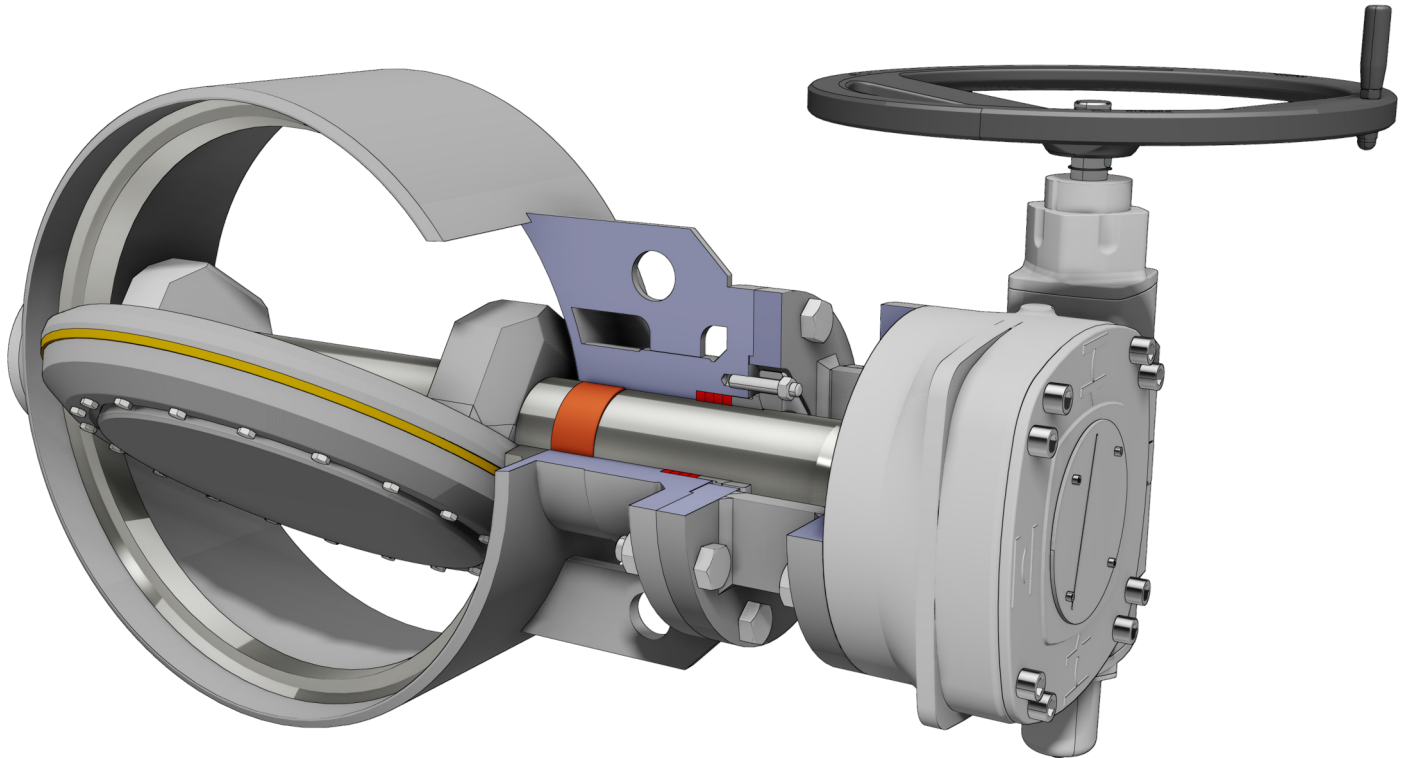




[www.tbhydro.net](http://www.tbhydro.net)



# HIGH PRESSURE BUTTERFLY VALVES

for heating and industrial applications

## Butterfly valves


## HBTV-3E

**Nominal diameter**  
DN200(8") - DN2000(80")

**Pressure**  
PN6-25  
ANSI150

**Tightness**  
Rate A according to EN 12266-2  
no leakage in both directions

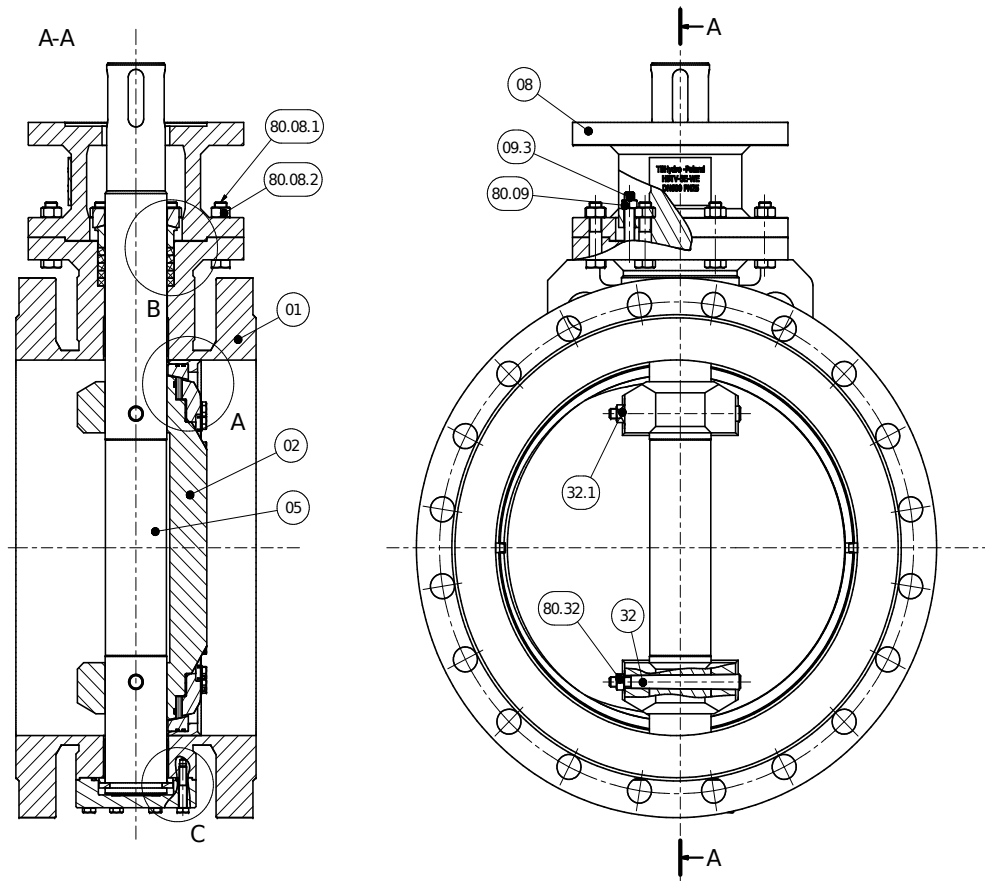
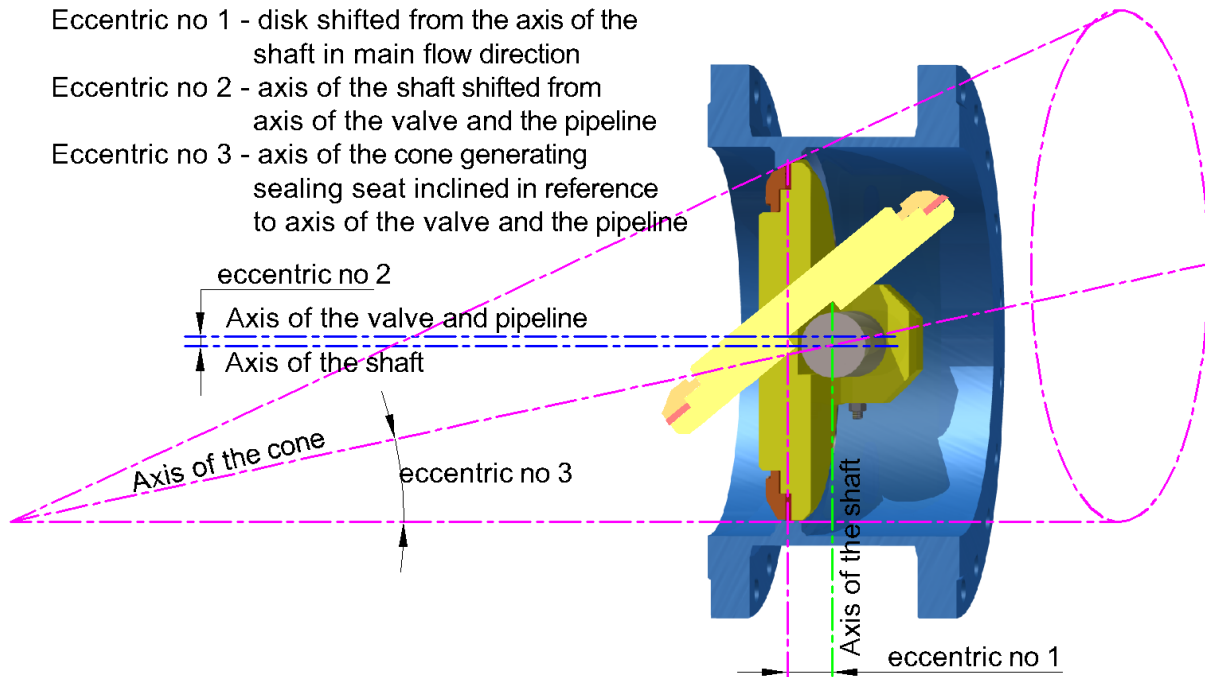
**Temperature**  
0 - 150°C (320°C)

Butterfly valves are certified according PED and labeled with **CE**  
ISO 9001 - Lloyd's Register Quality Assurance 

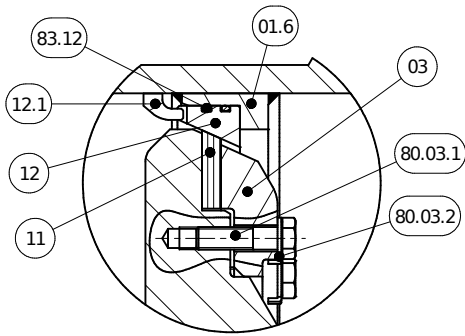
**DESCRIPTION**

Butterfly valves HBTV-3E with triple offset are used as shutting-off or regulating fitting that works in thermal systems with water and steam up to media temperature 150°C (up to 320°C on order). The construction is tight in both directions according to class A of EN 12266-2. The geometry of sealing ensures frictionless motion of the disk until it is completely closed.

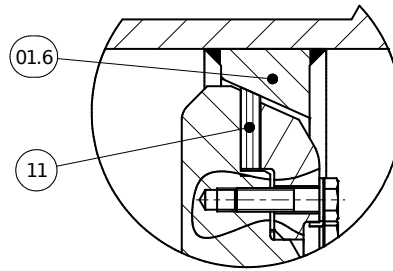
- Eccentric no 1 - disk shifted from the axis of the shaft in main flow direction
- Eccentric no 2 - axis of the shaft shifted from axis of the valve and the pipeline
- Eccentric no 3 - axis of the cone generating sealing seat inclined in reference to axis of the valve and the pipeline



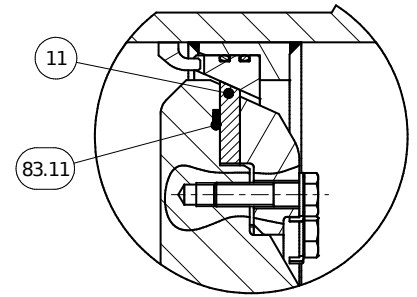
Detail A option UG1-UL1



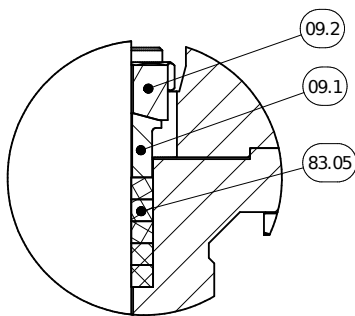
Detail A option UG2-UL1



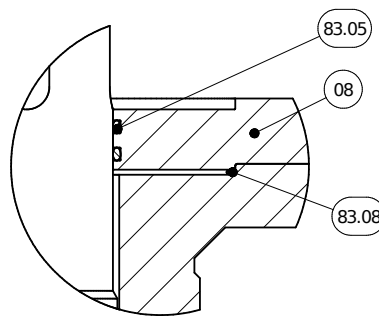
Detail A option UG1-UL2



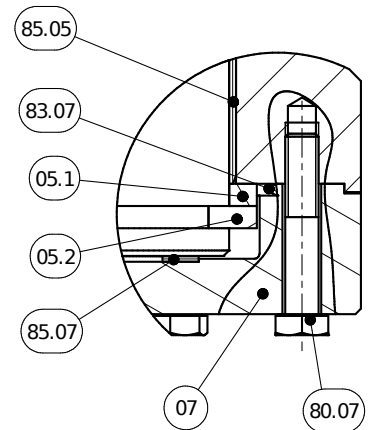
Detail B option PU1



Detail B option PU2



Detail C



**Available options description**

Detail A option UG1-UL1	main sealing - lamella seal cooperating with compensatory ring
Detail A option UG2-UL1	main sealing - lamella seal cooperating with constant ring
Detail A option UG1-UL2	main sealing - steel ring with spiral seal cooperating with compensatory ring.
PU1	shaft sealing with graphite packing
PU2	shaft sealing with EPDM orings

**List of parts**

No.	Name	Material	No.	Name	Material
01	Body	P265GH/A216WCB/X5CrNi18-10	32	Conical pin	X3CrNiMo13-4
01.6	Seat/sealing ring	X5CrNi18-10/stallite	32.1	Security plate	X5CrNi18-10
02	Disk	P265GH/A216WCB/X5CrNi18-10	80.03.1	Hexagon head bolt	A2-70
03	Pressing ring	P265GH/X5CrNi18-10	80.03.2	Two-blades washer	A2
05	Shaft	X3CrNiMo13-4	80.07	Hexagon head bolt	5.6 zinc
05.1	Resistance ring	CuSn7Zn4Pb7/CuAl10Fe3Mn2	80.08.1	Hexagon head bolt	5.6 zinc
05.2	Sectional ring	X5CrNi18-10	80.08.2	Nut	5 zinc
07	Cover	P265GH/X5CrNi18-10	80.09	Nut	5 zinc
08	Drive adapter (sealing option: graphite or oring)	S355J 2+N	80.32	Nut	A2
09.1	Gland ring	standard PU1: S355J 2+N option PU2: lack	83.05	Sealing pack	standard PU1: graphite option PU2: o-ring EPDM (max. 150°C)
09.2	Gland ocular	standard PU1: S355J 2+N option PU2: lack	83.07	O-ring	EPDM
09.3	Stud	standard PU1: 5.6 zinc option PU2: lack	83.08	O-ring	standard PU1: lack Option PU2: EPDM o-ring
11	Main seal	standard UG1-UL1: lamella X5CrNi18-10/X6CrNiMoTi17-12-2 + graphite option UL2: steel X5CrNi18-10/X6CrNiMoTi17-12-2	83.11	Spiral seal	standard UL1: no seal option UL2: steel stainless + graphite
12	Floating ring	standard UG1: X3CrNiMo13-4 option UG2: no ring	83.12	O-ring	standard UG1: EPDM option UG2: lack (if lack of p.12)
12.1	Limiter	standard UG1: X5CrNi18-10 opcja UG2: no limiter	85.05	Bearing	standard B1: BBT option B2: RBT
			85.07	Thrust bearing	CuSn7Zn4Pb7/CuAl10Fe3Mn2

## ZERO LEAKAGE

TBHydro in HBTV-3E valves uses as a standard floating ring. It is a stainless ring, which from the outside is machined like slide ring (has a possibility to float in a valve body under the increasing pressure), from inside is machined according to triple eccentric standard interacting with a main seal. Water pressure press floating ring against the main seal increasing the tightness. The use of a floating ring with self-fitting lamelas seal provides ZERO LEAKAGE (Rate A acc. EN 12266-2). It also minimizes the required torque from gear to tightness.

Optional (UG2) butterfly valves type HBTV-3E are also available with a fixed seat ring in the body (without a floating ring).

Butterfly valves type HBTV-3E as a standard shaft seal has applied graphite packings. This solution allows for leakproof performance even at very high temperatures.

Optional (PU2) for butterfly valves working up to 150°C, TBHydro proposes shaft seal by means of EPDM o-rings. This solution guarantees a reliable tightness (ZERO LEAKAGE), and also minimizes the space required for the gear and does not require periodic adjustment of the gland.

## TBHydro is a company with traditions

Since 2002 TBHydro fabricated more than 1400 highperformance hydropower valves  
Our valves work without failure, every year flows through them milion liters of water

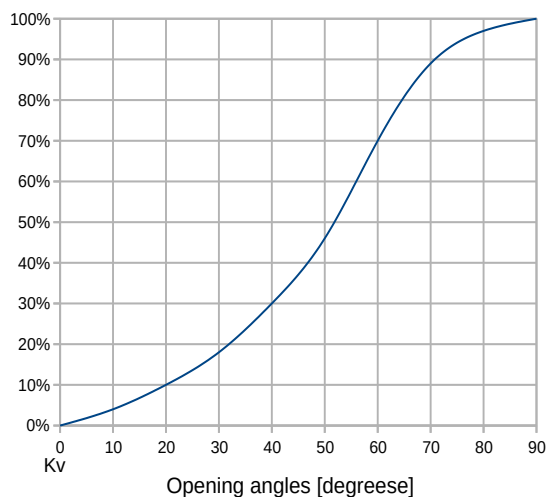
## Polish manufacturer of butterfly valves type 3E

Our valves are produced in our production facility in Wągrowiec (near Poland). Each produced valve is tested by the Quality Control Department, moreover all heating valves are tested in the presence of an inspector of the notified authority. Our clients are also welcomed to participate during final inspections.

## FL O W S

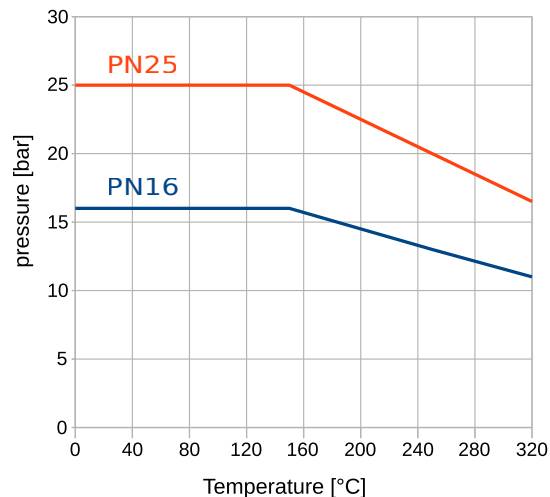
The values of the flow coefficient Kv for full opening valve are provided in the table.  
Kv flow coefficient depending on opening angle of the disc is shown in the chart - curve.  
Recommended range of regulation 20° - 70°.

Kv - opening angle

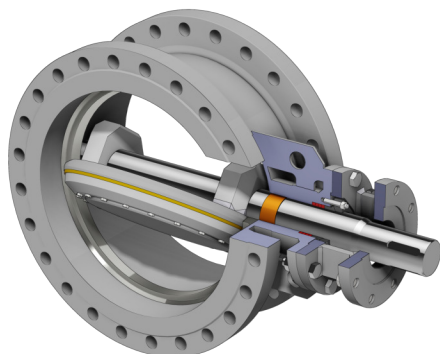


DN	Kv (90st)
200	1300
250	2200
300	3350
350	4400
400	6400
500	10300
600	16000
700	25200
800	31800
900	37500
1000	54200
>1000	on request

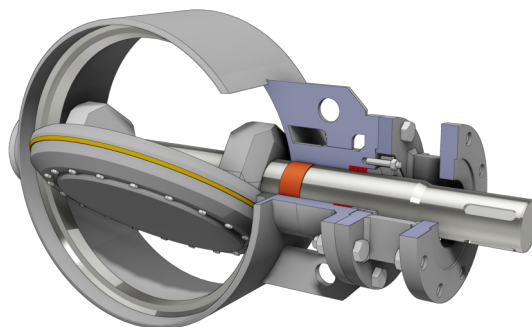
Nominal pressure - temperature



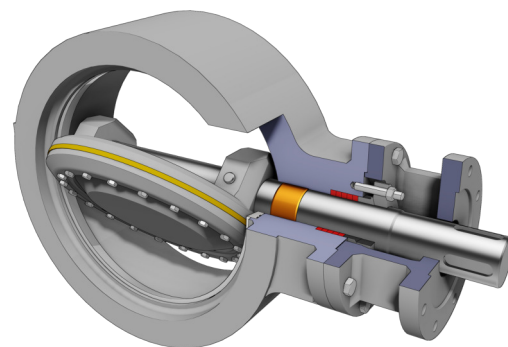
## PRODUCT VERSIONS



Flanged - HBTV-3E-FL



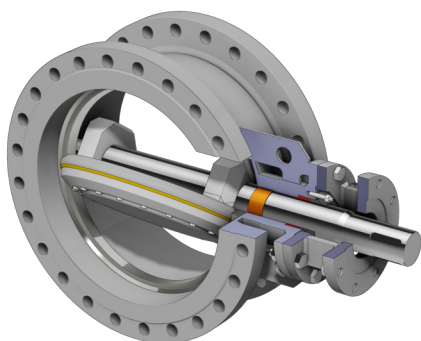
Weld ends - HBTV-3E-WE



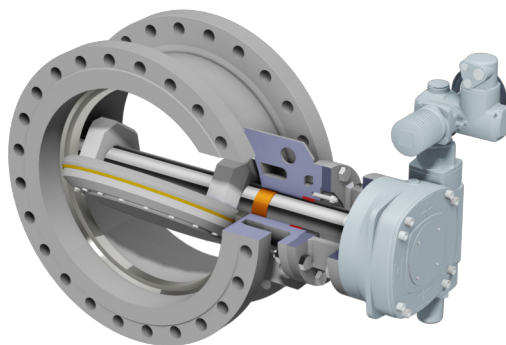
Wafer - HBTV-3E-WA

## DRIVERS

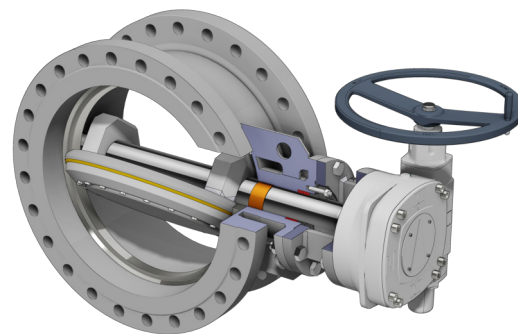
Butterfly shutoff valves HBTV-3E with triple eccentric can be delivered with various types of drives. Properly selected drive guarantees optimum motion of the valve. In the standard version, the drive for the valves PN16 and PN25 is selected to operate the valve under maximum pressure difference of  $\Delta p=16\text{bar}$  (option  $\Delta p=25\text{bar}$ ). The drives are equipped with visual position indicator of the disc.



Free shaft



Electrical operated gearbox



Manual operated gearbox

Other drives on request (hydraulic, pneumatic etc.)

MP - optimum moment to operate the valve for  $\Delta p=16\text{bar}$

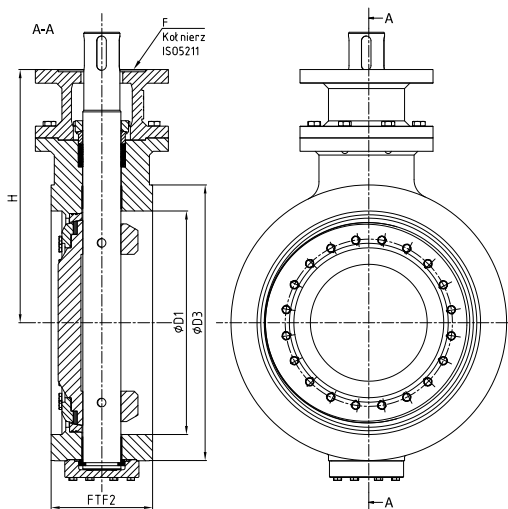
DN	200	250	300	350	400	500
MP [Nm]	430	750	1100	1750	2550	4900
DN	600	700	800	900	1000	>1000
MP [Nm]	8500	12700	19000	27000	37000	on request

**TBHydro provides warranty and post-warranty service 24/7**



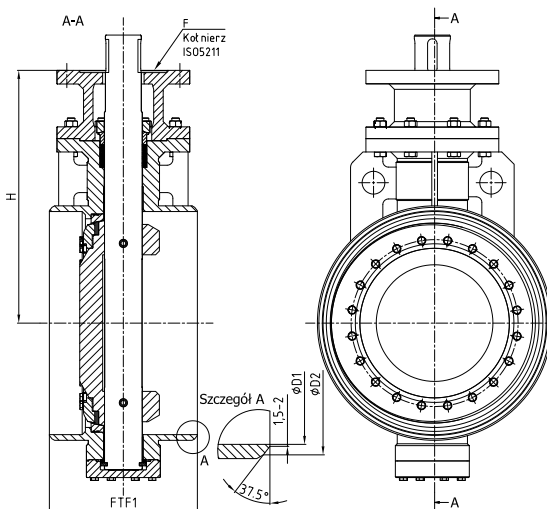
### HBTV-3E-WA - DIMENSIONS

A interflanged connection to a pipeline according to EN 1092-1, length according to EN-558-1 series 13



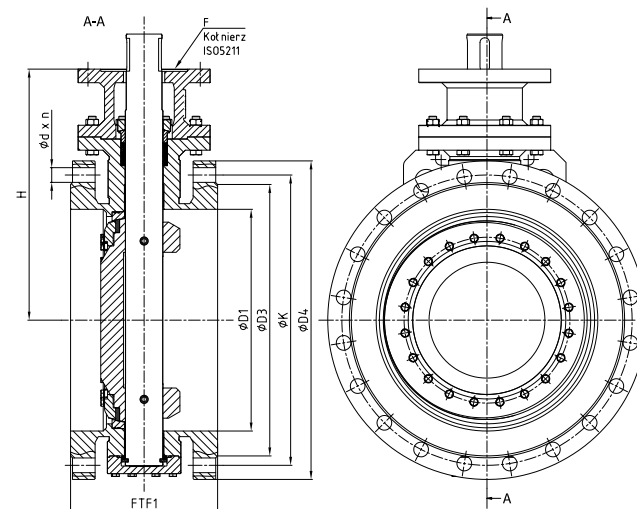
### HBTV-3E-WE - DIMENSIONS

A welded connection with the pipeline according to EN 12627, length according to EN12982



### HBTV-3E-FL - DIMENSIONS

A flange connection to a pipeline according to EN 1092-1, length according to EN-558-1 series 14

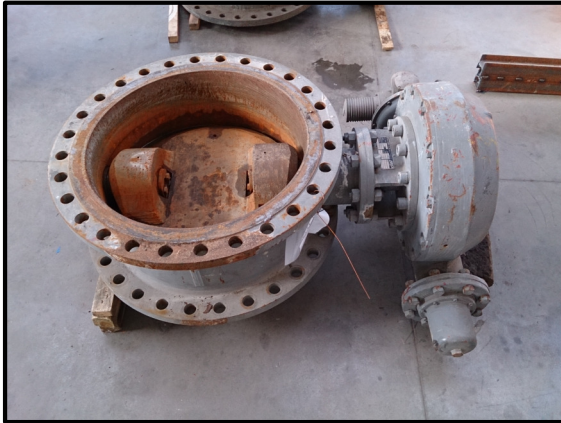


DN	FTF1	FTF2	ØD1	ØD2	PN16				PN25				standard: PU1	option: PU2	Dp=16bar
					ØD3	ØD4	ØK	n x Ød	ØD3	ØD4	ØK	n x Ød	H [mm]	H [mm]	F (ISO5211)
200	230	152	210	219	268	340	295	12 x Ø22	278	360	310	12 x Ø26	320	250	F10
250	250	165	263	273	320	405	355	12 x Ø26	335	425	370	12 x Ø30	350	285	F12
300	270	178	313	327	378	460	410	12 x Ø26	395	485	430	16 x Ø30	390	310	F14
350	290	190	344	357	438	520	470	16 x Ø26	450	555	490	16 x Ø33	450	340	F14
400	310	216	394	406	490	580	525	16 x Ø30	505	620	550	16 x Ø36	500	390	F16
500	350	229	495	508	610	715	650	20 x Ø33	615	730	660	20 x Ø36	550	460	F25
600	390	267	594	610	725	840	770	20 x Ø36	720	845	770	20 x Ø39	665	520	F30
700	430	292	694	711	795	910	840	24 x Ø36	820	960	875	24 x Ø42	720	560	F30
800	470	318	498	813	900	1025	950	24 x Ø39	930	1085	990	24 x Ø48	800	610	F35
900	510	330	894	914	1000	1125	1050	28 x Ø39	1030	1185	1090	28 x Ø48	850	660	F35
1000	550	410	994	1016	1115	1255	1170	28 x Ø42	1140	1320	1210	28 x Ø56	920	730	F40
>1000	on request														

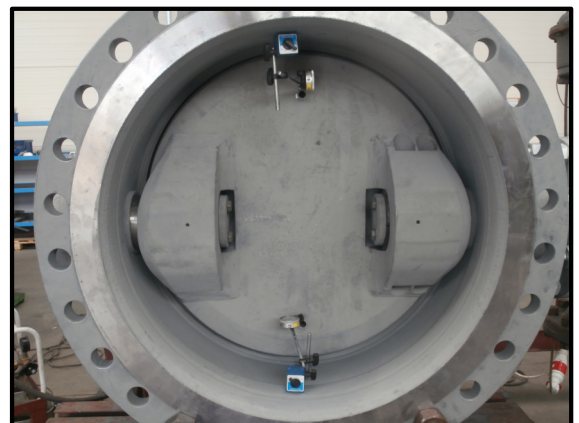
**MAINTENANCE**

**Service is available at client's location.  
Manufacture and repair are conducted in the Wagrowiec factory, Poland.**

**BEFORE**



**AFTER**





**TBHydro**  
**VALVES | HYDROPOWER | THERMAL POWER**

TBHydro designs and manufactures valves and other equipment for hydropower and thermal power industries.  
The company has been established in 1989.



Our team includes well experienced engineers, specialists and project managers. This team has successfully executed variety of projects for large and small international clients. Our designers, in Poznan and Wagrowiec, use modern engineering software, including 3D modeling. Our fabrication facility, in Wagrowiec, is equipped with specialized machines necessary to produce high quality products. TBHydro has been approved by Lloyd's Register Quality Assurance as compliant with Quality Management System Standards ISO 9001:2008

