

ÖZKAN LEAD WATER TO THE NEXT LEVEL.

member of HAWLE Austria Group



BUTTERFLY VALVES











- Variable choice of actuators.
- Bi-directional tightness.
- Drop tight shut-off at rated pressure.
- Suitable for isolation and control service.
- Maintenance free design.
- Low operating torque requirement.
- Easy installation.
- Light weight and smaller volume requirement.
- ÖVGW approval for potable water.













APPLICATION AREAS

- Pumping stations.

- Treatment plants.

- Reservoirs.

- Pipelines

- Power stations (cooling water circuits)

- Desalination plants.

- Industrial applications.

Design: En 593 (which replaced BS 5155 and DIN 3354)

Normal Sizes (DN): DN 150, 200, 250, 300, 350, 400, 450, 500, 600, 700, 750,

800, 900, 1000, 1100, 1200, 1300, 1400, 1500, 1600, 1700,

1800, 2000, 2200, 2400, 2500

Pressure Rates : PN 10, PN 16, PN 25, PN 40, PN 63, CI 50, CI 300

Face to Face : EN 558-1 Series 13 and 14 (which replaced BS 5155 and DIN 3202)

Flange Connection: EN 1092-2

Optional Flange

Connection : ANSI B 16,5, ASME B 16,5 ASME B 16.47 Series A,

AWWA C 207, SANS 1123 (South Africa), AS 4087 - AS 2129

(Australia), ISO 7005, BS4504

Temperature Range : According to EN 1074

Works Tests : EN 1074 EN 12266







DESIGN **PROPERTIES**

1. Body

Streamlined design and smooth finish of the body provides minimum resistance to flow.

2. Disc

Streamlined and low profiled disc ensuring higher Cv values. Double offset disc design reduces seal wear and torque.

3. 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. In closed position of disc the resilient sealing is pressed against the cone shaped seat face of the body and provide safe sealing in either direction of flow. In opened position of disc, sealing ring is completely unstressed due to the double eccentric disc design. 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 any special tool requirement.

4. Shafts

Stub shaft design provides small restriction of the passage.

5. Shaft Connection

Positive disc to shaft connection by the help of key.

6. Bearing System

Self lubricating plain bearings reduce shaft friction and operating torque. These bearings keep the disc in center and prevent axial movements.

7. Shaft Sealing

Double O-ring shaft sealing system ensures maintenance free sealing for life span.

8. Top Flange

All butterfly valves are equipped with ISO top flanges for all types of actuator-operator connections.

9. Lifting Holes and Feet

Integral lifting holes provide easy installation and feet ensure strong ground support.

10. Body Seat

Stainless steel weld filed and finished integral body seat ensures a corrosion, erosion resistant seat face.

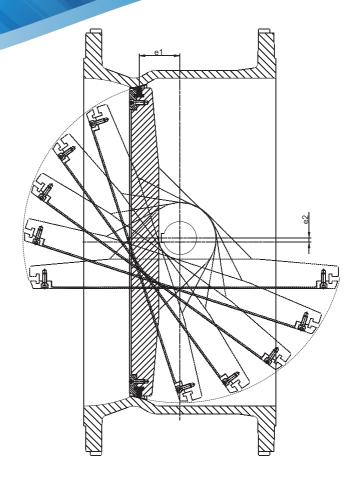
11. Coating

Fusion bonded epoxy, Two pack epoxy, Solvent-free epoxy, Coal tar epoxy.





DESIGN PROPERTIES



Butterfly Valves

Double Eccentricity

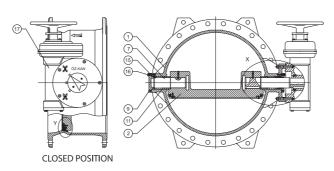
The first eccentricity (e1) brings the axis of rotation outside the sealing axis. That's why full circle sealing between body seat and sealing ring is achieved. The second eccentricity (e2) brings the axis of the disc from axis of the valve. By the help of second eccentricity the sealing ring is off 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 "scruffing" and abrasive wear.

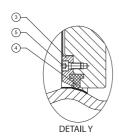
When the valve is open, the rubber is completely unstressed, so that no permanent impression is retained, even if the valve remains open for years.

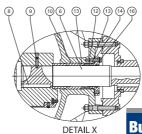




MATERIAL PROPERTIES







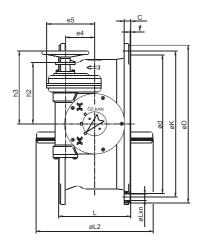
PART NO	DESCRIPTION	MATERIAL						
1	Body	Ductile cast iron EN-GJS-400-15						
2	Disc	Ductile cast iron EN-GJS-400-15						
3	Retaining ring	Steel S235JR						
4	Sealing ring	EPDM						
5	Hex. socket head cap screw	Stainless steel A2						
6	Shaft - driven end	Stainless steel X20Cr13						
7	Shaft - free end	Stainless steel X20Cr13						
8	Key	Steel Ck45						
9	Hex. socket set screw	Stainless steel A2						
10	Bearing bush	Bronze						
11	Bearing bush	Bronze						
12	Spacer bush	Delrin						
13	O-ring	EPDM						
14	Cover - driven end	Ductile cast iron EN-GJS-400-15						
15	Cover - free end	Ductile cast iron EN-GJS-400-15						
16	Hex.bolt	Stainless steel A2						
17	Worm gear unit	-						

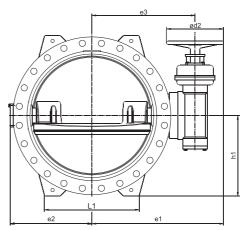
^{*} Other material grades are available upon request.





PN-10 **TECHNICAL INFORMATION**





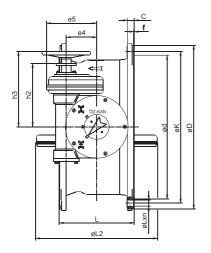
DN	PN	L Seri 14	L Seri 13	L1	L2	e1	e2	e3	e4	e5	Ød2	h1	h2	h3	GEARBOX	WEIGHT (KG)
150	10	210	140	_	152	378	151	255	71	134	245	143	136	212	TK1	43
200	10	230	152	180	199	405	177	282	71	134	245	180	136	212	TK1	58
250	10	250	165	220	251	481	214	352	95	158	245	213	163	239	TK2	95
300	10	270	178	280	281	503	237	380	95	158	245	242	163	239	TK2	114
350	10	290	190	320	336	595	283	410	110	175	370	264	184	271	TK3	155
400	10	310	216	335	385	626	297	441	110	175	370	293	184	271	TK3	175
450	10	330	222	380	434	670	333	485	110	198	370	320	285	372	TK3-R D4	220
500	10	350	229	400	474	701	344	516	156	245	370	345	334	420	TK4-R D4	285
600	10	390	267	440	576	749	414	564	156	245	370	400	334	420	TK4-R D4	345
700	10	430	292	540	671	838	511	653	190	313	370	460	397	484	TK5-R D5	530
750	10	450	305	580	710	882	542	697	190	313	370	496	397	484	TK5-R D5	690
800	10	470	318	610	766	855	530	670	190	313	370	520	397	484	TK5-R D5	680
900	10	510	330	670	861	965	618	780	242	365	370	568	432	519	TK6-R D6	915
1000	10	550	410	740	951	1039	650	854	242	365	370	625	432	519	TK6-R D6	1130
1100	10	590	440	750	1053	1022	720	837	242	365	370	695	432	519	TK6-R D6	1570
1200	10	630	470	900	1147	1251	782	1008	290	515	485	738	538	625	TK7-R D7	1965
1300	10	670	-	988	1248	1301	867	1059	290	515	485	803	538	625	TK7-R D7	2867
1400	10	710	530	1160	1345	1349	917	1101	290	515	485	848	538	625	TK7-R D7	2620
1500	10	750	-	1080	1435	1411	1015	1168	431	656	485	910	681	768	TK8-R D8	3440
1600	10	790	600	1250	1537	1483	1060	1240	431	656	485	970	681	768	TK8-R D8	3920
1800	10	870	670	1220	1722	1586	1183	1343	431	656	485	1075	681	768	TK8-R D8	4760
2000	10	950	760	1300	1901	1769	1303	1526	431	656	485	1183	681	768	TK8-R D8	6300
2200	10	1030	-	1500	2085	1906	1420	1603	431	656	605	1285	809	909	TK8-R D8 5	8500
2400	10	1110	-	1600	2308	2095	1593	1792	519	744	605	1390	898	998	TK10-R D10 5	12900
2500	10	1150	-	1600	2396	2122	1610	1819	519	744	605	1440	898	998	TK10-R D10 5	13820

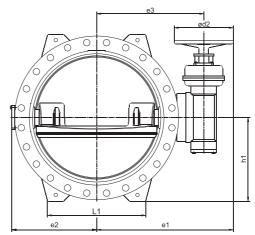
^{*} Please contact us for other sizes and pressure rates.





PN-16 TECHNICAL INFORMATION





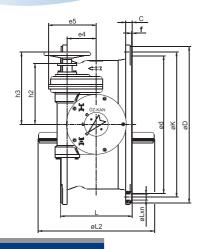
DN	PN	L Seri 14	L Seri 13	L1	L2	e1	e2	e3	e4	e5	Ød2	h1	h2	h3	GEARBOX	WEIGHT (KG)
150	16	210	140	_	152	378	151	255	71	134	245	143	136	212	TK1	43
200	16	230	152	180	199	405	177	282	71	134	245	180	136	212	TK1	58
250	16	250	165	220	251	481	214	352	95	158	245	213	163	239	TK2	95
300	16	270	178	280	281	503	237	380	95	158	245	242	163	239	TK2	114
350	16	290	190	320	336	595	283	410	110	175	370	272	184	271	TK3	160
400	16	310	216	335	385	626	297	441	110	198	370	300	285	372	TK3-R D4	208
450	16	330	222	380	434	670	333	485	110	198	370	330	285	372	TK3-R D4	240
500	16	350	229	400	474	721	344	531	156	245	370	370	334	420	TK4-R D4	325
600	16	390	267	500	576	779	414	594	156	245	370	432	334	420	TK4-R D4	435
700	16	430	292	540	671	838	511	653	190	313	370	467	397	484	TK5-R D5	610
750	16	450	305	580	710	882	542	697	190	313	370	496	397	484	TK5-R D5	707
800	16	470	318	615	766	928	530	743	190	313	370	525	397	484	TK5-R D5	775
900	16	510	330	675	861	1007	618	802	242	365	370	573	432	519	TK6-R D6	1020
1000	16	550	410	740	951	1039	650	854	242	365	370	638	432	519	TK6-R D6	1285
1100	16	590	440	750	1053	1091	720	906	242	365	370	696	432	519	TK6-R D6	1545
1200	16	630	470	900	1147	1251	782	1008	290	515	485	753	538	625	TK7-R D7	2285
1300	16	670	-	988	1248	1301	867	1059	290	515	485	803	538	625	TK7-R D7	2867
1400	16	710	530	1160	1345	1349	917	1101	290	515	485	848	538	625	TK7-R D7	2870
1500	16	750	-	1153	1435	1385	986	1142	431	656	485	930	681	768	TK8-R D8	4055
1600	16	790	600	1250	1537	1508	1115	1265	431	656	485	975	681	768	TK8-R D8	4590
1800	16	870	670	1220	1722	1630	1217	1387	431	656	485	1080	681	768	TK8-R D8	5580
2000	16	950	760	1300	1901	1769	1303	1526	431	656	485	1193	681	768	TK8-R D8	8500
2200	16	1030	-	1500	2085	1975	1460	1672	519	744	605	1290	898	998	TK10-R D10 5	11220
2400	16	1110	-	1630	2308	2095	1593	1792	519	744	605	1390	898	998	TK10-R D10 5	14650
2500	16	1150	-	1650	2396	2122	1610	1819	519	744	605	1440	898	998	TK10-R D10 5	16040

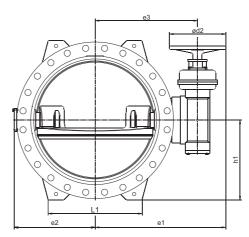
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PN-25
TECHNICAL INFORMATION





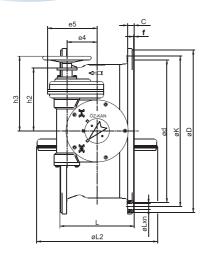
DN	PN	L Seri 14	L Seri 13	L1	L2	e1	e2	e3	e4	e5	Ød2	h1	h2	h3	GEARBOX	WEIGHT (KG)
150	25	210	140	-	152	378	151	255	71	134	245	150	136	212	TK1	55
200	25	230	152	200	199	462	198	339	95	158	245	190	163	239	TK2	80
250	25	250	165	305	251	556	250	371	110	175	370	223	184	271	TK3	160
300	25	270	178	340	281	591	277	406	110	198	370	253	285	372	TK3-R D4	185
350	25	290	190	320	336	619	294	434	110	198	370	288	285	372	TK3-R D4	216
400	25	310	216	375	379	663	342	478	156	245	370	320	334	420	TK4-R D4	295
450	25	330	222	470	427	709	382	524	156	245	370	345	334	420	TK4-R D4	352
500	25	350	229	430	474	745	410	560	190	313	370	375	397	484	TK5-R D5	475
600	25	390	267	530	567	798	461	611	190	313	370	433	397	484	TK5-R D5	655
700	25	430	292	640	663	877	535	682	242	365	370	490	432	519	TK6-R D6	900
750	25	450	305	600	710	907	542	722	242	365	370	526	432	519	TK6-R D6	960
800	25	470	318	575	747	974	590	789	242	365	370	560	432	519	TK6-R D6	1184
900	25	510	330	745	854	1114	685	871	290	515	485	610	538	625	TK7-R D7	1800
1000	25	550	410	760	952	1171	741	928	290	515	485	675	538	625	TK7-R D7	2120
1200	25	630	470	880	1148	1286	824	1043	290	515	485	775	538	625	TK7-R D7	2780
1400	25	710	530	1010	1345	1476	964	1233	431	656	485	888	681	768	TK8-R D8	4210
1600	25	790	600	1210	1543	1603	1110	1300	431	656	605	1000	809	909	TK8-R D8 5	5640
1800	25	870	670	1345	1678	1833	1255	1530	519	744	605	1118	898	998	TK10-R D10 5	9100
2000	25	950	760	1400	1886	1886	1353	1583	519	744	605	1228	898	998	TK10-R D10 5	11560
2500	25	1150	-	1785	2405	2121	1615	1819	519	744	605	1530	898	998	TK10-R D10 5	17805

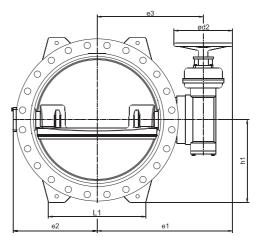
^{*} Please contact us for other sizes and pressure rates.





PN-40 TECHNICAL INFORMATION



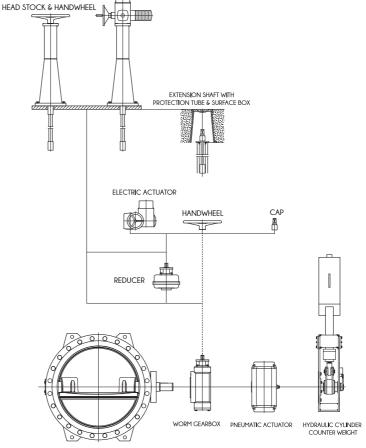


DN	PN	L Seri 14	L1	L2	e1	e2	е3	e4	e5	Ød2	h1	h2	h3	GEARBOX	WEIGHT (KG)
150	40	210	-	152	378	151	255	71	134	245	150	136	212	TK1	55
200	40	230	200	199	462	198	389	95	158	245	198	163	239	TK2	119
250	40	250	305	251	579	250	394	110	198	370	235	285	372	TK3-R D4	180
300	40	270	340	281	610	277	425	110	198	370	268	285	372	TK3-R D4	210
350	40	290	360	336	631	294	446	156	245	370	300	334	420	TK4-R D4	296
400	40	310	380	379	696	342	511	156	245	370	340	334	420	TK4-R D4	360
450	40	330	470	422	716	386	531	190	313	370	353	357	484	TK5-R D5	490
500	40	350	440	467	762	412	577	190	313	370	388	397	484	TK5-R D5	545
600	40	390	530	567	828	461	643	190	313	370	455	397	484	TK5-R D5	740
700	40	430	640	663	877	535	692	242	365	370	508	432	519	TK6-R D6	1079
800	40	470	568	748	1068	592	825	290	515	485	580	538	625	TK7-R D7	1828
900	40	510	745	855	1114	685	871	290	515	485	645	538	625	TK7-R D7	2280
1000	40	550	800	949	1188	725	945	290	515	485	695	538	625	TK7-R D7	2530
1200	40	630	880	1126	1316	883	1073	431	656	485	800	681	768	TK8-R D8	3906
1400	40	710	1110	1314	1536	968	1233	431	656	605	915	809	909	TK8-R D8 5	5340
1600	40	790	1250	1485	1733	1133	1430	519	744	605	1030	898	998	TK10-R D10 5	8820
1800	40	870	1350	1674	1833	1318	1530	519	744	605	1140	898	998	TK10-R D10 5	11480

^{*} Please contact us for other sizes and pressure rates



OPERATION OPTIONS



Butterfly Valves

BARE SHAFT BUTTERFLY VALVE





DESIGN **PROPERTIES**

TK Range worm gear operators have been designed and developed by ÖZKAN for the operation of Butterfly valves. Worm gear operators offer a quarter turn (90°) motion that is required by butterfly valves and disc motion is limited at open, closed positions by traveling nut system.

Bottom end of the worm shaft is threaded and a nut moves op-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 valve disc.

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

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

Worm or worm/spur gear operators are so designed that butterfly valves can be operated by one operator.

- Robust design.
- Factory set 90° swing angle. Setting of the end stop by travelling nut system.
- Strong, integrated into the body valve attachment.
- Valve attachment according to ISO 5211.
- Self locking worm gearing with minimum backlash.
- ISO 5211 top flange for mounting of multi-turn actuators.
- Mechanical position indicator.
- IP 67 enclosure protection. (IP 68 optional)
- Anticlockwise closing on request.

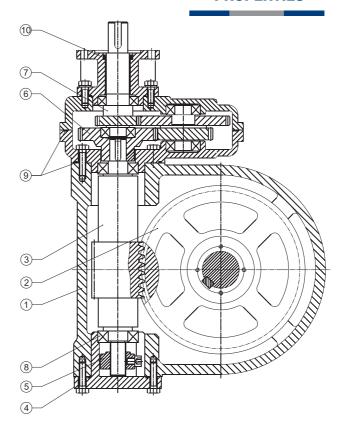








MATERIAL PROPERTIES



Gear Operator

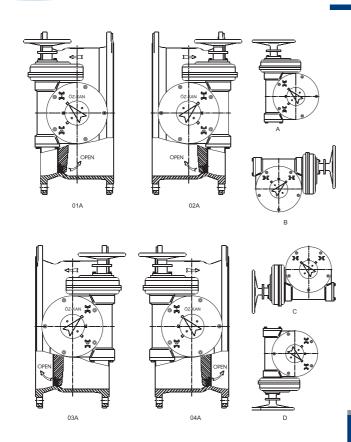
PART NO	DESCRIPTION	MATERIAL					
1	Housing	Cast iron EN-GJL-250					
2	Worm wheel	Ductile cast iron EN-GJS-500-7					
3	Worm shaft	Steel C 40					
4	Cover	Ductile cast iron EN-GJS-400-15					
5	Travaling nut	Steel 42CrMo4					
6	Spur gear	Ductile cast iron EN-GJS-600-3					
7	Pinion	Steel C 40					
8	Bearing	-					
9	O-ring	NBR					
10	Radial seal	NBR					

^{*} Other material grades are available upon request.





GEAR BOX POSITIONS



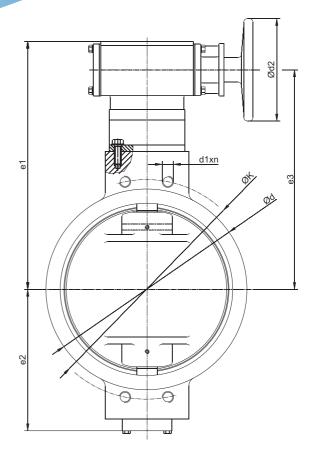
Gear Box

TY	′PE		RATIO		TORQUE	TURNS	VALVE CONNECTIO	WEIGHT	
WORM GEARBOX	REDUCTION GEARING	WORM GEARBOX	REDUCTION GEARING	TOTAL	CONVERSION RATIO	TO CLOSE	ISO 5211	(KG)	
TK 1	-	45:1	_	45:1	9,9	11,25	F 10	14	
TK 2	_	40:1	-	40:1	9,6	10	F 12	29	
TK 3	_	50:1	_	50:1	12	12,50	F 14	36	
TK 3	RD 4	50:1	2,90:1	145:1	31,5	36,25	F 14	53	
TK 4	RD 4	60:1	2,90:1	174:1	45	43,50	F 16	81	
TK 5	RD 5	60:1	6,94:1	416:1	119,5	104	F 25	133	
TK 6	RD 6	65:1	11,84:1	770:1	220	192,50	F 30	191	
TK 7	RD 7	60:1	24,17:1	1450:1	418	362,50	F 35	436	
TK 8	RD 8	93:1	24,17:1	2248:1	648	562	F 40	720	
TK 8	RD 85	93:1	67,68 : 1	6294:1	1806	1574	F 40	750	
TK 10	RD 15	89:1	60,45 : 1	5380:1	1615	1345	F 48	1610	





DESIGN PROPERTIES



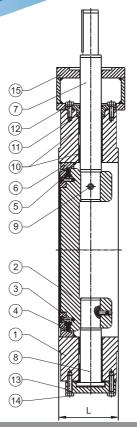
WAFER TYPE

- Short body, small volume and light weight
- Face to face EN 558-1 Series 16
- Double eccentric design
- Both seal on disc and seal on body sealing ring arrangements.
- Easy and cost effective mainteance due to replaceable seal ring.

DN	L	e1	e2	e3
100	64	305	145	250
150	76	350	185	300
200	89	395	220	345
250	114	495	255	425
300	114	560	295	470
350	127	565	325	485
400	140	595	345	525







MATERIAL PROPERTIES

WAFER TYPE

PART NO	DESCRIPTION	MATERIAL				
1	Body	Steel S235JR				
2	Disc	Steel S235JR				
3	Retaining ring	Steel S235JR				
4	Sealing ring	EPDM				
5	Hex. socket head cap screw	Stainless steel A2				
6	Body seat	Stainless steel X5CrNi18-10				
7	Shaft-driven end	Stainless steel X20Cr13				
8	Shaft-free end	Stainless steel X20Cr13				
9	Pin	Stainless steel x20Cr13				
10	Bearing bush	PTFE/Steel				
11	O-ring	EPDM				
12	Cover-driven end	Steel S235JR				
13	Cover-free end	Steel S235JR				
14	Hex.bolt	Stainless steel A2				
15	Adapter	Steel 1.0037				

^{*} Other material grades are available upon request.



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