

hawle

HAWLE-**BUTTERFLY VALVE**



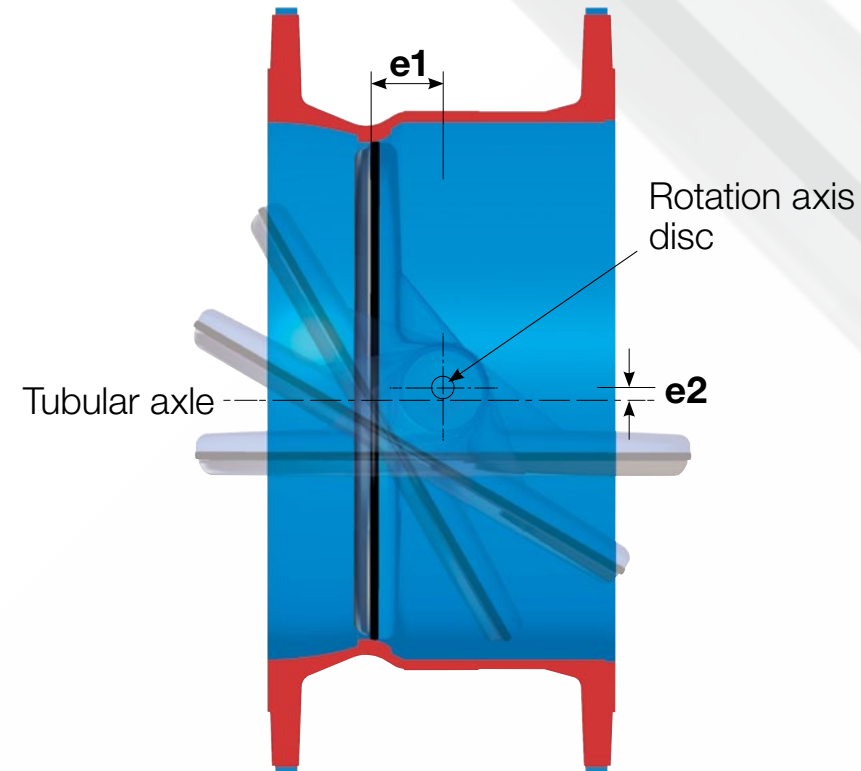
HAWLE. **MADE FOR GENERATIONS.**

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

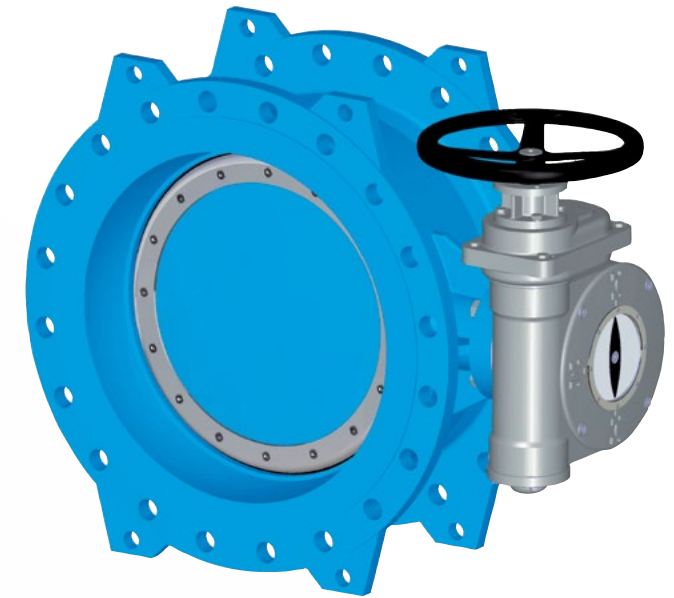


The first eccentricity (**e1**) brings the axis of rotation outside the sealing axis. That's why full circle sealing between body seat and sealing ring is achieved. The second eccentricity (**e2**) brings the rotation axle of the disc from the tubular axle. By the help of the second eccentricity the 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:

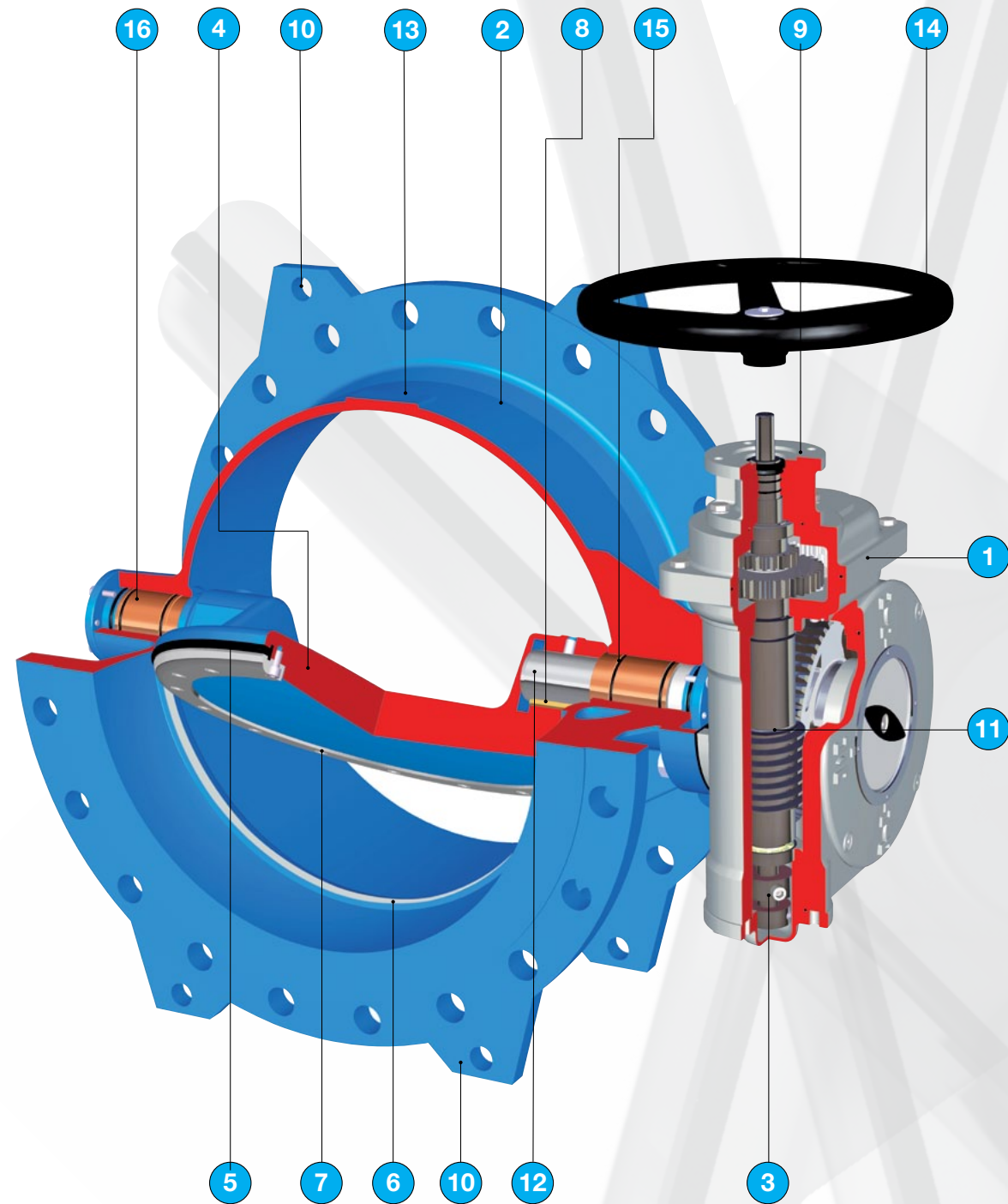
- in open position, sealing ring is completely unstressed
- the forces for opening / closing of the valves are very low
- while opening / closing the sealing ring does not touch the seating area
- long lifetime of the sealing ring
- sealing ring can be easily replaced at site without special tool requirements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



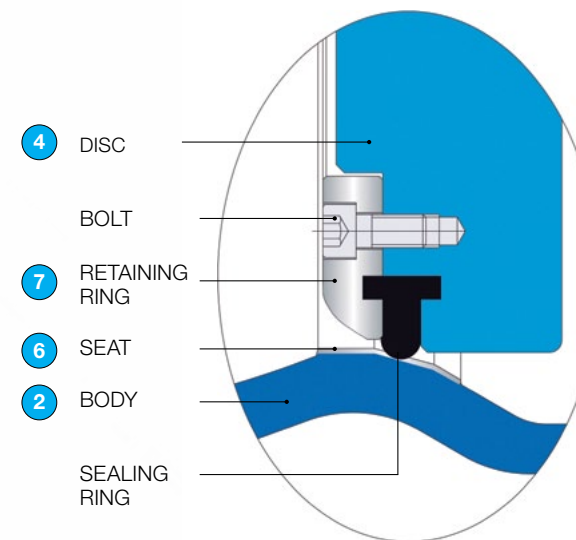
Technical characteristics

	STANDARD CONFIGURATION
Art. No.	9881 K
Design	EN 593 Double flanged, double eccentric
Protection class	Gearbox and butterfly IP 68
Nominal sizes	DN 150 - DN 1200
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 EN 14901
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

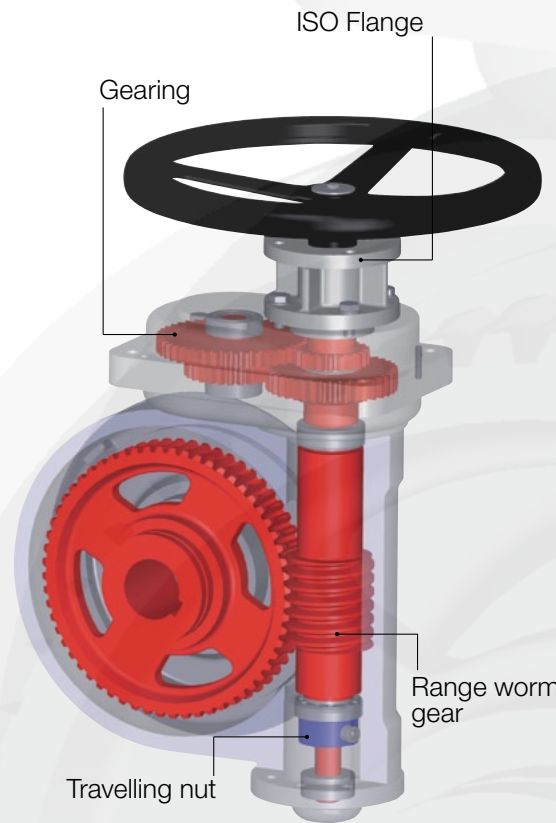
TK-TYPE range worm gear operators have been designed for the operation of butterfly valves. Worm gear operators offer a quarter turn (90°) motion that is required with butterfly valves and disc motion is limited at open and closed positions by travelling nut system.

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.

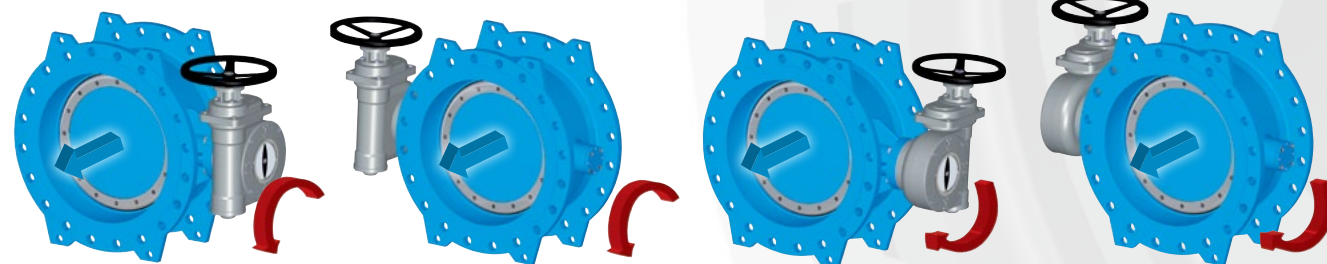
Design Features

- Robust design
- Factory set 90° swing angle. Setting of the end stop by travelling nut system
- Gearbox mounted direct to the valve without intermediate flange
- 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



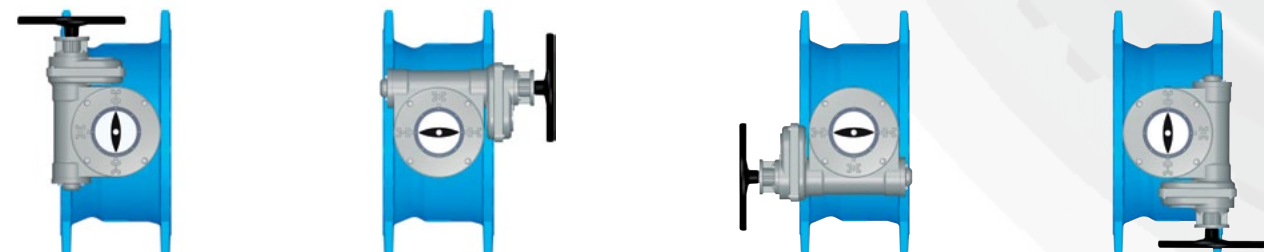
Possible positions for worm gear operators:

Flow direction of medium Opening direction disc



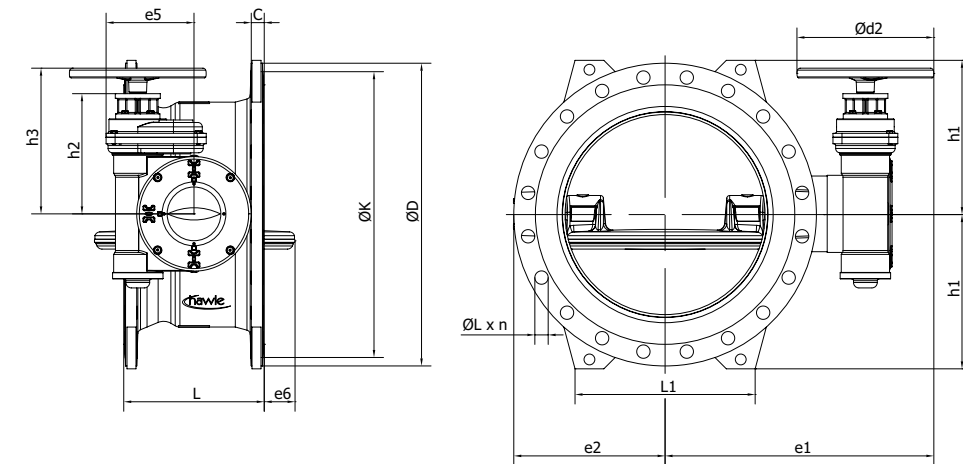
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| <p>Design 01:</p> <ul style="list-style-type: none"> • Standard • Gear left side • opening with flow direction | <p>Design 02:</p> <ul style="list-style-type: none"> • Optional • Gear right side • opening with flow direction | <p>Design 03:</p> <ul style="list-style-type: none"> • Optional • Gear left side • opening against flow direction | <p>Design 04:</p> <ul style="list-style-type: none"> • Optional • Gear right side • opening against flow direction |
|--|---|---|--|

Possible positions for handwheels:



- | | | | |
|---|---|--|---|
| <p>Design A:</p> <ul style="list-style-type: none"> • Standard • Handwheel top | <p>Design B:</p> <ul style="list-style-type: none"> • Optional • Handwheel right | <p>Design C:</p> <ul style="list-style-type: none"> • Optional • Handwheel left | <p>Design D:</p> <ul style="list-style-type: none"> • Optional • Handwheel below |
|---|---|--|---|

TECHNICAL SPECIFICATIONS BUTTERFLY VALVE WITH HANDWHEEL, No. 9881K



Pressure rating PN 10

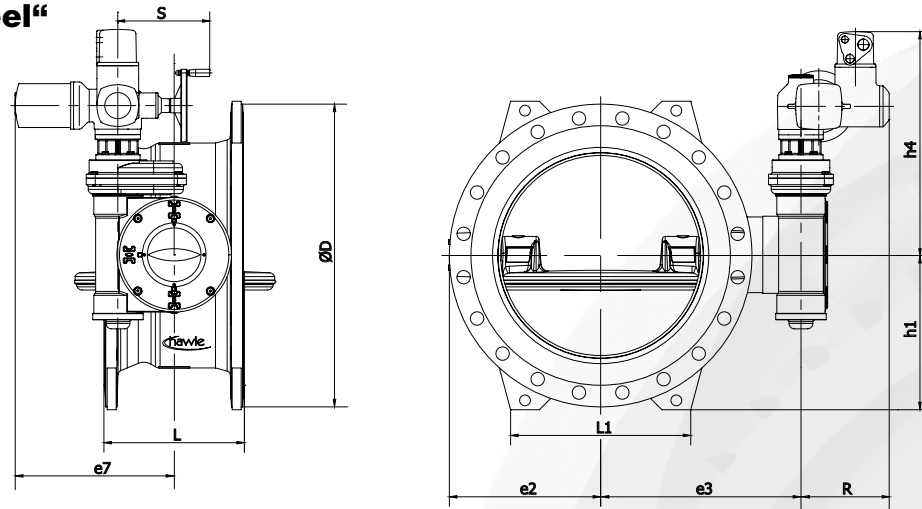
DN	PN	L Series 14	L1	e1	e2	e5	e6	Ød2	ØD	ØK	C	ØL x n	h1	h2	h3	Turns to open / close	Weight kg
150	10	210	-	378	151	134	0	245	285	240	19	23x8	143	145	212	11,25	45
200		230	180	405	177	134	0	245	340	295	20	23x8	180	145	212	11,25	60
250		250	220	481	214	158	5	245	405	350	22	23x12	213	165	239	10	95
300		270	280	503	237	158	11	245	460	400	24.5	23x12	242	165	239	10	115
350		290	320	595	283	175	28	370	505	460	24.5	23x16	264	186	271	12,5	155
400		310	335	626	297	175	43	370	565	515	24.5	28x16	293	186	271	12,5	165
450		330	380	670	333	198	57	370	615	565	25.5	28x20	320	287	372	36,25	220
500		350	400	701	344	244	67	370	670	620	26.5	28x20	345	336	420	43,5	285
600		390	440	749	414	244	98	370	780	725	30	31x20	400	336	420	43,5	350
700		430	540	838	511	313	126	370	895	840	32.5	31x24	460	399	484	104	575
800		470	610	855	530	313	153	370	1015	950	35	34x24	520	399	484	104	680
900		510	670	965	618	365	181	370	1115	1050	37.5	34x28	568	435	519	192,5	980
1000	550	740	1039	650	365	206	370	1230	1160	40	37x28	625	435	519	192,5	1155	
1100	590	750	1022	720	365	237	370	1355	1270	53.5	37x32	695	435	519	192,5	1558	
1200	630	900	1251	782	515	264	485	1455	1380	45	41x32	738	576	625	362,5	1965	

Pressure rating PN 16

DN	PN	L Series 14	L1	e1	e2	e5	e6	Ød2	ØD	ØK	C	ØL x n	h1	h2	h3	Turns to open / close	Weight kg
150	16	210	-	378	151	134	0	245	285	240	19	23x8	143	145	212	11,25	45
200		230	180	405	177	134	0	245	340	295	20	23x12	180	145	212	11,25	60
250		250	220	481	214	158	6	245	405	355	22	28x12	213	165	239	10	95
300		270	280	503	237	158	11	245	460	410	24.5	28x12	242	165	239	10	115
350		290	320	595	283	175	28	370	520	470	26.5	28x16	272	186	271	12,5	162
400		310	335	626	297	198	43	370	580	525	28	31x16	300	287	372	36,25	204
450		330	380	670	333	198	57	370	640	585	30	31x20	330	287	372	36,25	240
500		350	400	721	344	244	67	370	715	650	31.5	34x20	370	336	420	43,5	325
600		390	500	779	414	244	98	370	840	770	36	37x20	432	336	420	43,5	435
700		430	540	838	511	313	126	370	910	840	39.5	37x24	467	399	484	104	610
800		470	615	928	530	313	153	370	1025	950	43	41x24	525	399	484	104	780
900		510	675	1007	618	365	181	370	1125	1050	46.5	41x28	573	435	519	192,5	1065
1000	550	740	1039	650	365	206	370	1255	1170	50	44x28	638	435	519	192,5	1320	
1100	590	750	1091	720	365	237	370	1355	1270	53.5	44x32	696	435	519	192,5	1558	
1200	630	900	1251	782	515	264	485	1485	1390	57	50x32	753	576	625	362,5	2375	

TECHNICAL SPECIFICATIONS BUTTERFLY VALVE WITH ACTUATOR, No. 9881K

Supplement to table
„butterfly valve with handwheel“



Pressure rating PN 10

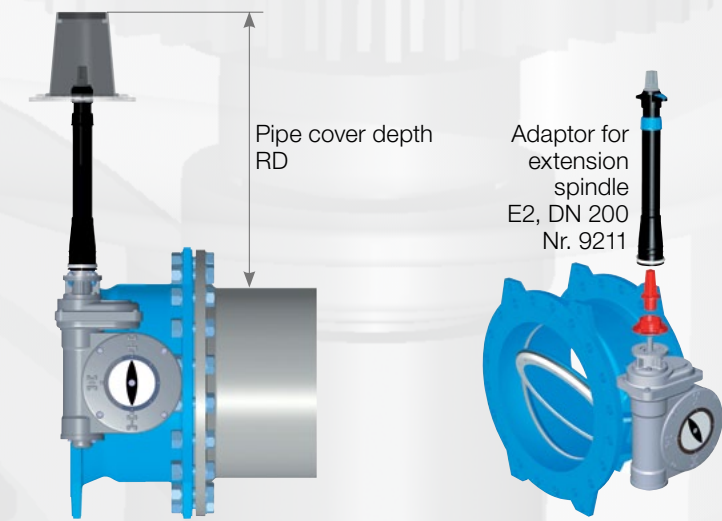
DN	PN	L Serie 14	L1	e2	e3	e7	h1	h4	ØD	R	S	Gear (Flange)	Turns to open /close	AUMA Type	Weight kg
150	10	210	-	151	255	336	143	424	285	237	249	TK1 (F10)	11,25	SA 07.6	64
200		230	180	177	282	336	180	424	340	237	249	TK1 (F10)	11,25	SA 07.6	79
250		250	220	214	358	377	213	453	405	247	254	TK2 (F10)	10	SA 10.2	118
300		270	280	237	380	377	242	453	460	247	254	TK2 (F10)	10	SA 10.2	138
350		290	320	283	410	392	264	474	505	247	254	TK3 (F10)	12,5	SA 10.2	176
400		310	335	297	441	392	293	474	565	247	254	TK3-R D4 (F10)	12,5	SA 10.2	186
450		330	380	333	460	392	320	575	615	247	254	TK3-R D4 (F10)	36,25	SA 10.2	241
500		350	400	344	516	438	345	624	670	247	254	TK4-R D4 (F10)	43,5	SA 10.2	306
600		390	440	414	556	438	400	624	780	247	254	TK4-R D4 (F10)	43,5	SA 10.2	371
700		430	540	468	613	472	460	687	895	247	254	TK5-R D5 (F10)	104	SA 10.2	596
800		470	610	530	670	472	520	687	1015	247	254	TK5-R D5 (F10)	104	SA 10.2	701
900		510	670	578	740	524	568	722	1115	247	254	TK6-R D6 (F10)	192,5	SA 10.2	1001
1000	550	740	650	797	524	625	722	1230	247	254	TK6-R D6 (F10)	192,5	SA 10.2	1176	
1100	590	750	720	837	524	695	722	1355	247	254	TK6-R D6 (F10)	192,5	SA 10.2	1579	
1200	630	900	782	941	572	738	828	1455	247	254	TK7-R D7 (F10)	362,5	SA 10.2	1984	

Pressure rating PN 16

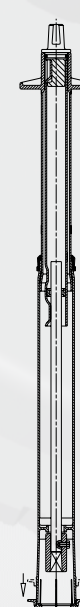
DN	PN	L Serie 14	L1	e2	e3	e7	h1	h4	ØD	R	S	Gear (Flange)	Turns to open /close	AUMA Type	Weight kg
150	16	210	-	151	255	336	143	424	285	237	249	TK1 (F10)	11,25	SA 07.6	64
200		230	180	177	282	336	180	424	340	247	254	TK1 (F10)	11,25	SA 07.6	83
250		250	220	214	358	377	213	453	405	247	254	TK2 (F10)	10	SA 10.2	118
300		270	280	237	380	377	242	453	460	247	254	TK2 (F10)	10	SA 10.2	138
350		290	320	283	410	392	272	474	520	247	254	TK3 (F10)	12,5	SA 10.2	183
400		310	335	297	441	392	300	474	580	247	254	TK3-R D4 (F10)	12,5	SA 10.2	225
450		330	380	333	460	392	330	575	640	247	254	TK3-R D4 (F10)	36,25	SA 10.2	261
500		350	400	344	516	438	370	624	715	247	254	TK4-R D4 (F10)	43,5	SA 10.2	346
600		390	440	414	556	438	432	624	840	247	254	TK4-R D4 (F10)	43,5	SA 10.2	456
700		430	540	468	613	472	467	687	910	247	254	TK5-R D5 (F10)	104	SA 10.2	631
800		470	610	530	670	472	525	687	1025	247	254	TK5-R D5 (F10)	104	SA 10.2	801
900		510	670	578	740	524	573	722	1125	247	254	TK6-R D6 (F10)	192,5	SA 10.2	1086
1000	550	740	650	797	524	638	722	1255	247	254	TK6-R D6 (F10)	192,5	SA 10.2	1341	
1100	590	750	720	837	524	696	722	1355	247	254	TK6-R D6 (F10)	192,5	SA 10.2	1579	
1200	630	900	782	941	572	753	828	1485	247	254	TK7-R D7 (F10)	362,5	SA 10.2	2394	

BUTTERFLY VALVE WITH EXTENSION SPINDLE

Supplement to table
„butterfly valve with handwheel“



rigid



telescopic

DN	Extension spindle 9000E2 DN200 - rigid				
	HEKR00561000	HEKR00561250	HEKR00561500	HEKR00562000	HEKR00562500
	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 PN10	0,66	0,91	1,16	1,66	2,16
400 PN16	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	0,66	0,91	1,16	1,66	2,16

DN	Extension spindle 9500E2 DN200 - telescopic					
	HEKR0056135180		HEKR0056200250		HEKR0056250350	
	Pipe cover depth RD (m)		Pipe cover depth RD (m)		Pipe cover depth RD (m)	
	min.	max.	min.	max.	min.	max.
150	0,86	1,57	1,73	2,25	2,22	3,25
200	0,83	1,54	1,70	2,22	2,19	3,22
250	0,83	1,54	1,70	2,22	2,19	3,22
300	0,80	1,51	1,67	2,19	2,16	3,19
350	0,79	1,50	1,66	2,18	2,15	3,18
400 PN10	0,76	1,47	1,63	2,15	2,12	3,15
400 PN16	0,87	1,58	1,74	2,26	2,23	3,26
450	0,85	1,56	1,72	2,24	2,21	3,24
500	0,87	1,58	1,74	2,26	2,23	3,26
600	0,82	1,53	1,69	2,21	2,18	3,21
700	0,84	1,55	1,71	2,23	2,20	3,23
800	0,79	1,50	1,66	2,18	2,15	3,18
900	0,77	1,48	1,64	2,16	2,13	3,16
1000	0,72	1,43	1,59	2,11	2,08	3,11
1100	0,69	1,40	1,56	2,08	2,05	3,08
1200	0,76	1,47	1,63	2,15	2,12	3,15

RANGE OF PRODUCTS FOR WATER EXTRACTION

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 – DN 1400 PN 10, PN 16, PN 25

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 200 - DN 1000 PN 10, PN 16, PN 25

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 – DN 1200 PN 10, PN 16, PN 25

*other applications on request!

No. 9883



No. 9884



No. 9885 / 9886



+ WATER TRANSMISSION

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 – DN 1000 PN 10, PN 16, PN 25, PN 40

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 80 – DN 2500 PN 10, PN 16, PN 25

Foot valves

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

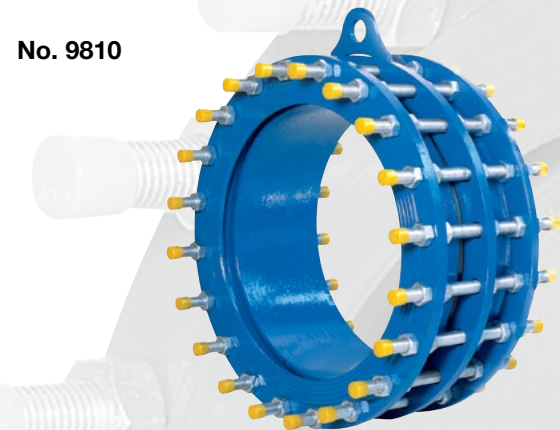
DN 100 – DN 1000 PN 10, PN 16, PN 25

*other applications on request!

No. 9887



No. 9810



No. 9888



INSTALLATION VARIANTS OF THE BUTTERFLY VALVE

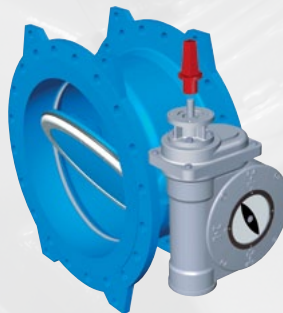


Standard with handwheel
No. 9881K

Accessories for standard butterfly valve



Actuator
No. 9920



Square cap
No. 2161
(DN 150 - DN 1200)



Adaptor
Adaptor for extension spindle
E2, DN 200
No. 9211 (DN 150 - DN 1200)

Your distributor: