



**2024**

# **Hawle-Butterfly valve**



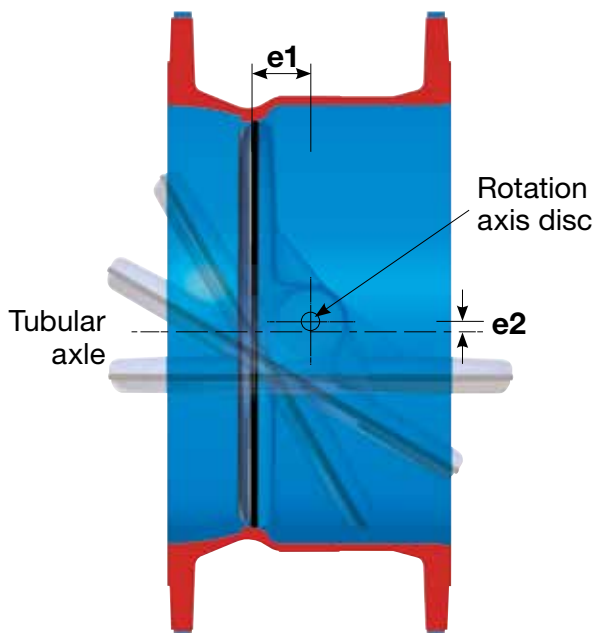
made for generations.

# Welcome to the world of Hawle

Hawle is one of the world's leading manufacturers of individual valve solutions. We are a proud producer of high performance double eccentric butterfly valves including all necessary accessories and equipment in accordance with standard and European norms. Custom made valves for special applications and/or operating conditions are part of our unique speciality.

Our know-how spans a variety of applications. Combining the years of experience with our clear understanding of various customer demands, enables us to configure the optimal valve for our industrial and waterworks customers. A comprehensive service programme ensures years of satisfying product performance.

## Design Features of the Hawle-Butterfly valve



## Installation variants of the butterfly valve



Standard with handwheel  
No. 9881K

## Accessories for standard butterfly valve



Actuator  
No. 9920



Square cap  
No. 2161



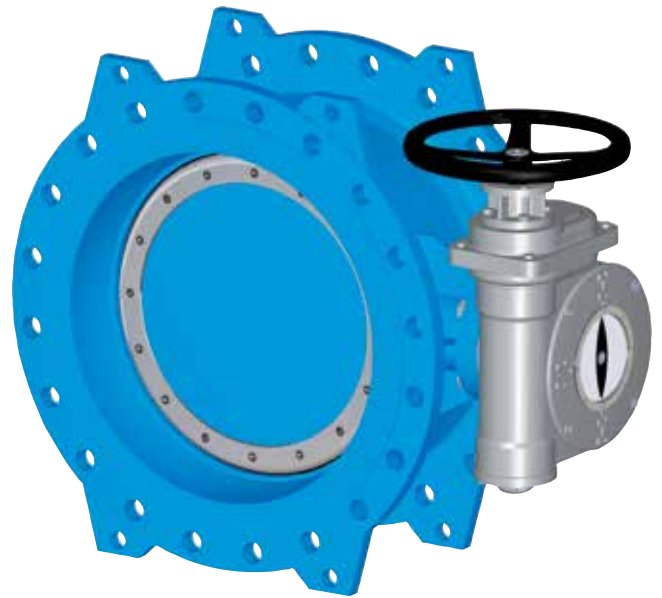
Adaptor  
No. 9211  
Adaptor for extension  
spindle E2/E3, DN 200

The first eccentricity (**e1**) brings the axis of rotation outside the sealing axis. That's why full circle sealing between body seat and sealing ring is achieved. The second eccentricity (**e2**) brings the rotation axle of the disc from the tubular axle. By the help of the second eccentricity the sealing ring is off seated after only a few degrees of movement at open direction. The purpose of the second eccentricity is to quickly relieve rubber seal compression in the area of the disc shafts to eliminate rubber "scuffing" and abrasive wear.

When the valve is open, the rubber is completely unstressed, in this case no permanent compression is retained, even if the valve remains open for years.

### Advantages of double eccentric butterfly valves:

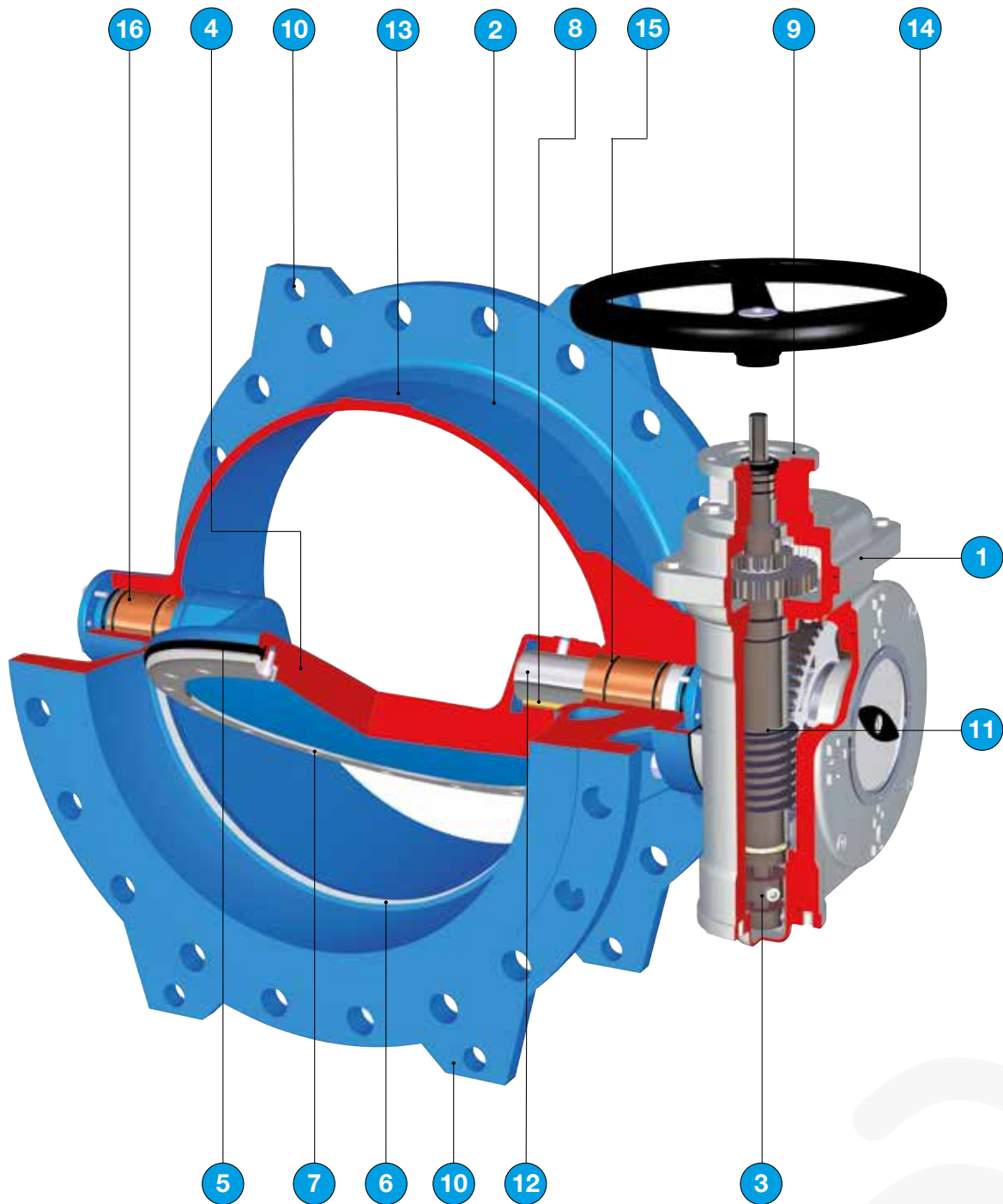
- in open position, sealing ring is completely unstressed
- the forces for opening / closing of the valves are very low
- while opening / closing the sealing ring does not touch the seating area
- long lifetime of the sealing ring
- sealing ring can be easily replaced at site without special tool requirements
- different to centric butterfly valve, the seat has 360° uninterrupted sealing area, therefore the valves are drop tight according to EN 12266 –A



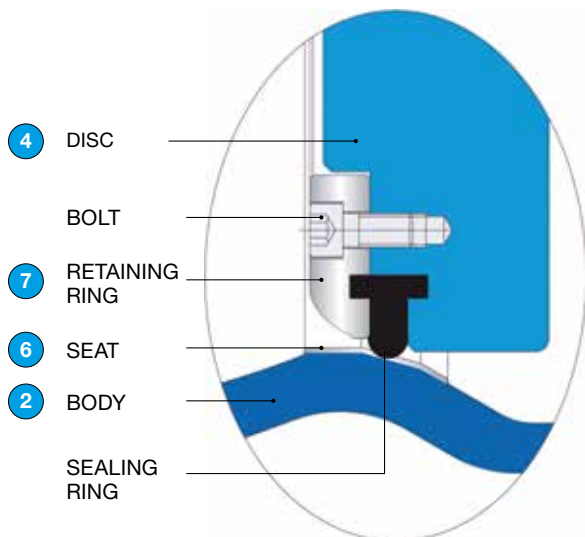
## Technical characteristics

	Standard configuration
Art. No.	9881K
Design	EN 593 Double flanged, double eccentric
Protection class	Gearbox and butterfly IP 68
Nominal sizes	DN 150 – 1400
Pressure rate	PN 10, PN 16
Medium	Potable water, industrial water, raw water
Face to face length	EN 558 – 1 Series 14 (Option: Series 13)
Flanges	EN 1092 – 2 PN 10 / 16
Body	Ductile iron
Disc	Ductile iron
Sealing ring	EPDM-Rubber
Shaft	Stainless steel
Body seat	Stainless steel weld overlay & micro finished
Retaining ring	Stainless steel (Option: steel coated)
Internal fixings	Stainless steel
External fixings	Stainless steel
Bearing bush	Bronze
Coating	Internal and external epoxy-coated, min. 250 µm thickness according to DIN 30677-2
Operation	Manual by worm gearbox and handwheel (Option: electric, pneumatic, hydraulic, actuator)
Medium temperature	According to EN 1074
Colour	RAL 5012
Closing direction	Clockwise (Option: anti clockwise)
Gearbox	Position 01 A with handwheel, other versions on request (see page 6)

# Design features



- 1 Protection class IP 68**  
Butterfly valve and gearbox have protection class IP 68, therefore the standard butterfly valve is suitable for either buried installation or chamber installation.
- 2 Body**  
Streamline design and smooth finish of the body provides minimum resistance to flow.
- 3 Travelling nut**  
Bottom end of the worm shaft is threaded and a travelling nut moves up and down on this threaded spindle. When operating the gear (valve) in “open“ or “close“ direction, the travelling nut also moves towards the corresponding end stop and prevents the over travel of the valve disc.
- 4 Disc**  
Streamlined and low profiled disc including closed hubs ensuring higher Kv values. Double offset disc design reduces seal wear and torque.



- 5 Sealing system**  
Sealing on seat face is ensured by an endless T-profile resilient sealing ring which is held on the periphery of the disc by a retaining ring. In closed position the sealing ring is pressed against the conically shaped seat face of the body and provides safe sealing in either direction of flow. In opened position the sealing ring is completely unstressed due to the double eccentric disc design.

- 6 Body seat**  
Stainless steel weld filled and finished integral body seat ensures a corrosion and erosion resistant seat face. With this special type of seating it is possible to manufacture the valve drop tight.
- 7 Retaining Ring**  
The one piece retaining ring prevents sealing ring from rolling out. Sealing ring can be replaced easily at site without dismantling the valve disc and without requirement of any special tool.
- 8 Shaft connection**  
Positive disc to shaft connection by use of key.
- 9 Top flange**  
All butterfly valves are equipped with ISO top flanges for all types of actuator- operator connections.
- 10 Lifting holes and feet**  
Integral lifting holes provide easy installation and feet ensure strong ground support.
- 11 Worm gear operators**  
Are designed for easy operating of butterfly valve by only one operator
- 12 Shafts**  
Stub shaft design provides minimal restriction to flow.
- 13 Unique tracking number**  
Every valve is equipped with a cast tracking number for easy traceability and identification.
- 14 Handwheel**  
Every valve is equipped with a handwheel (standard version).  
In combination with the gearbox, the valve is designed for one man operation.  
Other accessories for operation i.e. electric actuator or head stock on request.
- 15 Shaft sealing**  
Multiple O-ring shaft sealing system ensures maintenance free sealing for the entire life span.
- 16 Bearing system**  
Self lubricating plain bearings reduce shaft friction and operating torque. These bearings keep the shaft centralised and prevent axial movement.

# Worm gear operators

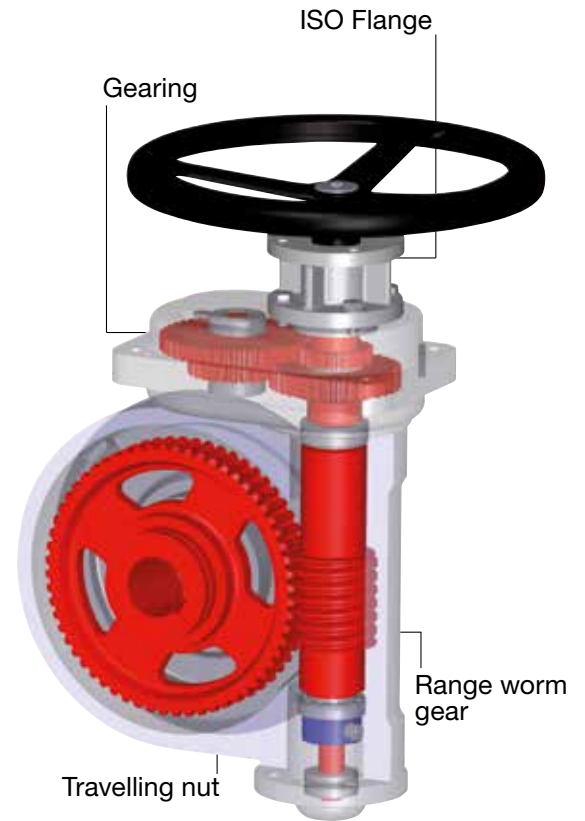
TK-TYPE range worm gear operators have been designed for the operation of butterfly valves. Worm gear operators offer a quarter turn (90°) motion that is required with butterfly valves and disc motion is limited at open and closed positions by travelling nut system.

Self locking (irreversible) gear design guarantees the correct operation and tightness of butterfly valves.

Nine types of worm gear operators cover the torque requirements of the whole range of butterfly valves.

## Design Features

- Robust design
- Factory set 90° swing angle. Setting of the end stop by travelling nut system
- Gearbox mounted direct to the valve without intermediate frange
- Valve attachment according to ISO 5211
- Self locking worm gearing with minimum backlash
- ISO 5210 top flange for mounting of multi-turn actuators
- Mechanical position indicator



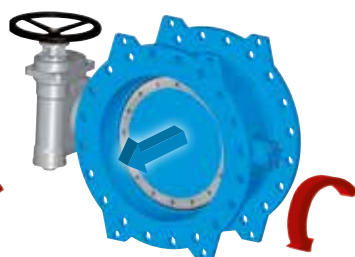
## Possible positions for worm gear operators:

Flow direction of medium

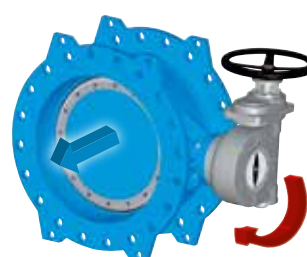
Opening direction disc



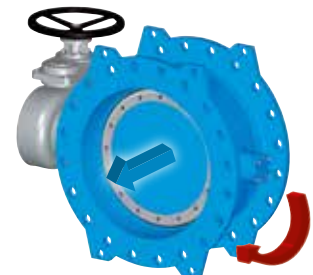
- Design 01:**
- Standard
  - Gear left side
  - opening with flow direction



- Design 02:**
- Optional
  - Gear right side
  - opening with flow direction



- Design 03:**
- Optional
  - Gear left side
  - opening against flow direction



- Design 04:**
- Optional
  - Gear right side
  - opening against flow direction

## Possible positions for handwheels:



- Design A:**
- Standard
  - Handwheel top



- Design B:**
- Optional
  - Handwheel right



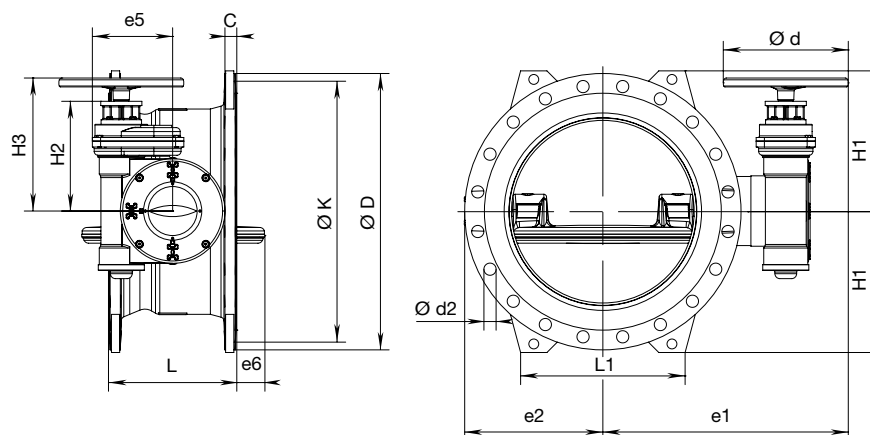
- Design C:**
- Optional
  - Handwheel left



- Design D:**
- Optional
  - Handwheel below

# Technical specifications

## butterfly valve with handwheel, No. 9881K



### Pressure rating PN 10

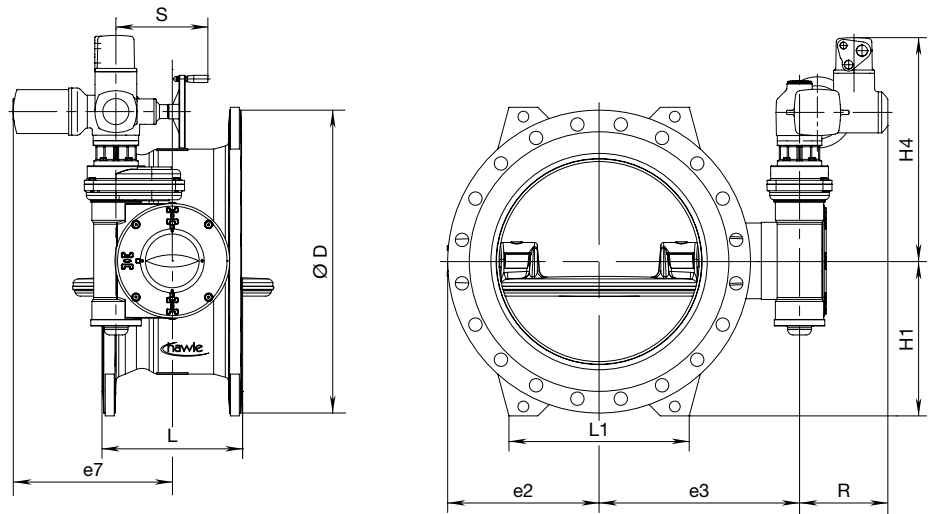
DN	MOP (PN)	L Series 14	L1	e1	e2	e5	e6	Ø d	Ø D	Ø K	C	Bolts		H1	H2	H3	Turns to open / close	Weight
												Qty.	Ø d2					
150	10	210	-	378	151	134	0	245	285	240	19,0	8	23	143	145	212	11,25	45,0
200		230	180	405	177	134	0	245	340	295	20,0	8	23	180	145	212	11,25	60,0
250		250	220	481	214	158	5	245	405	350	22,0	12	23	213	165	239	10	95,0
300		270	280	503	237	158	11	245	460	400	24,5	12	23	242	165	239	10	115,0
350		290	320	595	283	175	28	370	505	460	24,5	16	23	264	186	271	12,5	155,0
400		310	335	626	297	175	43	370	565	515	24,5	16	28	293	186	271	12,5	165,0
450		330	380	670	333	198	57	370	615	565	25,5	20	28	320	287	372	36,25	220,0
500		350	400	701	344	244	67	370	670	620	26,5	20	28	345	336	420	43,5	285,0
600		390	440	749	414	244	98	370	780	725	30,0	20	31	400	336	420	43,5	350,0
700		430	540	838	511	313	126	370	895	840	32,5	24	31	460	399	484	104	575,0
800		470	610	855	530	313	153	370	1015	950	35,0	24	34	520	399	484	104	680,0
900		510	670	965	618	365	181	370	1115	1050	37,5	28	34	568	435	519	192,5	980,0
1000		550	740	1039	650	365	206	370	1230	1160	40,0	28	37	625	435	519	192,5	1155,0
1100		590	750	1022	720	365	237	370	1355	1270	53,5	32	37	695	435	519	192,5	1558,0
1200	630	900	1251	782	515	264	485	1455	1380	45,0	32	41	738	576	625	362,5	1965,0	
1400	710	1160	1349	917	515	323	485	1675	1500	46,0	36	44	848	538	625	362,5	2690,0	

### Pressure rating PN 16

DN	MOP (PN)	L Series 14	L1	e1	e2	e5	e6	Ø d	Ø D	Ø K	C	Bolts		H1	H2	H3	Turns to open / close	Weight
												Qty.	Ø d2					
150	16	210	-	378	151	134	0	245	285	240	19,0	8	23	143	145	212	11,25	45,0
200		230	180	405	177	134	0	245	340	295	20,0	12	23	180	145	212	11,25	60,0
250		250	220	481	214	158	6	245	405	355	22,0	12	28	213	165	239	10	95,0
300		270	280	503	237	158	11	245	460	410	24,5	12	28	242	165	239	10	115,0
350		290	320	595	283	175	28	370	520	470	26,5	16	28	272	186	271	12,5	162,0
400		310	335	626	297	198	43	370	580	525	28,0	16	31	300	287	372	36,25	204,0
450		330	380	670	333	198	57	370	640	585	30,0	20	31	330	287	372	36,25	240,0
500		350	400	721	344	244	67	370	715	650	31,5	20	34	370	336	420	43,5	325,0
600		390	500	779	414	244	98	370	840	770	36,0	20	37	432	336	420	43,5	435,0
700		430	540	838	511	313	126	370	910	840	39,5	24	37	467	399	484	104	610,0
800		470	615	928	530	313	153	370	1025	950	43,0	24	41	525	399	484	104	780,0
900		510	675	1007	618	365	181	370	1125	1050	46,5	28	41	573	435	519	192,5	1065,0
1000		550	740	1039	650	365	206	370	1255	1170	50,0	28	44	638	435	519	192,5	1320,0
1100		590	750	1091	720	365	237	370	1355	1270	53,5	32	44	696	435	519	192,5	1558,0
1200	630	900	1251	782	515	264	485	1485	1390	57,0	32	50	753	576	625	362,5	2375,0	
1400	710	1160	1349	917	515	323	485	1685	1590	60,0	36	50	848	538	625	362,5	2870,0	

# Technical specifications butterfly valve with actuator, No. 9881K

Supplement to table  
„butterfly valve with handwheel“



## Pressure rating PN 10

DN	MOP (PN)	L Serie 14	L1	e2	e3	e7	H1	H4	Ø D	R	S	Gear (Flange)	Turns to open /close	AUMA Type	Weight
150	10	210	-	151	255	336	143	424	285	237	249	TK1 ( F10 )	11,25	SA 07.6	64,0
200		230	180	177	282	336	180	424	340	237	249	TK1 ( F10 )	11,25	SA 07.6	79,0
250		250	220	214	358	377	213	453	405	247	254	TK2 ( F10 )	10	SA 10.2	118,0
300		270	280	237	380	377	242	453	460	247	254	TK2 ( F10 )	10	SA 10.2	138,0
350		290	320	283	410	392	264	474	505	247	254	TK3 ( F10 )	12,5	SA 10.2	176,0
400		310	335	297	441	392	293	474	565	247	254	TK3 ( F10 )	12,5	SA 10.2	186,0
450		330	380	333	460	392	320	575	615	247	254	TK3-R D4 ( F10 )	36,25	SA 10.2	241,0
500		350	400	344	516	438	345	624	670	247	254	TK4-R D4 ( F10 )	43,5	SA 10.2	306,0
600		390	440	414	556	438	400	624	780	247	254	TK4-R D4 ( F10 )	43,5	SA 10.2	371,0
700		430	540	468	613	472	460	687	895	247	254	TK5-R D5 ( F10 )	104	SA 10.2	596,0
800		470	610	530	670	472	520	687	1015	247	254	TK5-R D5 ( F10 )	104	SA 10.2	701,0
900		510	670	578	740	524	568	722	1115	247	254	TK6-R D6 ( F10 )	192,5	SA 10.2	1001,0
1000		550	740	650	797	524	625	722	1230	247	254	TK6-R D6 ( F10 )	192,5	SA 10.2	1176,0
1100		590	750	720	837	524	695	722	1355	247	254	TK6-R D6 ( F10 )	192,5	SA 10.2	1579,0
1200		630	900	782	941	572	738	828	1455	247	254	TK7-R D7 ( F10 )	362,5	SA 10.2	1984,0
1400		710	1160	917	1061	674	848	1051	1675	285	330	TK7-R D7 ( F14 )	362,5	SA 14.2	2770,0

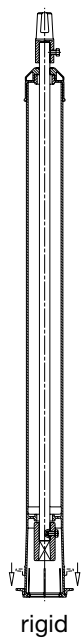
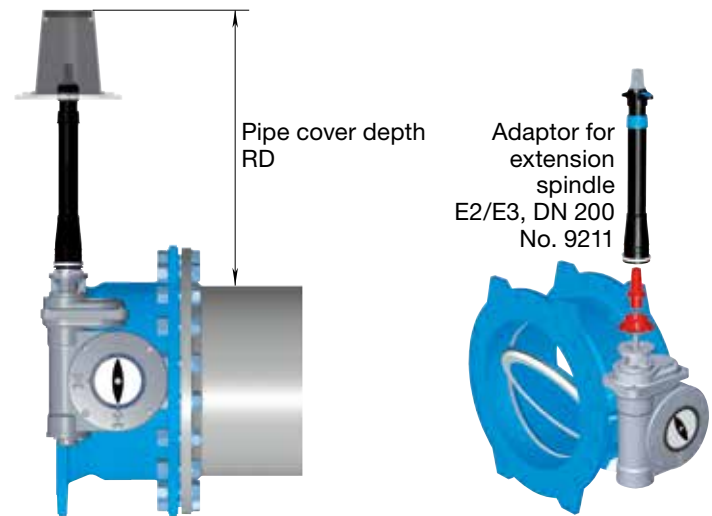
## Pressure rating PN 16

DN	MOP (PN)	L Serie 14	L1	e2	e3	e7	H1	H4	Ø D	R	S	Gear (Flange)	Turns to open /close	AUMA Type	Weight
150	16	210	-	151	255	336	143	424	285	237	249	TK1 ( F10 )	11,25	SA 07.6	64,0
200		230	180	177	282	336	180	424	340	247	254	TK1 ( F10 )	11,25	SA 07.6	83,0
250		250	220	214	358	377	213	453	405	247	254	TK2 ( F10 )	10	SA 10.2	118,0
300		270	280	237	380	377	242	453	460	247	254	TK2 ( F10 )	10	SA 10.2	138,0
350		290	320	283	410	392	272	474	520	247	254	TK3 ( F10 )	12,5	SA 10.2	183,0
400		310	335	297	441	392	300	474	580	247	254	TK3-R D4 ( F10 )	36,25	SA 10.2	225,0
450		330	380	333	460	392	330	575	640	247	254	TK3-R D4 ( F10 )	36,25	SA 10.2	261,0
500		350	400	344	516	438	370	624	715	247	254	TK4-R D4 ( F10 )	43,5	SA 10.2	346,0
600		390	440	414	556	438	432	624	840	247	254	TK4-R D4 ( F10 )	43,5	SA 10.2	456,0
700		430	540	468	613	472	467	687	910	247	254	TK5-R D5 ( F10 )	104	SA 10.2	631,0
800		470	610	530	670	472	525	687	1025	247	254	TK5-R D5 ( F10 )	104	SA 10.2	801,0
900		510	670	578	740	524	573	722	1125	247	254	TK6-R D6 ( F10 )	192,5	SA 10.2	1086,0
1000		550	740	650	797	524	638	722	1255	247	254	TK6-R D6 ( F10 )	192,5	SA 10.2	1341,0
1100		590	750	720	837	524	696	722	1355	247	254	TK6-R D6 ( F10 )	192,5	SA 10.2	1579,0
1200		630	900	782	941	572	753	828	1485	247	254	TK7-R D7 ( F10 )	362,5	SA 10.2	2394,0
1400		710	1160	917	1061	674	848	1051	1685	285	330	TK7-R D7 ( F14 )	362,5	SA 14.2	2930,0



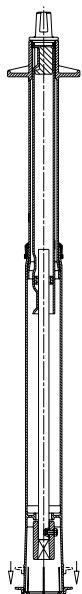
# Butterfly valve with extension spindle

Supplement to table „butterfly valve with handwheel“



rigid

DN	Extension spindle 9000E2/E3 DN 200 - rigid				
	5008145	5008148	5008150	5008151	5008153
	Pipe cover depth RD (m)				
150	0,76	1,01	1,26	1,76	2,26
200	0,73	0,98	1,23	1,73	2,23
250	0,73	0,98	1,23	1,73	2,23
300	0,70	0,95	1,20	1,70	2,20
350	0,69	0,94	1,19	1,69	2,19
400 PN 10	0,66	0,91	1,16	1,66	2,16
400 PN 16	0,77	1,02	1,27	1,77	2,27
450	0,75	1,00	1,25	1,75	2,25
500	0,77	1,02	1,27	1,77	2,27
600	0,72	0,97	1,22	1,72	2,22
700	0,74	0,99	1,24	1,74	2,24
800	0,69	0,94	1,19	1,69	2,19
900	0,67	0,92	1,17	1,67	2,17
1000	0,62	0,87	1,12	1,62	2,12
1100	0,59	0,84	1,09	1,59	2,09
1200	0,62	0,87	1,12	1,62	2,12
1400	0,52	0,77	1,02	1,52	2,02



telescopic

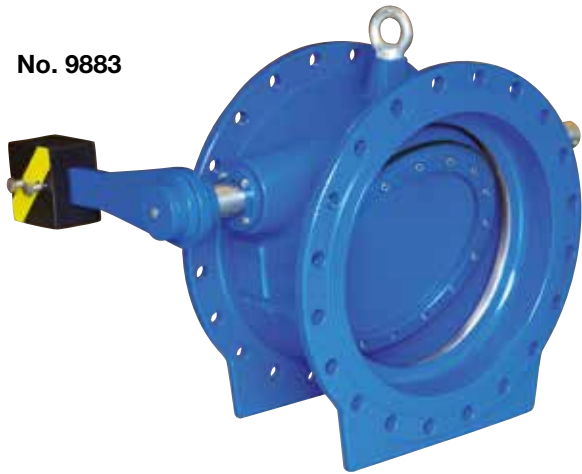
DN	Extension spindle 9500E2 DN 200 - telescopic					
	5008149		5008152		5008154	
	Pipe cover depth RD (m)		Pipe cover depth RD (m)		Pipe cover depth RD (m)	
	min.	max.	min.	max.	min.	max.
150	1,13	1,58	1,56	2,26	2,26	3,26
200	1,11	1,56	1,54	2,24	2,24	3,24
250	1,10	1,55	1,53	2,23	2,23	3,23
300	1,08	1,53	1,51	2,21	2,21	3,21
350	1,07	1,52	1,50	2,20	2,20	3,20
400 PN 10	1,05	1,50	1,48	2,18	2,18	3,18
400 PN 16	1,15	1,60	1,58	2,28	2,28	3,28
450	1,12	1,57	1,55	2,25	2,25	3,25
500	1,15	1,60	1,58	2,28	2,28	3,28
600	1,10	1,55	1,53	2,23	2,23	3,23
700	1,11	1,56	1,54	2,24	2,24	3,24
800	1,06	1,51	1,49	2,19	2,19	3,19
900	1,04	1,49	1,47	2,17	2,17	3,17
1000	0,99	1,44	1,42	2,12	2,12	3,12
1100	0,94	1,39	1,37	2,07	2,07	3,07
1200	1,04	1,49	1,47	2,17	2,17	3,17
1400	0,90	1,35	1,33	2,03	2,03	3,03

# Range of products for water extraction + water transmission

## Tilting type check valves

Are designed as short body, small volume and light weight. The double offset disc is kept in the open position and the degree of disc opening depends on the velocity of flow. They can be mounted in the vertical or horizontal pipeline application. Adjustable weight offers the adaptability to the individual working conditions. These valves are available with metal to metal or resilient seating options.

**DN 150 – 1400** PN 10, PN 16, PN 25



**No. 9883**

## Tilting type check valves with hydraulic damper

If the backflow reaches the check valve before the disc is closed, the result will be slam closing and water hammer. Tilting Disc Check Valves with Hydraulic Damper eliminates slam closing and water hammer for the entire closing stroke. Closing speed is adjustable, depending on working conditions. All components of the valve are designed for high stress occurred during damping effect.

**DN 150 – 1000** PN 10, PN 16, PN 25



**No. 9884**

## Slanted Seat Check Valves

Slanted seat check valves are equipped with a seating plane, creating an angle with the vertical plane to reduce the swing angle and closing time. These check valves can be used in all non return applications.

On request slanted seat check valves can be supplied with external end-stage dampers.

The advantage is a better closing characteristic due to the smaller swing angle of the disc. Due to this the closing time is reduced compared to other check valve types.

No lever and counter weight requirement. These valves are available with metal to metal (9885) or resilient (9886) seating.

**DN 200 – 1200** PN 10, PN 16, PN 25



**No. 9885 / 9886**

# ission

## Silent check valves

Silent check valves are designed to meet non-slam, fast closing characteristics. Spring loaded disc and short closing stroke provides quick response to flow changes. Thus water hammer is minimized and non-slam, quick closing is achieved. Full waterway design provides full pipeline cross section area around the disc in the open position, and assures lowest possible head loss. They are suitable for high flow velocities.

**DN 100 – 1000** PN 10, PN 16, PN 25, PN 40

**No. 9887**



## Dismantling joints

Are double flanged fittings which allow longitudinal adjustment in flanged pipe systems.

It has been developed to provide greater flexibility at both the planning and installation stages of flanged pipework systems and for easy maintenance of flanged valves.

**DN 50 – 1600** PN 10, PN 16, PN 25

**No. 9810**



## Foot valves

Installed in pump suction lines. The foot valve prevents the water column from draining off upon pump stop.

**DN 100 – 1000** PN 10, PN 16, PN 25

**No. 9888**





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