

No. 9881

# Butterfly Valves

DN 100 – 2500, PN 10 | PN 40





# Butterfly Valves

DN 100 – 2500, PN 10 | PN 40

Butterfly Valves are valves that allow flow by 90° rotation of the disc. ÖZKAN butterfly valves are double eccentric and the rubber sealing ring is fixed to the disc with a one piece retaining ring. This design provides 100% sealing and enables the sealing ring replacement to be easily performed on site, without dismantling any other part and without requiring any special equipment.

- Double Eccentric Butterfly Valves
- Sea Water And Corrosive Mediums Butterfly Valves
- Combined Check Butterfly Valves

No. 9881

# Why Butterfly Valves?

Some of the advantages offered by the butterfly valve can be listed as follows;

- Low weight.
- Small volume requirement.
- Ease of installation.
- Low operating torque requirement.
- Maintenance-free design.
- Suitable for isolation applications.
- Complete sealing at rated pressure.
- Wide range of actuator options.
- ÖVGW and DVGW approvals suitable for drinking water.



## Areas Of Use

- Pump Stations
  - Sea Water Applications
  - Industrial Applications
  - Power Plants
  - Treatment Plants
  - Pipelines
  - Warehouses
- (Cooling Water Circuits)

## Technical Features

<b>Design:</b>	EN 593 (replaces BS 5155 and DIN 3354.)
<b>Nominal Diameters :</b>	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.
<b>Nominal Pressures:</b>	PN 10, PN 16, PN 25, PN 40, (PN 63 Option), CI 150, CI 300.
<b>Connection Length:</b>	EN 558-1 Series 13 and 14 (replaces BS 5155 and DIN 3202).
<b>Flange Connection:</b>	EN 1092-2.
<b>Optional Flange Connections:</b>	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.
<b>Operating Temperature:</b>	According to EN 1074 Standards.
<b>Factory Tests:</b>	EN 1074, EN 12266.

## Design Features

### ■ Body

Streamlined and smooth body design provides minimum resistance to flow.

### ■ Disc

The disc, shaped in accordance with the flow, increases the flow capacity. Double eccentric design reduces wear and torque values of the sealing ring.

### ■ Sealing System

The sealing on the seat surface is provided by a rubber sealing ring with a T-section, which is fixed circumferentially on the edge of the valve by means of a retaining ring. In the closed position of the disc, the sealing ring presses against the conical machined body seat, ensuring absolute sealing in both directions. In the open position, the sealing ring is completely free due to the double eccentric design. The retaining ring, which is manufactured in one piece, prevents the sealing ring from dislocating. The sealing ring can be replaced under construction site conditions without the need for a special tool and without dismantling the valve.

### ■ Shafts

The two-piece shaft design increases the passage cross-section in the valve.

### ■ Shaft Connection

The valve spindle is fixed to the disc with a strong key connection.

### ■ Bearing System

Self-lubricating bearing bushes reduce bearing friction and torque. These bearings also centre the disc and prevent axial movement.

### ■ Shaft Sealing

Lifetime maintenance-free operation with double O-ring shaft sealing system.

### ■ Actuator Connection Flange

All butterfly valves have an actuator connection flange in ISO 5210 standard suitable for actuator mounting.

### ■ Lifting Holes and Feet

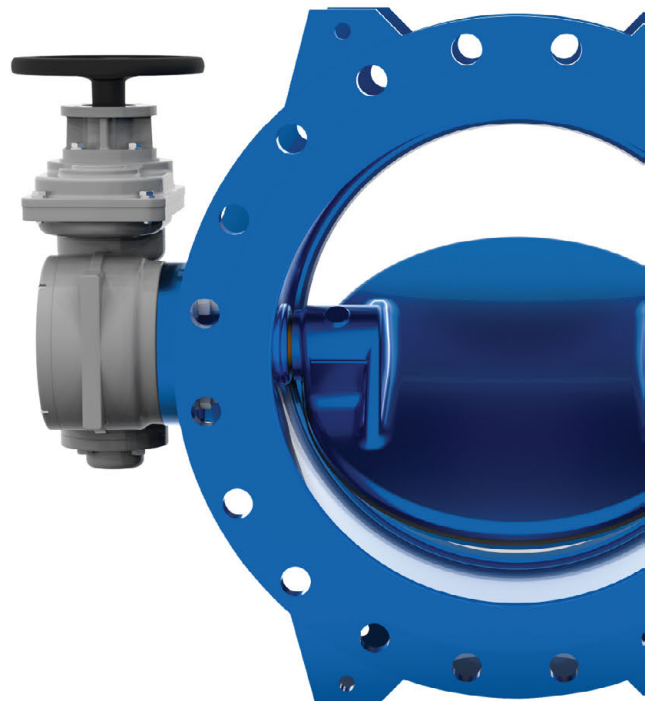
Lifting points and feet integrated into the valve body help easy and stable installation.

### ■ Body Seat

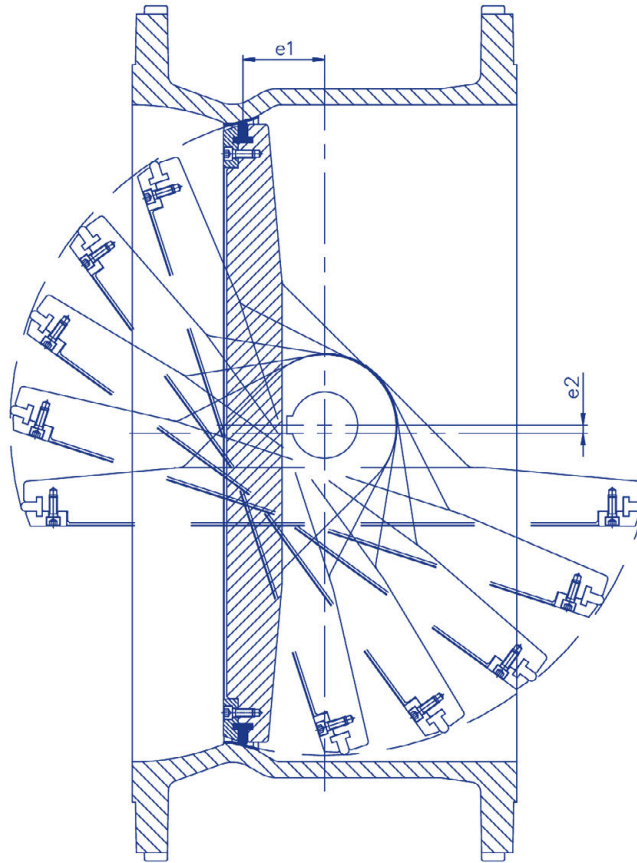
Stainless steel welded and precisely machined seat surface is resistant to abrasion and corrosion.

### ■ Coating

Powder epoxy (FBE), two-component epoxy, solvent-free epoxy, coal tar epoxy.



# Double Eccentric Butterfly Valves

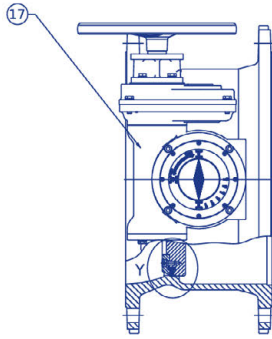


## Design Features

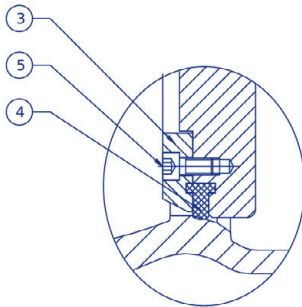
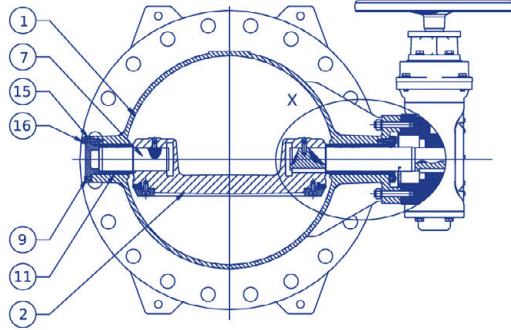
The first eccentricity ( $e_1$ ) moves the sealing axis off the shaft axis. For this reason, a continuous contact between the sealing ring and the body seat is obtained. The second eccentricity ( $e_2$ ) moves the valve axis out of the valve axis. With the help of the second eccentricity, the sealing ring is released from the body seat by a small movement in the opening direction. The purpose of the second eccentricity is to eliminate the pressure on the rubber sealing ring during valve opening and to reduce abrasive friction.

When the valve is in the open position, the rubber sealing ring is completely free and there is no deformation of the sealing ring, even if the valve remains in the open position for years.

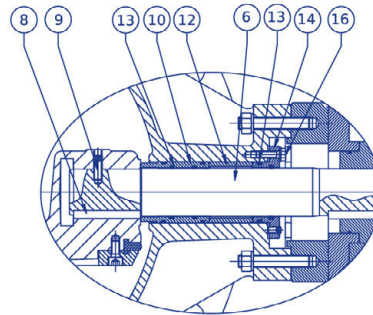
## Material Features



CLOSED POSITION



Y DETAIL



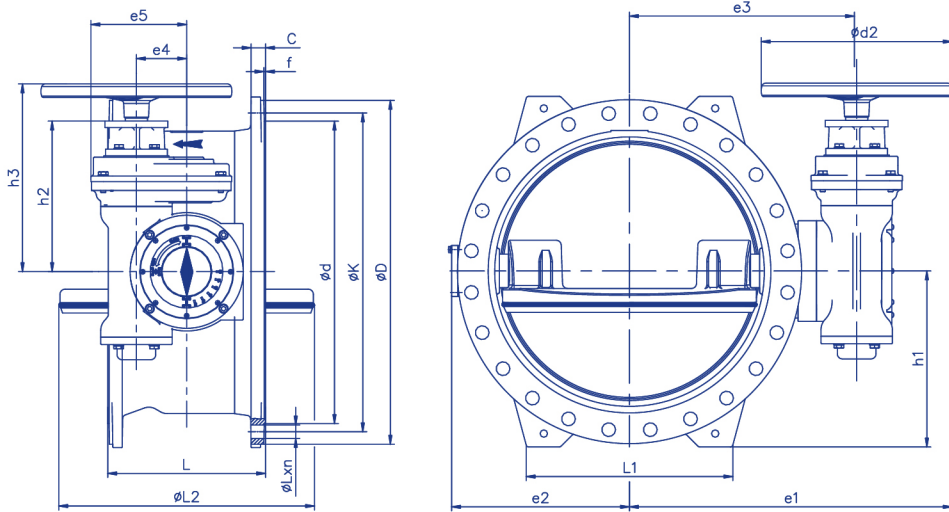
X DETAIL

Part No	Part Name	Material
1	Body	Ductile iron EN-GJS-400-15
2	Disc	Ductile iron EN-GJS-400-15
3	Retaining Ring	Steel S235JR
4	Sealing Ring	EPDM
5	Hex. Socket Head Screw	Stainless Steel A2
6	Drive Shaft	Stainless Steel X20Cr13
7	Free Shaft	Stainless Steel X20Cr13
8	Key	Steel Ck45
9	Set screw	Stainless Steel A2
10	Bearing Bush	Bronze
11	Bearing Bush	Bronze
12	Spacer Bush	Delrin
13	O-ring	EPDM
14	Drive Shaft Cover	Ductile iron EN-GJS-400-15
15	Free Shaft Cover	Ductile iron EN-GJS-400-15
16	Hex. Bolt	Stainless Steel A2
17	Gearbox	-

\*Please contact us for other material requests.

# PN-10

## Technical Details

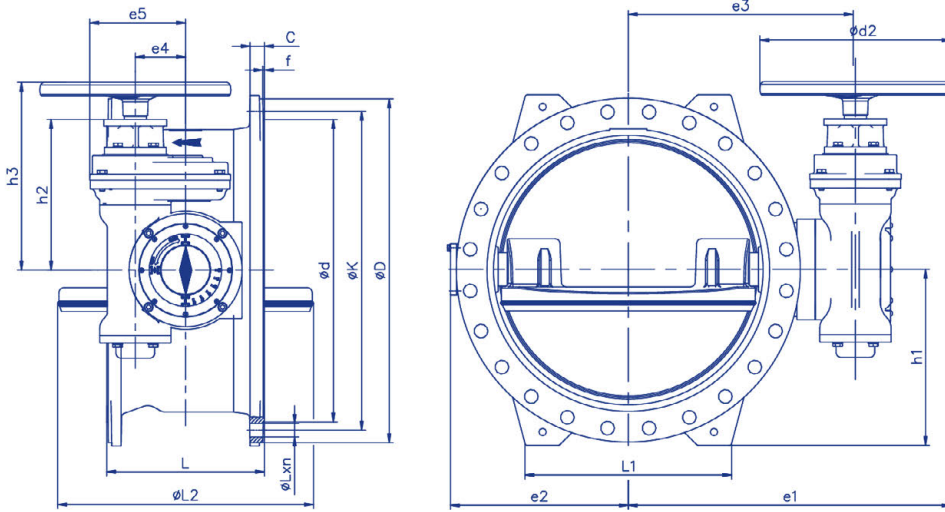


DN	PN	series L <sup>14</sup>		series L <sup>13</sup>	L1	L2	e1	e2	e3	e4	e5	$\phi d2$	h1	h2	h3	Gearbox	Weight <sup>series 14</sup>
80	10	180	114	-	75	317	107	192	63	126	250	100	140	210		NGG10	31
100	10	190	127	-	93	338	115	213	63	126	250	110	140	210		NGG10	33
125	10	200	140	-	112	349	132	224	63	126	250	125	140	210		NGG10	38
150	10	210	140	190	145	367	149	242	63	126	250	150	140	210		NGG10	43
200	10	230	152	180	199	394	175	269	63	126	250	180	140	210		NGG10	53
250	10	250	165	220	236	440	214	315	63	126	250	213	140	210		NGG11	80
300	10	270	178	283	281	462	237	337	63	126	250	237	140	210		NGG11	100
350	10	290	190	320	336	585	283	395	171	290	380	264	200	274		NGG20	150
400	10	310	216	343	379	616	297	426	171	290	380	293	200	274		NGG20	180
450	10	330	222	380	422	635	333	445	100	191	380	320	300	374		NGG20-RD4	225
500	10	350	229	400	462	680	344	490	100	191	380	347	300	374		NGG21-RD4	265
600	10	390	267	440	557	720	414	530	100	191	380	402	300	374		NGG21-RD4	330
700	10	430	292	538	664	785	468	595	160	284	380	460	403	477		NGG30-RD6	532
750	10	450	305	580	715	811	499	621	160	284	380	496	403	477		NGG30-RD6	588
800	10	470	318	608	760	842	530	652	160	284	380	520	403	477		NGG30-RD6	695
900	10	510	330	670	855	903	578	713	160	284	380	568	403	477		NGG31-RD6	895
1000	10	550	410	740	952	960	650	770	160	284	380	625	403	477		NGG31-RD6	1140
1100	10	590	440	750	1053	1000	720	810	160	284	380	696	403	477		NGG31-RD6	1560
1200	10	630	470	900	1148	1146	782	923	250	475	380	738	565	639		NGG41-RD7	1900
1300	10	670	-	988	1248	1263	867	1040	250	475	380	803	565	639		NGG41-RD7	2800
1400	10	710	530	1050	1345	1265	917	1043	250	475	380	855	565	639		NGG41-RD7	2665
1500	10	750	-	1080	1438	1409	1015	1160	315	540	495	908	620	699		NGG50-RD8	3395
1600	10	790	600	1250	1537	1455	1060	1206	315	540	495	978	620	699		NGG50-RD8	3935
1800	10	870	670	1202	1722	1584	1183	1335	315	540	495	1073	620	699		NGG50-RD8	5315
2000	10	950	760	1295	1901	1767	1303	1518	315	540	495	1181	620	699		NGG50-RD8	6585
2200	10	1030	-	1500	2093	1844	1420	1595	540	552	495	1288	748	827		NGG50-RD8+RD5	8745
2400	10	1110	-	1600	2310	2095	1593	1792	519	744	605	1390	898	998		TK10-RD10+RD5	13390
2500	10	1150	-	1600	2396	2122	1610	1819	519	744	605	1440	898	998		TK10-RD10+RD5	15530

\*Please contact us for other diameters and pressure values.

**PN-16**

**Technical Details**

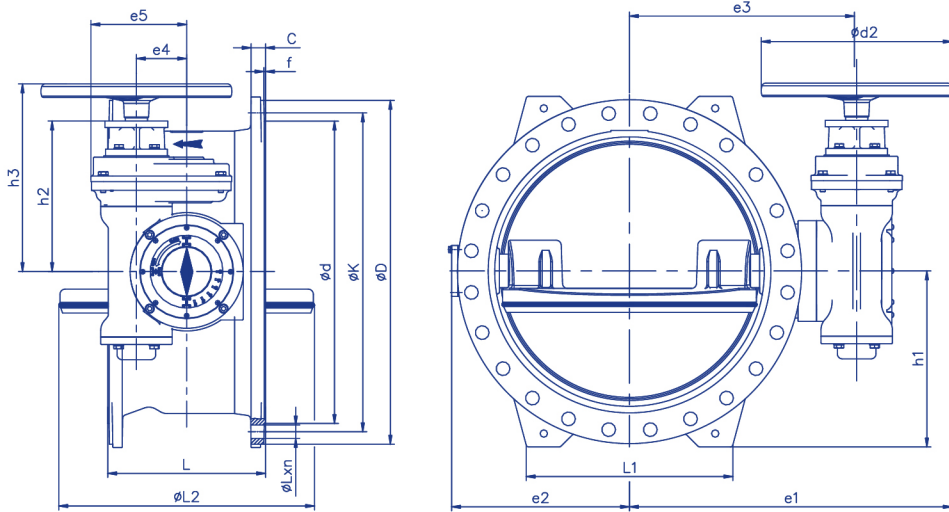


DN	PN	series L <sup>14</sup>	series L <sup>13</sup>	L1	L2	e1	e2	e3	e4	e5	ød2	h1	h2	h3	Gearbox	Weight <sup>series 14</sup>
100	16	190	127	-	93	338	115	213	63	126	250	110	140	210	NGG10	33
125	16	200	140	-	112	349	132	224	63	126	250	125	140	210	NGG10	38
150	16	210	140	190	145	367	149	242	63	126	250	150	140	210	NGG10	43
200	16	230	152	180	199	394	175	269	63	126	250	180	140	210	NGG10	53
250	16	250	165	220	236	440	214	315	63	126	250	213	140	210	NGG11	80
300	16	270	178	283	281	462	237	337	63	126	250	237	140	210	NGG11	100
350	16	290	190	320	336	585	283	395	100	171	380	272	200	274	NGG20	162
400	16	310	216	350	379	616	297	426	100	191	380	302	300	374	NGG20+RD4	210
450	16	330	222	380	422	635	333	445	100	191	380	330	300	374	NGG20+RD4	245
500	16	350	229	400	462	680	344	490	100	191	380	370	300	374	NGG21+RD4	310
600	16	390	267	500	554	720	414	530	100	191	380	432	300	374	NGG21+RD4	417
700	16	430	292	545	664	785	468	595	160	284	380	467	403	477	NGG30+RD6	602
750	16	450	305	580	715	811	499	621	160	284	380	496	403	477	NGG30+RD6	690
800	16	470	318	608	760	842	530	652	160	284	380	520	403	477	NGG30+RD6	782
900	16	510	330	675	855	903	578	713	160	284	380	573	403	477	NGG31+RD6	995
1000	16	550	410	740	952	960	650	770	160	284	380	638	403	477	NGG31+RD6	1222
1100	16	590	440	750	1053	1000	720	810	160	284	380	696	403	477	NGG31+RD6	1550
1200	16	630	470	900	1148	1146	782	923	250	475	380	753	565	639	NGG41+RD7	2225
1300	16	670	-	988	1248	1263	867	1040	250	475	380	803	565	639	NGG41+RD7	2787
1400	16	710	530	1160	1345	1265	917	1043	250	475	380	853	565	639	NGG41+RD7	3090
1500	16	750	-	1153	1438	1383	986	1134	315	540	495	930	620	699	NGG50+RD8	3892
1600	16	790	600	1250	1537	1506	1115	1257	315	540	495	978	620	699	NGG50+RD8	4845
1800	16	870	670	1220	1722	1628	1217	1379	315	540	495	1080	620	699	NGG50+RD8	6195
2000	16	950	760	1300	1901	1767	1303	1518	315	540	495	1193	620	699	NGG50+RD8	6945
2200	16	1030	-	1500	2087	1975	1460	1672	519	744	605	1290	898	998	TK10-RD10+RD5	11220
2400	16	1110	-	1600	2310	2095	1593	1792	519	744	605	1390	898	998	TK10-RD10+RD5	14650
2500	16	1150	-	1650	2396	2122	1610	1819	519	744	605	1440	898	998	TK10-RD10+RD5	16040

\*Please contact us for other diameters and pressure values.

**PN-25**

**Technical Details**

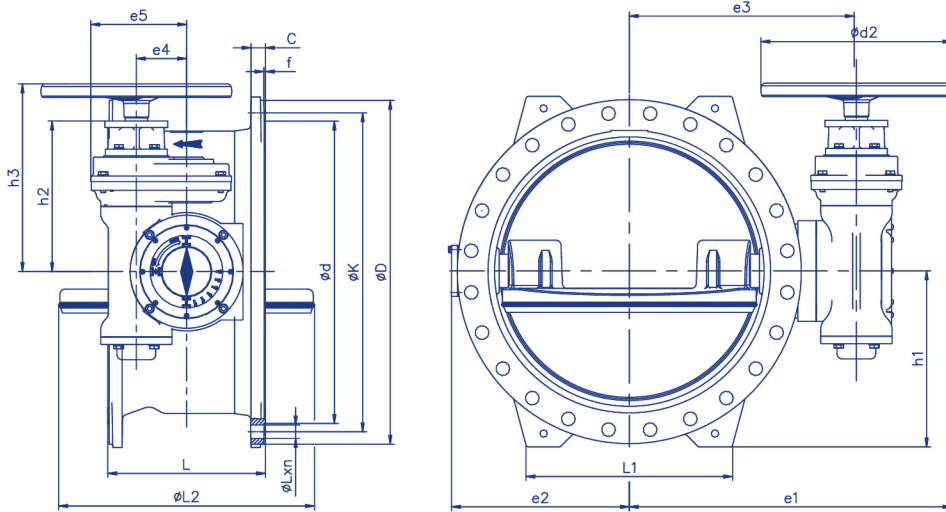


DN	PN	series L <sup>14</sup>	series L <sup>13</sup>	L1	L2	e1	e2	e3	e4	e5	$\phi d2$	h1	h2	h3	Gearbox	series <sup>14</sup> Weight
100	25	190	127	-	93	338	115	216	63	126	250	118	140	210	NGG10	35
125	25	200	140	-	113	349	132	224	63	126	250	135	140	210	NGG10	40
150	25	210	140	200	145	367	149	242	63	126	250	159	140	210	NGG10	45
200	25	230	152	200	199	420	198	296	63	126	250	189	140	210	NGG11	62
250	25	250	165	305	236	546	250	356	100	171	380	223	200	274	NGG20	130
300	25	270	178	340	281	581	277	391	100	191	380	253	300	374	NGG20+RD4	190
350	25	290	190	320	336	609	294	419	100	191	380	288	300	374	NGG20+RD4	213
400	25	310	216	375	379	642	342	452	100	191	380	318	300	374	NGG21+RD4	275
450	25	330	222	470	427	686	382	496	100	191	380	345	300	374	NGG21+RD4	330
500	25	350	229	430	464	732	410	542	160	284	380	375	403	477	NGG30+RD6	490
600	25	390	267	530	557	783	461	593	160	284	380	433	403	477	NGG30+RD6	605
700	25	430	292	640	665	855	535	665	160	284	380	490	403	477	NGG31+RD6	875
750	25	450	305	600	715	885	542	695	160	284	380	525	403	477	NGG31+RD6	905
800	25	470	318	575	748	952	590	762	160	284	380	558	403	477	NGG31+RD6	1130
900	25	510	330	745	855	1096	685	873	250	475	380	613	565	639	NGG41+RD7	1745
1000	25	550	410	760	952	1133	741	910	250	475	380	675	565	639	NGG41+RD7	2065
1200	25	630	470	880	1148	1248	822	1025	250	475	380	772	565	639	NGG41+RD7	2725
1400	25	710	530	1010	1345	1474	964	1225	315	540	495	888	620	699	NGG50+RD8	3670
1600	25	790	600	1210	1543	1516	1110	1267	540	552	495	1003	748	827	NGG50+RD8+RD5	5090
1800	25	870	670	1345	1678	1833	1255	1530	519	744	605	1118	898	998	TK10-R D10 5	7690
2000	25	950	760	1400	1886	1886	1353	1583	519	744	605	1228	898	998	TK10-R D10 5	10150

\*Please contact us for other diameters and pressure values.

**PN-40**

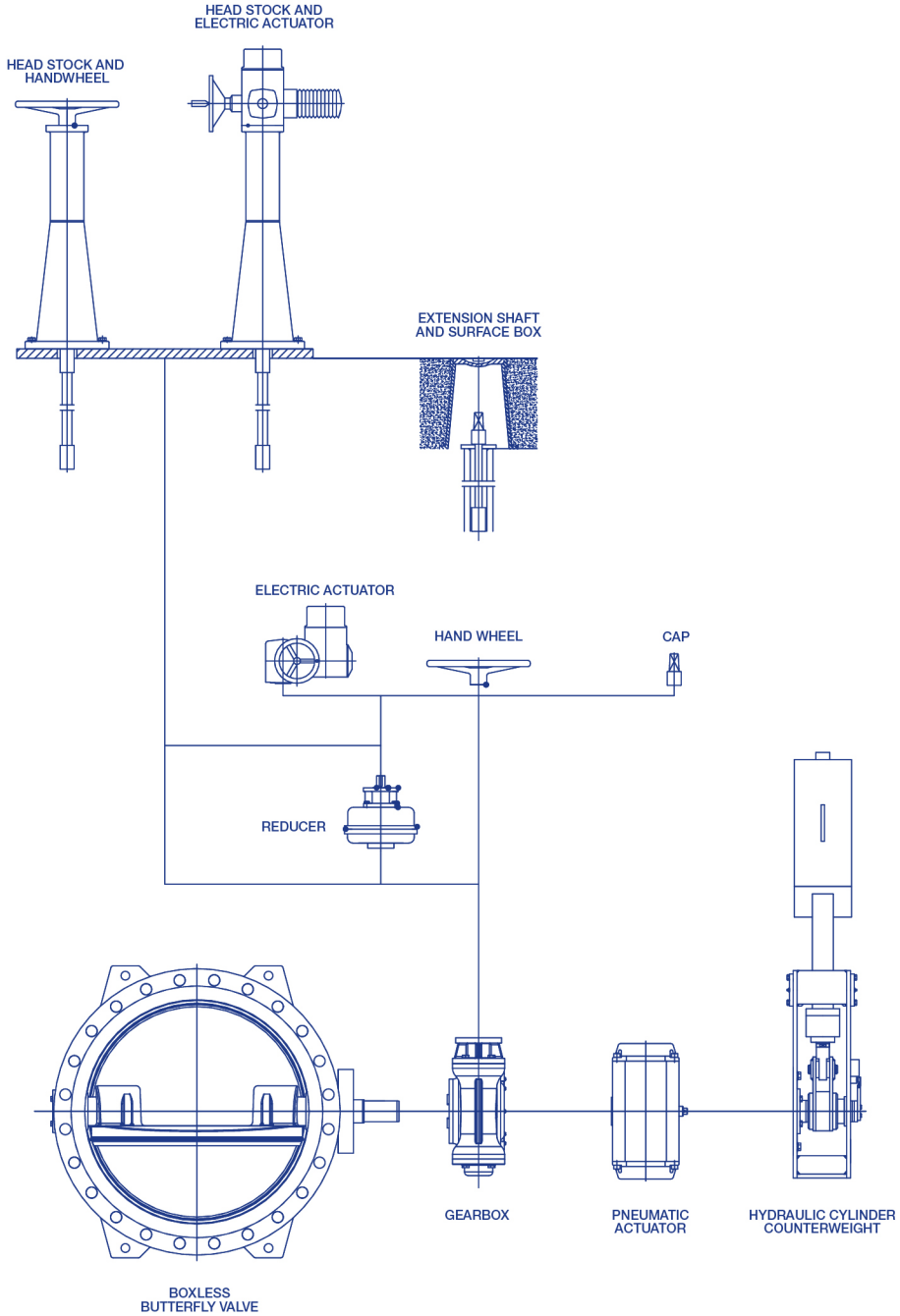
**Technical Details**



DN	PN	series											Gearbox	Weight	
		L <sup>14</sup>	L1	L2	e1	e2	e3	e4	e5	ød2	h1	h2	h3		series 14
150	40	210	199	145	367	150	242	63	126	250	159	140	210	NGG10	45
200	40	230	200	199	421	198	296	63	126	250	198	140	210	NGG11	72
250	40	250	305	236	569	250	379	100	191	380	235	300	374	NGG20+RD4	182
300	40	270	340	281	600	277	410	100	191	380	269	300	374	NGG20+RD4	212
350	40	290	360	336	610	295	420	100	191	380	300	300	374	NGG21+RD4	280
400	40	310	380	379	675	342	485	100	191	380	340	300	374	NGG21+RD4	350
450	40	330	470	422	703	386	513	160	284	380	353	403	477	NGG30+RD6	490
500	40	350	440	462	749	412	559	160	284	380	388	403	477	NGG30+RD6	553
600	40	390	530	558	815	461	625	160	284	380	457	403	477	NGG30+RD6	685
700	40	430	640	664	855	535	665	160	284	380	508	403	477	NGG31+RD6	1025
800	40	470	575	748	1030	592	807	250	475	380	580	565	639	NGG41+RD7	1775
900	40	510	745	855	1096	685	873	250	475	380	645	565	639	NGG41+RD7	2130
1000	40	550	760	952	1150	743	927	250	475	380	695	565	639	NGG41+RD7	2480
1200	40	630	880	1126	1314	883	1065	315	540	495	798	620	699	NGG50-RD8	3370
1400	40	710	1110	1314	1474	968	1225	540	552	495	918	748	827	NGG50-RD8+RD5	4785
1600	40	790	1250	1485	1733	1133	1430	519	744	605	1033	898	998	TK10-RD10+RD5	7410
1800	40	870	1350	1674	1833	1318	1530	519	744	605	1140	898	998	TK10-RD10+RD5	10070

\*Please contact us for other diameters and pressure values.

## Forms of Gearbox



# Gearbox

The New Generation Gearbox (NGG) is a gear technology designed and developed by Özkan for superior and safe operation of butterfly valves. The NGG enables the one-quarter turn (90°) movement required by butterfly valves.

The disc movement is limited in the fully open and closed position by the advanced technology adjusting nut system. The remarkable adjusting nut system prevents excessive movement of the disc.

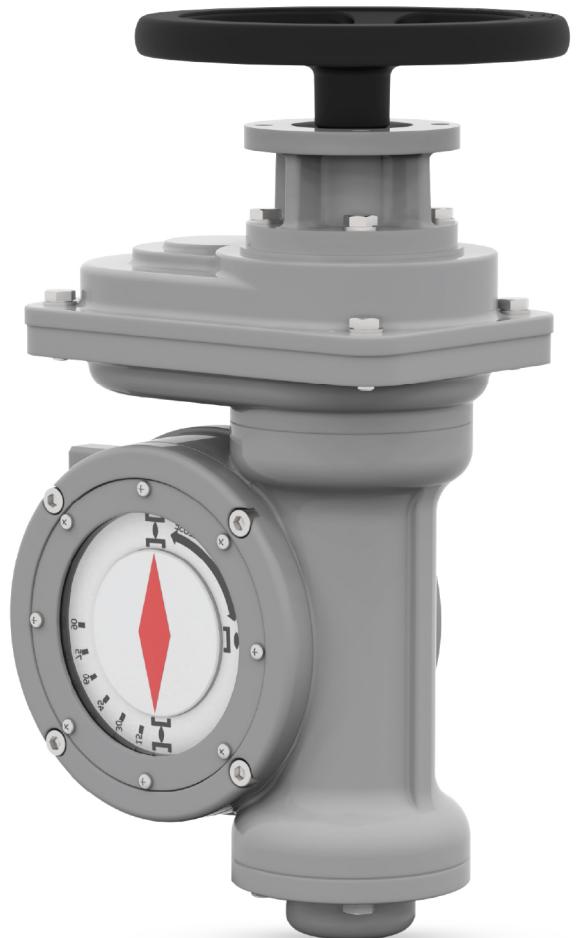
The self-locking (non-return) gear design guarantees the smooth operation and tightness of ÖZKAN butterfly valves at maximum specified pressure.

NGG is designed to significantly reduce operational torques.

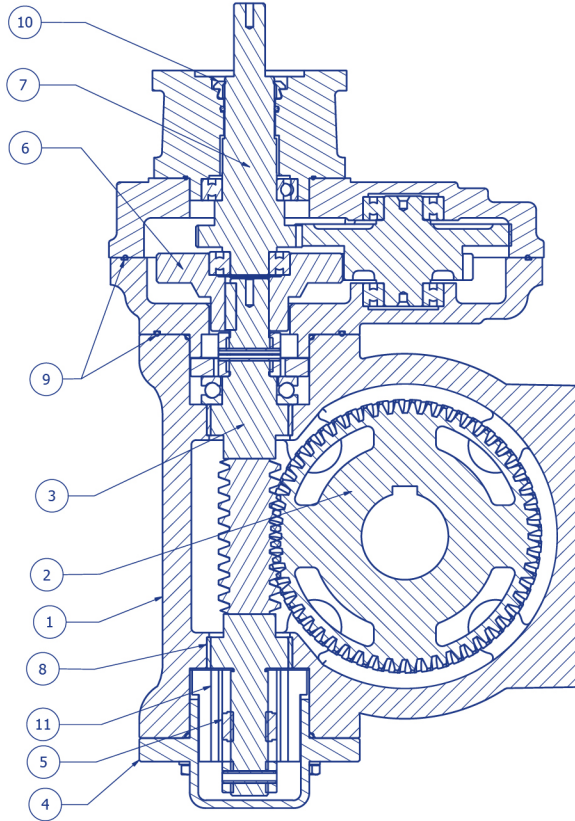
Lower weight, same model gearbox with different adapt to butterfly valves of all sizes and special perfect as stop technology are some of the features.

## Some of the unique advantages of the Next Generation Gearbox are:

- Long-life design and long-term performance.
- Strong, body integrated valve connection.
- Valve connection according to ISO 5211.
- Self-locking worm gear with minimal back lash.
- ISO 5211 Top flange for mounting multi-turn actuators.
- Mechanical position indicator for every 15° disc movement.
- IP 68 Protection Class.
- Anti-clockwise closing on request.
- Special “end stop” design to prevent gearbox damage.



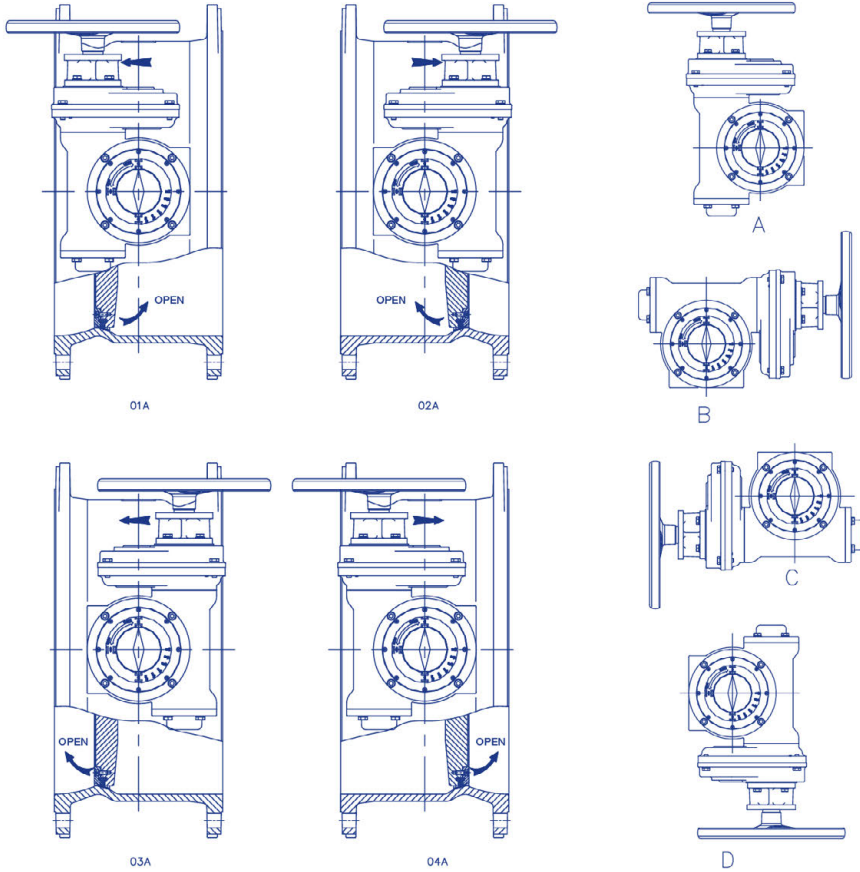
## Material Features



Part No	Part Name	Material
1	Body	Cast Iron EN-GJL-250
2	Worm Wheel	Ductile Iron Casting EN-GJS-500-7
3	Worm Shaft	1.7225 (C4140) - AISI 8620/1.6523
4	Adjustment Cover	Ductile Iron Casting EN-GJL 250
5	Adjustment Nut	Steel CK45 (C 1050)
6	Spur Gear	Ductile iron EN-GJS-500-7
7	Pinion	Stainless Steel X20Cr13 (AISI420) 1.4021
8	Bearing	-
9	O-ring	NBR
10	Radial Seal	NBR
11	End Stop (Safety Part)	Eplamid 6

\*Please contact us for other material requests.

## Connection Types



New Gearbox	Torque Conversion Ratio	Number of Tours	Valve Connection ISO 5211	Weight
NGG10	20	12,75	F10	12,7
NGG11	20	12,75	F12	13,0
NGG20	21	13	F14	42,5
NGG20+RD4	55	37,7	F14	61,5
NGG21+RD4	55	37,7	F16	61,7
NGG30+RD6	241,5	159,84	F25	135,5
NGG31+RD6	241,5	159,84	F30	136,0
NGG40+RD7	474,8	314,21	F30	375,0
NGG41+RD7	474,8	314,21	F35	381,0
NGG50+RD8	498,2	320,26	F40	575,0
NGG50+RD085	1398,9	896,76	F40	605,0
TK10+RD15	1615	1345	F48	1610,0

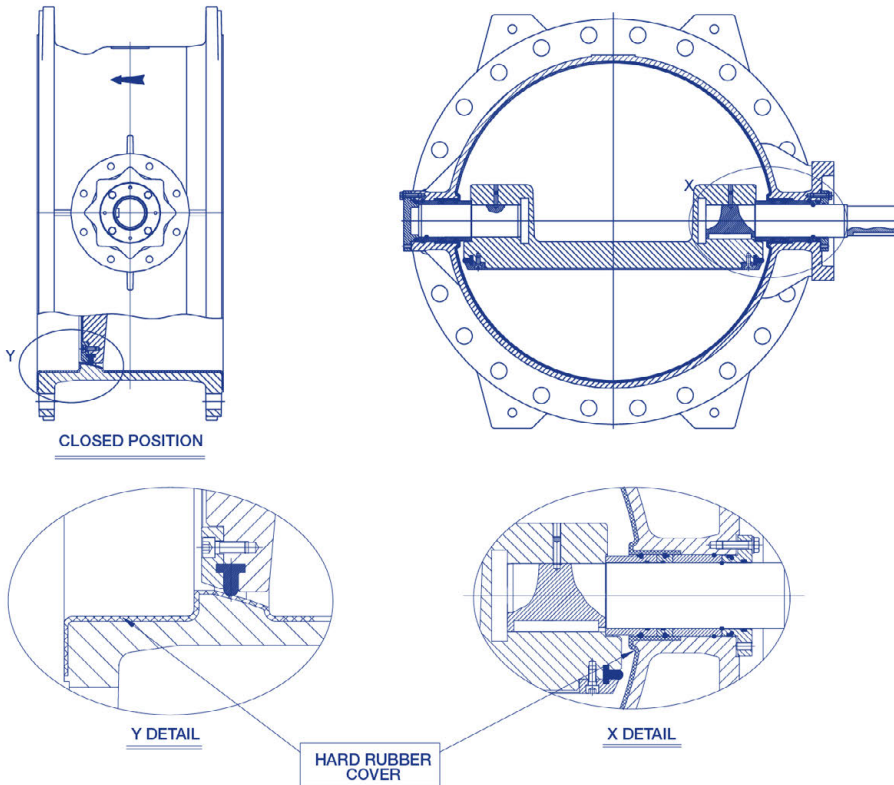
\*Please contact us for other material requests.

# For Sea Water & Corrosive Fluids

Özkan rubber lining Butterfly Valve series is specially designed for seawater and corrosive mediums applications. The inner surfaces of the body are coated with hard rubber for corrosion protection. The thickness and properties of the rubber used are determined according to customer request.

- Valve material shall be selected from AL-Ni-Bronze, Nickel Ductile Iron and Stainless Steels.
- Monel, Duplex Stainless Steels are used as shaft material.

## Design Features



# For Sea Water & Corrosive Fluids



No. 9890

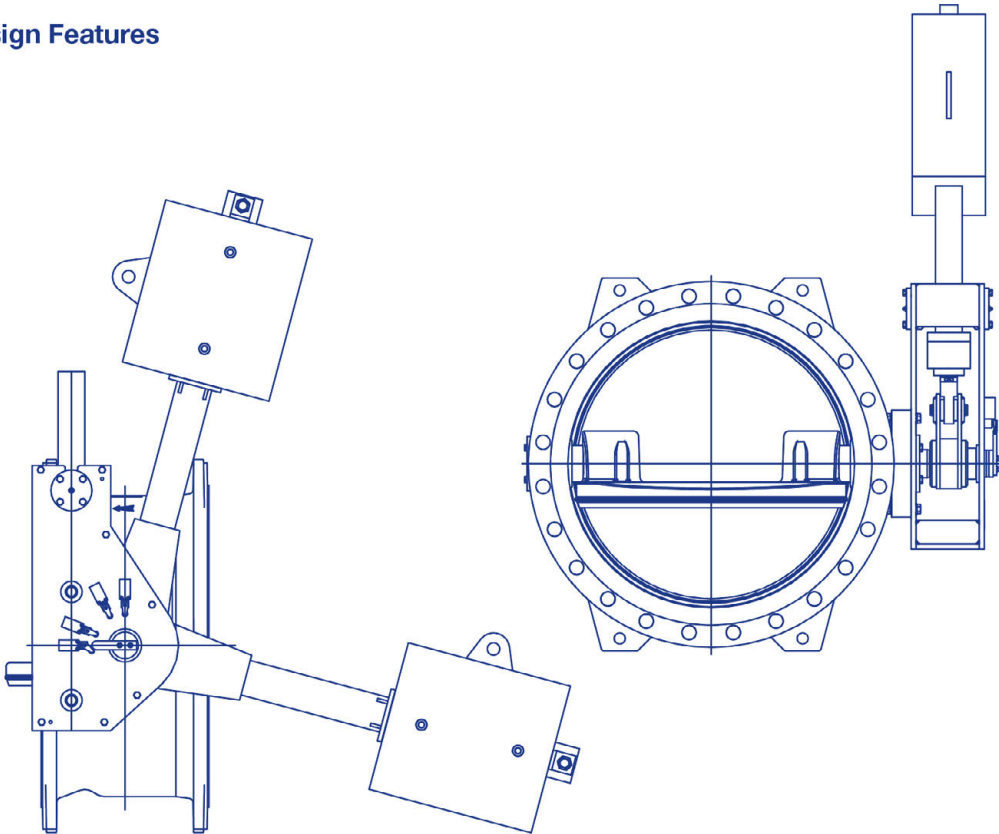
# Combined Check Butterfly Valves

Combined Check Butterfly Valves offer the functions of Butterfly Valve and Hydraulic Damper Check Valve in a single valve.

The valves are opened by hydraulic cylinder and closed with the help of counterweight. The valves are supplied with hydraulic power units.

These valves are especially designed for mitigating surges during pump trips, but can also be used for other applications requiring emergency opening or closing. In order to fulfil the desired function, a suitable warning system must be integrated into the power unit and control panel of the valve.

## Design Features



No. 9890

# Combined Check Butterfly Valves

## Technical Details

- The valve opens automatically after the pump starts and closes before the pump stops.
- In case of power failure at the pump station, the valve closes like a hydraulic damper check valve.
- The opening and closing time can be set independently.
- The hydraulic power unit is also equipped with a hand pump to open the valve manually in case of emergency.

