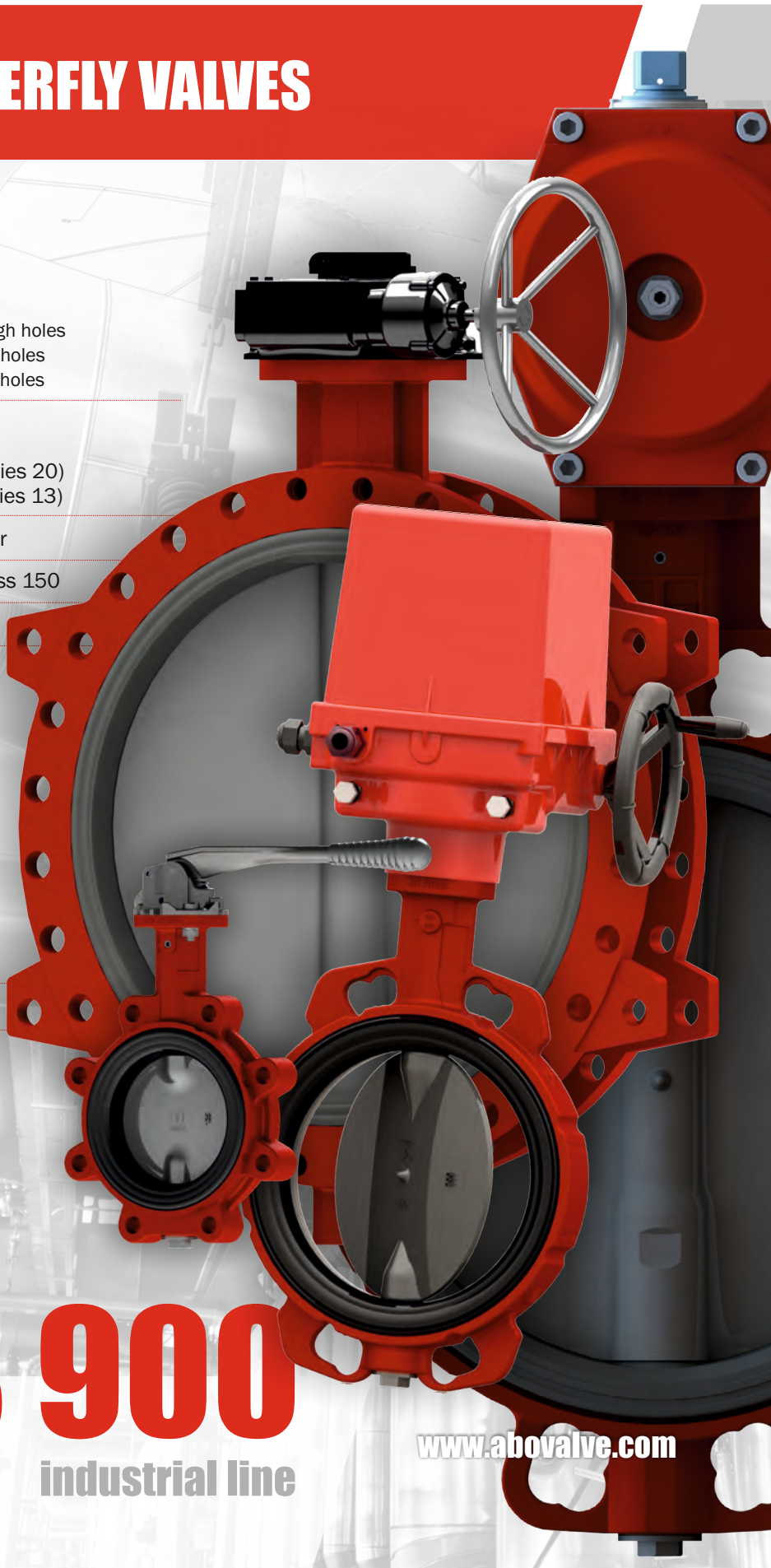
ABO valve

we make processes work

CONCENTRIC BUTTERFLY VALVES

Body design	
Interflanged	**WAFER** type with through holes **LUG** type with threaded holes
Double flanged	With through / threaded holes
Nominal size	
Interflanged	DN32 - DN600
Double flanged	DN700 - DN1600 (Series 20) DN50 - DN2200 (Series 13)
Working pressure	6 bar / 10 bar / 16 bar
Flange connection	PN6/PN10/PN16/Class 150
Working temperature	-40°C / +150°C
Working media	Potable water Waste water Hot industrial water Heating water Sea water Chemicals Gas / Oil and gas Oil / Oil derivates Loose materials Air Beverages / Food Malt Sugar juice
Tightness	Class A
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

GENERAL VALVE DESCRIPTION

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

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

Basic properties

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

Based on customers' special requests we offer:

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

Type designation

9 2 4 B

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

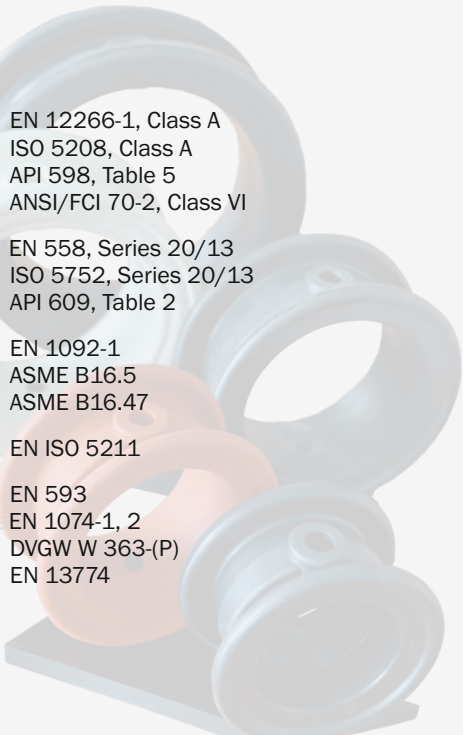
Disc material
0 - Brass 2.0402
1 - Aluminium bronze 2.0975 (C95800)
2 - Stainless steel 1.4308 (CF8)
3 - Ductile iron 0.7040 (GGG40)*
4 - Stainless steel 1.4408 (CF8M)*
5 - HASTELLOY
6 - Stainless steel 1.4539 (Uranus B6)
7 - Titanium
** upon request the disc can be coated with special coatings (Rilsan/Halar)*

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

Series designation
Series 900

Standards

Leak test	EN 12266-1, Class A 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 ASME B16.5 ASME B16.47
Top flange	EN ISO 5211
Working standard	EN 593 EN 1074-1, 2 DVGW W 363-(P) EN 13774



DESIGN MODELS

ABO valve

INTERFLANGED DESIGN

B
WAFER
DESIGN

DN32-DN600

T
LUG
DESIGN

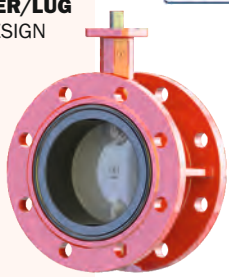
ATEX CERTIFIED

DN32-DN600

DOUBLE FLANGED DESIGN

U
WAFER/LUG
DESIGN

DN700-DN1600
Short face-to-face length
Series 20



ATEX CERTIFIED
WRAS

F
WAFER/LUG
DESIGN

DN50-DN2200
Long face-to-face length
Series 13

DVGW CERTIFICATION
GAS / POTABLE WATER

ATEX CERTIFIED
DIN DVGW CERT

DN32-DN400

ALUMINIUM BODY

B
WAFER
DESIGN

DN32-DN300

Quality control

- ABO valve production facilities are certified in accordance with ISO 9001:2015 (ISO 14001, 45001)
- tightness test procedures according to standards EN 12266-1, ISO 5208, ANSI/FCI 70-2
- production in accordance with the Pressure Equipment Directive 2014/68/EU (Module H)
- 3.1, 3.2 inspection certificates
- all the actuators are adjusted and tested while assembled
- manual actuator, if delivered, is adjusted and tested while assembled
- all the certificates can be downloaded from **www.abovalve.com**

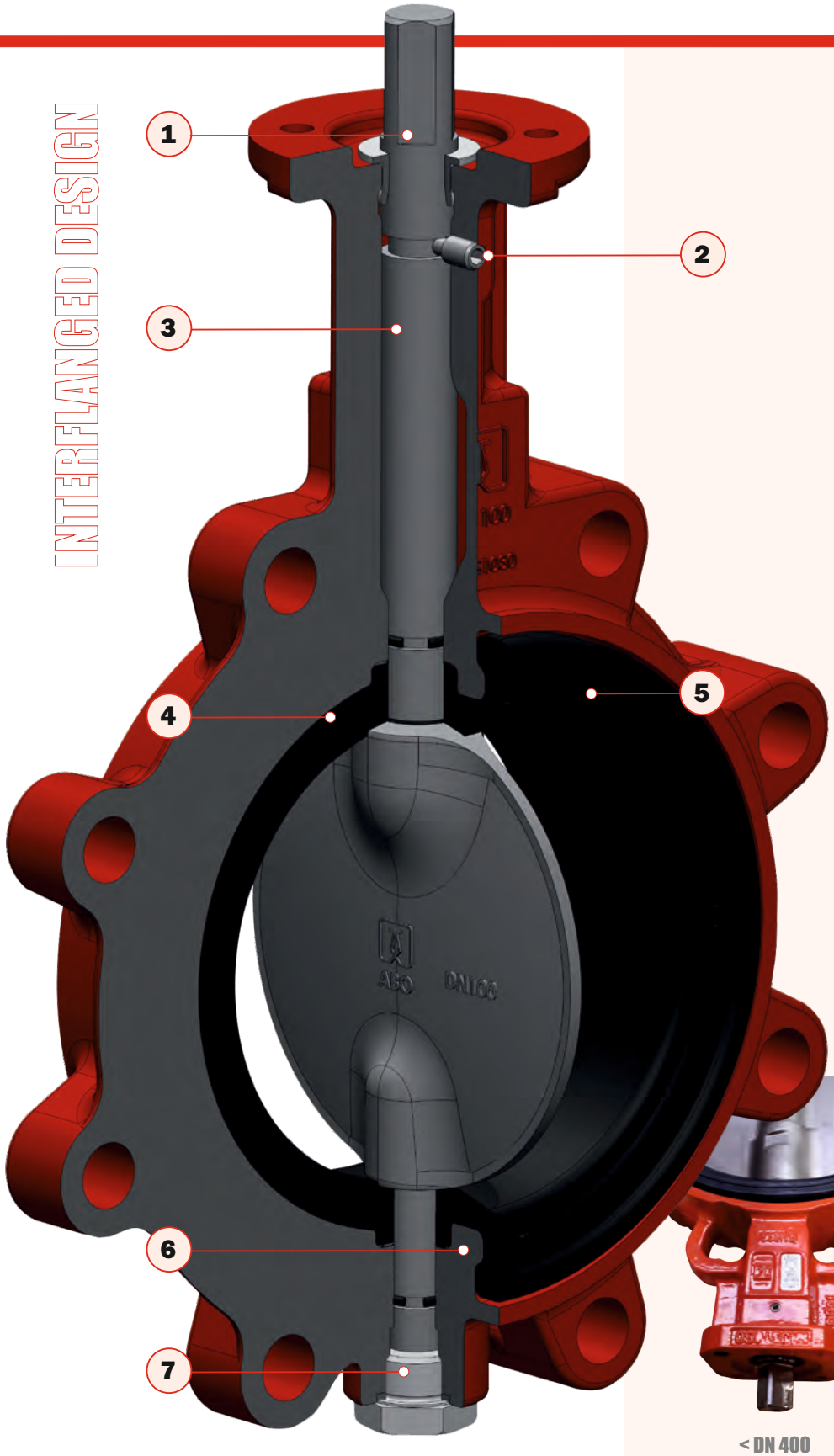
For natural gas interflanged distribution systems are offered gas versions valves of the Series 99xx. The gas valves are fitted with a control lever with a yellow sleeve. The valves are designed for natural gas, are supplied with a special set of seat with **DVGW** certification, tightness class A, working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

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

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

DESIGN ADVANTAGES

INTERFLANGED DESIGN



1. International standard compatibility

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

2. Blow-out proof shaft system

- a retaining bolt disables a stem movement upwards.

3. Splitted stem

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

4. Seat design

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

5. Dougle side profile

- enables to correctly fit the seat in the body.

6. Groove shape

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

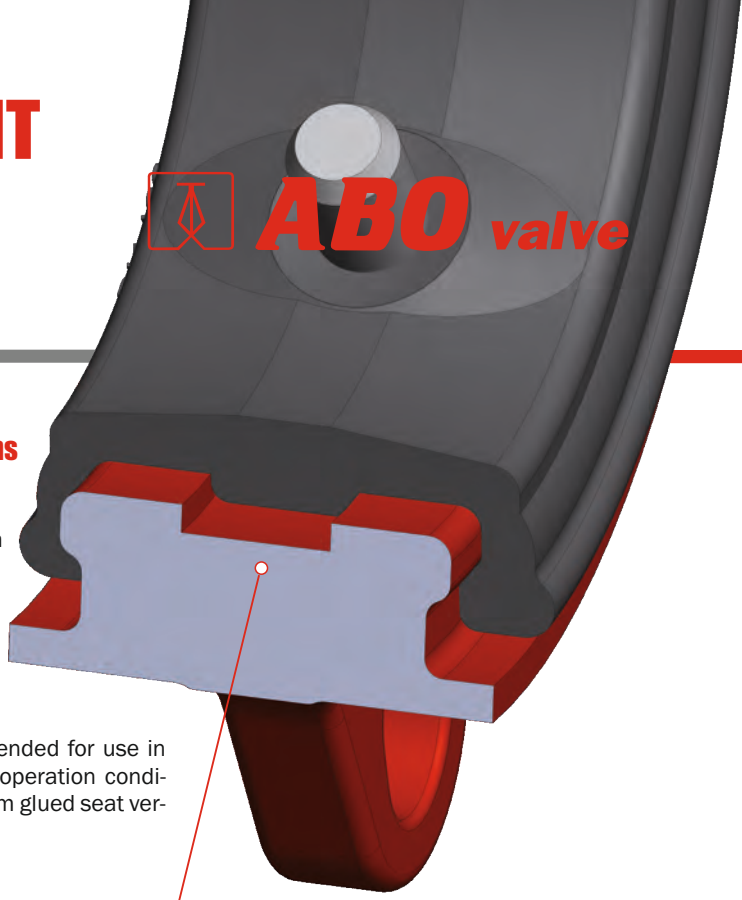
7. Demountable design

- enables to simply change the seal.

< DN 400 retaning washer against stem movement

> DN 400 retaining bolt against stem blow-out

BODY SURFACE TREATMENT / SEAT ANCHORING



Body surface treatment

Epoxy coating

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

Marine environment coating

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

Rilsan

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

Halar

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

Inter Zone 954

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

Seat anchoring options

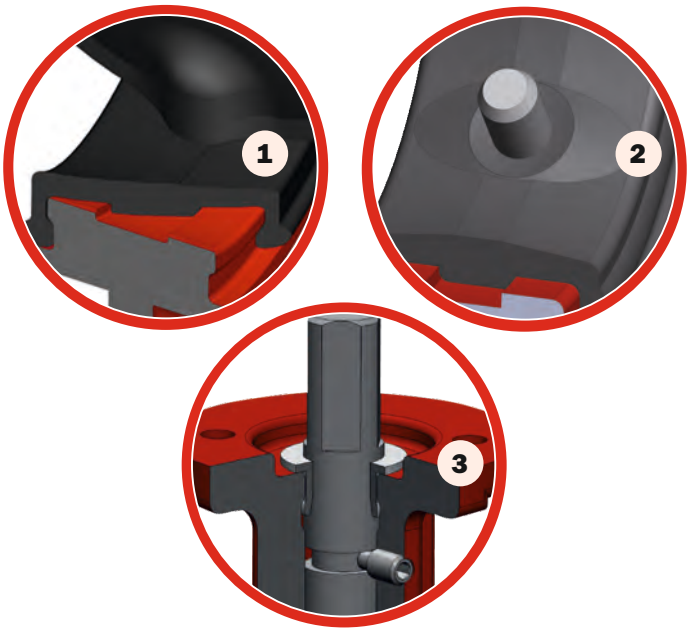
Groove/tongue
STANDARD

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

Vulcanized (bonded) seat
UPON REQUEST

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

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



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

1. Primary sealing

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

2. Secondary sealing

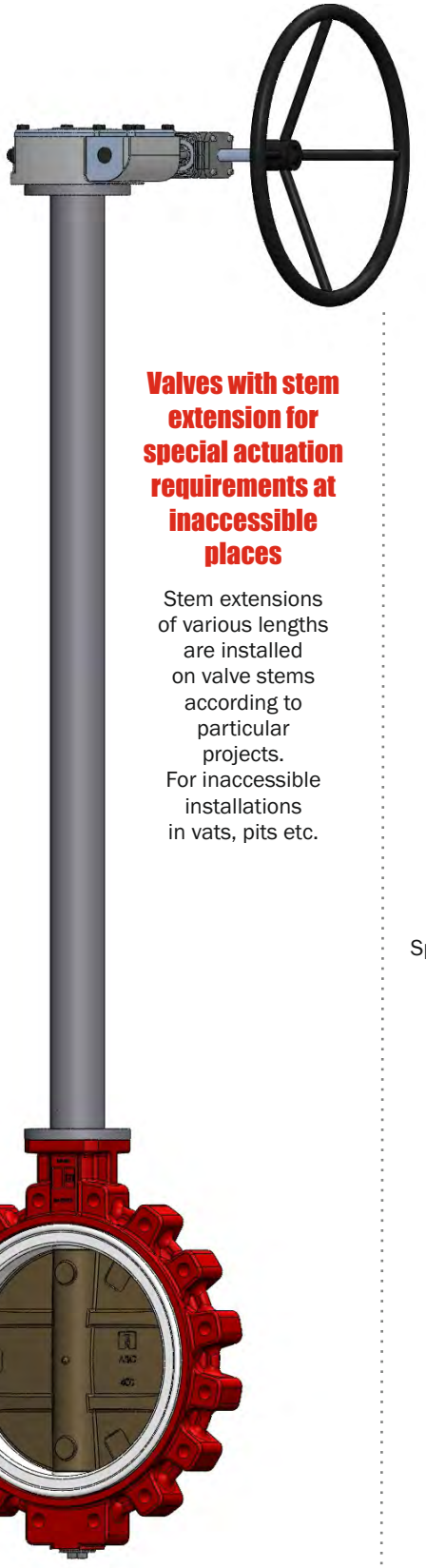
- secondary sealing is created by the stem and pivot disc overlap depending on the seat diameter

3. Tertiary sealing

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

VALVES FOR SPECIAL PURPOSES

Czech Industrial Valve Manufacurer



Valves with stem extension for special actuation requirements at inaccessible places

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

Valves with lightened aluminium body

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

Valve discs with special coatings

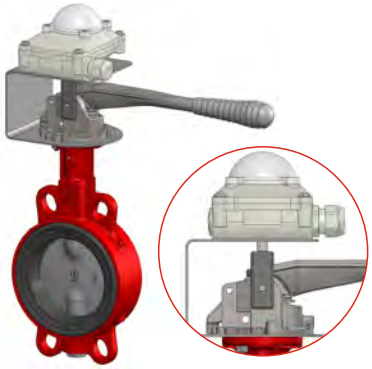
Discs are coated with high resistant coatings for aggressive environment (Rilsan/Halar).

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.

Polyurethane coated valve bodies

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



Valve with special lever and limit switches

Can be equipped with non-standard lever type (up to 10 position degrees). The disc position is scanned by limit switches connected to the valve stem.

Valve actuator installation according to customers' requirements

Standard - actuator on the side. Possibility to place valve actuator according the specific disposition or specific requirements.

VALVES FOR SPECIAL PURPOSES

ABO valve

ATEX design

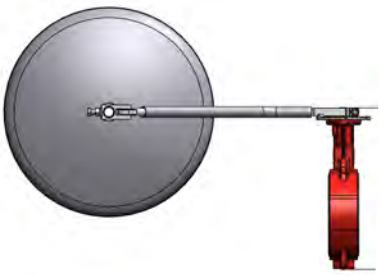
For valves intended for explosive atmospheres i.e. where explosive mixtures of gases, vapours, fog or dust are created.
DVGW certification.

Valves with worm gear controlled by chain

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

Valves with stem extension

Stem extensions are used in hard-to-reach places where there is no direct access to the valve.



Float valve

For installations in tanks/reservoirs. The float controls valve opening by the level height.

Valves with FDA certified seats

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

Additional equipment for pneumatic actuators

Pneumatic actuators can be equipped with positioners, solenoids, limit switch boxes, etc.

Valves with stainless flanges

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

SEATS / POSSIBLE APPLICATIONS

	Industry	Medium	Marking	Seat material	Applications	Working temperature range
DVGW	Water management Potable water treatment	**Potable water**	**EPDM**	DRINKING WATER EPDM (EPDM-018)	**WRAS**, **ACS**. Certified by **DVGW** GmbH (DVGW W 363-P).	-20 °C .. + 90 °C
	Water management Potable water distribution / Heating	**Potable water** **Heating water**		DRINKING WATER EPDM-HT (EPDM-019)	For potable water purification, treatment and distribution - higher temperature resistance.	-20 °C .. + 130 °C
	Water management Potable water distribution / Food industry	**Beverages** **Juices / Malt** **Hot service water**		EPDM-HT***)** (EPDM-022)	**FDA certified.** For sugar mills, beverage factories, malt houses. **Seat colour - black.**	-20 °C .. + 130 °C
	Food industry	**Beverages** **Juices** **Malt**		EPDM-014 (FDA)	**FDA certified** - for lower tempetaure ranges. **Seat colour - white.** Corresponds to standard 1935/2004.	-10 °C .. + 90 °C
	Chemical industry Ventilation Air conditioning Water treatment	**Air** **Non-aggressive acids and alkalines** **Non-aggressive minerals** **Water distribution**		EPDM-008/1	For distribution of non-aggressive mild mineral acids, air distribution - ventilation and air conditioning. Suitable for water treatment installations..	-20 °C .. + 90 °C
DVGW	Industrial production processes / Gas distribution	**Gas**	**NBR**	DVGW-GAS NITRILE	For natural gas transport and distribution. Certificated by **DVGW** CERT GmbH.	-10 °C .. + 60 °C
	Oil industry Petrochemistry Fuel processing Waste oils processing Fat sorting Loose materials conveying Cement and lime industry	**Abrasive media**	**NBR-X**	CARBOXYLIC NITRILE	For oily media applications with present abrasive particles in transported media. **Certified by FDA.**	0 °C .. + 90 °C
			FLUCAST	FLUCAST AB/N	For oily media installations - crude oil distribution.	0 °C .. + 90 °C
			FLUCAST	FLUCAST AB/E	For abrasive resistant applications - for „wet“ media like sludges etc.	-5 °C .. + 90 °C
			FLUCAST	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 .. + 70 °C
			FLUCAST	FLUCAST AB/T	For abrasive media with high temperature resistance.	-5 °C .. + 130 °C

***) EPDM Super HT seat**: -10 °C .. +150 °C. This new EPDM Super HT seat has much better mechanical properties if we compare it to other rubber compounds used at high temperatures like silicones of fluorelastomers. In addition to being used for hot water, EPDM Super HT is also suitable for steam. Here it can replace f.e. steam silicone seat.

SEATS / POSSIBLE APPLICATIONS

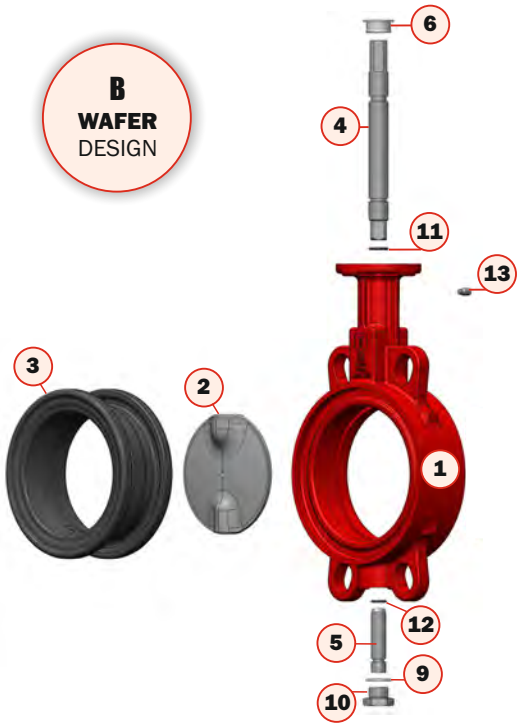
ABO valve

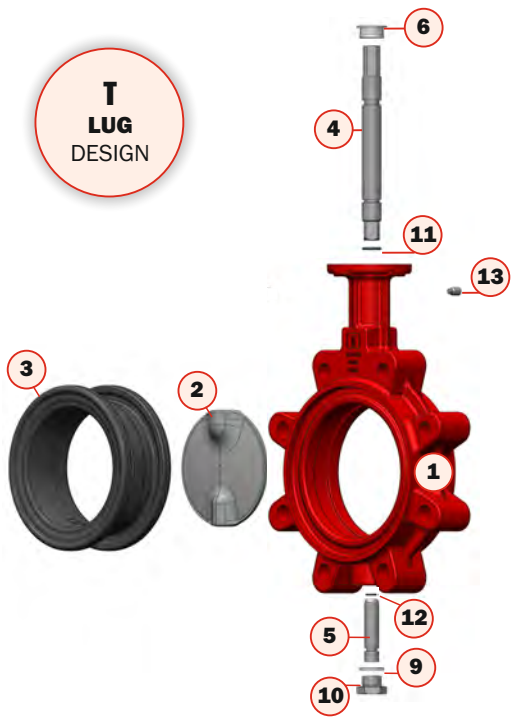
Industry	Medium	Marking	Seat material	Applications	Working temperature range
Sea water treatment Water softening for industry in general Petrochemistry Fuel processing Biogas distribution	**Salt water** **Biogas** **Crude oil** **Fuel**	**ECO**	EPICHLORHYDRIN	For seawater, saltwater, gas/biogas, crude oil and fuel distribution applications.	-40 °C .. +90°C
Chemical industry Recovery / Stem heating / Biogas distribution / System for production and distribution of pure steam	**Steam** **Biogas** **Agressive acids** **Oils**	**FPM**	VITON BIO	High fluorine contents, suitable for distribution of acids and oils, chemically resistance.	-5 °C .. +150°C
			STANDARD VITON (FPM-002)		
Chemical industry Petrochemistry	**Industrial grease** **Oils** **Non-agressive acids**	**CSM**	HYPALON	Suitable for applications with standard rubber mixtures lifespan limited by action of high temperatures - distribution of oils, diluted acids and alkalines.	-10 °C .. +100°C
Chemical industry Recovery Steam heating Industrial pipelines for steam distribution	**Steam**	**MVQ**	STEAM SILICONE	For heat recovery, steam supply and distribution systems.	-40 °C .. +150°C
Food industry	**Food steam**	**VMQ**	FOOD SILICONE	Steam distribution systems with higher work temperatures, **certified by FDA**.	-40 °C .. +150°C
Chemical industry Recovery Steam heating Industrial pipelines for steam distribution	**Steam - high temperature ranges**	**VMQ**	SILICONE	For media requiring higher temperature resistance at negative and positive work media temperatures (steam).	-40 °C .. +160°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

INTERFLANGED DESIGN





Pos.	Name	Material
1	**Body**	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	**Disc**	0 - Brass 2.0402 (UNS C38000) 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	**Seat**	1 - NBR 2 - EPDM 3 - NBR Carboxyl 4 - Viton Bio 5 - Silicone steam (MVQ) 6 - Silicone (VMQ) 7 - Epichlorohydrin 8 - HYPALON® (CSM) 9 - NBR 70-AG - NBR conduct
4	**Stem**	Stainless steel 1.4021 (AISI 420)
5	**Pivot**	Stainless steel 1.4021 (AISI 420)
6	**Bushing**	Delrin (to DN 300) Brass (from DN 350)
9	**Seal**	Klingersil C-4400
10	**Plug**	Stainless steel A2
11	**Stem O-ring**	NBR, EPDM, optionally VITON
12	**Pivot O-ring**	NBR, EPDM, optionally VITON
13	**Retaining bolt**	Stainless steel A2

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

INSTALLATION BETWEEN FLANGES

ABO valve

Installation between flanges DN32 to DN600 - Wafer/Lug design

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

standard • upon request x impossible

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

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

standard • upon request

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

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

• upon request

standard

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

VALVE ACTUATION

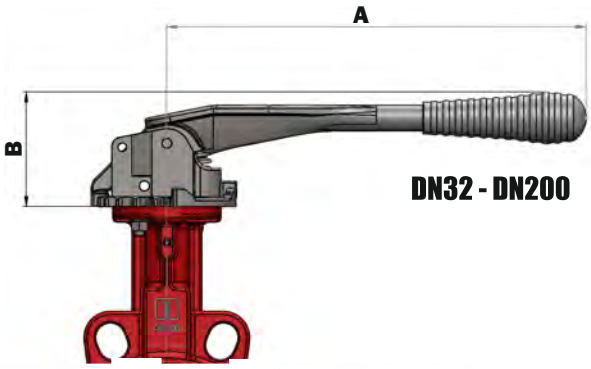
All the ABO valves can be equipped with hand levers, worm gears, pneumatic and electric actuators. The top flange design according to the standard ISO 5211 enables to directly assemble actuators on valves. Thus compatibility between valves and actuators is guaranteed.

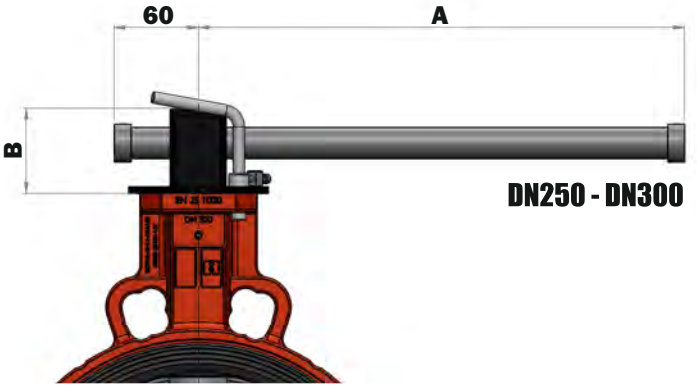
Handlever

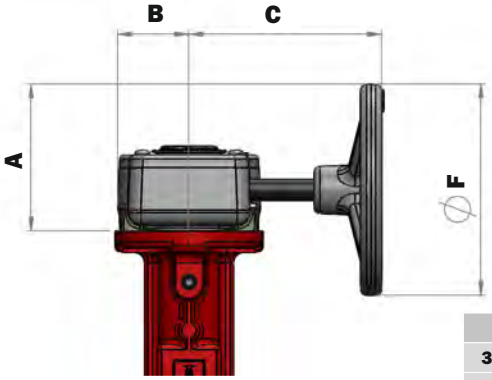
For manual actuation ABO offers carbon steel lever suitably painted to improve resistance to corrosion, abrasion and shock. Stainless lever on request. Top flange connection according to ISO standards F05 for DN50 to DN65 and F07 for DN80 to DN200. Controlled lever upon request. The levers can be equipped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

Dimensions are mentioned in mm, weight in kg.

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

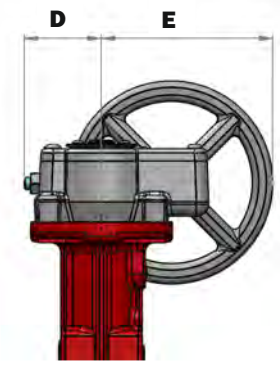






Worm gear with handwheel

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



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

Dimensions are mentioned in mm.

VALVE ACTUATION

ABO valve

Actuators

Pneumatic actuators

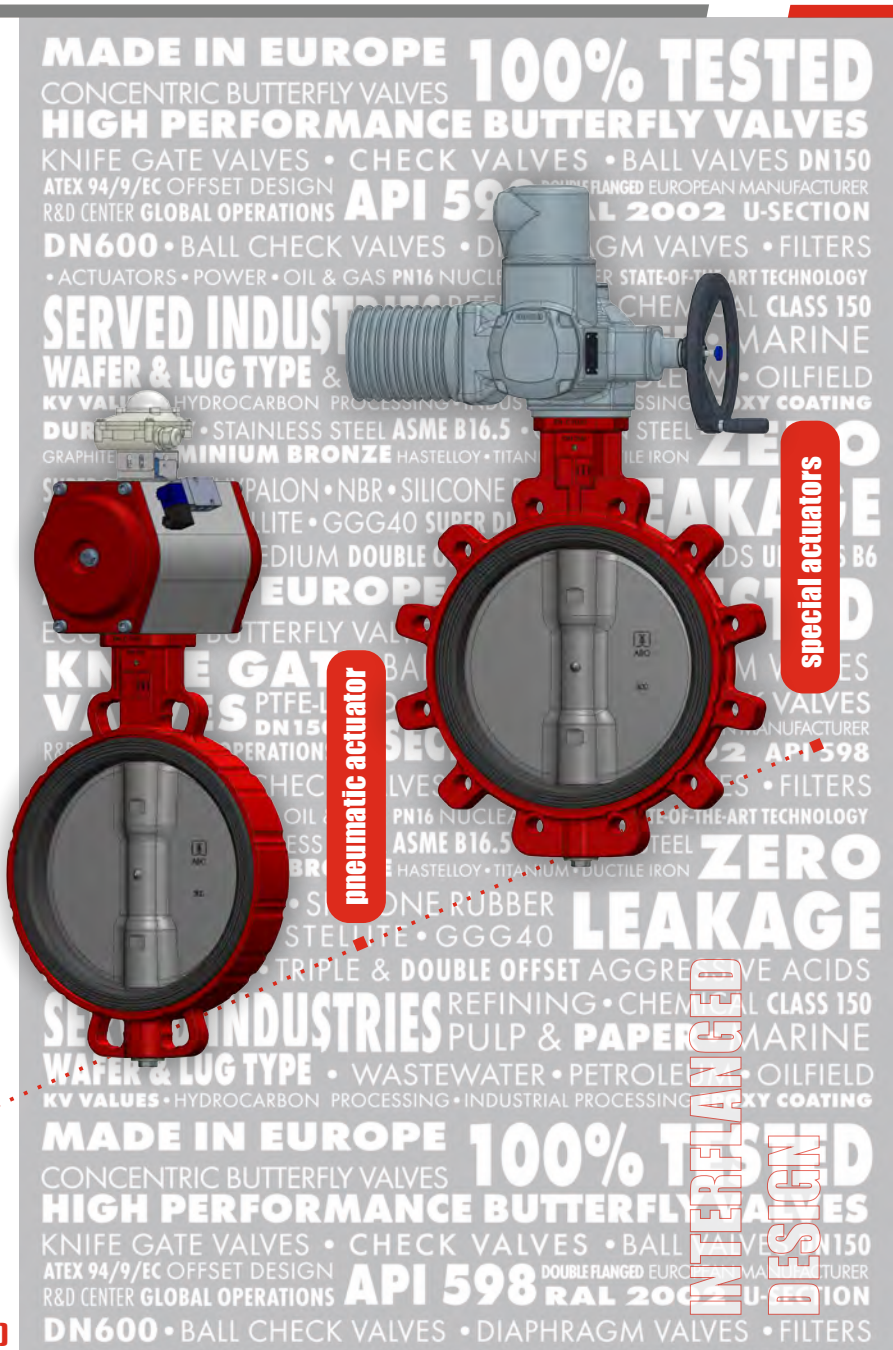
Pneumatic actuators ABO Series 95 can be assembled to valves in two options: single-acting or double-acting.

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.).



Operating torques (Nm) vs working pressure (bar)

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

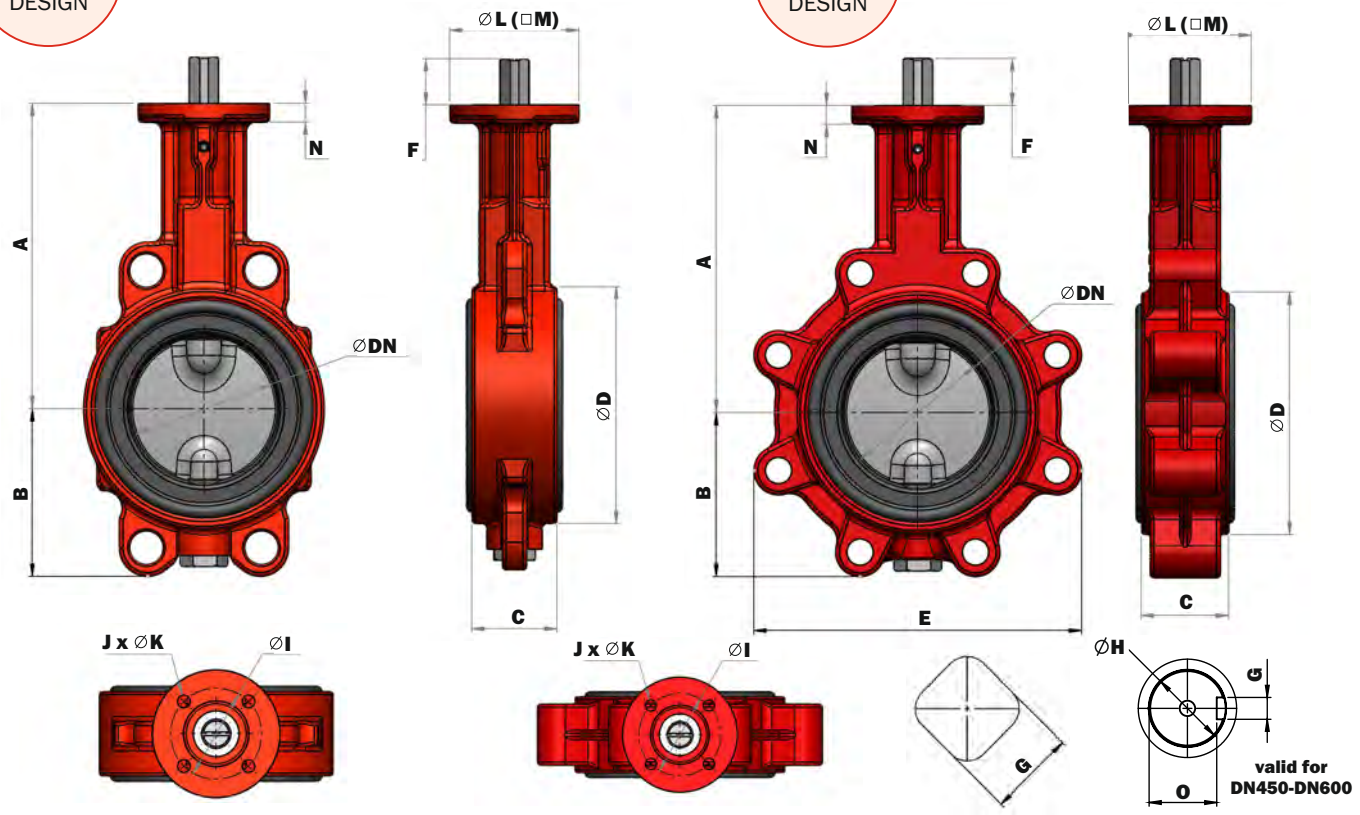
Mentioned torques are valid only for valves with EPDM seats and stainless discs for liquid media. For valve actuation the declared values must be multiplied by 1,2. For NBR seats to be multiplied by 1,4. For gas media or media with abrasive particles use secondary coefficient 1,35. For NBR and VITON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

VALVE BASIC DIMENSIONS

INTERFLANGED DESIGN

B
WAFER
DESIGN

T
LUG
DESIGN



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

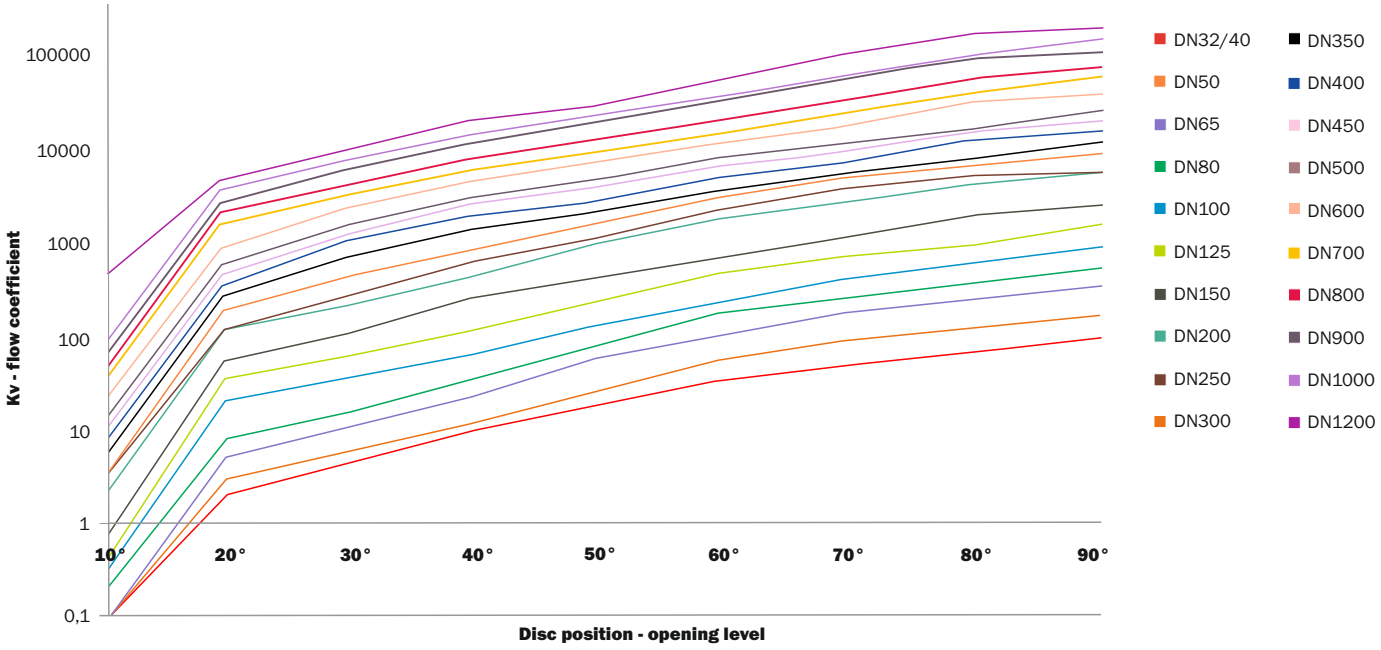
Dimensions are mentioned in mm.

NOMINAL FLOW VALUES

ABO valve

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

1KV = 0,854701 CV



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

Body design		
Double flanged	Body with threaded / 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 API609	

**) other alternatives upon request*

1. International standard compatibility

- according to the standard ISO 5211 the top flange enables to directly assemble any manual operators and actuators. Valves are usually delivered with worm gear actuators. A wide scale of pneumatic or electric actuators can be assembled, too.

2. Blow-out proof system

- a retaining washer disables shaft movement upwards.

3. Lengthened neck

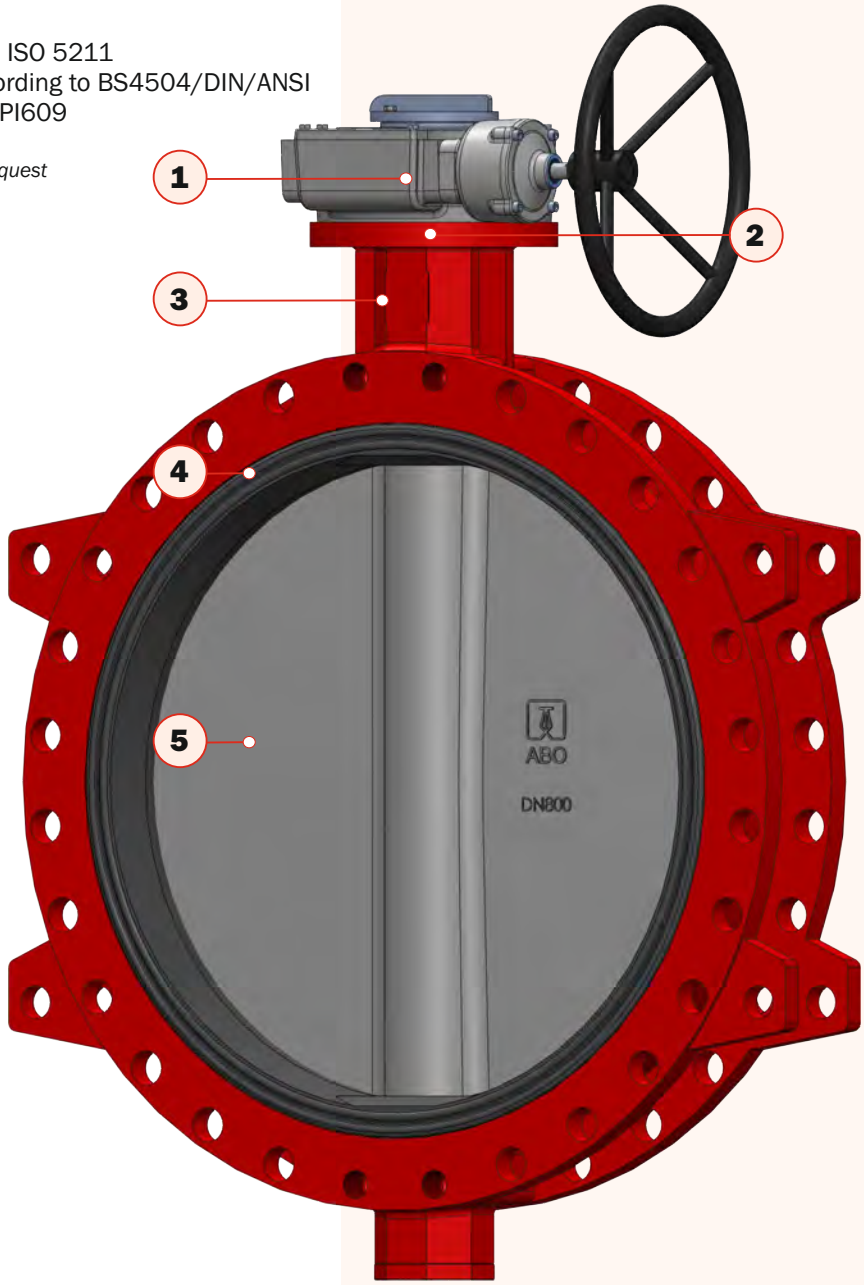
- enables to insulate the actuator from conveyed media warm effects and thus meets requirements on heating systems controls.

4. Seat design

- seat movement or incorrect position is impossible - seat can be vulcanized. Vulcanizaton 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 increasing Kv (Cv) values, decreases turbulence and minimizes pressure loss.

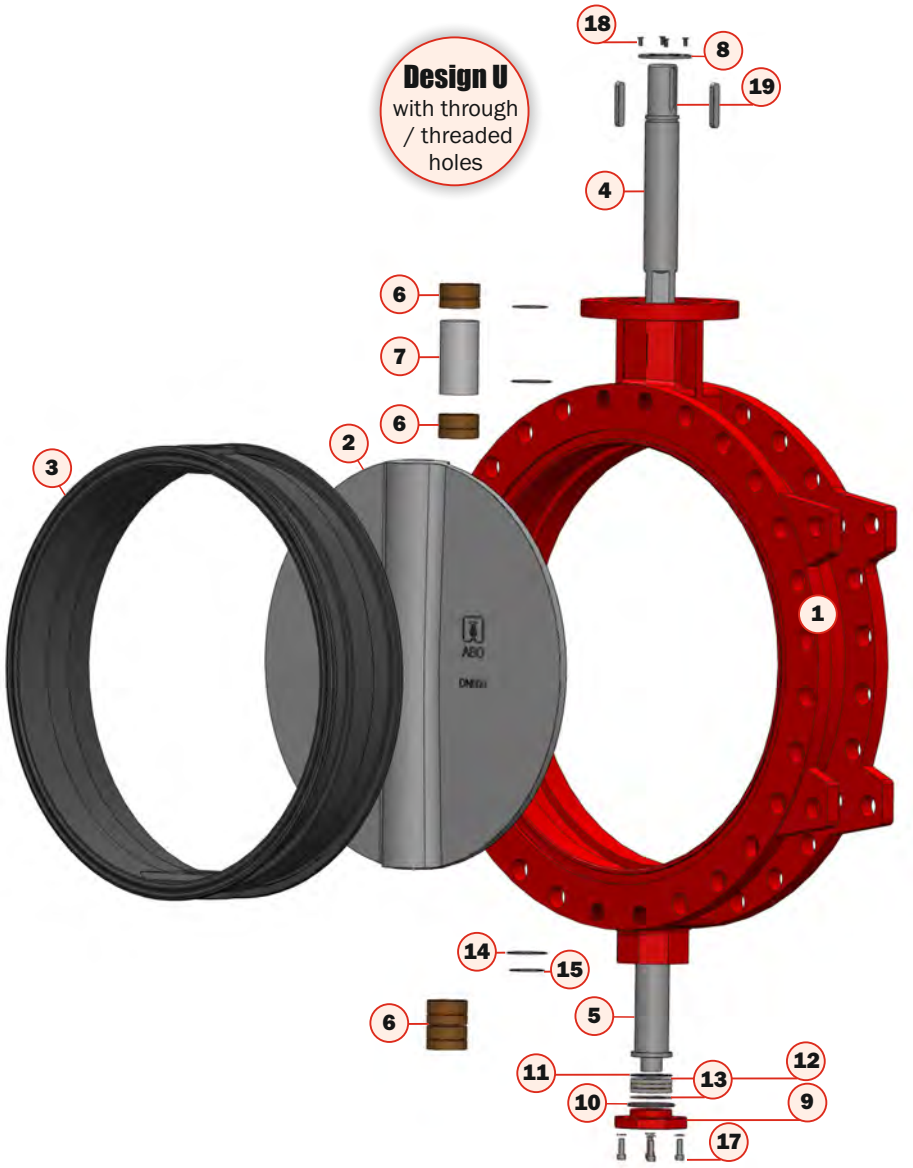


DN>600 / DOUBLE FLANGED DESIGN - SERIES „U”

ABO valve

DN700-DN1600 / PN10

Pos.	Name	Material
1	Body	0.7040
2	Disc	upon request
3	Seat	upon request
4	Shaft	1.4021
5	Pivot	1.4021
6	Bushing	Bronze
7	Supporting liner	1.4301
8	Retaining ring	1.4401 (316)
9	Cover	0.7040
10	Washer	1.4301 (304)
11	Washer	1.4301 (304)
12	Bearing	upon standard
13	O-ring	upon request
14	O-ring	upon request
15	O-ring	upon request
16	Washer	A4
17	Bolt	A4
18	Bolt	A4
19	Spring	A4



Advantages of concentric shut-off valve double-flanged design

- 100 % tightness
- 0% leakinesst
- vulcanized seat
- actuation by various actuator types - manual, electric, pneumatic or special types
- on/off and for regulation
- fully sealed stem, medium is not in contact with stem and body
- bi-directional tightness
- low body weight
- disc aerodynamic design minimising pressure loss
- disc with polished edges, high throughput profile

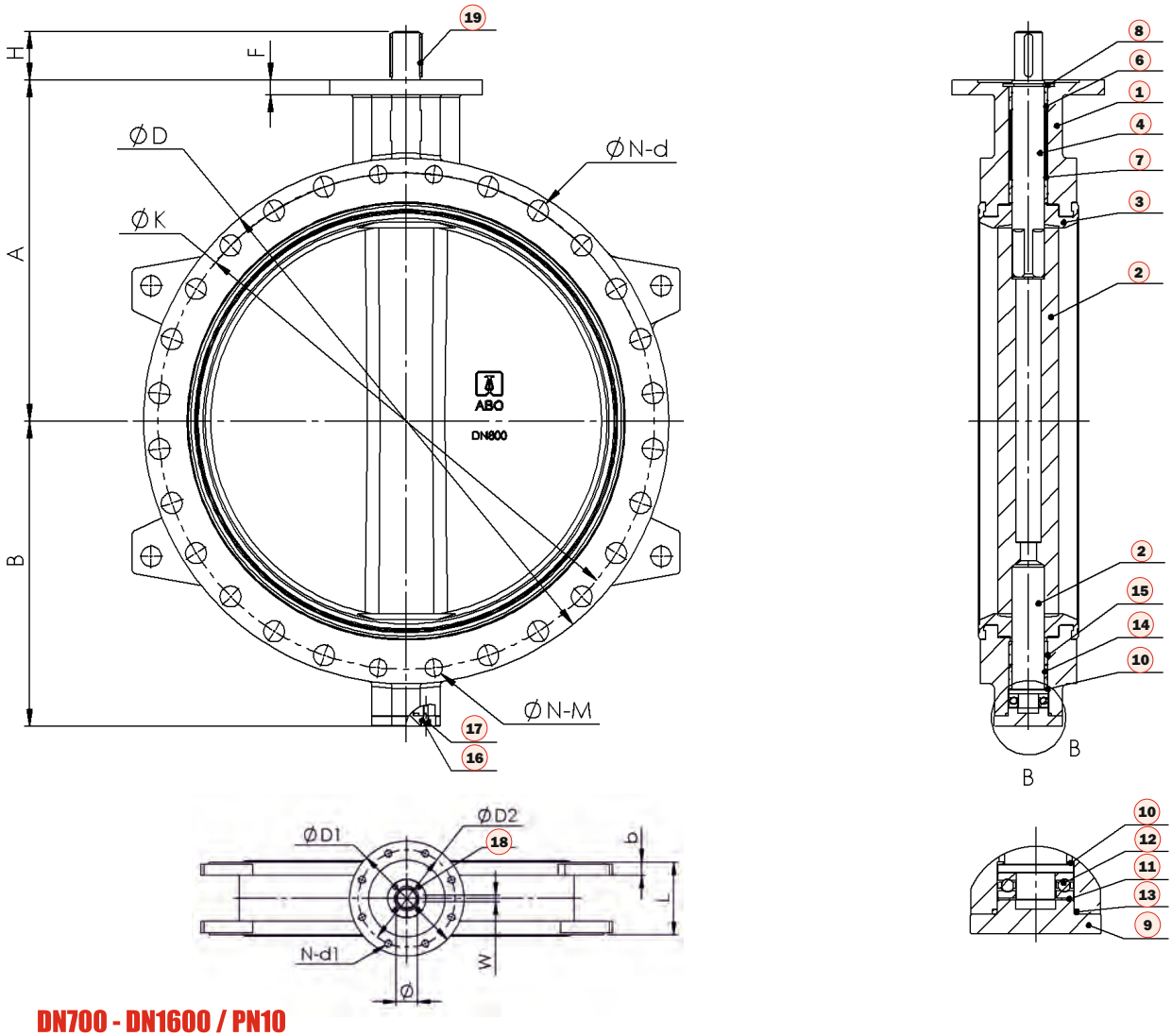
Material options
Body / Disc / Seat / Shaft

Body	Grey cast iron / Ductile iron / Carbon steel / Stainless steel / Epoxy coating / Coating C4, C5
Disc	Ductile iron / Stainless steel / Aluminium Bronze / Duplex / Super Duplex / HC276 / RILSAN, HALAR coating
Seat	NBR / EPDM / EPDM for potable water/FPM/Silicone
Shaft	AISI420 / AISI431 / F51/ F55 or

**) special materials upon request*

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

Czech Industrial Valve Manufacturer



DN700 - DN1600 / PN10

	700	800	900	1000	1100	1200	1400	1600
A	624	672	720	800	900	941	1040	1150
B	535	606	670	735	830	878	1009	1138
H	95	95	130	130	135	150	150	180
D	910	1025	1125	1255	1355	1485	1685	1930
K	840	950	1050	1160	1270	1380	1590	1820
N-d	20-31	20-34	24-34	24-37	28-37	28-41	32-44	36-50
N-M	4-M27	4-M30	4-M30	4-M33	4-M33	4-M36	4-M39	4-M45
L	165	190	203	216	254	254	279	318
b	32,5	35	37,5	40	42,5	45	46	49
D1	300	300	300	300	350	350	415	415
D2	254	254	254	254	298	298	356	356
N-d1	8-18	8-18	8-18	8-18	8-22	8-22	8-33	8-33
F	30	30	34	34	34	34	40	50
Ø	55	55	75	85	105	105	120	160
W	16	16	20	22	28	28	32	40

Dimensions are mentioned in mm.
PN16 / Class 150 upon request.

DOUBLE FLANGED DESING - SERIES „U”

ABO valve

Operating torques (Nm) vs working pressure (bar) SERIES 20

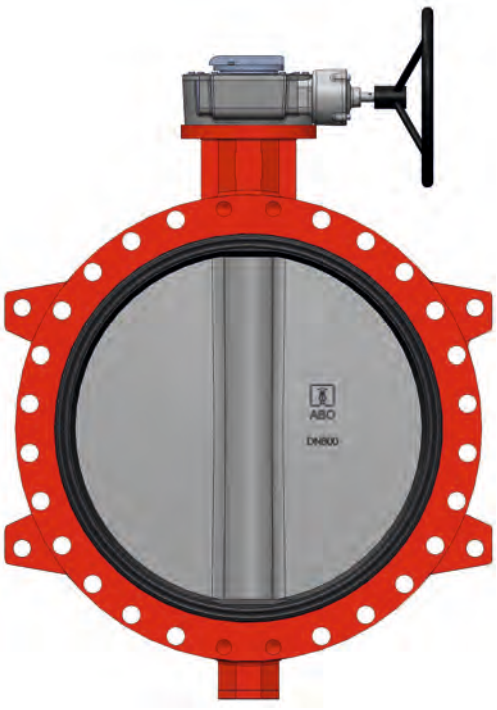
DN	PN10	PN16
	Nm	Nm
700	3500	4200
750	3800	4800
800	4600	5600
900	5800	7800
1000	8800	10800
1100	11240	15600
1200	13800	19320
1300	16900	23660
1400	20000	28000
1500	25000	35000
1600	29000	40600
1800	39900	55860
2000	52250	73150

Mentioned torques are valid for valves of Series 20 with interchangeable seats. The data do not include values of the safety factor. Using seat EPDM multiply the values by 1,2. Using seats NBR/VITON/SILICONE multiply the values by 1,3.

Operating torques (Nm) vs working pressure (bar) SERIES 13

DN	PN10	PN16
	Nm	Nm
50	17	17
65	25	25
80	38	38
100	56	56
125	90	90
150	124	124
200	233	233
250	392	392
300	560	560
350	736	988
400	1011	1479
450	1355	1887
500	1807	2444
600	2825	4054
700	4410	6204
750	5080	-
800	5812	8782
900	7092	12142
1000	10584	16122
1050	12172	-
1200	16935	26984
1400	22000	34500

Mentioned torques does not include safety factor. Please use a factor of 1.3.



VALVE ACTUATION
Worm gearbox with handwheel

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

Actuators

Pneumatic actuators

Two standard designs: single-action/double-action.

Electric actuators

Electric actuators can be installed for voltages of 24 V, 230 V or 400 V.

Special actuators types

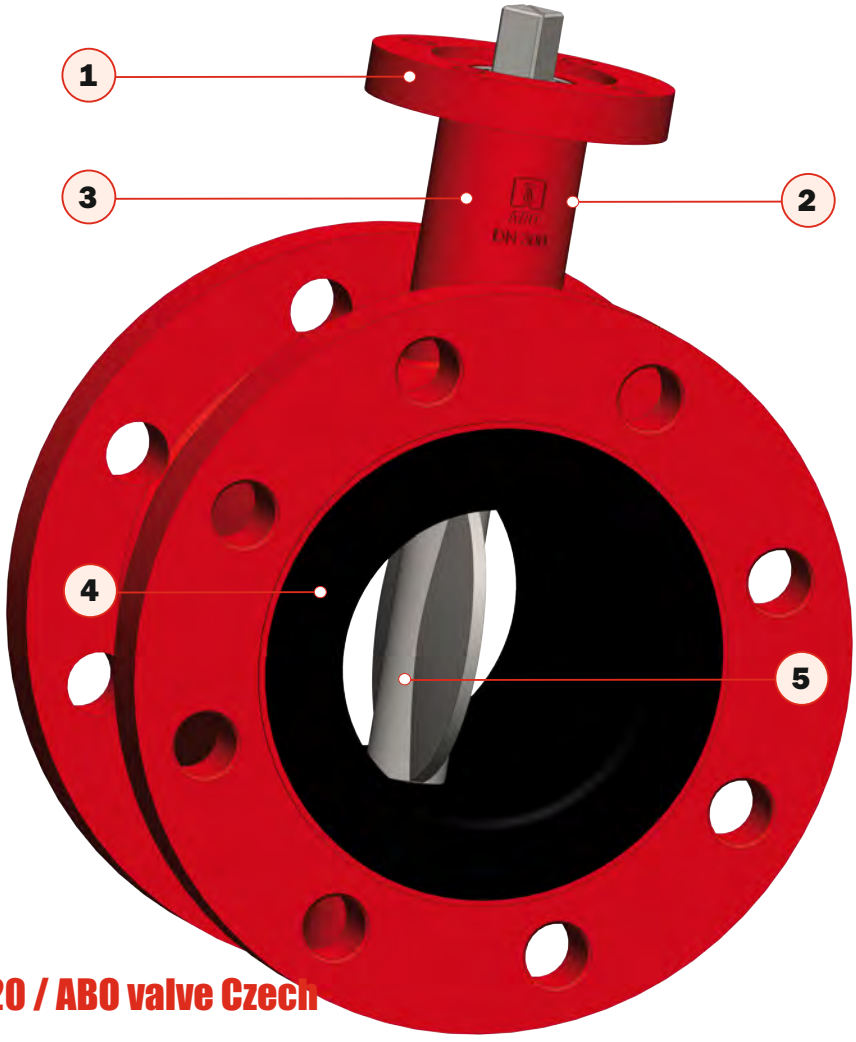
Made by suppliers Auma, Regada, Valpes, etc.

DOUBLE FLANGED DESIGN - SERIES „F”

Czech Industrial Valve Manufacturer

Body design		
Double Flanged	Body with through / threaded 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 **vulcanized**
	Seat EPDM	-20 °C / +125 °C **vulcanized** *)
Features	**Concentric design** Top flange according to ISO 5211 Flange connection according to S4504/DIN/ANSI Design complies with API609	

**) other alternatives upon request*



1. International standard compatibility

- according to the standard ISO 5211 the top flange enables to directly assemble any manual operators and actuators. Valves are usually delivered with worm gear actuators. A wide scale of pneumatic or electric actuators can be assembled, too.

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. Vulcanizaton 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

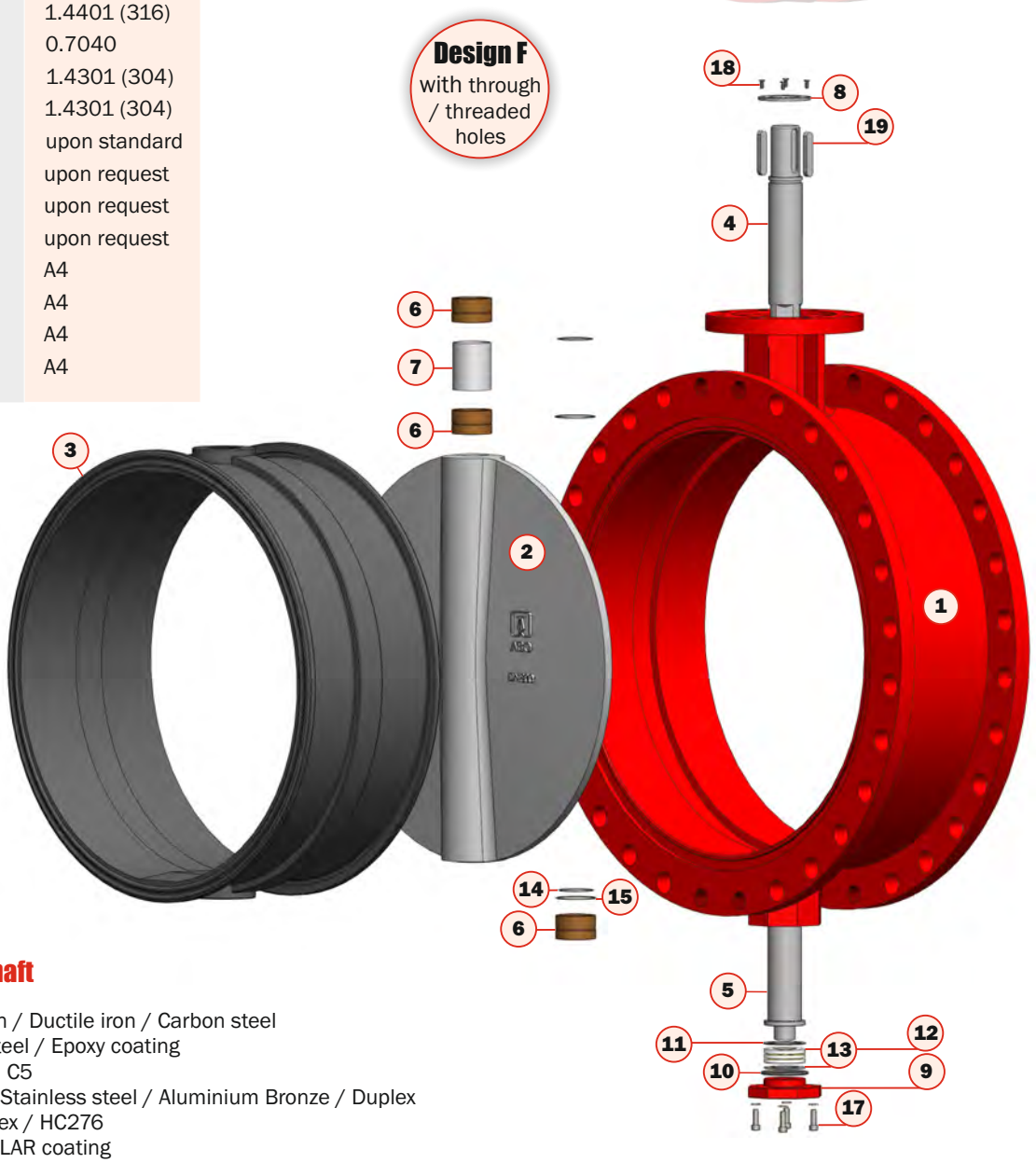
- disc with polished edges is protective to seat and provides a long lifespan. Symmetric disc profile improves valve performance by increasing Kv (Cv) values, decreases turbulence and minimizes pressure loss.

DOUBLE FLANGED DESIGN - SERIES „F”

ABO valve

DN50-DN2200 / PN10

Pos.	Name	Material
1	Body	0.7040
2	Disc	upon request
3	Seat	upon request
4	Shaft	1.4021
5	Pivot	1.4021
6	Bushing	Bronze
7	Supporting liner	1.4301
8	Retaining ring	1.4401 (316)
9	Cover	0.7040
10	Washer	1.4301 (304)
11	Washer	1.4301 (304)
12	Bearing	upon standard
13	O-ring	upon request
14	O-ring	upon request
15	O-ring	upon request
16	Washer	A4
17	Bolt	A4
18	Bolt	A4
19	Spring	A4



Material options
Body / Disc / Seat / Shaft

Body Grey cast iron / Ductile iron / Carbon steel / Stainless steel / Epoxy coating / Coating C4, C5

Disc Ductile iron / Stainless steel / Aluminium Bronze / Duplex / Super Duplex / HC276 / RILSAN, HALAR coating

Seat NBR / EPDM / EPDM for potable water/FPM/Silicone

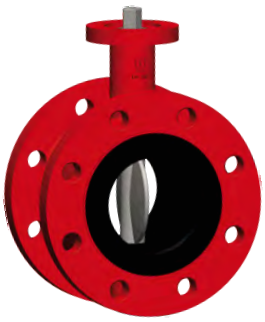
Shaft AISI420 / AISI431 / F51 / F55

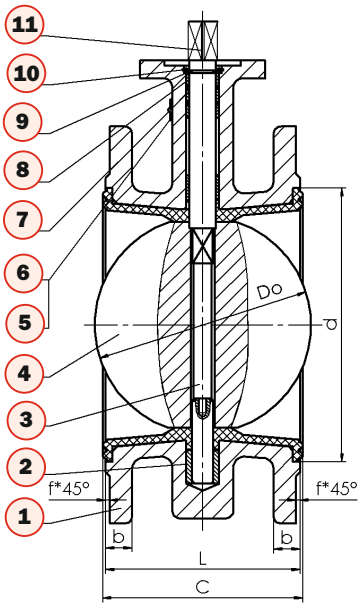
*) *special materials upon request*

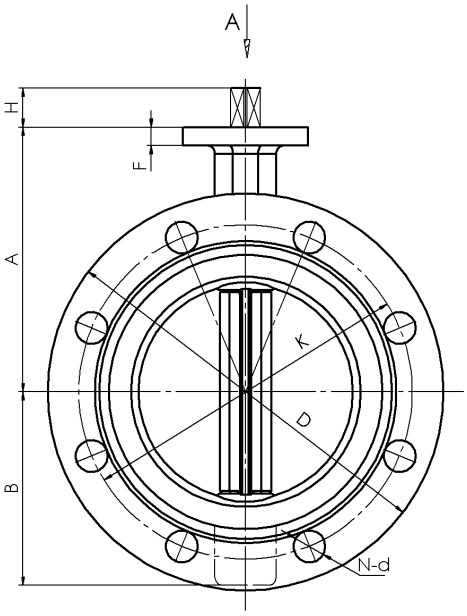
DESIGN PARAMETERS / SERIES - „F”

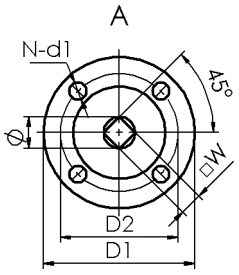
DN50 - DN350 / PN10

Pos.	Name	Material
1	Body	0.7040 + EPDM
2	Bushing	Bronze
3	Pivot	SS 1.4021/420
4	Disc	1.4408 (CF8M)
5	Rivet	SS A2
6	Label	1.4301/SS304
7	Bushing	Bronze
8	O-ring	EPDM/NBR
9	Washer	1.4301/SS304
10	Retaining ring	SS A2
11	Shaft	SS 1.4021/420









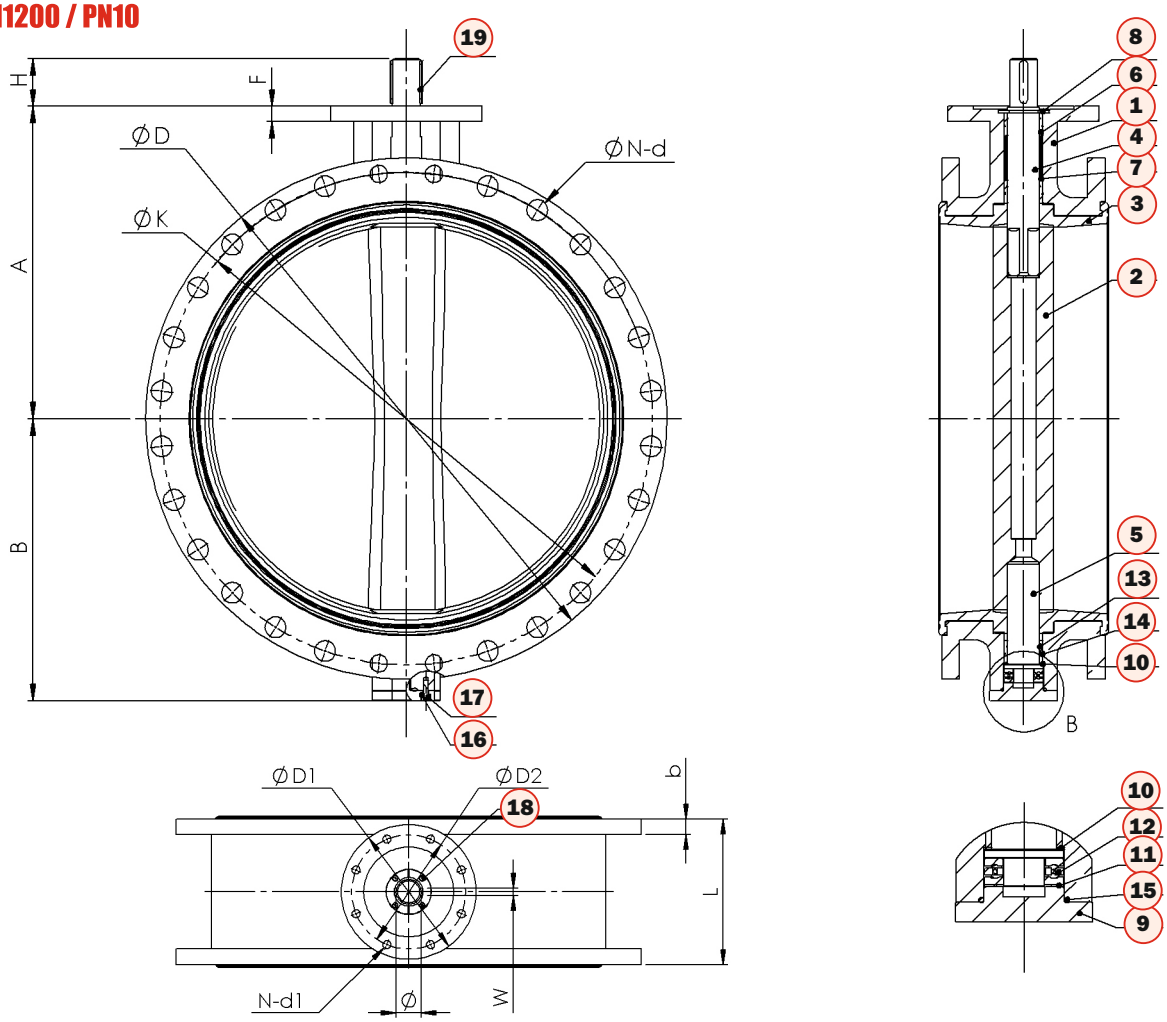
	50	65	80	100	125	150	200	250	300	350	400
A	120	130	145	155	170	190	205	235	280	310	340
B	80	89	95	114	125	139	170	198	223	254	306
H	25	25	25	25	25	25	25	30	30	36	36
D	165	135	200	220	250	285	340	395	445	505	580
K	125	145	160	180	210	240	295	350	400	460	525
N-d	4-19	4-19	8-19	8-19	8-19	8-23	8-23	12-23	12-23	16-23	16-31
Do	52,6	64,3	78,8	104	123,3	155,7	202,4	250,4	301,5	333,3	389,6
d	89	106	120	144	170	197	252	305	350	415	460
L	108	112	114	127	140	140	152	165	178	190	216
C	111	115	117	130	143	143	155	168	182	194	221
b	19	19	19	19	19	19	20	22	24,5	24,5	28
f	3	3	3	3	3	3	3	3	3	4	4
D1	65	65	65	90	90	90	125	125	125	150	175
D2	50	50	50	70	70	70	102	102	102	125	140
N-d1	4-7	4-7	4-7	4-10	4-10	4-10	4-12	4-12	4-12	4-14	4-18
F	13	13	13	13	13	13	15	15	20	20	22
Ø	12,6	12,6	12,6	15,77	18,92	18,92	22,1	28,45	31,6	31,6	37,95
W	14	14	14	14	17	17	17	22	22	27	27

*) PN16 upon request

DESIGN PARAMETERS / SERIES - „F”

ABO valve

DN450- DN1200 / PN10



	450	500	600	700	800	900	1000	1200
A	375	430	500	560	620	685	735	917
B	345	378	440	510	560	638	705	815
H	80	80	80	95	95	130	130	150
D	615	670	780	895	1015	1115	1230	1455
K	565	620	725	840	950	1050	1160	1380
N-d	20-28	20-28	20-31	24-31	24-34	28-34	28-37	32-41
Do	440,5	491,6	592,5	695	794,7	864,7	965	1160,6
d	510	560	660	770	871	972	1080	1270
L	222	229	267	292	318	330	410	470
C	227	234	272	299	325	337	417	478
b	25,5	26,5	30	32,5	35	37,5	40	45
f	4	4	5	5	5	5	5	5
D1	175	175	210	300	300	300	300	350
D2	140	140	165	254	254	254	254	298
N-d1	4-18	4-18	4-22	8-18	8-18	8-18	8-18	8-22
F	22	22	22	30	30	34	34	34
Ø	38	42	50	55	55	75	85	105
W	10	12	14	16	16	20	22	28

**) sizes above DN1200 upon request*
**) PN16 on request*

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Czech Industrial Valve Manufacturer

Valid since: 09/2021

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