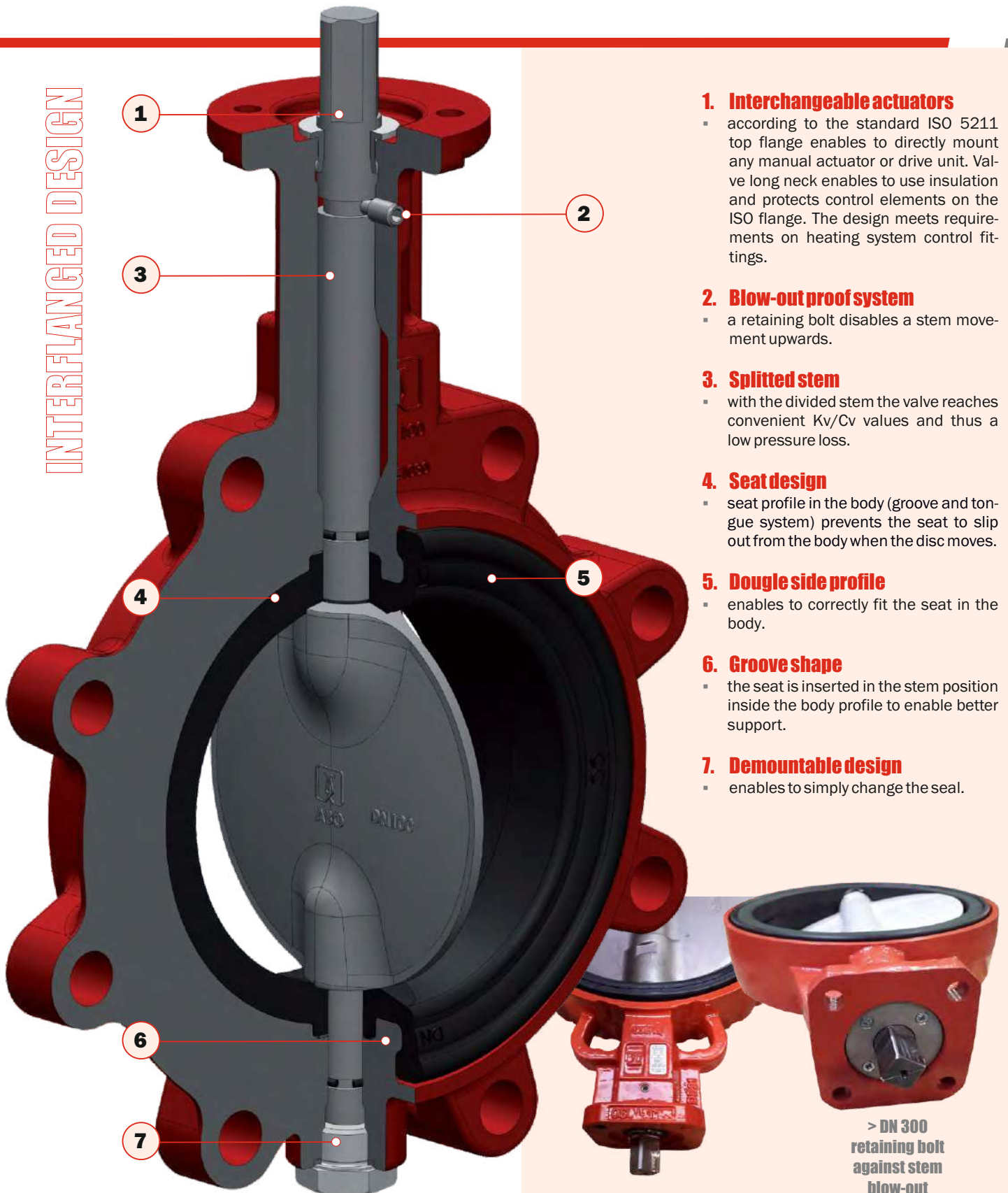
## As a lightweight variant

(valves with lower weight) are offered valves of Series 92xx with aluminium body, working pressure 10/16 bar, working temperature: -40 °C/+130 °C.

# DESIGN ADVANTAGES

Czech Industrial Valve Manufacturer

INTERFLANGED DESIGN



## 1. Interchangeable actuators

- according to the standard ISO 5211 top flange enables to directly mount any manual actuator or drive unit. Valve long neck enables to use insulation and protects control elements on the ISO flange. The design meets requirements on heating system control fittings.

## 2. Blow-out proof system

- a retaining bolt disables a stem movement upwards.

## 3. Splitted stem

- with the divided stem the valve reaches convenient 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. Double 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 300  
retaining washer  
against stem  
movement

> DN 300  
retaining bolt  
against stem  
blow-out

4 / ABO valve Czech

# 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 aggressiveness 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

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

## Vulcanized (cured) seat - ON REQUEST

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



**3-stage sealing system** guarantees 100% tightness, long term product lifespan (up to 20 000 work cycles with wet or pasty media) and safe operation in the most demanding applications.

### 1. Primary sealing

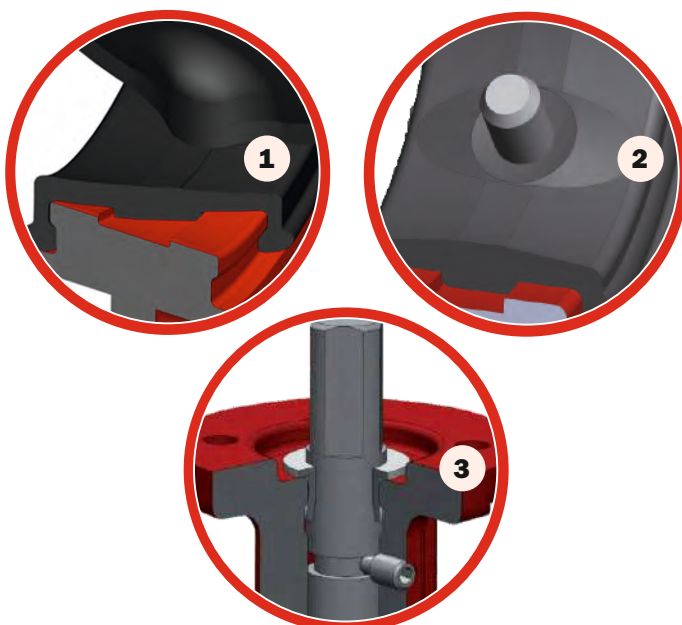
- sealing surface of the seat in the contact area with disc, stem and pivot has a precisely defined geometry

### 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

Czech Industrial Valve Manufacturer



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

Extension bars of various lengths are installed on valve stems according to particular projects. Bars are equipped with square-ends for connection to the required actuation type. For inaccessible installations in vats, pits etc.

6 / ABO valve Czech



## Valves with lightened aluminium body

Light weight valve. Suitable for installations in plastic pipes (pools).



## Valve discs with special coatings

Discs are coated with high resistant coatings for aggressive environment (Rilsan/Halar).



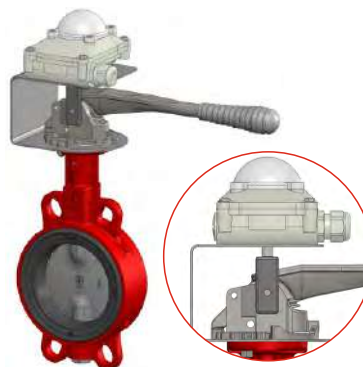
## Aluminium bronze valve discs for seawater treatment systems

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



## Asphalt coated valve bodies

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



## Valve with special lever and position sensor F05/F07

Non-standard lever type (up to 10 position degrees). The disc position is scanned by means of a sensor connected to the valve stem.



## Valve actuator installation according to customers' requirements

Standard - actuator on the side. Possibility to place valve drive according the specific disposition or specific requirement of the customer.

# VALVES FOR SPECIAL PURPOSES



## ATEX design

For valves intended for explosive environment. i.e. where explosive mixtures of gases, vapours, fog or dust are created. DVGW certified for gas versions suitable for biogas distribution.



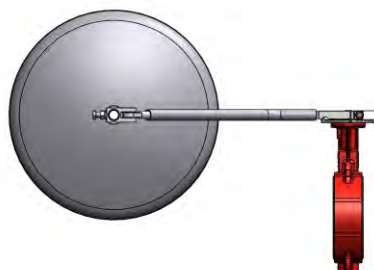
## Valves with worm gear controlled by chain

Chain installed for worm gear control. The chain replaces handwheel. Suitable for inaccessible places.



## Valves with lengthened bars

Lengthened bars are delivered for applications where standard actuator connection cannot be used.



## Float valve

For installations in tanks/reservoirs. The float controls valve opening by the level height. The disc is concentrically placed on the stem and pivot.



## Valves with FDA certified seats

For food industry. For potable water medium WRAS certification can be provided.



## Top pneumatic actuators of disc position

Pneumatically controlled positions open/shut by means of special upper switch-box. High variability of control element combinations.



## Valves with stainless flanges



Non-standard connection to pipelines. Connection flanges are screwed to the valve body.

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# SEATS / POSSIBLE APPLICATIONS

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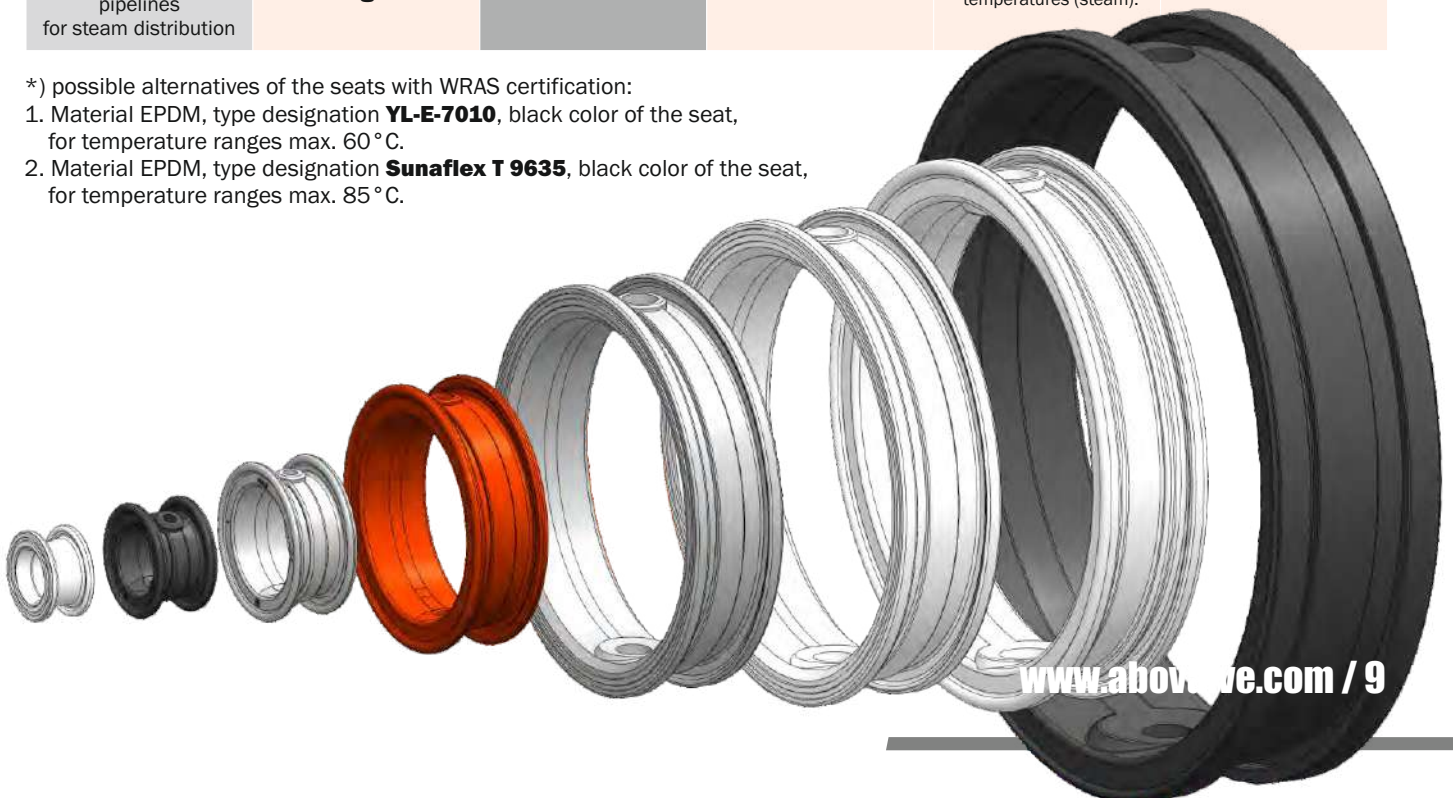
Industry	Medium	Marking	Seat material	Applications	Working temperature range
 Water management Potable water treatment	<b>Potable water</b>	<b>EPDM</b>	DRINKING WATER EPDM (EPDM-018)	For potable water usable for DN32 to Dn600, <b>WRAS</b> . Certified by <b>DVGW</b> GmbH (DVGW W 363-P).	-20 °C do + 90 °C
	<b>Potable water Heating water</b>		DRINKING WATER EPDM-HT (hot water)	For potable water purification, treatment and distribution - higher temperature resistance.	-20 °C do + 130 °C
	<b>Beverages Juices / Malt Hot service water</b>		EPDM-HT (FDA)	<b>FDA certified.</b> For sugar mills, beverage factories, malt houses. <b>Seat colour - black.</b>	-10 °C do + 130 °C
	<b>Beverages Juices Malt</b>		EPDM-014 (FDA)	<b>FDA certified</b> - for lower tempetaure ranges. <b>Seat colour - white.</b> Corresponds to standard 1935/2004.	-10 °C do + 90 °C
	<b>Air Non-aggressive acids and alkalines Non-aggressive minerals Water (lower temperatures) Sludges Waste water</b>		EPDM	For distribution of non-aggressive mild mineral acids, air distribution - ventilation and air conditioning. Suitable for waste water treatment installations..	-20 °C do + 90 °C
 Industrial production processes / Gas distribution	<b>Gas</b>	<b>NBR</b>	DVGW-GAS NITRILE	For natural gas transport and distribution. Certificated by <b>DVGW</b> CERT GmbH.	-10 °C do + 90 °C
	<b>Abrasive media</b>	<b>NBR-X</b>	CARBOXYLIC NITRILE	For oily media applications with present abrasive particles in transported media. <b>Certified by FDA.</b>	0 °C do + 90 °C
		<b>NBR</b>	FLUCAST AB/N	For oily media installations - crude oil distribution.	0 °C do + 90 °C
		<b>EPDM-E</b>	FLUCAST AB/E	For abrasive resistant applications - for „wet“ media like sludges etc.	-5 °C do + 90 °C
		<b>AB/P</b>	FLUCAST AB/P	For abrasive resistant applications - for „dry“ media like loose materials, powder media (gypsum, carbon black, china clay, oxides), pneumatic conveying of cement and powder in mining industry.	-10 °C do + 70 °C
		-	FLUCAST AB/T	For abrasive media with high temperature resistance.	-5 °C do + 130 °C

# SEATS / POSSIBLE APPLICATIONS

Industry	Medium	Marking	Seat material	Applications	Working temperature range
Sea water treatment Water softening for industry in general Petrochemistry Fuel processing Biogas distribution	<b>Salt water Biogas Crude oil Fuel</b>	<b>ECO</b>	EPICHLORHYDRIN	For seawater, saltwater, gas/biogas, crude oil and fuel distribution applications.	-40 °C do +90 °C
Chemical industry Recovery / Stem heating / Biogas distribution / System for production and distribution of pure steam	<b>Steam Biogas Agressive acids Oils</b>	<b>FPM</b>	VITON BIO	High fluorine contents (70%), suitable for distribution of acids and oils, high chemical resistance.	-5 °C do +200 °C
Chemical industry Petrochemistry	<b>Industrial grease Oils Non-agressive acids</b>	<b>CSM</b>	HYPALON	Suitable for applications with standard rubber mixtures lifespan limited by action of high temperatures - distribution of oils, diluted acids and alkalines.	-10 °C do +100 °C
Chemical industry Recovery Steam heating Industrial pipelines for steam distribution	<b>Steam</b>	<b>MVQ</b>	STEAM SILICONE	For heat recovery, steam supply and distribution systems.	-55 °C do +160 °C
Food industry	<b>Food steam</b>	<b>VMQ</b>	FOOD SILICONE	Steam distribution systems with higher work temperatures, <b>certified by FDA.</b>	-55 °C do +200 °C
Chemical industry Recovery Steam heating Industrial pipelines for steam distribution	<b>Steam - high temperature ranges</b>	<b>VMQ</b>	SILICONE	For media requiring higher temperature resistance at negative and positive work media temperatures (steam).	-55 °C do +200 °C

\*) possible alternatives of the seats with WRAS certification:

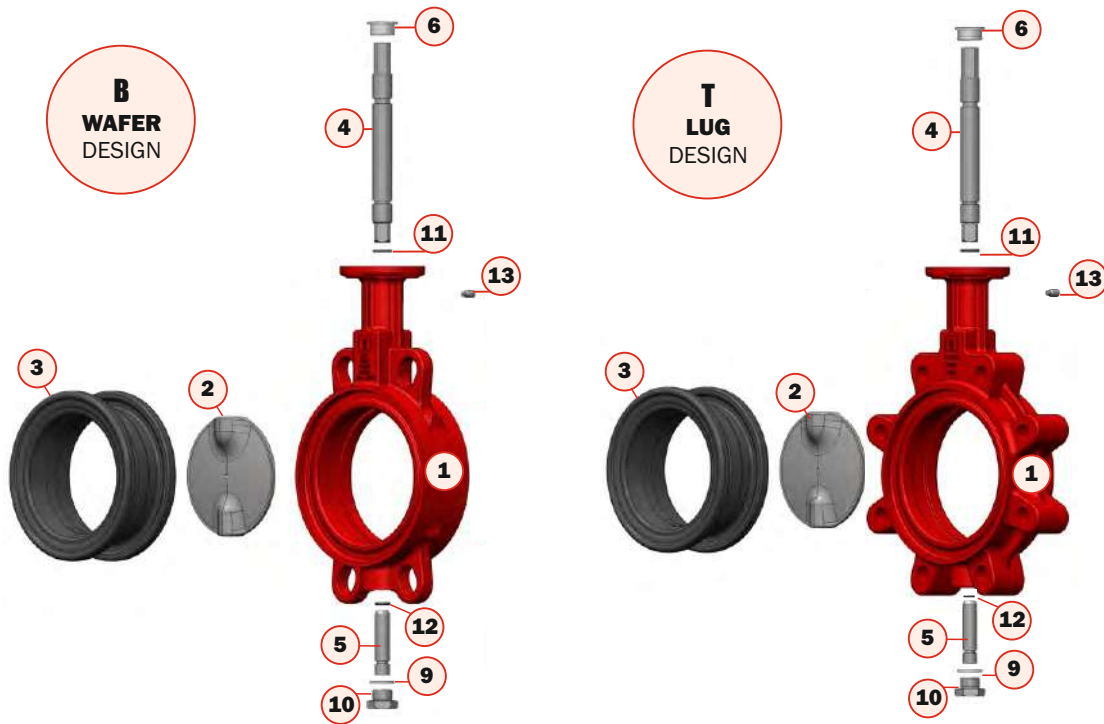
1. Material EPDM, type designation **YL-E-7010**, black color of the seat, for temperature ranges max. 60 °C.
2. Material EPDM, type designation **Sunaflex T 9635**, black color of the seat, for temperature ranges max. 85 °C.



# MATERIAL PERFORMANCE

Czech Industrial Valve Manufacturer

INTERFLANGED DESIGN



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

Pos.	Name	Material
3	<b>Seat</b>	1 - NBR -10°C / +90°C
		2 - EPDM -20°C / +90°C
		3 - NBR Carboxyl 0°C / +90°C
		4 - Viton Bio -5°C / +200°C
		5 - Silicone steam (VMQ) -55°C / +160°C
		6 - Silicone (VMQ) -55°C / +200°C
		7 - Epichlorohydrin -40°C / +90°C
		8 - HYPALON® (CSM) -10°C / +100°C
		9 - NBR 70-AG -10°C / +90°C
- NBR conduct -10°C / +90°C		
4	<b>Stem</b>	Stainless steel 1.4021 (AISI 420)
		Stainless steel 1.4021 (AISI 420)
5	<b>Pivot</b>	Stainless steel 1.4021 (AISI 420)
6	<b>Bushing</b>	Delrin (to DN 300) Brass (from DN 350)
9	<b>Seal</b>	Klingersil C-4400
10	<b>Plug</b>	Stainless steel A2
11	<b>Stem O-ring</b>	NBR, EPDM, optionally VITON
12	<b>Pivot O-ring</b>	NBR, EPDM, optionally VITON
13	<b>Retaining bolt</b>	Stainless steel A2

Other materials on 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>B</b>	PN6											•	•	•	•	•
	PN10															
	PN16													•		
	Class 150											•	•	•	•	•
<b>T</b>	PN6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
	PN10													•	•	•
	PN16								•	•	•	•	•	•	•	•
	Class 150	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

standard

• on 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
<b>U</b>	PN6	•	•	•	•	•	•	•	•	•	•
	PN10										
	PN16	•	•	•	•	•	•	•	•	•	•
	Class 150	•	•	•	•	•	•	•	•	•	•

standard

• on request

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

	DN	50 - 2200
<b>F</b>	PN6	•
	PN10	
	PN16*)	•
	Class 150	•

• on request

standard

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



# VALVE ACTUATION

Czech Industrial Valve Manufacturer

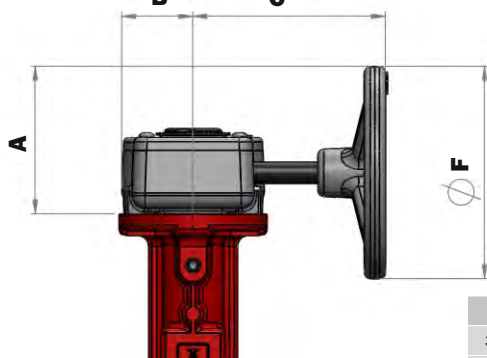
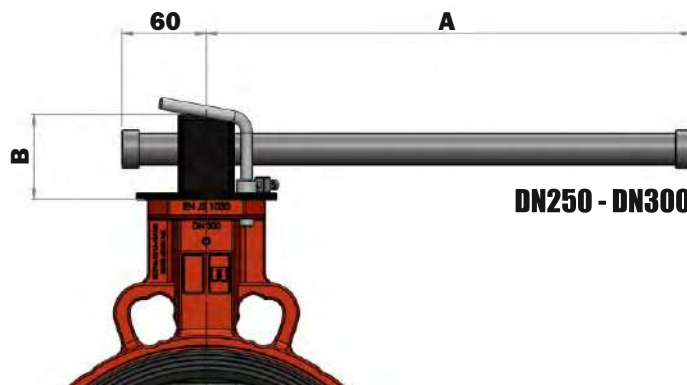
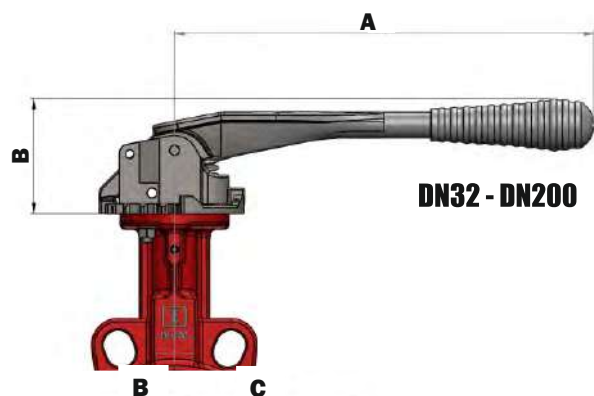
All the ABO valves can be equipped with hand levers, worm gears, pneumatic and electric actuators. The upper flange design according to the standard ISO 5211 enables to directly assemble actuators on valves. Thus compatibility between valves and actuators is guaranteed.

## 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 on request. The levers can be equipped with a lock to ensure an optimized position. The levers can be supplemented with end position sensors.

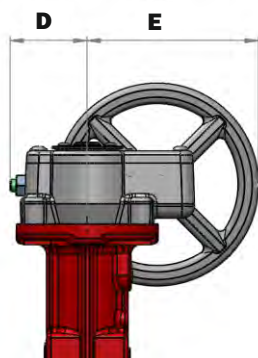
Dimensions are mentioned in mm, weight in kg.

DN	32-100	125	150-200	250	300
<b>A</b>	270	270	362	450	750
<b>B</b>	75	75	75	135	135
<b>Weight</b>	1,24	1,26	1,40	2,20	3,10
<b>Shaft</b>	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 adjust basic positions open/shut and to control (throttle) media flow. The worm gearbox is simply actuated by means of a handwheel of a suitable diameter. End-limit positions of the worm gearbox are set by means of stop screws. The gearbox can be equipped with a lockable system secured by a padlock. Another way how to handle worm gearbox is using a chain. The worm gearbox as well as the hand lever can be completed with end-limit position sensors.



DN	PN	ISO FLANGE	SHAFT	A	B	C	D	E	F	Kg
<b>32/40</b>	16	F05	14x14	70	35	91	38	84	100	1,2
<b>50</b>	16	F05	14x14	70	35	91	38	84	100	1,2
<b>65</b>	16	F05	14x14	70	35	91	38	84	100	1,2
<b>80</b>	16	F05	14x14	70	35	91	38	84	100	1,2
<b>100</b>	16	F05	14x14	70	35	91	38	84	100	1,2
<b>125</b>	16	F07	17x17	127,5	46	139	59	141	200	2,2
<b>150</b>	16	F07	17x17	127,5	46	139	59	141	200	2,2
<b>200</b>	16	F07	17x17	127,5	46	139	59	141	200	2,2
<b>250</b>	16	F10	22x22	134	57	156	60	155	200	4,2
<b>300</b>	16	F10	22x22	134	57	156	60	155	200	4,2
<b>350</b>	10	F12	27x27	183	57	210	95	205	300	4,5
<b>350</b>	16	F12	27x27	238	67	255	131	267	400	6,5
<b>400</b>	10	F14	27x27	292	78	350	169	331	500	11,0
<b>400</b>	16	F14	27x27	341	78	350	219	381	600	12,0
<b>450</b>	10	F14	ø 38	348	110	346	196	405	600	26,0
<b>450</b>	16	F14	ø 38	348	110	346	196	405	600	26,0
<b>500</b>	10	F14	ø 42	348	110	346	196	405	600	26,0
<b>500</b>	16	F14	ø 42	405	143	387	220	480	700	35,0
<b>600</b>	10	F16	ø 50	405	143	387	220	480	700	35,0
<b>600</b>	16	F16	ø 50	455	143	387	270	530	800	37,0

12 / ABO valve

Dimensions are mentioned in mm.

# VALVE ACTUATION



## Actuators

### Pneumatic actuators

Pneumatic actuators ABO Series 95 can be assembled to valves in two options: single-acting or double-acting.

### Electric actuators

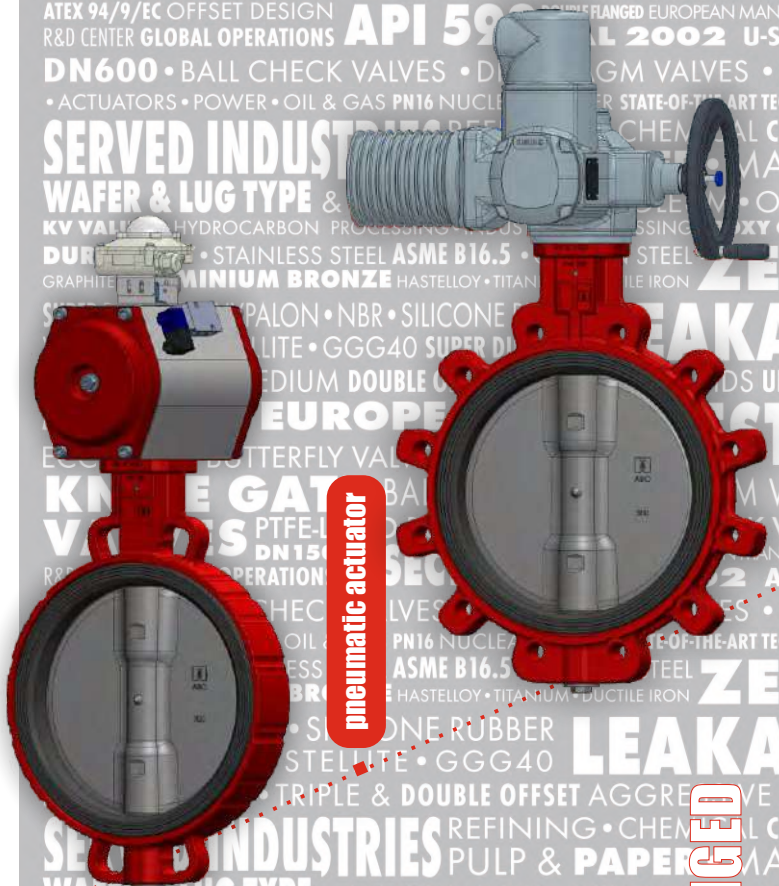
Electric drives ABO Series 97 are designed quarter-turn. Electric actuators can be installed on ABO valves for voltages of 24 V, 230 V or 400 V.

### Special actuators types

Valves are equipped with special actuator types from major world suppliers (Auma, Regada, Valpes etc.).



electric actuator



pneumatic actuator

special actuators

Operating torques (Nm) vs working pressure (bar)

DN	32/40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
<b>p<sub>MAX</sub> 6bar</b>	8	11	15	20	38	55	70	100	160	235	480	750	1180	1380	2050
<b>p<sub>MAX</sub> 10 bar</b>	9	12	17	25	46	70	80	125	200	290	530	1200	1550	2050	2700
<b>p<sub>MAX</sub> 16 bar</b>	10	12	20	30	55	85	100	150	290	380	580	1650	2100	2700	3750

Mentioned torques are valid only for valves with EPDM seats and stainless discs for liquid media. For valve actuation the declared values must be multiplied by 1,2. For NBR seats to be multiplied by 1,4. For gas media or media with abrasive particles use secondary coefficient 1,35. For NBR and VITON (FPM) seats multiply by 1,4. For specific work conditions contact manufacturer to get advised the actuation type choice.

**MADE IN EUROPE 100% TESTED**  
CONCENTRIC BUTTERFLY VALVES  
**HIGH PERFORMANCE BUTTERFLY VALVES**

KNIFE GATE VALVES • CHECK VALVES • BALL VALVES DN150  
ATEX 94/9/EC OFFSET DESIGN  
R&D CENTER GLOBAL OPERATIONS **API 598** DOUBLE FLANGED EUROPEAN MANUFACTURER  
DN600 • BALL CHECK VALVES • DIAPHRAGM VALVES • FILTERS  
• ACTUATORS • POWER • OIL & GAS PN16 NUCLEAR STATE-OF-THE-ART TECHNOLOGY

**SERVED INDUSTRIES**  
WAFER & LUG TYPE & VALVES  
KV VALUES • HYDROCARBON PROCESSING • INDUSTRIAL PROCESSING • OXY COATING  
DURABLE • STAINLESS STEEL ASME B16.5 • STEEL  
GRAPHITE • ALUMINIUM BRONZE HASTELLOY • TITANIUM • DUCTILE IRON

HYALON • NBR • SILICONE RUBBER  
STELLITE • GGG40 SUPER DUPLEX A4  
MEDIUM DOUBLE OFFSET AGGRESSIVE ACIDS URANUS B6

**EUROPE**  
ECCENTRIC BUTTERFLY VALVES  
KNIFE GATE VALVES • BALL VALVES • DIAPHRAGM VALVES • FILTERS

PTFE • VITON • PTFE • STELLITE • GGG40 SUPER DUPLEX A4  
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SUPER DUPLEX A5 • HYALON • NBR • SILICONE RUBBER  
VITON • PTFE • STELLITE • GGG40 SUPER DUPLEX A4

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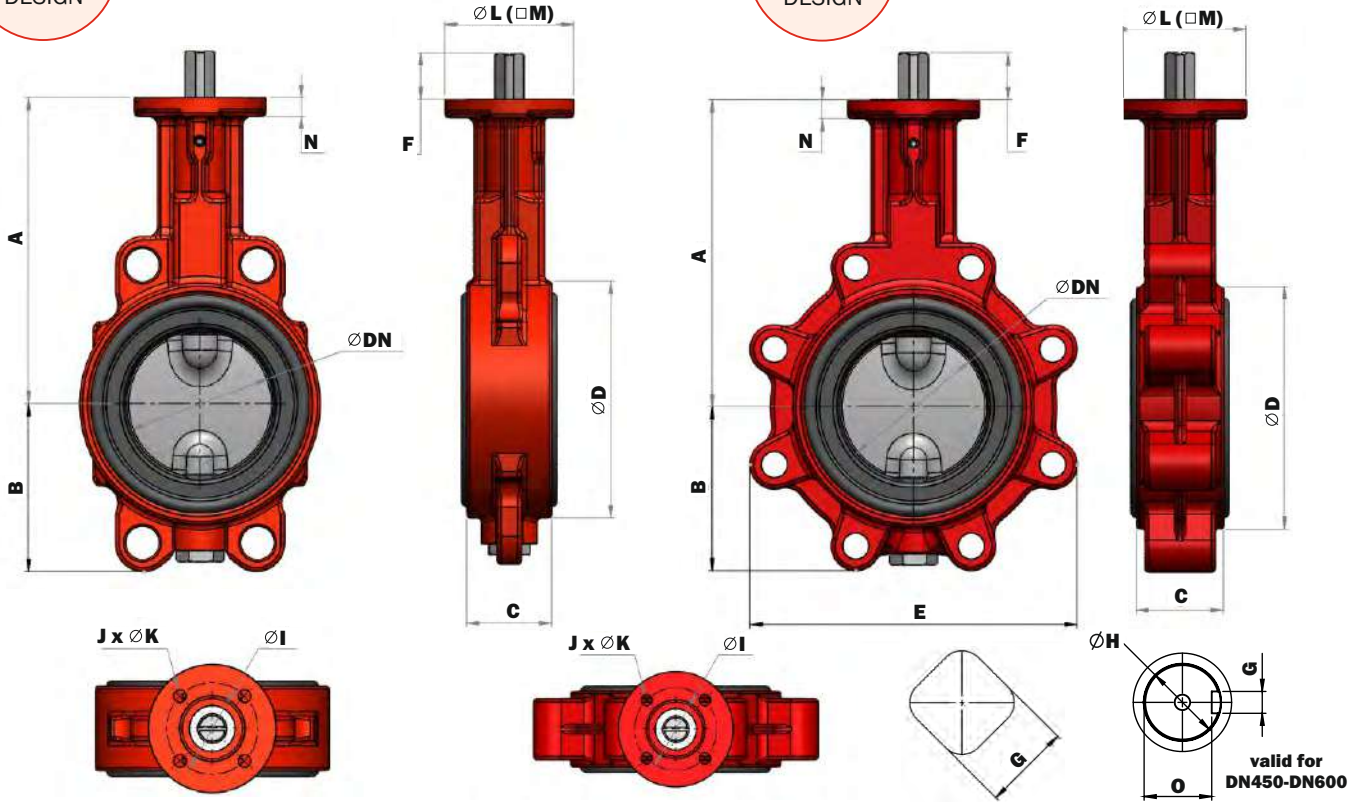
# VALVE BASIC DIMENSIONS

Czech Industrial Valve Manufacturer

**B**  
WAFER  
DESIGN

**T**  
LUG  
DESIGN

INTERFLANGED DESIGN



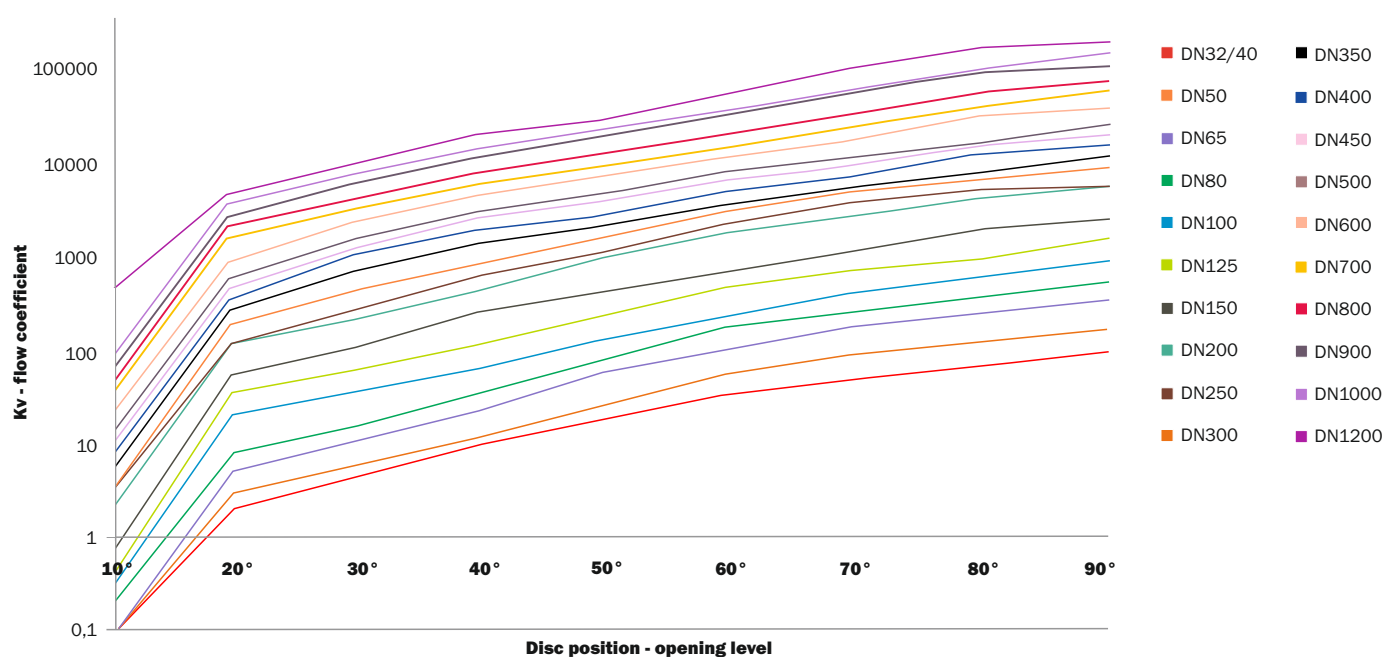
	DN	32/40	50	65	80	100	125	150	200	250	300	350	400	450	500	600
<b>Valve dimensions</b>	<b>A</b>	136	146	154	163	173	193	205	234	270	310	325	365	375	485	565
	<b>B</b>	54	64	72	89	105	119	130	166	202	237	271	314	330	368	464
	<b>C</b>	33	43	46	46	52	56	56	60	68	78	78	102	114	127	154
	<b>D</b>	78	96	113	128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

# NOMINAL FLOW VALUES



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

1KV = 0,854701 CV





# DN>600 / DOUBLE FLANGED DESIGN - SERIES „U”

Czech Industrial Valve Manufacturer

## Body design

Double flanged Body with through / tapped holes

## Design performance

Series „U” Short face-to-face length, Series 20  
According to ISO 5752-20

## Nominal size

Design „U” DN700 - DN1600

## Working pressure

1,0 MPa - 1,6 MPa (PN10 / PN16)

## Leak test

1,1 MPa - 1,76 MPa

## Working temperature

Seat NBR -10°C / +90°C  
Seat EPDM -20°C / +125°C \*)

## Features

### Concentric design

Top flange according to ISO 5211  
Flange connection according to BS4504/DIN/ANSI  
Design complies with BS3952/API609

\*) other alternatives upon concrete project

### 1. Interchangeable actuators

- according to the standard ISO 5211 the top flange enables to directly assemble any manual actuator or drive unit. Valves are usually delivered with worm gear actuators. Nevertheless a wide scale of pneumatic or electric actuators can be assembled.

### 2. Blow-out proof system

- a retaining washer disables shaft movement upwards.

### 3. Lengthened neck

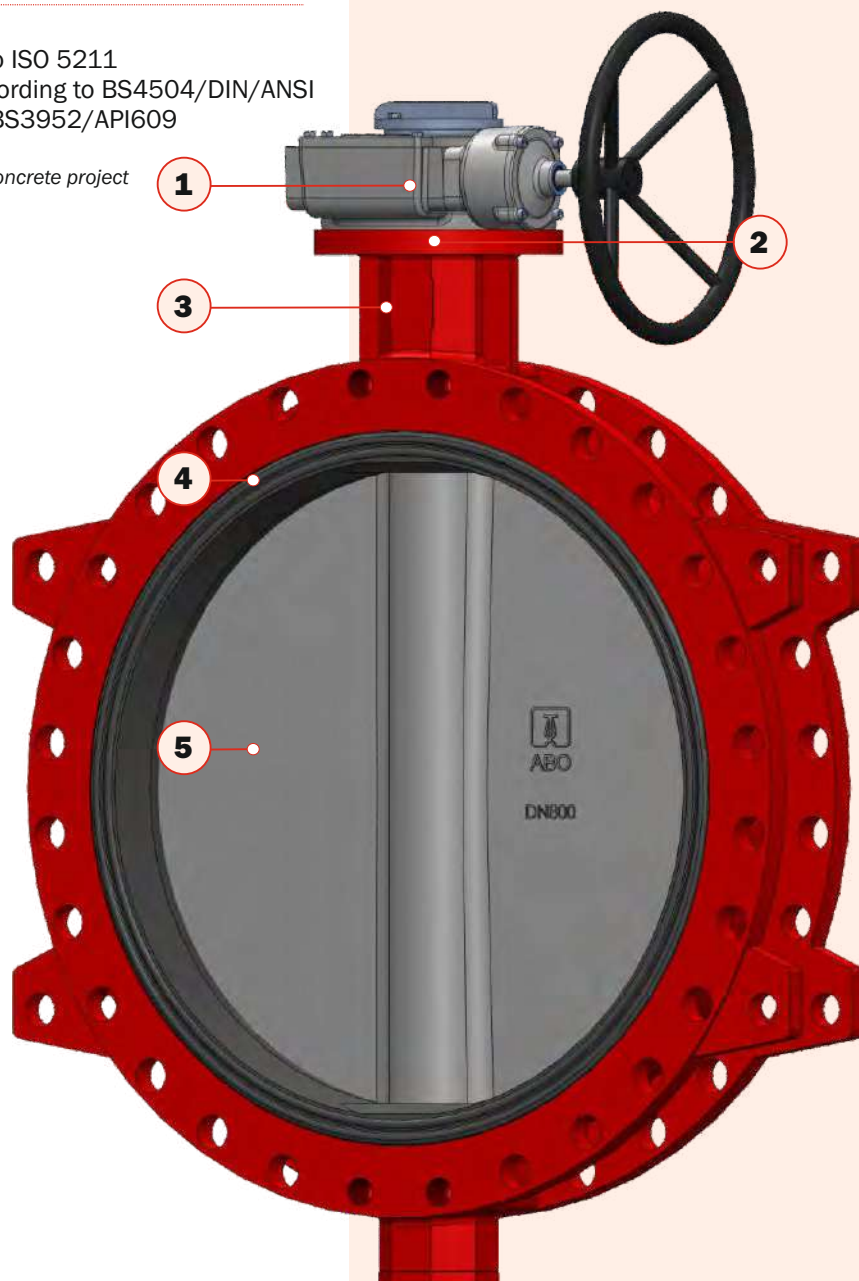
- enables to insulate the actuator from conveyed media warm effects and thus meets requirements on heating systems controls.

### 4. Seat design

- seat movement or incorrect position is impossible - seat can be vulcanized (as a standard up to a nominal size of DN1600, the seat is supplied as a replaceable, but can be vulcanized on request). Vulcanization leads to decreasing torque values needed to handle the valve. Valve inner part is fully rubber lined and thus protected against corrosive effects.

### 5. Disc design

- disc with polished edges is protective to seat and provides a long lifespan. Symmetric disc profile improves valve performance by means of increasing Kv (Cv) values, decreases turbulence and minimizes pressure loss.



# DOUBLE FLANGED DESIGN - SERIES „F”



## Body design

Double Flanged Body with through / tapped holes

## Design performance

Series „F” Increased face-to-face length, Series 13  
According to ISO 5752-13

## Nominal size

Design „F” DN50 - DN2200

## Working pressure

1,0 MPa - 1,6 MPa (PN10 / PN16)

## Leak test

1,1 MPa - 1,76 MPa

## Working temperature

Seat NBR -10°C / +90°C  
Seat EPDM -20°C / +125°C \*)

## Features

### Concentric design

Top flange according to ISO 5211  
Flange connection according to S4504/DIN/ANSI  
Design complies with BS3952/API609

\*) other alternatives upon concrete project

## 1. Interchangeable actuators

- according to the standard ISO 5211 the top flange enables to directly assemble any manual actuator or drive unit. Valves are usually delivered with worm gear actuators. Nevertheless a wide scale of pneumatic or electric actuators can be assembled.

## 2. Blow-out proof system

- a retaining washer disables shaft movement upwards.

## 3. Lengthened neck

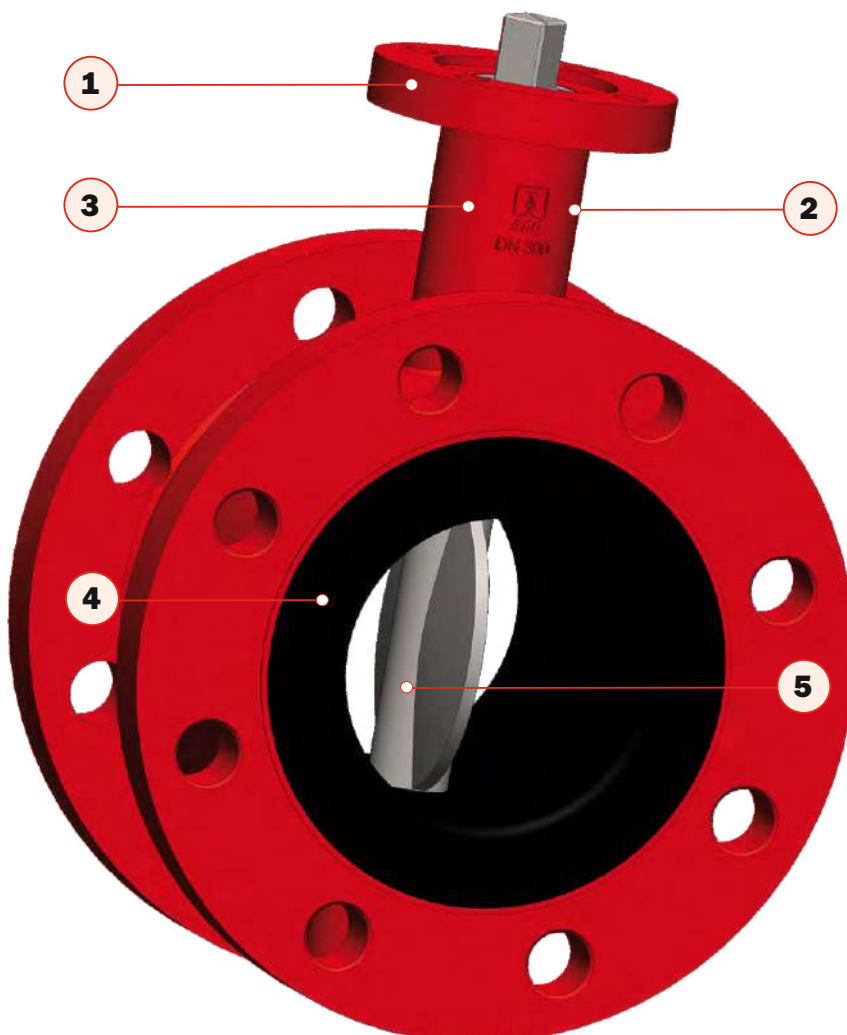
- enables to insulate the actuator from conveyed media warm effects and thus meets requirements on heating systems controls.

## 4. Seat design

- seat movement or incorrect position is impossible because it is vulcanized. That leads to decreasing torque values needed to handle the valve. Valve inner part is fully rubber lined and thus protected against corrosive effects.

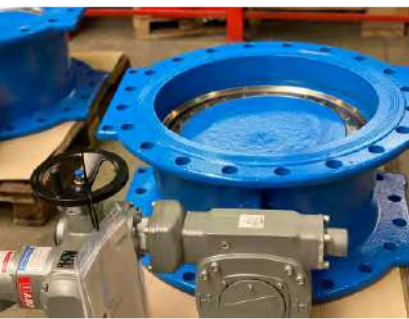
## 5. Disc design

- disc with polished edges is protective to seat and provides a long lifespan. Symmetric disc profile improves valve performance by means of increasing Kv (Cv) values, decreases turbulence and minimizes pressure loss.



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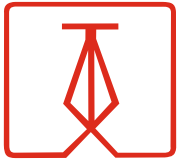
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# ABO valve

*we make processes work*

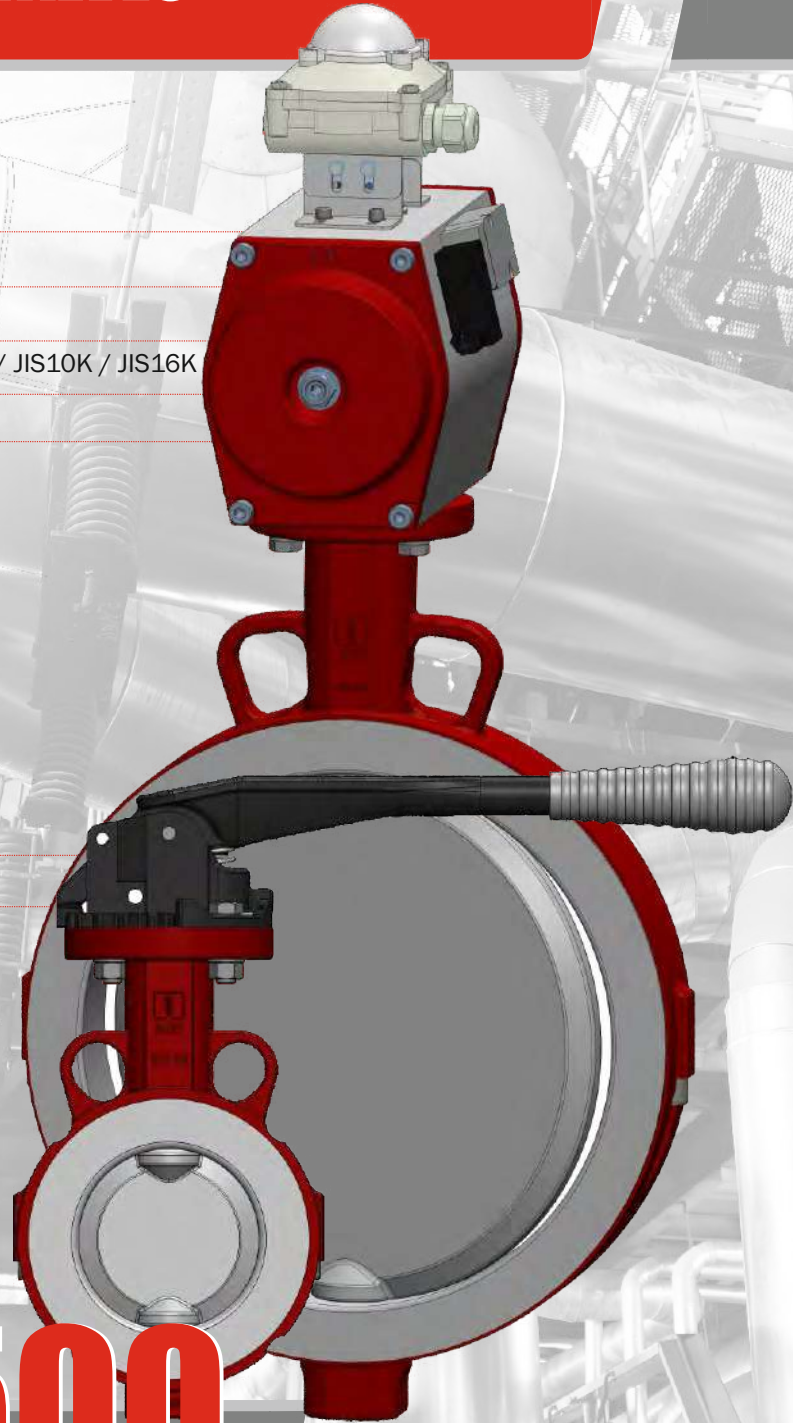
## PTFE LINED BUTTERFLY VALVES

<b>Body type</b>	WAFFER type with through holes
<b>Nominal size</b>	DN50 - DN400
<b>Working pressure</b>	6 bar / 10 bar
<b>Flange connection</b>	PN6 / PN10 / PN16 / Class 150 / JIS10K / JIS16K
<b>Working temperature</b>	-20°C / +200°C

<b>Working media</b>	Purified industrial water Potable water Industrial cleaners Chemicals Beverages Food Aggressive liquids Toxic media Caustic media Paper mill stock Drugs and pharmaceuticals Chlorine / Alkalines / Acids Dyes
----------------------	--

<b>Tightness</b>	Class A
------------------	---------

<b>Features</b>	<b>Concentric design</b> High-performance valve for high-demanding industries <b>Bidirectional tightness</b> PTFE seat for high-temperature working settings Split body Simple maintenance FDA certification
-----------------	--



# SERIES 500

chemical line

[www.abovalve.com](http://www.abovalve.com)

# GENERAL DESCRIPTION / DESIGN MODELS

Czech Industrial Valve Manufacturer

**High-performance concentric shut-off butterfly valves of Series 500 with PTFE sealing** are offered for very clean manufacturing environments and are used in various industries like:

- pure industrial water treatment
- chemical industry (acids, alkalines)
- pharmaceutical/sanitary industry
- food and beverage industry
- paper industry
- pulp processing
- corrosive, toxic and caustic media
- production of chlorine
- dyes manufacturing and processing

## Basic properties

- concentric design
- compact PTFE „TRIM” assembly (stem, disc, pivot)
- epoxy coated body
- 3 mm PTFE coated disc
- possible both vertical and horizontal pipe mounting
- fully tight in shut position
- suitable as end-stop and control valve
- valve is demountable
- actuating stem sealing prevents media leaking to environs
- extended neck design allows for piping insulation and enables easy access for actuator mounting
- steel PTFE impregnated bearings provide exact support of stem and pivot
- top flange according to standard ISO 5211 enables variable control by means of various actuator types
- red epoxy coating acc. RAL 2002 - 80 µm

## Based on customers' particular requirements we offer

- other body coating grade
- WRAS certification for potable water
- material certificate 3.1, 3.2 on the performance of a pressure test



## Type designation

**5 9 9 B 100**

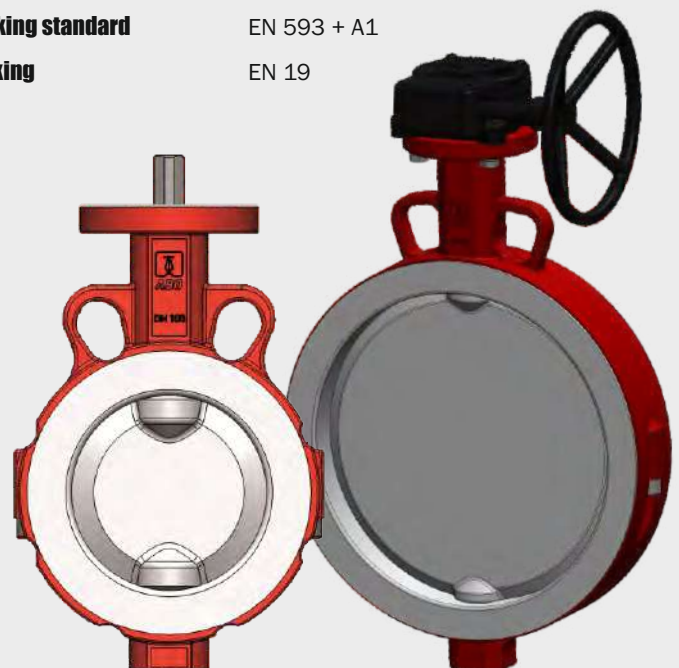
- **Nominal size**  
DN50 - DN400
- **Body design**  
B - wafer with through holes (two-piece body)
- **Seat material**  
9 - teflone (PTFE)
- **Disc material**  
9 - duplex stainless steel 1.4469 PTFE coated  
7 - duplex stainless steel 1.4469 with polished edges

**Series marking**  
Series 500

## Standards

<b>Hydraulic test</b>	EN 12266-1, Class A ISO 5208, Class A
<b>Face-to-face length</b>	EN 558, Series 20 ISO 5752, Series 20
<b>Flange connection</b>	EN 1092-1 DIN 2631 ASME B16.5
<b>Top flange</b>	ISO 5211
<b>Working standard</b>	EN 593 + A1
<b>Marking</b>	EN 19

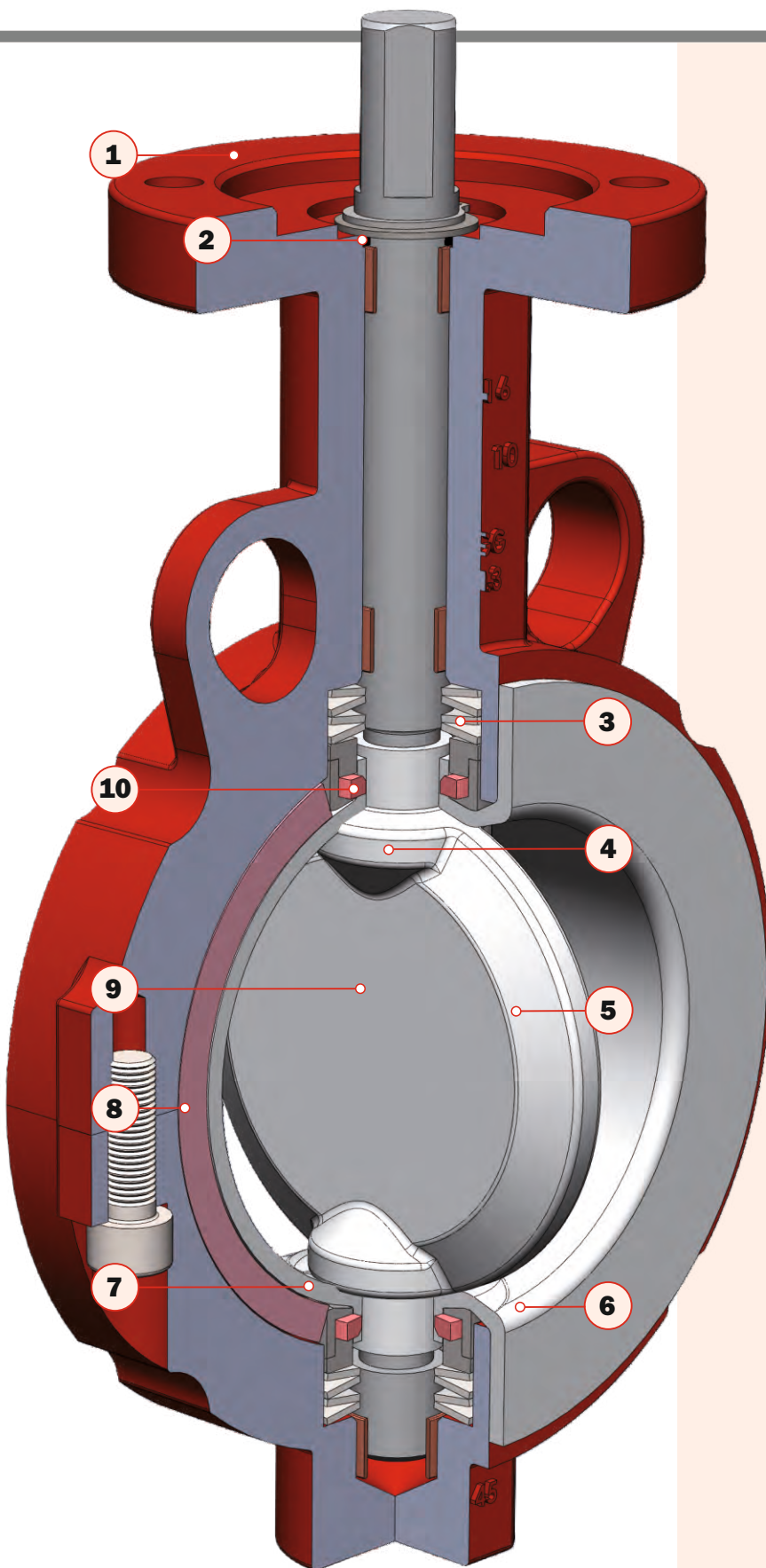
Design  
„B”  
WAFER



valves are delivered  
in a wide range of control elements

# DESIGN ADVANTAGES

 **ABO** valve



## 1. Top flange

- according to standard ISO 5211 enables to directly assemble any type of actuator. Flange high neck enables to insulate the actuator on the ISO flange.

## 2. Protection from penetrating abrasive articles

- dust protection O-ring protects stem and pivot bearings against entering abrasive articles.

## 3. Preloaded seal

- belleville springs in the valve neck ensure the seal pressure to disc. Double seals on both stem/pivot passages are standard equipment. The stuffing system with a preloaded set of belleville springs is supplemented with a silicone straining ring.

## 4. Ball sealing principle

- sealing surface of the teflone liner in the stem area has a defined ball geometry exactly reproducing the disc geometry. There are no critical transitions. Thus fluent and reliable operation is ensured.

## 5. Profiled disc

- lower pressure drops and higher Kv values.

## 6. Teflon seat

- with minimal thickness of 3 mm PTFE is manufactured by isostatic hot pressing.

## 7. Functional areas

- precise machining and exact alignment of the sealing components provides sealing around the stem in the functional areas.

## 8. Pressure element

- provides constant pressure around the perimeter of the seat.

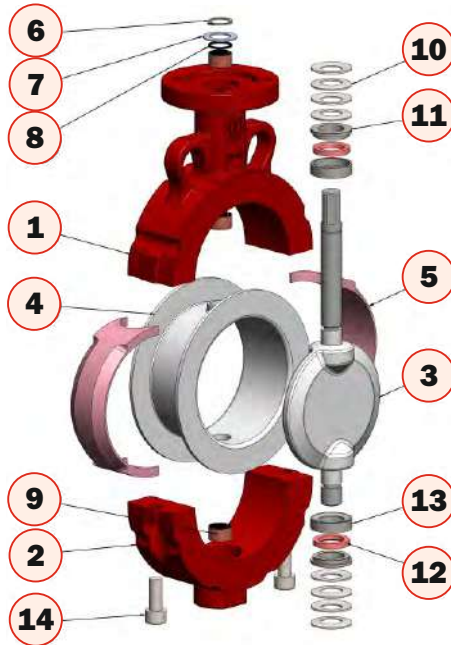
## 9. Disc / stem / pivot

- single-piece TRIM lined with PTFE coating thick at least 3 mm. All the sealing surfaces are machined.

## 10. Safety elements

- the valve is fitted with a stuffing box fully isolating the valve body and stem from the work media. The seal bushing consists of a stainless sealing ring and silicone straining ring.

**Design**  
**„B”**  
WAFER



Pos.	Item	Material
1	<b>Body - upper part</b>	Ductile iron 0.7043 (GGG40.3) *)
2	<b>Body - lower part</b>	Ductile iron 0.7043 (GGG40.3) *)
3	<b>Disc/Stem/Pivot</b>	Duplex stainless steel 1.4469 + PTFE
4	<b>Seat</b>	PTFE
5	<b>Pressure element</b>	Silicone rubber / VITON
6	<b>Support ring</b>	Stainless steel A2
7	<b>Washer</b>	Stainless steel A2
8	<b>O-ring</b>	Silicone rubber
9	<b>Sliding cover</b>	Steel + PTFE
10	<b>Belleville spring</b>	Steel
11	<b>Ring seat</b>	Stainless steel 1.4021
12	<b>Gasket ring</b>	Silicone rubber
13	<b>Thrust washer</b>	Stainless steel 1.4021
14	<b>Screw</b>	Stainless steel A4

\*) stainless steel body upon request

### Pure PTFE properties

- the parts coming to contact with work media (seat, disc) are lined with pure PTFE. Thus their long lifespan and valve quality stability are provided. Pure PTFE characteristics are high chemical resistance, toughness and flexibility, low friction coefficient, low water absorption and non-adhesiveness. All the mentioned properties provide increased protection against leakage of media. Low friction coefficient value reduces valve opening torque.

### Quality control

- manufacturing at ABO valve is certified according to quality control standard ISO 9001:2015 (14001, 18001)
- tightness tests according to standards: ČSN 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. work pressure to ensure leak tightness according to standards - 3.1/3.2 pressure test certificates can be issued
- valve actuators, if delivered, are adjusted and tested while assembled
- all the certificates are downloadable from [www.abovalve.com](http://www.abovalve.com)

### Valve coating

- ABO offers epoxy coated valve bodies providing excellent abrasion and atmosphere corrosion resistance
- coating colour is red acc. RAL 2002, 80 µm thick
- on request valve bodies can be finished with another colour or a thicker coating layer
- excellent abrasion and corrosion resistance
- resistance to chemicals incl. strong acids and alkalines
- resistance to solvents, alcohols, greases and oils
- resistance to humidity and water
- resistance to shocks (cracking and peeling)



# VALVE ACTUATION



## Operating torques (Nm) vs. working pressure (bar)

	DN	50	65	80	100	125	150	200	250	300	350	400
<b>599</b>	<b>p<sub>max</sub> 10bar</b>	35	40	50	85	130	230	250	350	530	850	1000
<b>579*</b>	<b>p<sub>max</sub> 10bar</b>	35	40	50	85	130	325	335			-	-

*p<sub>max</sub>* - maximum working pressure. For pressure of 10 bar - only water with temperature of 20°C. Torques are declared without safety coefficients. Recommended safety coefficient for the actuator installation is 1,3.  
 \*) series 579B are available only up to DN300

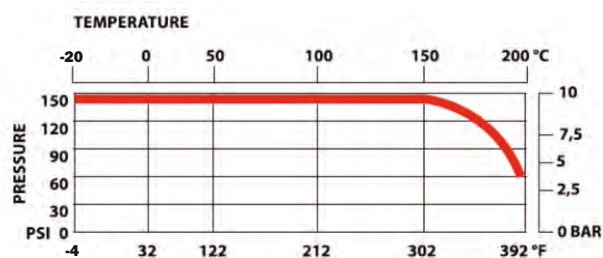
## Installation between flanges DN50 - DN400

	DN	50	65	80	100	125	150	200	250	300	350	400
	PN6											
	PN10											
	PN16											
	Class 150											
	JIS 10 K											
	JIS 16 K											

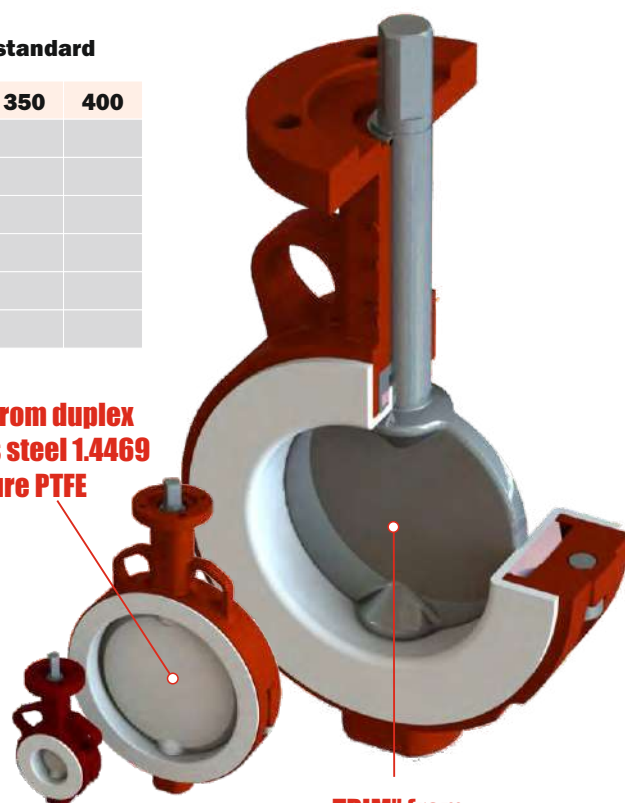
## Working conditions

Max. working pressure	Temperature rating
DN50-DN400: 10 bar	- 20°C do +200°C *)

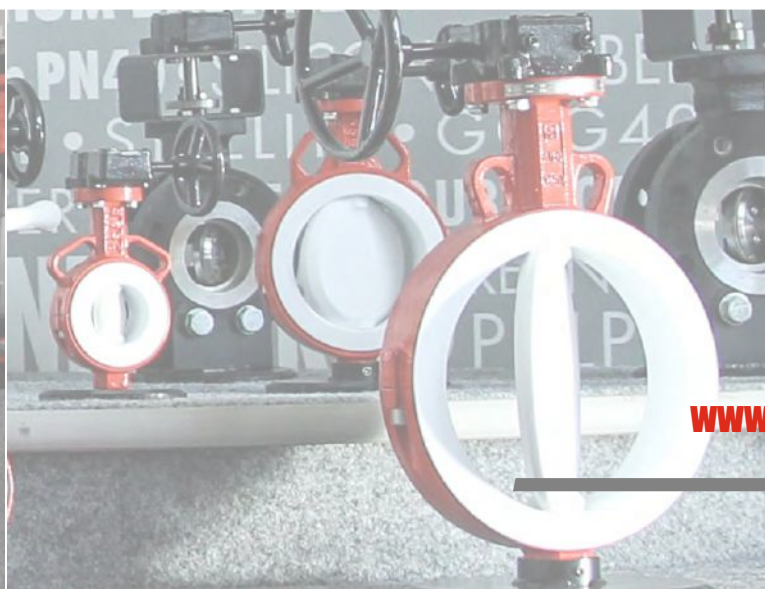
\*) depending on medium



„TRIM” from duplex stainless steel 1.4469 + pure PTFE



„TRIM” from one piece only (stem + disc + pivot)





# VALVE ACTUATION

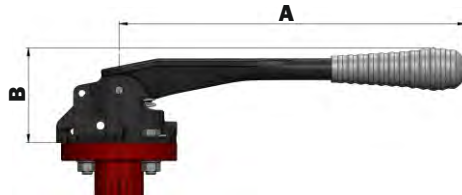
Czech Industrial Valve Manufacturer

All ABO handlevers, manual worm-gear units, pneumatic or electric actuators can be mounted directly to ABO butterfly valves, which ensures compatibility between the actuator and the valve.

## Handlever

For manual actuation, company ABO valve offers handlevers 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 DN50 - DN65 and F07 for DN 80 - DN125, respectively.



DN	50-65	80-125	150
A	225	270	360
B	75	75	75
Kg	1,2	1,35	1,5

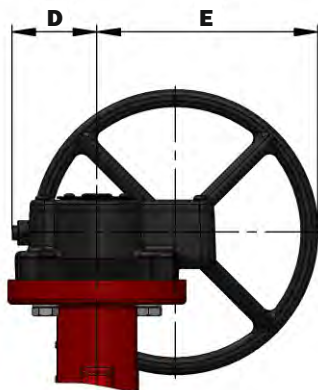
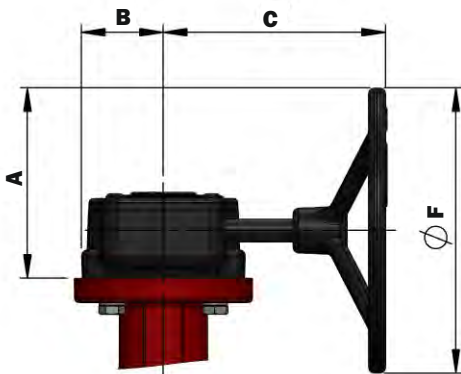
Dimensions are mentioned in mm.

## Manual gearbox with handwheel

Manual gearbox casing is made from cast iron with suitable surface treatment and protection degree class IP67. 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 by means of a handwheel of a suitable diameter. End-limit positions of the worm gearbox are adjusted by means of stop 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 end-limit position sensors.

DN	50-65	80-150	200-300	350-400
A	69,5	127,5	133,5	287,5
B	35	46	57	67
C	91	139	156	275
D	38	59	59,5	181
E	84	141	155	319
F	100	200	200	500
Kg	1,24	2,85	4,56	10,2

Dimensions are mentioned in mm.



# VALVE ACTUATION



## Actuators

### Pneumatic actuators

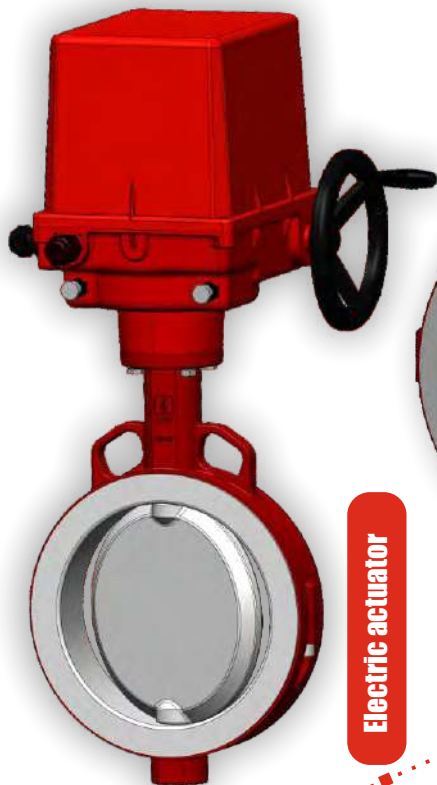
ABO valves can be equipped with pneumatic actuators of two optional designs: single-action or double-action.

### Electric actuators

Electric actuators are designed quarter-turn. Electric actuators can be installed for voltages of 24 V, 230 V or 400 V.

### Special actuator types

Valves are equipped with special actuator types from major world suppliers (Auma, Regada, Valpes etc.).



Electric actuator



Pneumatic actuator



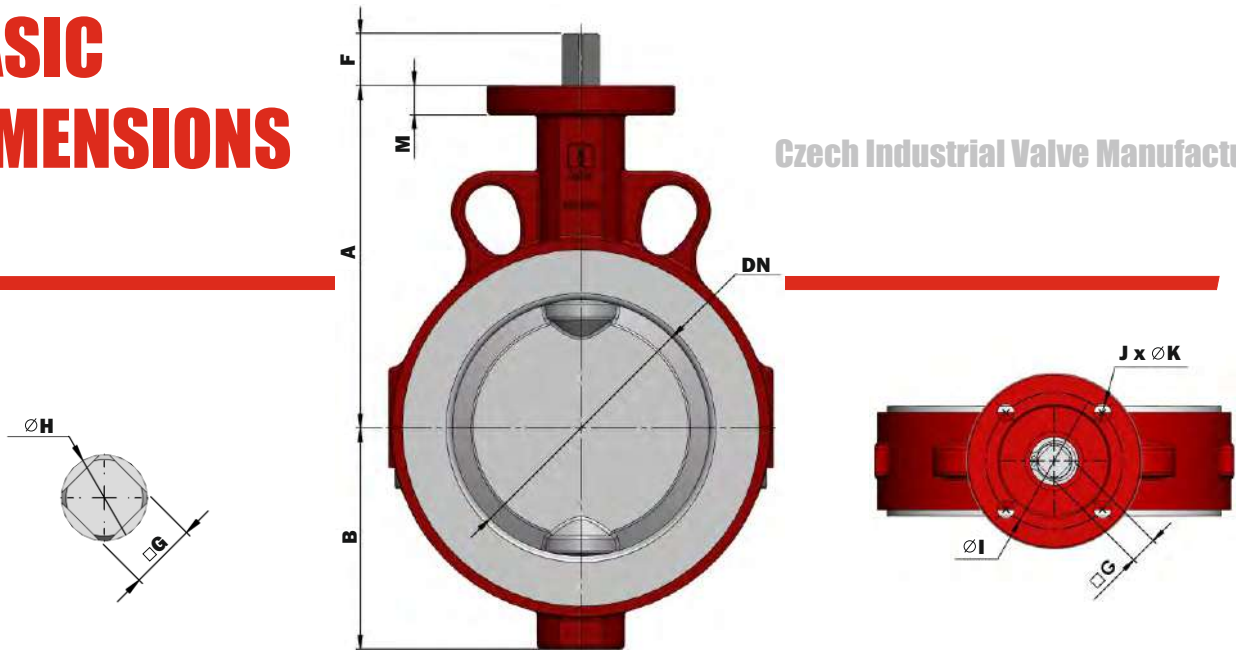
Special actuators

**MADE IN EUROPE 100% TESTED**  
CONCENTRIC BUTTERFLY VALVES  
**HIGH PERFORMANCE BUTTERFLY VALVES**  
KNIFE GATE VALVES • CHECK VALVES • BALL VALVES DN150  
ATEX 94/9/EC OFFSET DESIGN API 598 RAL 2002 U-SECTION  
R&D CENTER GLOBAL OPERATIONS DOUBLE FLANGED EUROPEAN MANUFACTURER  
**DN600 • BALL CHECK VALVES • DIAPHRAGM VALVES • FILTERS**  
• ACTUATORS • POWER • OIL & GAS PN16 NUCLEAR POWER STATE-OF-THE-ART TECHNOLOGY  
**SERVED INDUSTRIES** REFINING • CHEMICAL CLASS 150  
PULP & PAPER • MARINE  
WAFER & LUG TYPE & WASTEWATER • PETROLEUM • OILFIELD  
KV VALUES • HYDROCARBON PROCESSING • INDUSTRIAL PROCESSING EPOXY COATING  
**DURABILITY** • STAINLESS STEEL ASME B16.5 • CARBON STEEL  
GRAPHITE ALUMINIUM BRONZE HASTELLOY • TITANIUM • DUCTILE IRON  
SUPER DUPLEX A5 • HYPALON • NBR • SILICONE RUBBER  
VITON • PTFE • STELLITE • GGG40 SUPER DUPLEX A4  
MINING • WATER • MEDIUM DOUBLE OFFSET AGGRESSIVE ACIDS URANUS B6  
**MADE IN EUROPE 100% TESTED**  
ECCENTRIC BUTTERFLY VALVES  
**KNIFE GATE VALVES** BALL VALVES • DIAPHRAGM VALVES  
CHECK VALVES • BALL VALVES DN150  
R&D CENTER GLOBAL OPERATIONS U-SECTION DOUBLE FLANGED EUROPEAN MANUFACTURER  
**DN600 • BALL CHECK VALVES • DIAPHRAGM VALVES • FILTERS**

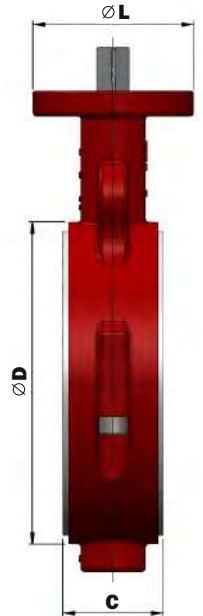
[www.abovalve.com/7](http://www.abovalve.com/7)

# BASIC DIMENSIONS

Czech Industrial Valve Manufacturer



	DN	50	65	80	100	125	150	200	250	300	350	400
<b>Valve dimension</b>	<b>A</b>	120	128	135	145	164	176,5	234	274	299	331	361
	<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>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>	14	14	16	16	18	20	22	30	30	35	40
<b>Top flange dimensions</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>L</b>	70	70	90	90	90	90	90	125	125	155	155
	<b>M</b>	14	14	14	14	14	14	14	18	20	20	20
<b>ISO Flange 5211</b>		F05	F05	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



Dimensions are mentioned in mm.

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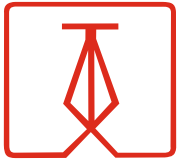
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# ABO valve

*we make processes work*

## DOUBLE OFFSET BUTTERFLY VALVES

### Body design

Interflanged      WAFER type with through holes  
LUG with tapped holes

### Nominal size

DN50 - DN600

### Working pressure

16 bar / 25 bar / 40 bar / 50 bar

### Flange connection

PN6 / PN10 / PN16 / PN25 / PN40  
Class 150 / Class 300

### Working temperature

-55 °C / +325 °C \*)

### Working media

Waste / Supply water  
Hot industrial water  
Crude oil and petroleum products  
Fuel / Oil / Oil derivatives  
Pulp  
Paper stock  
Natural gas  
Coke oven gas, stack gas  
Non-aggressive liquids and gases  
Steam / Condensate  
Air  
Bitumen (asphalt)

### Tightness

Class A

### Features

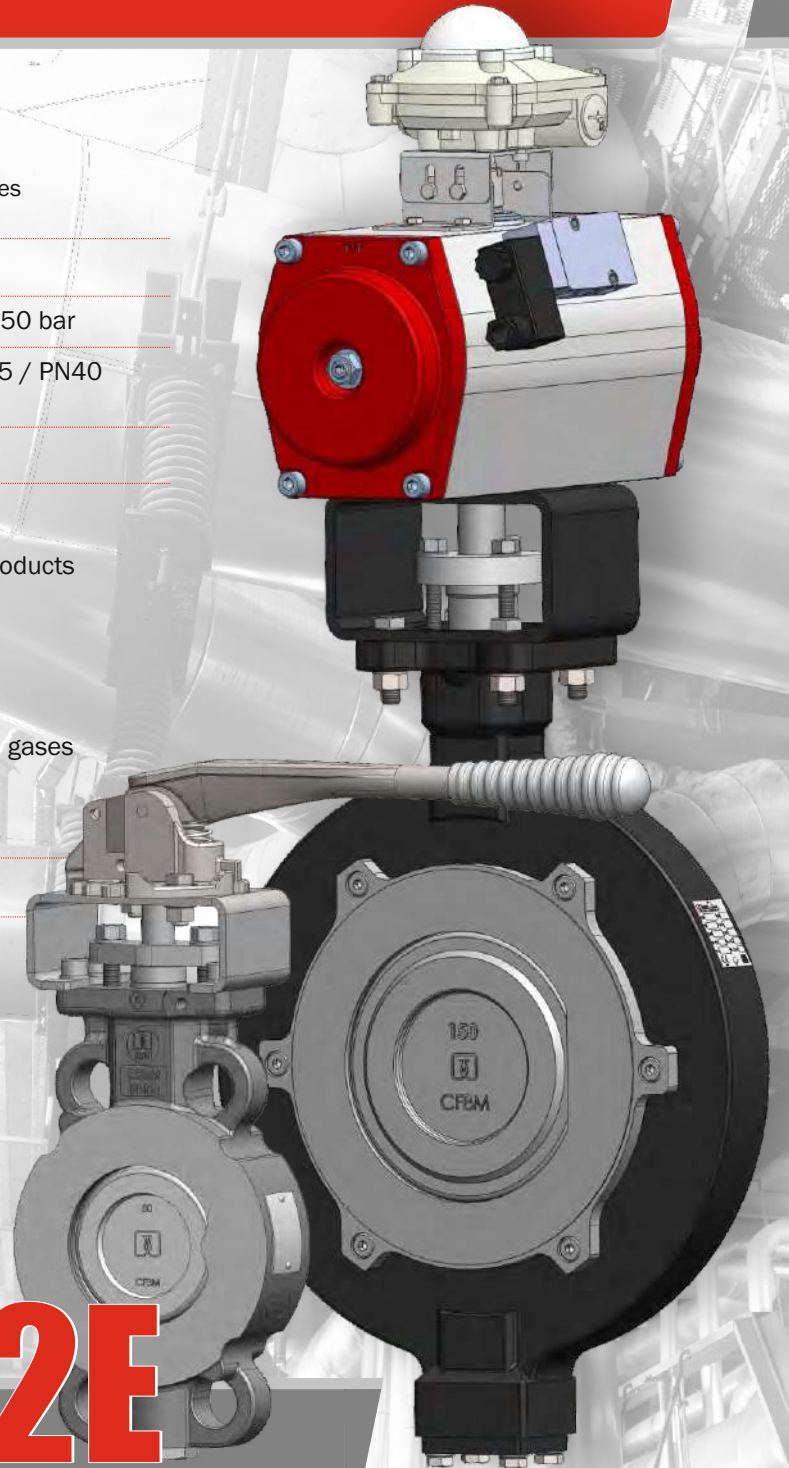
#### Excentric seat design

Bidirectional tightness  
(RS version of 2E valve)  
SIL2/SIL3 certification

#### ATEX performance

TA-Luft stuffing box  
Double flanged design

\*) higher working  
temperatures upon request



# SERIES 2E

energy line

[www.abovalve.com](http://www.abovalve.com)

# GENERAL VALVE DESCRIPTION

Czech Industrial Valve Manufacturer

**The 2E-series double offset butterfly valves** are industrial fittings intended for full opening or closing flow. They may be also used for a rough flow control. The valves are designed for operation with very hard industrial conditions demanding safety, reliability and minimum maintenance like for example:

- nuclear energy industry
- water treatment
- gas pipe-works
- chemical industry
- metallurgy (and heavy industry in general)
- pulp and paper-making industry
- shipbuilding industry
- oil and petrochemical industry
- heat recovery, steam heating
- processing hydrocarbons
- fuel storage in aviation industry

## Basic properties

- double offset design
- eccentric disc position in the body, precise connection of the disc with the stem and pivot, exact shaft and pivot bearing in the slide bushings
- split sealed stem - bigger Kv
- high efficiency of opening and closing valve
- easy operation
- easy assembly and installation
- vacuum max. 0,01 bar abs. (version R-PTFE)
- standardized top flange according to ISO 5211 enabling mount various types of actuator (electric, pneumatic, hydraulic)
- ATEX certified for explosive atmosphere
- option: TA-Luft sealed valve - control stem is sealed with a special graphite gland



## Type designation

**5 5 9 0 B 100**

- **Nominal size (DN)**
- **Body design**  
B - WAFER body type with through holes  
T - LUG body type with tapped holes
- **Disc material**  
0 - stainless steel 1.4408 (CF8M)  
stainless steel 1.4409 (ASTM A351 CF3M)  
stainless steel 1.4027 (ASTM CA-40)
- **Seat material**  
9 - R-PTFE (PTFE reinforced by 25% glass fibre)  
8 - FIRE SAFE (R-PTFE + INCONEL)  
7 - INCONEL 718 2.4668
- **Body material**  
6 - low carbon steel 1.1156 (A352 LCC)  
5 - carbon steel 1.0625 (A216 WCB)  
4 - stainless steel 1.4408 (A351 CF8M)
- **Series designation**  
Series 2E

## Standards

### Leak test

#### Design „R-PTFE”

#### Design „Fire Safe”

EN 12266-1, Class A  
ISO 5208, Class A  
API 598

#### Design „Metal-Metal”

DN 50-DN125  
EN 12266-1, Class C  
ISO 5208, Class C  
API 598

### Face to face length

EN 558, Series 20  
ISO 5752, Series 20  
API 609, Table 3

### ATEX performance

according to 2014/34/EU

### Flange connection

EN 1092-1, 2  
DIN 26312-35

### Top flange

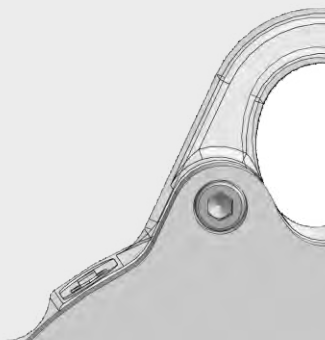
ISO 5211

### Working standard

EN 593+A1

### Marking

EN19



# DESIGN MODELS

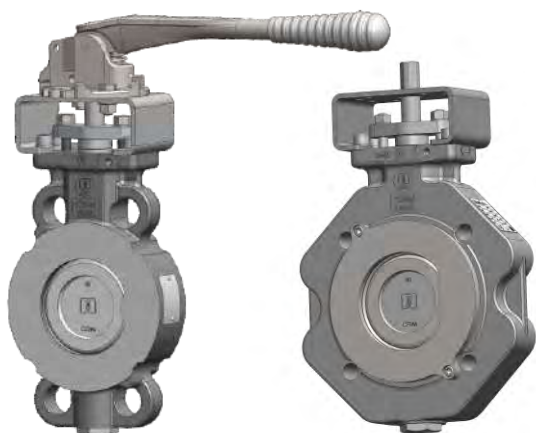


**B**  
**WAFER**  
DESIGN

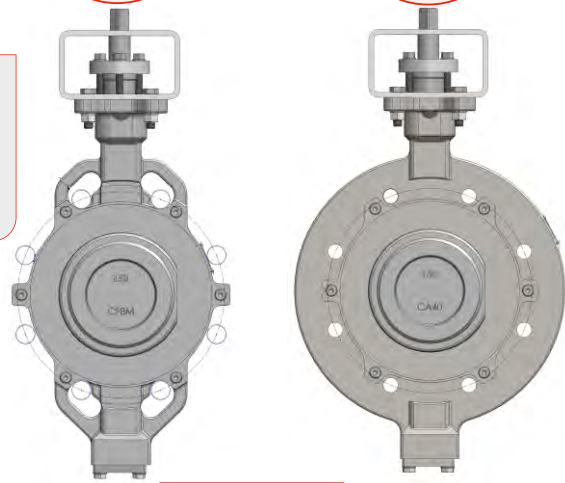
**T**  
**LUG**  
DESIGN

**B**  
**WAFER**  
DESIGN

**T**  
**LUG**  
DESIGN



**Standard line**  
DN50-DN450  
**Bi-directional**  
**line (RS version)**  
DN50-DN600



**DN50-DN125**

**DN150-DN600**

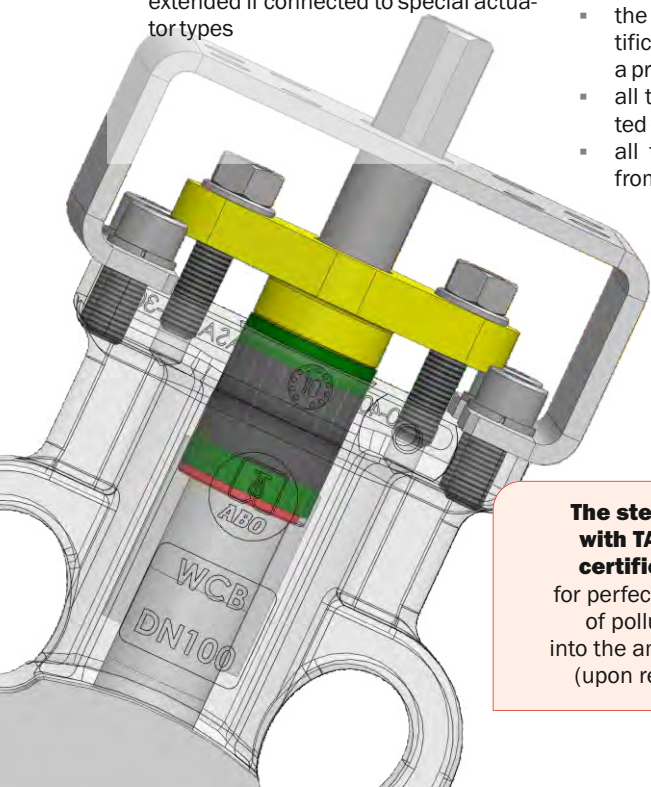
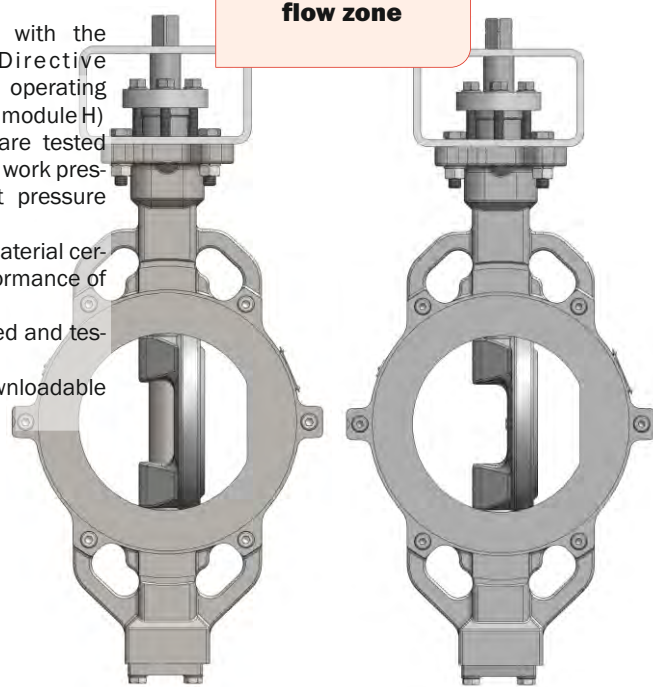
## Advantages of double offset valves

- split stem - large flow zone
- higher Kv/Cv values
- lower pressure loss
- guaranteed tightness in both directions at nominal working pressure (RS version)
- sealing ring and seat come to contact only after the valve is entirely shut
- low closing torque
- the seal guarantees perfect upper stem tightness
- water and air tightness
- actuator connection can be modified by means of a bracket or the stem can be extended if connected to special actuator types

## Quality control

- ABO valve production facilities are certified in accordance with ISO 9001:2015 (14001, 18001) quality control standards
- tightness test procedures according to standards EN 12266-1, ISO 5208, ANSI/FCI 70-2, API598
- production in accordance with the Pressure Equipment Directive 2014/68/EU - Equipment operating under pressure (Category III, module H)
- all the ABO valve fittings are tested under the pressure of 110% work pressure according to relevant pressure standards
- the possibility of issuing a material certificate 3.1, 3.2 on the performance of a pressure test
- all the actuators are adjusted and tested while assembled
- all the certificates are downloadable from [www.abovalve.com](http://www.abovalve.com)

Split stem /  
**large**  
**flow zone**



**The stem seal with TA-LUFT certification**  
for perfect leakage of pollutants into the ambient air (upon request)

# DESIGN ADVANTAGES

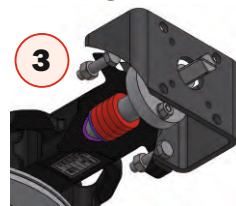
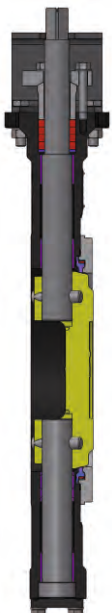
Czech Industrial Valve Manufacturer

## Double offset

- the double offset design provides a safe function and tightness even after a sudden temperature or pressure change. It reduces seat wear and ensures perfect tightness. The first offset **(1)** shifts the axis of the rotation off the sealing axis and thus provides tightness between the seat and the sealing ring around the entire disc circumference. The second offset **(2)** moves the the axis of the disc rotation off the valve (pipeline) axis and thus releases the ring from the seat after a few degrees of opening movement. The reason of the second offset is to quickly relieve the seal from compression between the disc and the seat.
- the design extends the seal lifetime and the torques are lower. When shutting valve, the rotating movement is changed to the linear one and the disc is effectively pressed into the seal. The design also prevents undesirable agglomerating e. g. undissolved substances in the area of disc and seal contact.



## Stem and seal (3)

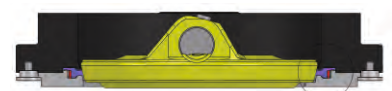
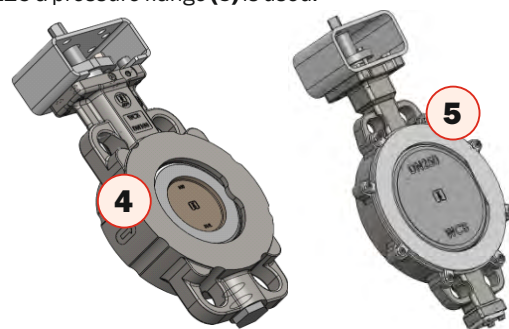


3

- two-piece stem** - owing to the split stem the valve attains higher values of Kv/Cv and related low pressure loss. The pins exactly fall into the reamed holes
- adjusting seal according to the customers' requirements** - the seal can be tightened/loosened to the parameters prescribed by customers. Thus maximum tightness can be achieved around the stem and the actuation torque for low-pressure applications can be decreased.
- adjustable seal** - enables simple approach to and adjustment of the seal without dismantling the actuator
- stem assembly** - upper and lower bushings made from TP Igus provides high abrasion resistance and prolongs valve lifespan
  - extended neck** - enables to insulate piping incl. the valve
  - easy service and seal replacement** - easy assembly and replacement
  - upper flange according to ISO 5211** - enables to directly install a manual handle or an actuator

## Seal design

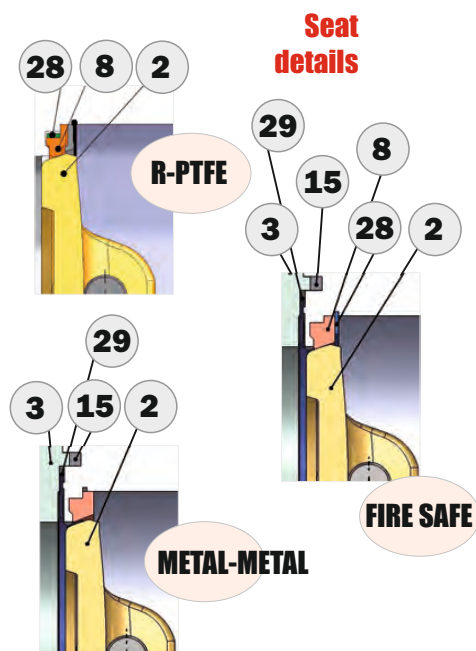
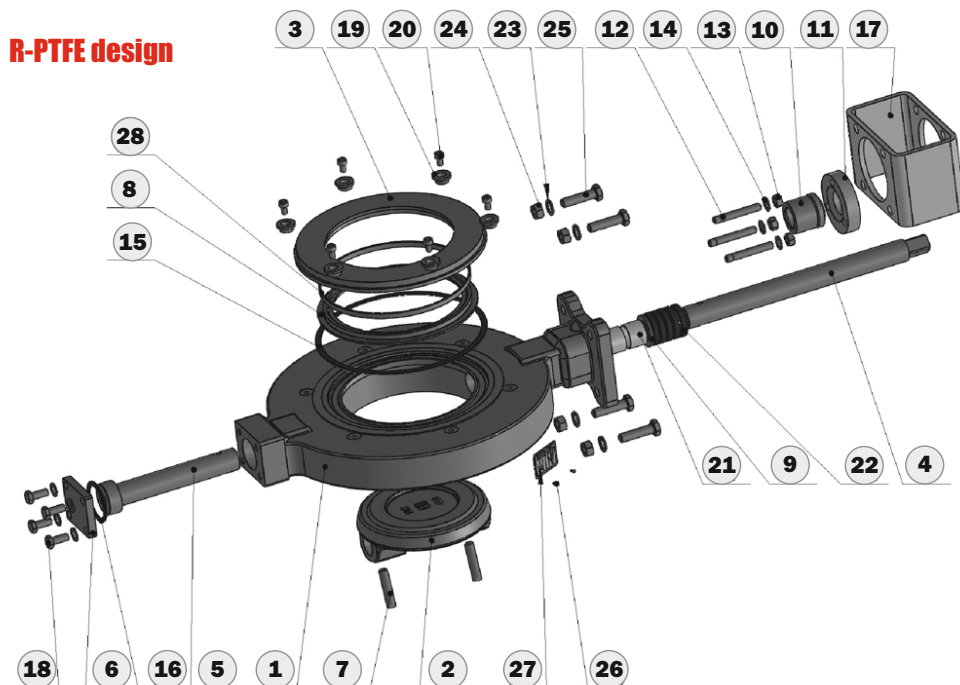
- R-PTFE** - suitable seal geometry ensures full tightness and a high number of cycles. The PTFE seal is reinforced with 25% glass fibres, reducing wear and increasing valve thermal stability. Longer lifespan of the valve and lower maintenance demand are guaranteed.
- end-stops** - are designed to avoid twisting the disc. Thus the seal is not damaged nor overloaded and the valve lifespan is extended. The version with R-PTFE up to DN125 has the end-stop in the body **(4)**, above DN125 a pressure flange **(5)** is used.



# MATERIAL PERFORMANCE



## R-PTFE design



Pos.	Name	Material
1	Body	6 - low carbon steel 1.1156 (A352 LCC) 5 - carbon steel 1.0625 (A216 WCB) 4 - stainless steel 1.4408 (A351 CF8M)
2	Disc	DN50-125: stainless steel 1.4409 (CF3M) DN150-350: stainless steel 1.4408 (CF8M) 1.4027 (CA40) DN400-600: stainless steel 1.4027 (CA40)
3	Pressure flange	Carbon steel 1.0425 Stainless steel 1.4404 (AISI 316L)
4	Stem	54XX, 56XX: stainless steel 1.4462 55XX: stainless steel 1.4021 (AISI 420)
5	Pivot	DN50-125: stainless steel 1.4404 (AISI 316L) DN150-600: stainless steel 1.4021 (AISI 420)/1.4462
6	Cover	DN50-125: - DN150-600: carbon steel 1.4025 / stainless steel 1.4401 (AISI 316)
7	Pin	DN50-125: - 54XX, 56XX DN150-600: stainless steel 1.4462 55XX DN150-600: stainless steel 1.4021 (AISI 420)
8	Seat	Xx70 DN50-125: INCONEL 718 2.4668 XX80: FIRE SAFE (R-PTFE + INCONEL) XX90: R-PTFE (PTFE reinforced by 25% glass fiber)
9	Washer	Stainless steel 1.4404 (AISI 316L)
10	Stuffing box	DN50-125: - 54XX, 55XX DN150-600: stainless steel 1.4401 (AISI 316) 56XX DN150-300: stainless steel 1.4401 (AISI 316) 56XX DN350-600: stainless steel 1.4404 (AISI 316L)

Other material performance on request. To select a suitable material solution please contact ABO valve company. Maximum temperatures for each seats are only permitted for specific media and short-term use.

**Working pressure max.**  
**R-PTFE seat - tightness A**  
 DN50-DN125: 50 bar  
 DN150-DN200: 40 bar  
 DN250-DN450: 25 bar  
**Kov-Kov seat - tightness C**  
**Fire Safe seat - tightness A**  
 DN50-DN125: 25 bar

**Temperature rating \***  
 -29 °C do 200 °C (R-PTFE) - 5590  
 -55 °C do 325 °C (bez R-PTFE) - 5470  
**Coating**  
 RAL 9005 resistant to high temperatures (up to +600 °C)  
 min. 50-60 µm (coating with higher covering power on demand)

\*) depending on the material performance of the valve body (will be specified)

Pos.	Name	Material
11	Sealing flange	54XX, 55XX, 56XX DN50-125: stainless steel 1.4308 (CF8) 54XX, 55XX, 56XX DN150-600: stainless steel 1.4301 (AISI 304)
12	Bolt	Stainless steel A4
13	Nut	Stainless steel A4
14	Washer	Stainless steel A4
15	Flange sealing	Graphite min. 98%
16	Těsnění vřka	Graphite
17	Bracket	DN50-125, 500, 600: carbon steel 1.0553 DN150-400: carbon steel 1.0576
18	Bolt	Stainless steel A4
19	Retaining sleeve	Stainless steel 1.4404 (AISI 316L)
20	Bolt	Stainless steel A4
21	Bushing	Xx70, Xx80: stainless steel 1.4404 (AISI 316L) + nickel plated XX90: TP IGUS
22	Sealing	Graphite min. 98%
23	Washer	Stainless steel A4
24	Nut	Stainless steel A4
25	Bolt	Stainless steel A4
26	Rivet	Stainless steel A4
27	Label	Stainless steel
28	Seat O-ring	Stainless steel 1.4404 (AISI 316L) - only for „R-PTFE“ and „FIRE SAFE“ version
29	Sealing	INCONEL - only for „METAL-METAL“ and „FIRE SAFE“ version

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# OPERATING TORQUES / FLANGE CONNECTION

Czech Industrial Valve Manufacturer

## Operating torques (Nm) vs. working pressure (bar)

### R-PTFE seat (standard line DN50-DN400, „RS” Bi-directional line DN50-DN600)

DN	50	65	80	100	125	150	200	250	300	350	400	500	600
NPS	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	20"	24"
<b>p<sub>MAX</sub> 16 bar</b>	19	35	50	77	110	165	280	567	650	800	1000	5300	5950
<b>p<sub>MAX</sub> 25 bar</b>	22	45	58	79	120	260	450	732	900	1600	2510	6100	7950
<b>p<sub>MAX</sub> 40 bar</b>	32	53	62	90	150	310	485	-					
<b>p<sub>MAX</sub> 50 bar</b>	35	60	65	105	-								

Operating torques are mentioned without safety reserve.

### Metal-metal seat and Fire Safe seat

DN	50	65	80	100	125
NPS	2"	2½"	3"	4"	5"
<b>p<sub>MAX</sub> 16 bar</b>	50	70	100	150	220
<b>p<sub>MAX</sub> 25 bar</b>	50	70	100	150	220

Operating torques are mentioned without safety reserve.

### Installation between flanges DN32 - DN600

DN	50	65	80	100	125	150	200	250	300	350	400	500	600
NPS	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	20"	24"
PN6	•	•		•	•	•	•	•	•	•	•	x	x
PN10													
PN16													
PN25													
PN40													
ANSI150													
ANSI300										x	x		
JIS 10K			•		•		•		•	x	•		
JIS 16K		•	•			•				•			

For Lug type (T) installation, please specify in the inquiry.

standard

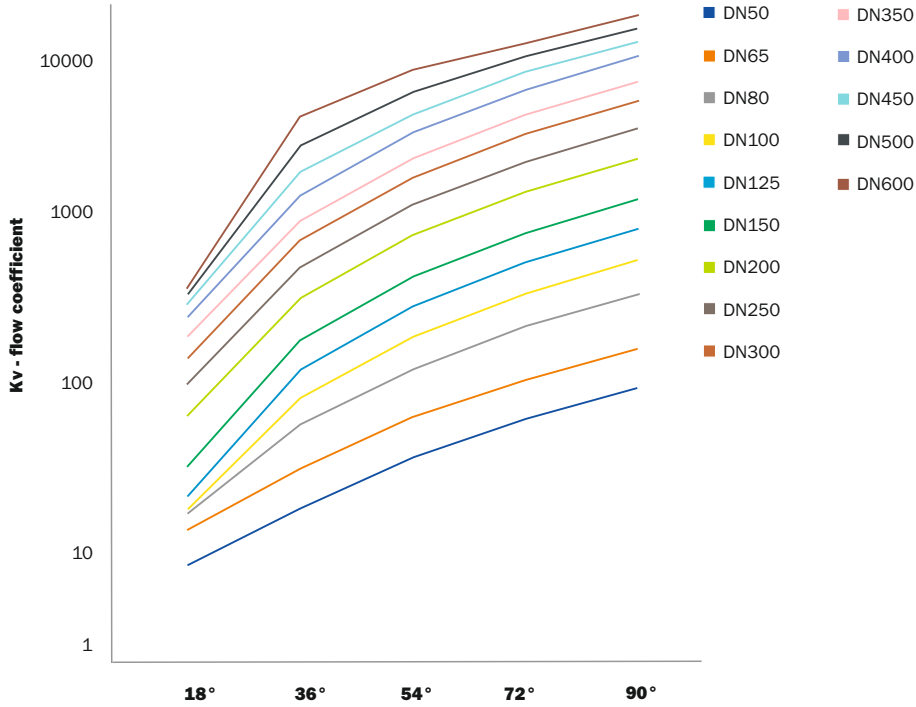
• on request

x impossible

### KV (CV) coefficient

DN	50	65	80	100	125	150	200	250	300	350	400	500	600
NPS	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	20"	24"
<b>KV</b>	87	148	312	456	750	1125	1950	3100	4510	6120	8605	11674	16914
<b>CV</b>	102	173	364	532	876	1313	2277	3619	5265	7145	10046	13542	19620

# OPERATING TORQUES



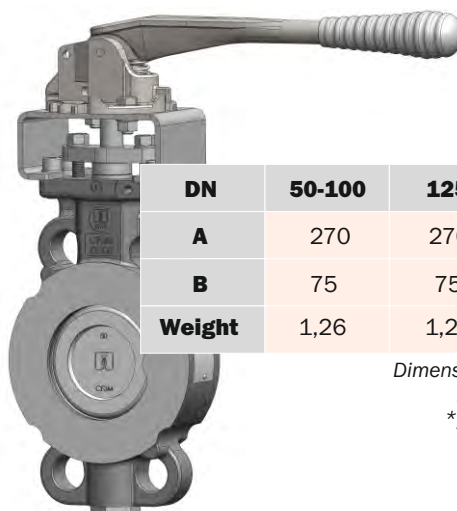
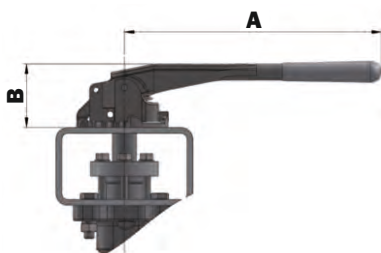
# VALVE ACTUATION

Czech Industrial Valve Manufacturer

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

## Handlever

For manual actuation ABO valve offers carbon steel lever suitably painted to improve resistance to corrosion and abrasion. Stainless lever on request. Top flange connection according to ISO standards F07 for DN50 to DN125 and F10 for DN150. Controlled lever on request. The levers can be equipped with a lock to ensure an optimized position, can be equipped with end position sensors.

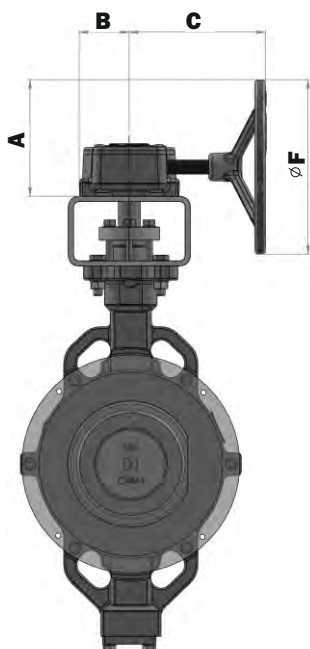


DN	50-100	125	150*)
A	270	270	362
B	75	75	75
Weight	1,26	1,26	1,40

Dimensions are mentioned in mm, weight in kg.  
\*) lever only for PS16

## 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 adjust basic positions open/shut and to control (throttle) media flow. The worm gearbox is simply actuated by means of a handwheel of a suitable diameter. End-limit positions of the worm gearbox are set by means of stop screws. The gearbox can be equipped with a lockable system secured by a padlock. Another way how to handle worm gearbox is using a chain. The worm gearbox as well as the hand lever can be completed with end-limit position sensors.



DN	PS	ISO FLANGE	SHAFT	A	B	C	D	E	F	Kg
50	50	F07	14x14	127,5	46	139	59	141	200	2,85
65	50	F07	14x14	127,5	46	139	59	141	200	2,85
80	50	F07	14x14	127,5	46	139	59	141	200	2,85
100	50	F07	14x14	127,5	46	139	59	141	200	2,85
125	40	F07	14x14	127,5	46	139	59	141	200	2,85
150	40	F10	17x17	133,5	59	154	59,5	155	200	4,56
200	40	F10	17x17	133,5	59	154	59,5	155	200	4,56
250	25	F12	22x22	287,5	67	275	181	319	500	10,2
300	25	F14	27x27	287,5	67	275	181	319	500	10,2
350	25	F16	27x27	352,5	78	275	219	381	600	12,9
400	25	F16	36x36	398	110	346	245,5	454,5	700	24,57
500	25	F25	∅64	255	142,5	378	142,5	330	400	40
600	25	F25	∅75	363,3	175	429,5	175	440	500	50

Dimensions are mentioned in mm.

## Actuators

### Pneumatic actuators

Pneumatic actuators ABO Series 95 can be assembled to valves in two options: single-acting or double-acting.

### Electric actuators

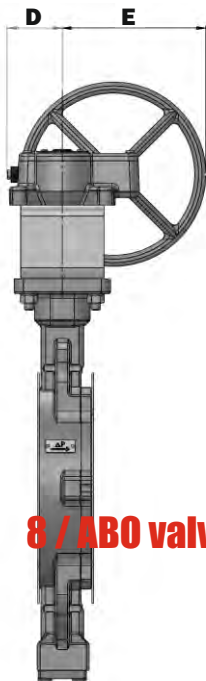
Electric drives ABO Series 97 are designed quarter-turn. Electric actuators can be installed on ABO valves for volta-ges of 24 V, 230 V or 400 V.

### Special actuators types

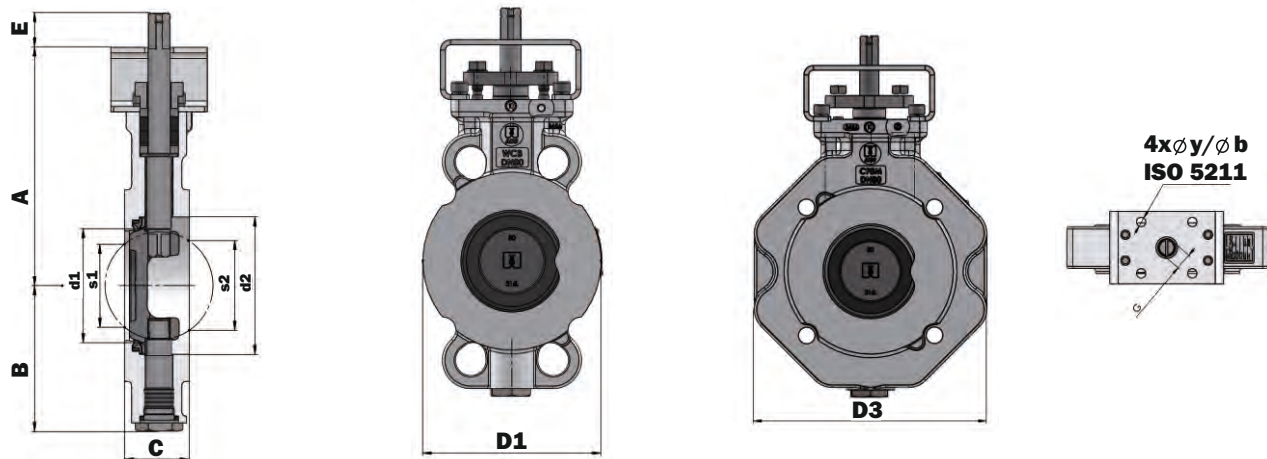
Valves are equipped with special actuator types from major world suppliers (Auma, Regada, Valpes, etc.).



8 / ABO valve

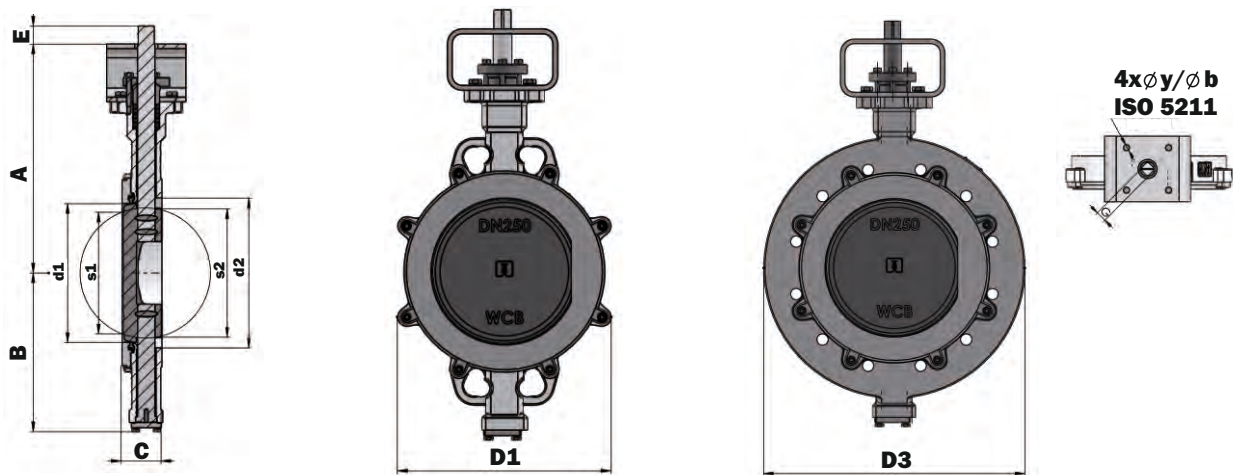


# BASIC DIMENSIONS



Dimensions are mentioned in mm, weight in kg.

DN	d1	d2	A	B	C	D1	D3	s1	s2	E	G	ISO FLANGE	y	b	DESIGN B (kg)	DESIGN T (kg)
50	49	68	163	93	44	104	154	12	37	25	14	F07	9	70	5,1	7,3
65	65	82	170	100	47	123	178	39	55	25	14	F07	9	70	5,8	9,0
80	81	100	174	106	47	140	196	65	72	25	14	F07	9	70	6,8	10,1
100	100	123	206	123	53	163	225	85	91	25	14	F07	9	70	8,5	12,2
125	123	146	215	137	57	193	260	113	110	25	14	F07	9	70	11,8	16,5



DN	d1	d2	A	B	C	D1	D3	s1	s2	E	G	ISO FLANGE	y	b	n	DESIGN B (kg)	DESIGN T (kg)
150	146	155	307	214	57	252	318	136	143	25	17	F10	11	102	4	21	28
200	194	204	339	246	61	307	381	185	193	25	17	F10	11	102	4	29	41
250	240	259	395	275	69	349	450	224	236	31	22	F12	13	125	4	46	70
300	287	309	460	313	79	393	521	270	284	31	27	F14	17	140	4	67	105
350	313	342	508	355	92	448	577	300	308	45	27	F16	22	165	4	91	140
400	364	405	556	402	103	542	657	342	360	58	36	F16	22	165	4	132	211
500	500	451	625	432	127	593	707	427	438	100	∅ 64	F25	17,5	254	8	240,5	282
600	600	547	698	492	154	725	810	543	525	110	∅ 75	F25	17,5	254	8	365	478

Dimensions are mentioned in mm, weight in kg.

# BIDIRECTIONAL TIGHTNESS / -RS- VERSION (DN50-DN600)

Czech Industrial Valve Manufacturer

Butterfly valves of 2E series (RS version) are delivered in nominal sizes of DN50 to DN600. Their make provides bidirectional tightness of the valve. On the circumference the valve is sealed with a special RTFE seal filled with 25% glass fibres and silicone filling.

## Body material:

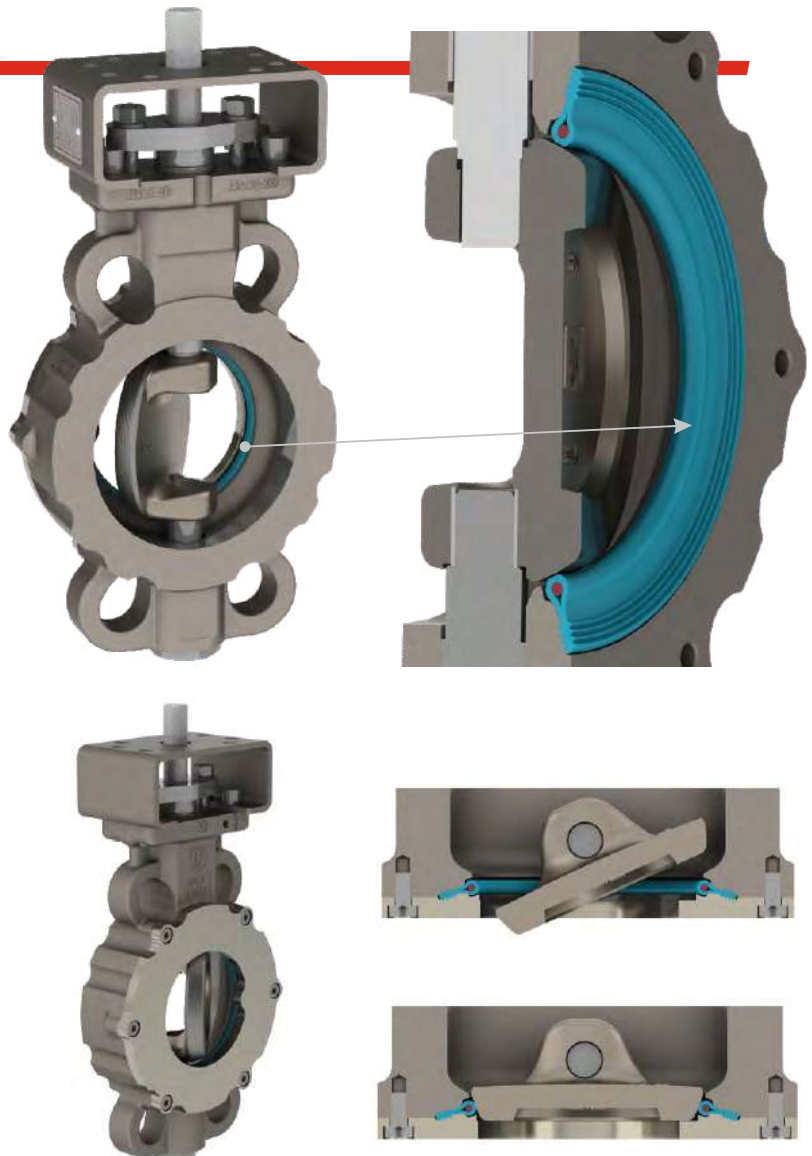
- carbon steel 1.0625 (A216 WCB)
- stainless steel 1.4408 (A351 CF8M)

## Disc material:

- stainless steel 1.4409 (CF3M), nickel-plated

## Valve features

- bidirectional tight and control butterfly valve with all-stainless disc
- double offset design
- sizes DN50 to DN600
- tightness class A (EN 12266-1)
- full flow
- the seat is adapted to large temperature changes
- delivered for manual, electric or pneumatic control
- suitable for heat and power plants, steam and hot water pipework systems
- the valves may be delivered with a plastic lining surface protection; such surface treatment and stainless material use enables to utilize the valves for aggressive and abrasive chemicals or seawater.



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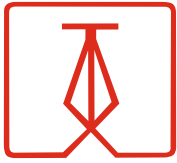
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# ABO valve

*we make processes work*

## KNIFE GATE VALVES

### Body design

Interflanged

WAFER type with through holes  
LUG with tapped holes

### Nominal size

Series 200: DN50 - DN1200  
Series 300: DN50 - DN600

### Working pressure

2 bar / 4 bar / 6 bar / 10 bar

### Flange connection

PN6 / PN10 / PN16 / Class 150

### Working temperature

Series 200: -10 °C / +125 °C  
Series 300: -10 °C / +200 °C

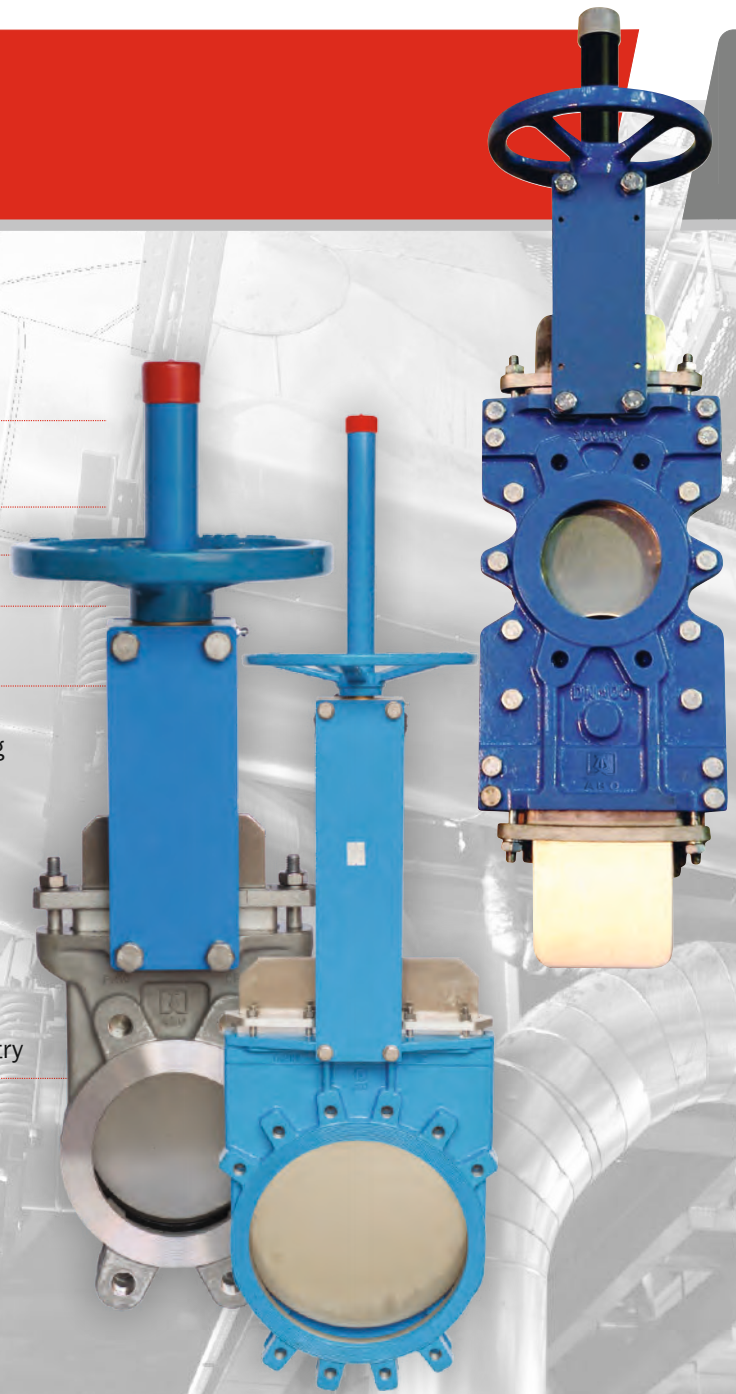
### Working media

Waste water  
Aqueous suspensions containing  
solid particles  
Slurry handling  
Bulk materials  
Sand  
Dust media  
Pulp  
Paper stock  
Mining suspensions  
Abrasive media  
Stock/Liquids in chemical industry

### Features

#### Open design

Internal design of the seat  
preventing sedimentation  
blocking knife gate valve closing  
Excellent flow-rate parameters  
Minimal pressure drops  
in piping system

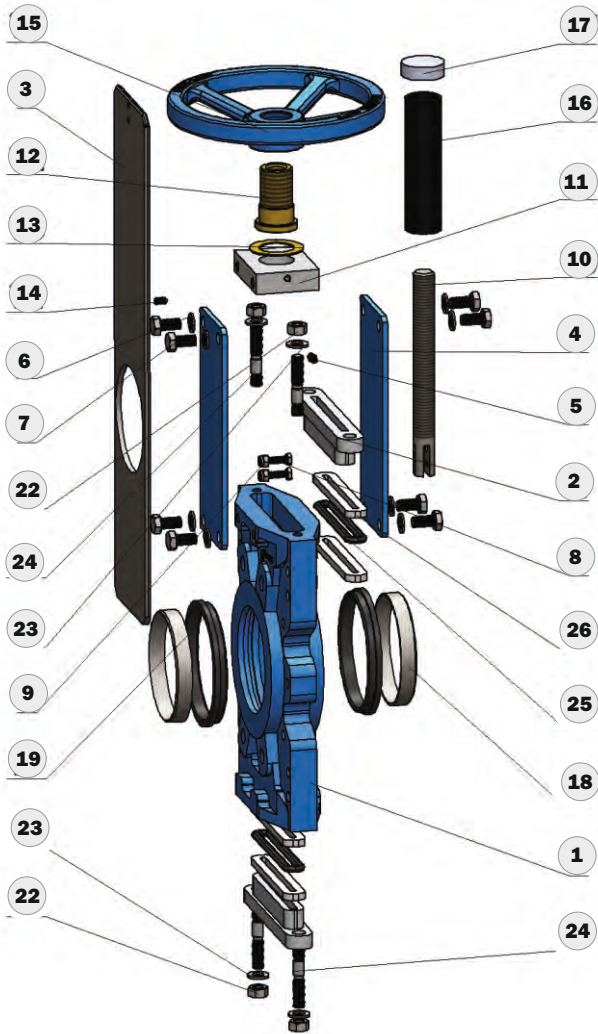


# SERIES 200/300

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# MATERIAL PERFORMANCE / TECHNICAL INFORMATION

Czech Industrial Valve Manufacturer



Pos.	Name	Material 1	Material 2
1	Body	Cast iron 0.6025 (GG25)	Stainless steel 1.4408 (CF8M)
2	Packing gland	Aluminium 3.2581	Stainless steel 1.4408 (CF8M)
3	Knife	Stainless steel 1.4306 (AISI 304 L)	Stainless steel 1.4404 (AISI 316 L)
4	Support plate	Steel 1.0036	Steel 1.0036
5	Greaser	Steel 1.0553 + Zinc	Steel 1.0553 + Zinc
6,13 23	Washer	Stainless steel A2 (poz. 13 Mosaz 2.0402)	Stainless steel A2 (poz. 13 Mosaz 2.0402)
7,8	Bolt	Stainless steel A2	Stainless steel A2
9,22	Nut	Stainless steel A2	Stainless steel A2
10	Stem	Stainless steel EN 1.4305 (AISI 303)	Stainless steel EN 1.4305 (AISI 303)
11	Support bridge	Steel 1.0036	Steel 1.0036
12	Stem drive nut	Brass 2.0402	Brass 2.0402
14	Stop screw	Stainless steel 1.4301 (AISI 304)	Stainless steel 1.4301 (AISI 304)
15	Hand-wheel cover	Cast iron 0.6025 (GG25)	Cast iron 0.6025 (GG25)
16	Stem cover	Steel 1.0036	Steel 1.0036
17	Cover	Plastic	Plastic
18	Sealing ring	Stainless steel 1.4404 (AISI 316 L)	Stainless steel 1.4404 (AISI 316 L)
19	Seat	EPDM	EPDM
20	Deflecting cone	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4401 (AISI 316)
21	Reinforced ring	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4401 (AISI 316)
21	Nut	Stainless steel A2	Stainless steel A2
24	Pivots	Stainless steel A2	Stainless steel A2
25	Stuffing O-ring	EPDM	EPDM
26	Stuffing box	Synthetic yarn + PTFE	Synthetic yarn + PTFE

## Installation between flanges DN50 -1,200, DESIGN B

DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
NPS	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
PN6	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PN10														
PN16	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Class 150	•	•	•	•	•	•	•	•	•	•	•	•	•	•

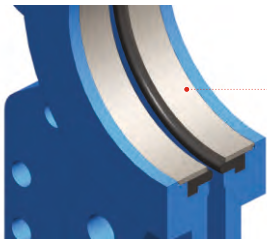
■	standard
•	on request
×	impossible

## Operating torques (Nm) vs. working pressure (bar)

DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
NPS	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
<b>p<sub>MAX</sub> 10 bar</b>	10	12	15	20	25	30	35	45	60	70	90	100	110	170

Operating torques above are valid for electric actuator. Operating torques are mentioned without safety reserve..

# SEAT OPTIONS

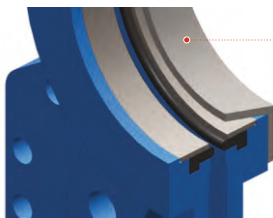


## 1. Soft seat

Standard soft seat design (EPDM, NBR, PTFE) cutting, suitable for water service, and for liquids with a maximum solid concentration of 5 % (Class A tightness rate).

## 2. Metal seat

Metal seat design (knife closes against the body directly) with maintenance-free seat is typically suitable for applications handling dense paper pulp. Not suitable for water and liquids applications. In fully open position, the valve is a perfect continuation of the pipe as it eliminates death spaces.

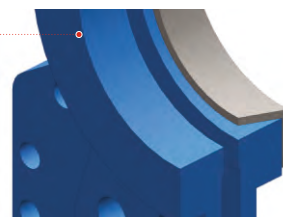


## 3. Soft seat with deflecting cone 15°

Soft seat design with a deflecting cone of 15° as accessory is particularly suitable for solid or powder media with larger solid particles whereby damage of the body/internals can occur. This solution is frequently used in bulk industry for services with abrasive fluids.

## 4. Metal seat with deflecting cone 15°

Metal/metal seat design with a deflecting cone of 15° as accessory is particularly suitable for solid or powder media with larger solid particles whereby damage of the body/internals can occur.

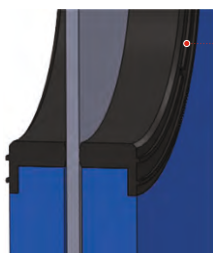
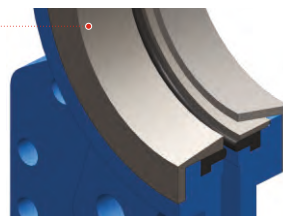


## 5. Soft seated with scraper 8°

Soft seat bidirectional design with reinforced sealing ring of 8° in casted material securing a higher degree of protection for the seating element. This solution is used for medias with high velocity or higher pressure, and in situations whereby a reversed flow of the media can occur. This solution is used for pulp with solids or staples in dumping outlet, dump chest drains and heavy rejects.

## 6. Soft seated with deflecting cone 15° and scraper 8°

Soft seat design with reinforced sealing ring of 8° and a deflecting cone of 15° as accessory. This solution gives more protection to the internals parts thanks to the cone (restriction of bore), and is suitable in severe abrasive service such as mining service, whereby water with slurries or sand is present.



## 7. Soft seated rubber sleeve

Special seat design with 2 rubber sleeves for abrasive service. This solution is particularly suitable for solid or powder media with larger solid particles whereby damage of the body/internals can occur. Frequently used in mining industry for medias with abrasive fluids.



# KNIFE GATE VALVES SERIES 200

Czech Industrial Valve Manufacturer

**Knife gate valves Series 200** are unidirectional wafer/lug type knife gate valves ideal for installations handling liquids containing suspended solids and waste water (mining, chemical treatment, water treatment, etc.).

Thanks to their small size and light weight, are especially useful in facilities with limited space. Long-life service of the product is secured as a circular blade bevel prevents excessive wear and clogging (leakage). The valve is reinforced with oversize top and bottom ends to ensure proper sealing. Beveled knife hacks away fibrous particles, moving them towards a self-cleaning bottom area and rinsing them out of the saddle.

The valve can be manufactured with bonnets which provide for total water tightness towards the outside environment, thereby reducing the maintenance of the packing gland.

ABO knife gate valves series 200 are ideal for installations handling liquids which contain suspended solid and waste water. They are used in following applications:

- slurry handling
- bulk materials conveying
- mining industry
- chemical industry
- waste water treatment
- pulp and paper industry

## Basic properties

- unidirectional knife gate valve with rising stem and one-piece body
- knife goes through the sealing area
- circular, total passage: enables a high flow capacity with low load loss
- gate with rounded edges: prolongs the working life of the rings and packing
- seating wedges help the knife to close against the body and seat
- directional arrow in the body points the correct mounting position
- high flow rate with low pressure drops
- internal design avoids any build up of solids that would prevent the valve from closing
- recommended for water with a maximum 5% concentration of solid particles
- can be combined with various kinds of drives and actuators (handwheel, electric, pneumatic actuator, etc)



## Type designation

**2 1 0 B 100 5**

### Actuation

- 3 - pneumatic actuator
- 4 - electric actuator
- 5 - handwheel/gearbox

### Nominal size (DN)

- B - WAFER
- T - LUG

### Seat material

- 0 - EPDM
- 1 - NBR
- 4 - Viton

### Body & knife material

- 1 - Body: grey cast iron 0.6025 (GG25)  
Knife: stainless steel 1.4306 (AISI 304 L)
- 2 - Body: stainless steel 1.4408 (CF8M)  
Knife: stainless steel 1.4404 (AISI 316 L)

### Series name

Series 200

## Standards

### Leak test

EN 12266-1, Class A\*)  
ISO 5208, Class A\*)  
API 598, Tab. 5  
\*) for soft seated version

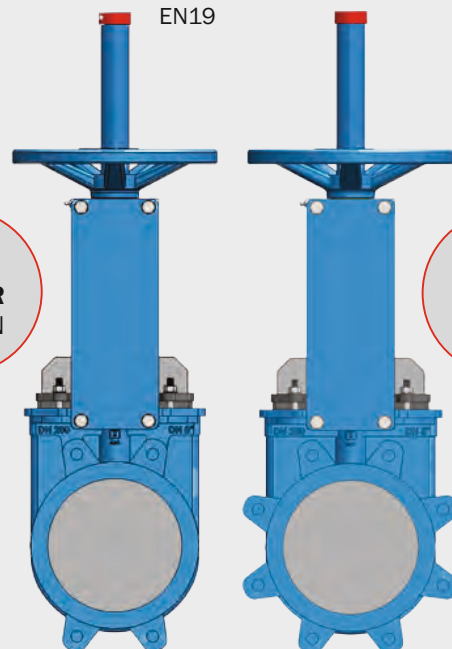
### Connection between flanges

EN 1092-1  
DIN 2632  
DIN 2566

### Marking

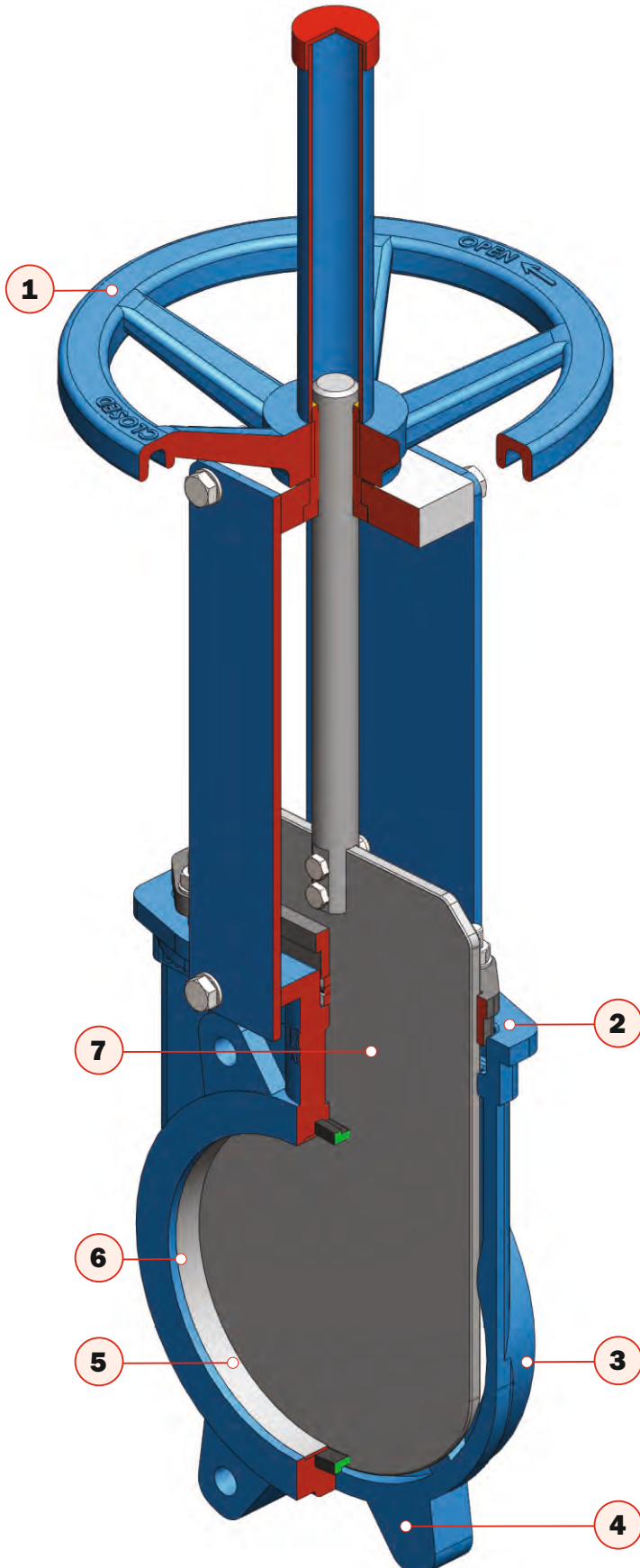
EN19

## Models



# DESIGN ADVANTAGES - SERIES 200

 **ABO** valve



## 1. Interchangeable drives

- manual actuation is conducted through a handwheel. Also can be combined with a wide range of pneumatic and electric actuators.

## 2. Solid, durable body casting

- the solid iron body of ABO Series 200 knife gate valves has been designed to handle mechanical wear, and thus to provide for a durable solution in severe service conditions.

## 3. Minimal pressure drops

- a specially profiled body on the internal part prevents pressure drops with high media velocity.

## 4. Connection between flanges

- as standard, connection between flanges is designed as per EN 1092. However, the body design allows for variable connection options as per other norms.

## 5. Simple seat replacement

- the sealing design backed by the reinforcement ring allows for an easy and quick replacement of the sealing elements.

## 6. Seat option

- multiple seat options available. Please refer to pages 4 and 5.

## 7. Perfect shut-off

- state of the art machining, as well as precise casting technology of individual components, results in a perfect shut-off and guarantees class A tightness.

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# SEATS / SURFACE TREATMENT

Czech Industrial Valve Manufacturer

## Seats options

### EPDM

ABO EPDM liner is suitable for application with temperatures ranging from  $-25^{\circ}\text{C}$  to  $+125^{\circ}\text{C}$ . EPDM has excellent resistance to heat, ozone and sunlight, very good flexibility at low temperature, good resistance to alkalis, acids and oxygenated solvents. It has poor resistance to oil, gasoline and hydrocarbon based solvents. Typical applications for this material are clean water and waste water service, pulp and paper, or applications in the sugar refining industry.

### NBR

ABO NBR liner is suitable for applications with temperatures ranging from  $-10^{\circ}\text{C}$  to  $+80^{\circ}\text{C}$ . NBR has very good resistance to oil, gasoline, alkalis and acids, as well as to hydrocarbon based solvents. NBR has inferior resistance to ozone and oxygenated solvents, as well as to high polar solvents. Typical applications for this material is water contaminated with oils or grease.

### VITON

ABO VITON liner is suitable for applications with temperatures ranging from  $-25^{\circ}\text{C}$  to  $+150^{\circ}\text{C}$ . VITON has very good resistance to ozone and sunlight, is compatible with a broad spectrum of chemicals, salts solutions and may be used on bleached paper lines. ABO VITON has very good resistance to alkalis and acids. It is not suitable for steam or hot water service.

## Body surface treatment

### Epoxy coating

ABO standard coating option (RAL 5015) is premium quality epoxy grade C2 coating with minimal thickness of 80 microns (EN12904-1).

### Marine coating

Marine coating for highly abrasive media, especially in marine environment, is an option. Grades C3, C4 and C5 are available.

### Rilsan coating

Rilsan (Nylon 11) coating, providing superb corrosion resistance, is an option on selected valve components. This coating option is recommended for applications such as seawater, cement, food or water service contaminated with chemicals.

### Halar coating

Halar coating provides for high impact strength, resistance to wide range of chemicals, acids and also severe corrosion and friction. Further, Halar coating is a suitable solution for cryogenic applications.

### 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.

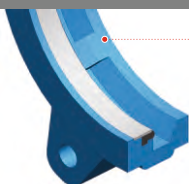


Clean water treatment application



Sewage water treatment application

# SEAT OPTIONS

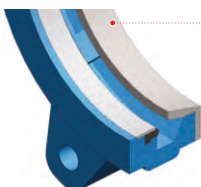


## 1. Soft seat

Standard soft seat design suitable for water service, and for liquids with a maximum solid concentration of 5 % (Class A tightness rate).

## 2. Metal seat

Metal seat design (knife closes against the body directly) with maintenance-free seat. This solution is suitable for usage in bulk handling applications, such as solids, powders and sands. Not suitable for water and liquids applications.

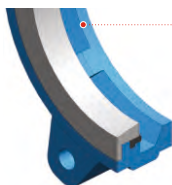


## 3. Soft seat with deflecting cone 15°

Soft seat design with a deflecting cone of 15° as accessory. This solution is particularly suitable for fluids with larger solid particles whereby damage of the body/internals can occur.

## 4. Metal seat with deflecting cone 15°

Metal seat design with a deflecting cone of 15° as accessory. This solution is particularly suitable for solid or powder media with larger solid particles whereby damage of the body/internals can occur.

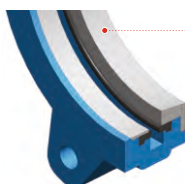
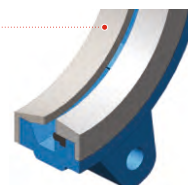


## 5. Soft seat with scraper 8°

Soft seat design with reinforced sealing ring of 8° in casted material securing a higher degree of protection for the seating element. This solution is used for medias with high velocity or higher pressure. This solution is used for pulp with solids or staples, or meat factories with bone particles.

## 6. Soft seat with deflecting cone 15° and scraper 8°

Soft seat design with reinforced sealing ring of 8° and a deflecting cone of 15° as accessory. This solution gives more protection to the internals parts thanks to the cone (restriction of bore), and is suitable in severe abrasive service such as mining service, whereby water with slurries or sand is present.

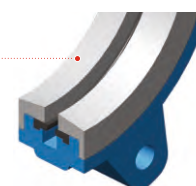


## 7. Bidirectional seat

Standard soft seat bidirectional design with a flat fixing ring and a scraper. This solution is suitable for water and sewage service whereby a reversed flow of the media can occur.

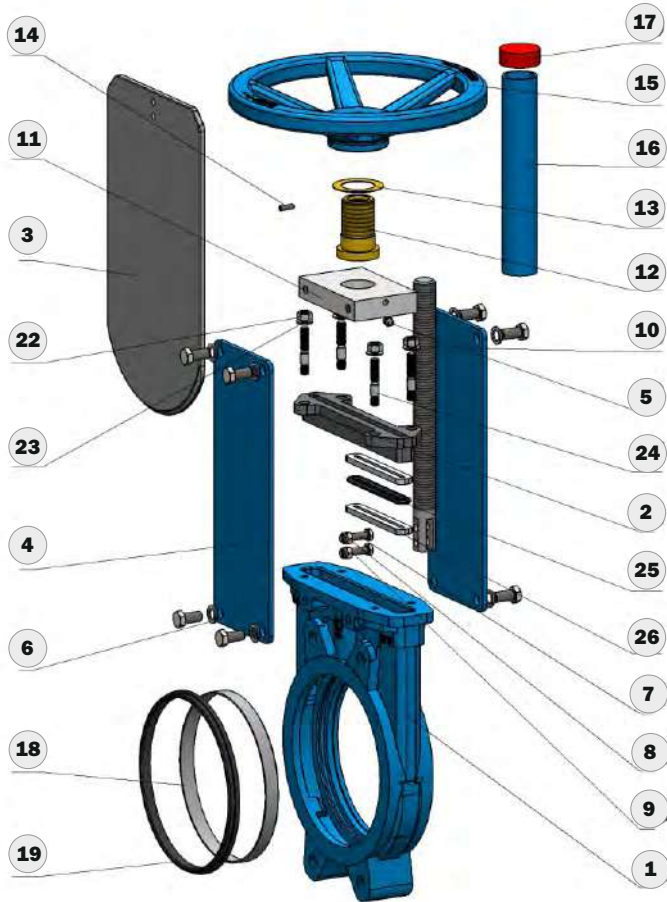
## 8. Bidirectional reinforced seat

Soft seat bidirectional design with reinforced sealing ring of 8° in casted material secures a higher degree of protection of the seating element. This solution is used for medias with high velocity or higher pressure, and in situations whereby a reversed flow of the media can occur.



# MATERIAL PERFORMANCE / TECHNICAL INFORMATION

Czech Industrial Valve Manufacturer



Pos.	Name	Material 1	Material 2
1	Body	Cast iron 0.6025 (GG25)	Stainless steel 1.4408 (CF8M)
2	Packing gland	Aluminium 3.2581	Stainless steel 1.4408 (CF8M)
3	Knife	Stainless steel 1.4306 (AISI 304 L)	Stainless steel 1.4404 (AISI 316 L)
4	Support plate	Steel 1.0036	Steel 1.0036
5	Greaser	Steel 1.0553 + Zinc	Steel 1.0553 + Zinc
6,13 23	Washer	Stainless steel A4	Stainless steel A4
7,8	Bolt	Stainless steel A4	Stainless steel A4
9,22	Nut	Stainless steel A4	Stainless steel A4
10	Stem	Stainless steel EN 1.4305 (AISI 303)	Stainless steel EN 1.4305 (AISI 303)
11	Support plate	Brass 2.0402	Brass 2.0402
12	Stem nut	Brass 2.0402	Brass 2.0402
14	Lock washer	Stainless steel A4	Stainless steel A4
15	Hand-wheel	Cast iron 0.6025 (GG25)	Cast iron 0.6025 (GG25)
16	Tube	Steel 1.0036	Steel 1.0036
17	Cover	Plastic	Plastic
18	Sealing ring	Stainless steel 1.4404 (AISI 316 L)	Stainless steel 1.4404 (AISI 316 L)
19	Seat	EPDM	EPDM
20	Deflecting cone	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4401 (AISI 316)
21	Reinforced ring	Stainless steel 1.4401 (AISI 316)	Stainless steel 1.4401 (AISI 316)
21	Nut	Stainless steel A4	Stainless steel A4
24	Pivots	Stainless steel A4	Stainless steel A4
25	Stuffing O-ring	EPDM	EPDM
26	Stuffing box	Synthetic yarn + PTFE	Synthetic yarn + PTFE

## Installation between flanges DN50 -1, 200, DESIGN „B”

DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	800	900	1000	12000
NPS	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"	28"	32"	36"	40"	48"
PN6	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
PN10																			
PN16	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
Class 150	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

standard

• on request

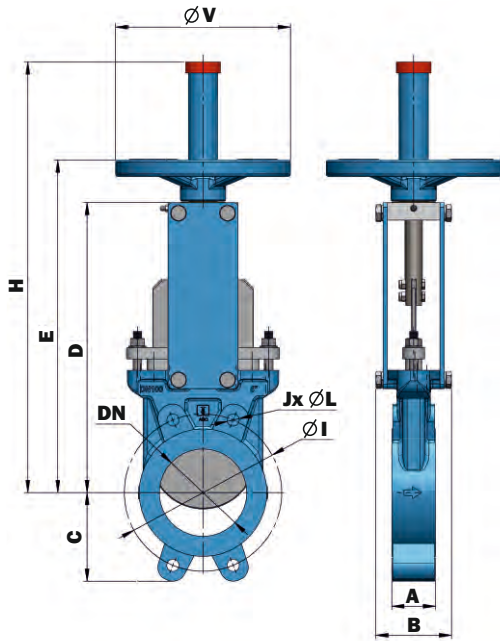
x impossible

## Operating torques (Nm) vs. working pressure (bar)

DN	50	65	80	100	125	150	200	250	300	350	400	450	500	600
NPS	2"	2½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
<b>p<sub>max</sub> 10 bar</b>	10	12	15	20	25	30	35	45	60	70	90	100	110	170

Operating torques above are valid for electric actuator. Operating torques are mentioned without safety reserve.

# BASIC DIMENSIONS



DN	A	B	C	D	E	H	I	J	L	V	Kg (type B)
50	40	86	60	241	290	370	125	4	M16	200	8
65	40	86	68	267	316	400	145	4	M16	200	9
80	50	86	90	293	342	454	160	8	M16	200	10,5
100	50	86	102	332	381	494	180	8	M16	200	11,5
125	50	96	119	369	428	555	210	8	M16	250	15
150	60	96	130	419	478	626	240	8	M20	250	20
200	60	116	160	519	593	793	350	12	M20	305	32
250	70	116	202	636	710	937	350	12	M20	305	45
300	70	116	224	740	814	1 120	400	12	M20	305	58
350	96	193	261	912	987	1 136	460	16	M20	410	108
400	100	193	295	984	1 059	1 470	515	16	M24	410	130
450	106	193	318	1 055	1 130	1 640	565	20	M24	510	160
500	110	193	345	1 188	1 263	1 780	620	20	M24	510	193
600	110	290	400	1 378	1 453	2 070	725	20	M27	510	283

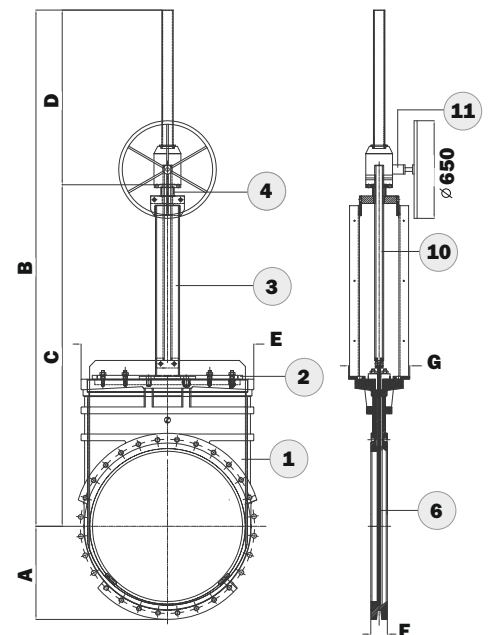
DN	A	B	C	D	E	F	G	ØK	P	
									Holes No.	PN10
700	460	2 501	1 646	855	838	110	408	840	24	M27
800	503	2 788	1 833	955	970	110	408	950	24	M30
900	586	3 149	2 094	1 055	1 040	110	408	1 050	28	M30
1000	620	3 439	2 284	1 155	1 150	110	408	1 160	28	M33
1200	755	4 159	2 804	1 355	1 450	150	460	1 380	32	M33



Transportation of bulk solids



Mixing chamber installation



## Working conditions

Working pressure max.	Seats temperature rating
DN50-DN250: 10 bar	- 25 °C do +125 °C (EPDM)
DN300-DN400: 6 bar	- 10 °C do +90 °C (NBR)
DN500-DN600: 4 bar	- 25 °C do +150 °C (Viton)
DN700-DN1200: 2 bar	

# KNIFE GATE VALVES SERIES 300

Czech Industrial Valve Manufacturer

**Knife gate valves Series 300** are the most common of the so-called through conduit valves. Series ABO 300 is a wafer type bidirectional valve which is ideal for installations handling large solids, very viscous fluids, sludge and highly concentrated slurry (mining, paper industry, cement industry, etc.). The main characteristic of the blade is that it passes through the entire length of the body. A round outlet is machined in the middle of each blade. This outlet, while falling with identical outlet on the valve body, allows for maximum direct flow of the medium. Thus, while being in open position, the valve essentially becomes part of the piping (leading to dead zones elimination).

ABO knife gate valves series 300 are ideal for installations handling liquids which contain suspended solid and waste water. They are used in following applications:

- mining industry
- chemical industry
- slurry handling
- waste water treatment
- pulp and paper industry

## Basic properties

- bidirectional design with two-piece body with rising stem
- knife goes through the sealing area
- circular, total passage: enables a high flow capacity with low load loss
- through the gate - in the open position there are not places that restrict the flow
- sided seal - seal and support ring on both sides
- can be combined with various kinds of actuators (handwheel, electric actuator, pneumatic actuator, etc)



## Type designation

**3 1 0 B 100 5**

### Actuation

- 3 - pneumatic actuator
- 4 - electric actuator
- 5 - handwheel/gearbox

### Nominal size (DN)

- B - WAFER

### Seat material

- 0 - EPDM
- 1 - NBR
- 4 - Viton

### Body & knife material

- 1 - Body: grey cast iron 0.6025 (GG25)  
Knife: stainless steel 1.4306 (AISI 304 L)
- 2 - Body: stainless steel 1.4408 (CF8M)  
Knife: stainless steel 1.4404 (AISI 316 L)

### Series name

Series 300

## Standards

### Leak test

EN 12266-1, Class A\*)  
ISO 5208, Class A\*)  
API 598, Tab. 5  
\*) for soft seated version

### Connection between flanges

EN 1092-1

### Marking

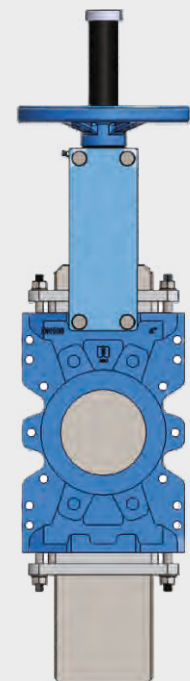
EN19

## Body type

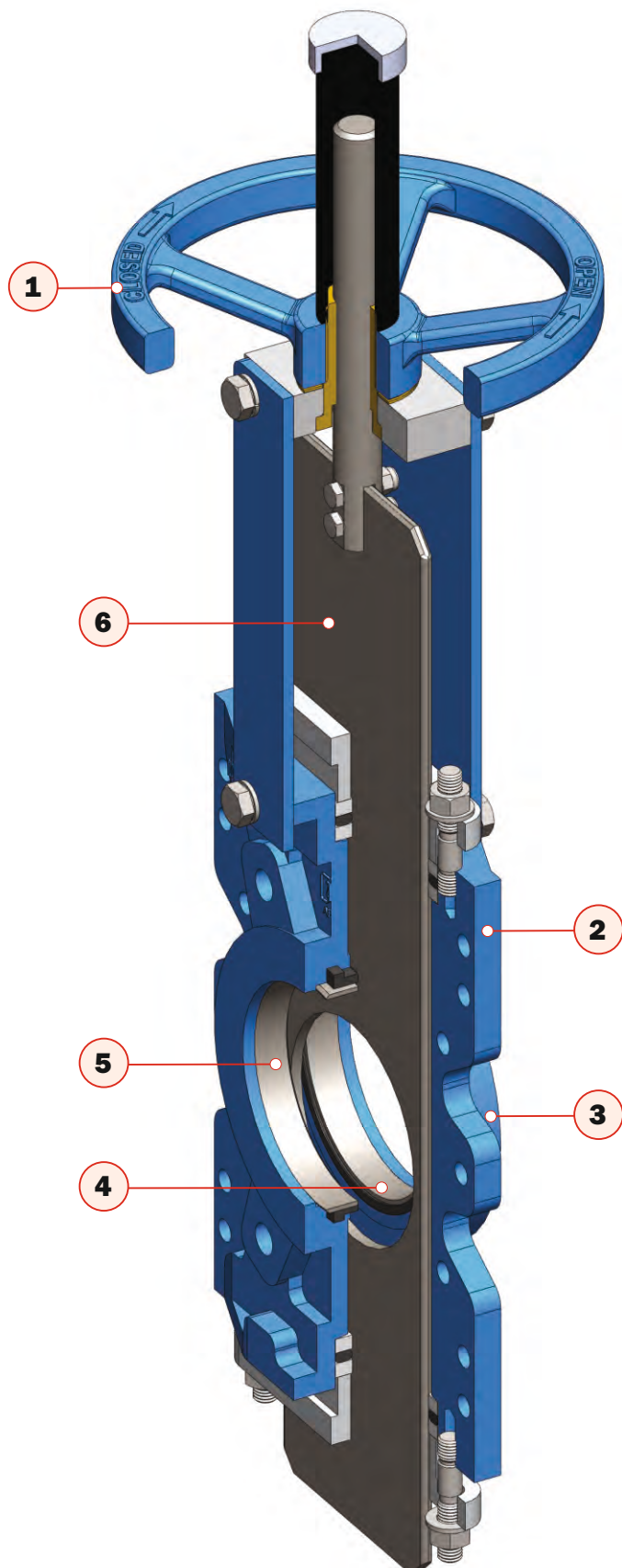
**B**  
**WAFER**  
**DESIGN**

## Working conditions

Working pressure max.	Temperature rating
DN50-DN250: 10 bar	- 25 °C do +125 °C (EPDM)
DN300-DN400: 6 bar	- 10 °C do +90 °C (NBR)
DN500-DN600: 4 bar	- 25 °C do +150 °C (Viton)



# DESIGN ADVANTAGES - SERIES 300



## 1. Interchangeable drives

- manual actuation is conducted through a handwheel. Also can be combined with a wide range of pneumatic and electric actuators.

## 2. Robust body casting

- a two-piece body design allows for an easy replacement of internal components.

## 3. Connection between flanges

- as standard, connection between flanges is designed as per EN 1092. However, the body design allows for variable connection options as per other norms.

## 4. Profiled body shape

- a specially designed internal body shape prevents particles from entering into the sealing area and thus potentially decreasing the functionality of the valve.

## 5. Bidirectional sealing

- state of the art machining, as well as precise casting technology of individual components, results in a perfect shut-off and guarantees class A tightness.

## 6. Dual sealing around the knife

- in order to avoid leakage while moving the knife, packing has been installed in the upper as well as the lower part of the body. The packing system is further reinforced by metal rings and counter-flangers.

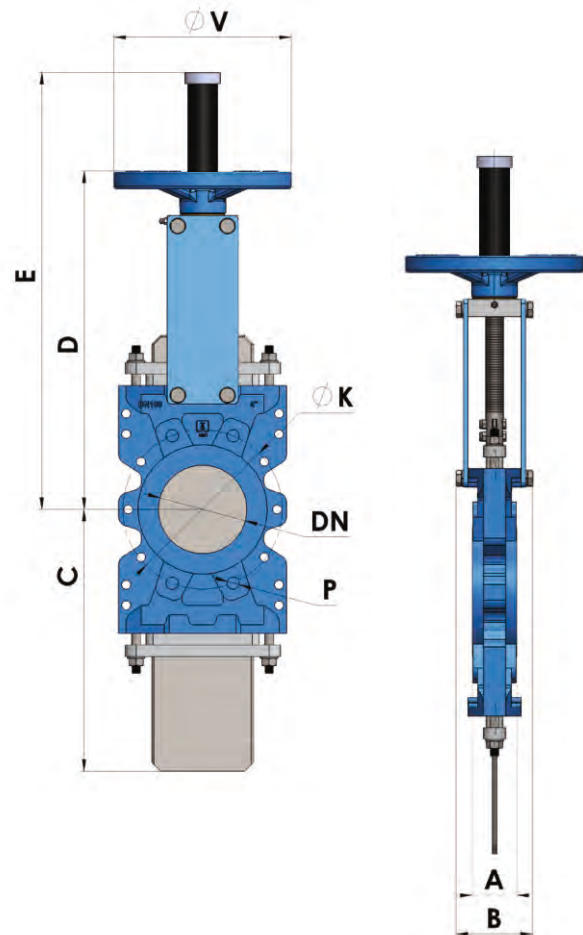


# BASIC DIMENSIONS - SERIES 300

Czech Industrial Valve Manufacturer

DN	A	B	C	D	E	øV
50	40	90	220	284	425	200
65	40	90	260	308	450	200
80	50	90	303	334	480	200
100	50	90	360	374	520	200
125	50	100	428	413	600	250
150	60	100	493	465	650	250
200	60	120	632	528	820	300
250	70	120	767	682	1 020	300
300	70	120	897	782	1 120	300
350	96	192	1 042	898	1 380	400
400	100	192	1 167	1 003	1 490	400
450	106	192	1 297	1 093	1 580	500
500	110	192	1 455	1 207	1 690	500
600	110	290	1 705	1 410	2 030	500

DN	øK		P		
	PN10	ANSI 150	Holes No.	PN10	ANSI 150
50	120	120,6	4	M16	W 5/8"
65	145	139,7	4	M16	W 5/8"
80	160	152,4	8	M16	W 5/8"
100	180	190,5	8	M16	W 5/8"
125	210	215,9	8	M16	W 3/4"
150	240	241,3	8	M20	W 3/4"
200	295	298,4	8	M20	W 3/4"
250	350	361,9	12	M20	W 7/8"
300	400	431,8	12	M20	W 7/8"
350	460	476,2	16	M20	W 1"
400	515	539,7	16	M24	W 1"
450	565	577,8	20	M24	W 1 1/8"
500	620	635,0	20	M24	W 1 1/8"
600	725	719,3	20	M27	W 1 1/8"



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