DATA SHEET TB 14t

BR 14t - LTR 43 · Triple eccentric control and shut-off butterfly valve
DIN and ANSI version

CE

Applications

Triple eccentric, metal seated control and shut-off butterfly valve for high-pressure applications in the process industry

- **Nominal size DN 80 up to 1000 and NPS3 up to 40**
- **Nominal pressure PN 10 up to 63 bis cl150 up to 600**
- **Temperatures –60 up to +400 °C (–76 up to +752 °F)**

Special features

- Wafer-Type and Lug-Type design (threaded holes according to EN 1092-1, ASME B16.5 or ASME B16.47) as well as double-flange version according to ISO 5752, EN 558, BS 5155 or B16.10
- Leakage free tightness
- Two-way flow with maximum pressure differential
- Use as a quick-closing unit (ESD) possible
- Body made of
  - Cast steel (C-steel)
  - Stainless steel
  - Special alloys
- Seal ring made of
  - Stainless steel/graphite laminated
  - Special materials

The control and shut-off valves can be operated with a pneumatic, electric or hydraulic actuator or manual gear.

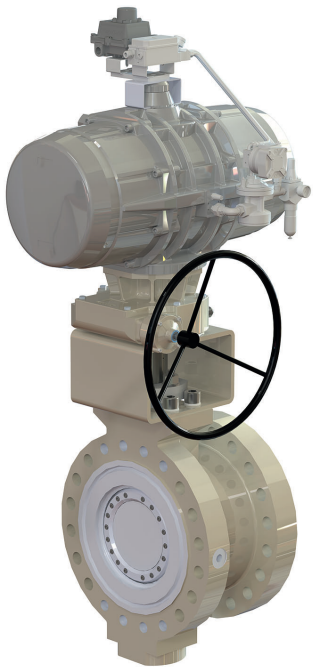

Fig. 1: Control and shut-off butterfly valve *BR 14t - LTR 43*

Versions and options

- Fire-safe according to API 607, BS 6755 Part 2 and API 6FA
- Versions for cryogenic applications down to –196 °C (–321 °F)
- Body made of C-steel, stainless steel
- Seal ring made of several materials
- Packing according to TA-Luft/ISO 15848
- Low-noise and anti-cavitation
- NACE nach MR0103/MR0175/ISO 15156
- Heating jacket
- Outer bearing, inner packing
- Quick closing, less than 0.5 seconds
- NACE according to MR0103/MR0175/ISO 15156

PFEIFFER Chemie-Armaturenbau GmbH · Hooghe Weg 41 · 47906 Kempen · Germany
Phone: +49 2152 2005-0 · Fax: +49 2152 1580
sales-pfeiffer-de@samsongroup.com · www.pfeiffer-armaturen.com

Edition February 2025

Design and principle of operation

The media can flow through the shut-off valve in any direction.

The flow characteristic value depends on the opening angle of the throttle disc and therefore on the area freed between the disc and the body.

The seal takes place between the seat in the body and the seal ring.

The seat adapts elastically to the seal ring. Friction forces are minimised by the triple eccentric and conical geometry.

Fail-safe position

The pneumatic rotary actuators can be designed with a fail-safe positions that are activated when the pressure is released as well when the supply energy fails.

- **Shut-off valve without supply energy "CLOSED"**
  upon supply energy disc is closed.
- **Process valve without supply energy "OPEN"**
  upon supply energy disc is opened.

The principle of triple eccentricity

See figure 3

- **1OS: Offset between the seat and the centre of the shaft**
  The shaft is mounted completely behind the sealing surface of the disc and seat. This results in an uninterrupted sealing surface. The uninterrupted sealing surface provides maximum tightness.
- **2OS: Offset between centre of the shaft and the centre of the body**
  The shaft is positioned slightly offset from the centre of the body. Depending on flow-direction, the differential pressure has an opening or closing effect on the sealing system. In the case of a shaft-side inflow, the pressure supports the tightness.
- **3OS: Offset of the seat intersection point from the centre of the body**
  The inclined conical seat geometry permits a friction free rotation and therefore reduces wear when opening and closing the seat seals. Breakaway torques caused by deformation are excluded. The conical sealing surface guarantees maximal tightness even with extreme requirements.

Seat version

- **BR 14t - LTR 43**
  For less wear-critical applications, see figure 4. Only the seal ring can be replaced. The seat is hardened as standard for better wear protection.

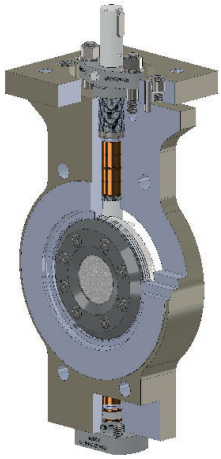

Fig. 2: *Design of the control and shut-off valve BR 14t - LTR 43*

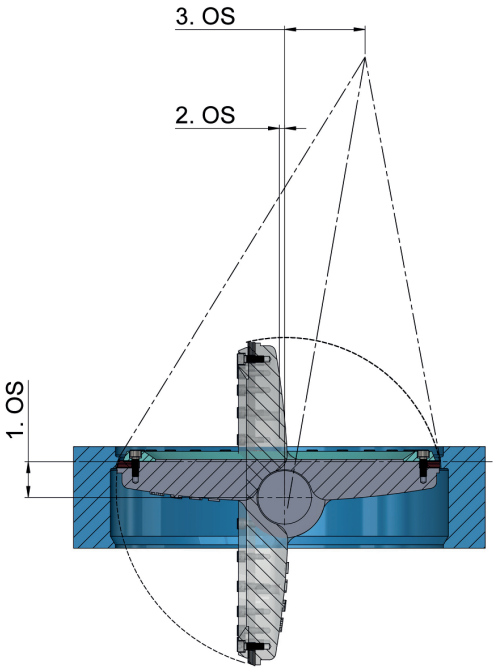

Fig. 3: *Triple eccentricity*

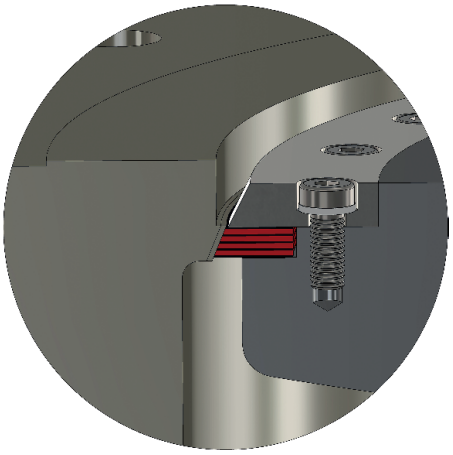

Fig. 4: *Seat version*

Table 1: *Technical data*

Nominal size		DN 80 up to 1000 and NPS3 up to 40
Nominal pressure		PN 10 up to 63 and cl150 up to 600
Body form		Wafer-Type · Lug-Type · Double-flange
Overall lengths		API 609, ASME B16.10, ISO 5752, DIN EN 558
Seat		Solid and hardened
Characteristic curve		Equal percentage
Max. opening angle		80° (90°)
Adjustment rating		> 50:1
Continuous operating pressure		See the Pressure-Temperature rating
Temperature range		(–60 up to +400 °C) (–76 up to 752 °F)
Leakage class	Control applications	≤VI acc. to ANSI FCI 70-2/EN 60534-4
	Open/close applications	Sealed acc. to API 598, EN 12266

Table 2: *Material*

Version		DIN	ANSI
Body	Steel	**1.0619** 1.0425 (plate material)	**A216 WCB/WCC** A516 Gr.70 (plate material)
	Stainless steel	**1.4408** 1.4404	**A351 CF8M** 316L (plate material)
Disc	For steel bodies	1.4408 1.0619	A351 CF8M A216 WCB/WCC
	For stainless steel bodies:	1.4408 1.4404	A351 CF8M 316 L
Seal ring		1.4404/graphite	
Seat		Hardened	
Shaft		17-4PH	

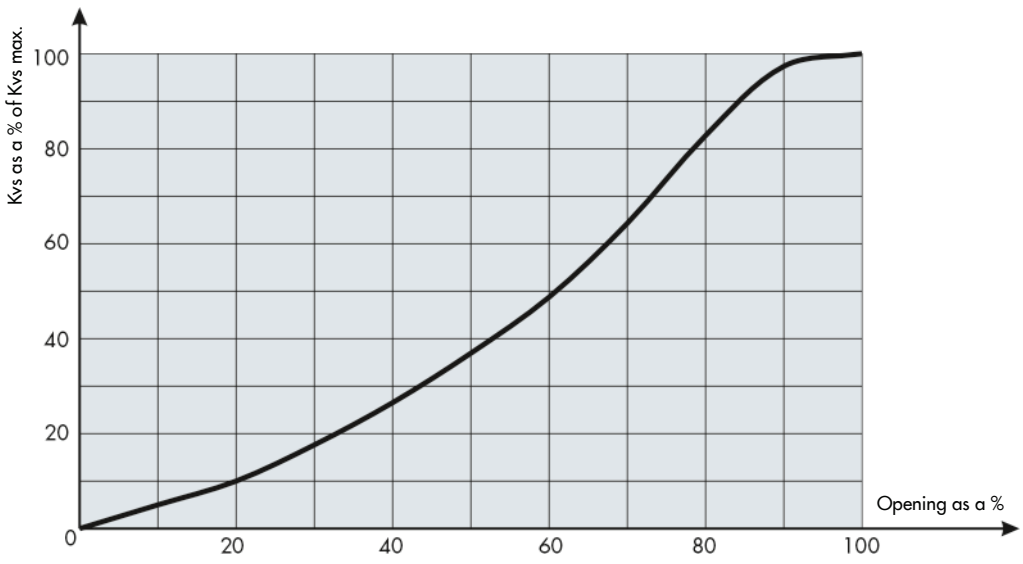

Fig. 5: *Kvs-characteristic curve diagram*

K_{VS} coefficients

Table 3: *kvs-coefficients for PN 10 to 25 and cl150*

Nominal size		Opening angle								
DN	NPS	10°	20°	30°	40°	50°	60°	70°	80°	90°
80	3	5	16	30	45	60	71	74	72	68
100	4	9	21	34	58	86	116	150	178	188
150	6	31	67	110	189	281	378	488	580	610
200	8	49	107	175	301	447	602	777	922	971
250	10	96	224	364	665	1011	1265	1566	1811	1917
300	12	150	339	554	977	1510	1914	2427	2834	3007
350	14	221	481	788	1341	2088	2708	3521	4147	4418
400	16	393	707	1178	1571	2343	3928	5892	6999	7856
450	18	410	844	1389	2224	3479	4736	6414	7643	8198
500	20	528	1065	1756	2742	4293	5969	8211	9825	10567
600	24	776	1706	2792	4808	7135	9617	12409	14735	15511
700	28	1162	2215	3672	5328	8337	12363	17743	21450	23245
800	32	1546	2784	4639	6186	10174	15465	23197	28342	30929
900	36	2052	3789	6300	8735	13641	21095	31021	37711	41042
1000	40	2593	4735	7881	10746	16766	26338	39065	47579	51859

Table 4: *kvs-coefficients for PN 40 and cl300*

Nominal size		Opening angle								
DN	NPS	10°	20°	30°	40°	50°	60°	70°	80°	90°
80	3	5	16	30	45	60	71	74	72	68
100	4	7	19	35	55	81	110	132	147	155
150	6	22	61	112	178	265	359	431	479	504
200	8	61	153	238	334	496	606	692	755	795
250	10	68	203	386	627	953	1181	1362	1496	1584
300	12	100	307	573	922	1424	1811	2117	2341	2484
350	14	142	436	796	1265	1969	2586	3071	3426	3649
400	16	227	595	998	1490	2222	3658	4772	5565	6036
450	18	253	765	1348	2097	3281	4568	5579	6313	6772
500	20	322	966	1678	2585	4048	5776	7131	8116	8729
600	24	563	1547	2854	4534	6728	9130	10944	12172	12813
700	28	695	2009	3354	5024	7861	12049	15335	17719	19202
800	32	814	2524	4010	5833	9594	15434	20040	23412	25549
900	36	1217	3436	5599	8236	12863	20629	26725	31151	33902
1000	40	1534	4293	6936	10133	15809	25786	33616	39303	42838

Table 5: kvs-coefficients for *PN 63 and cl600*

Nominal size		Opening angle								
DN	NPS	10°	20°	30°	40°	50°	60°	70°	80°	90°
80	3	6	16	26	39	58	69	72	67	57
100	4	11	28	48	72	106	131	141	135	117
150	6	25	66	112	168	250	325	361	361	327
200	8	47	123	207	310	460	618	711	739	706
250	10	73	191	326	492	731	1017	1188	1243	1188
300	12	106	280	478	722	1073	1529	1816	1933	1883
350	14	146	386	660	998	1483	2158	2601	2808	2780
400	16	180	483	843	1294	1930	2907	3489	3677	3470
450	18	247	652	1118	1693	2516	3786	4670	5160	5246
500	20	308	812	1394	2112	3141	4791	5969	6660	6847
600	24	470	1230	2088	3141	4660	7207	9226	10715	11677

Conversion of the flow coefficients: C_V (US gallons/min) = 1.17 · K_{VS} (m^3/h) or K_{VS}/C_V = 0.865
K_{VS} coefficients for other nominal pressures upon request.

Pressure-Temperature rating

Table 6: *DIN-body made of cast steel (1.0619, DIN EN 12516)*

	Temperature in °C											
	-10	**20**	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**375**	**380**	**400**
PN 10	10	10	10	9.4	8.9	8.4	7.7	7	6.5	6.2	6.2	6
PN 16	16	16	16	15	14.2	13.4	12.3	11.1	10.4	10	9.9	9.6
PN 25	25	25	25	23.4	22.2	21	19.2	17.4	16.2	15.6	15.5	15
PN 40	40	40	40	37.4	35.5	33.6	30.7	27.8	25.9	25	24.8	24
PN 63	63	63	63	59	55.9	52.9	48.4	43.8	40.8	39.3	39	37.8

Table 7: *ANSI-body made of cast steel (A216 WCB / ASME 16.34 Group 1.1)*

	Temperature in °C											
	–29 ...bis 38	**50**	**100**	**150**	**200**	**250**	**300**	**325**	**350**	**375**	**400**	**425**
Class 150	19.6	19.2	17.7	15.8	13.8	12.1	10.2	9.3	8.4	7.4	6.5	5.5
Class 300	51.1	50.1	46.4	45.1	43.8	41.9	39.8	38.7	37.6	36.4	34.7	28.8
Class 600	102.1	100.2	93.2	90.2	87.6	83.9	79.6	77.4	75.1	72.7	69.4	57.5

Table 8: *DIN-body made of stainless steel (1.4408, DIN EN 12516-1 2018)*

	Temperature in °C												
	-10	**20**	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**550**
PN 10	10	10	10	9.5	8.5	7.6	7	6.4	6.2	5.9	5.7	5.5	5.2
PN 16	16	16	16	15.2	13.7	12.1	11.2	10.3	9.9	9.4	9.1	8.9	8.3
PN 25	25	25	25	23.8	21.4	18.9	17.5	16.1	15.4	14.7	14.1	19.9	12.9
PN 40	40	40	40	38.1	34.2	30.2	28	25.8	24.6	23.5	22.6	22.2	20.7
PN 63	63	63	63	60	53.8	47.6	44.1	40.6	38.8	37	35.6	34.9	32.6

Table 9: *ANSI-body made of stainless steel (A351 CF3M & CF8M / ASME 16.34 Group 2.2)*

	Temperatur in °C											
	–29 bis 38	**50**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	**450**	**500**	**538**
Class 150	19	18.4	16.2	14.8	13.7	12.1	10.2	8.4	6.5	4.6	2.8	1.4
Class 300	49.6	48.1	42.2	38.5	35.7	33.4	31.6	30.3	39.4	28.8	28.2	25.2
Class 600	99.3	96.2	84.4	77	71.3	66.8	63.2	60.7	58.9	57.7	56.5	50

Dimensions and weights of the control and shut off butterfly valve with an Wafer-Type design

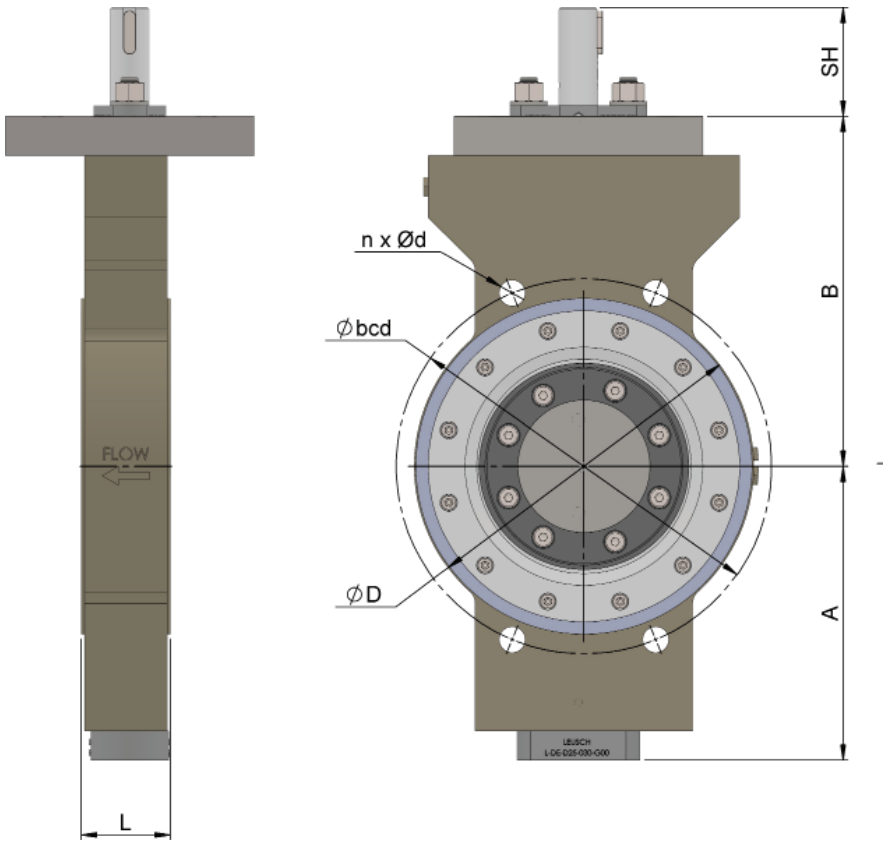

Fig. 6: *Butterfly valve with an **Wafer-Type** design*

Table 10: *Butterfly valve with an **Wafer-Type** design, dimensions in mm and weights in kg*

Nominal size		PN 10 to 25 / cl150					PN 40 / cl300					PN 63 / cl600			
				L					L						
DN	NPS	A	B	ANSI	DIN	Weight	A	B	ANSI	DIN	Weight	A	B	L	Weight
80	3	120	150	48	64	9	120	150	48	64	10	155	135	54	14
100	4	150	185	54	64	15	160	190	54	64	16	175	180	64	24
150	6	190	225	57	76	26	200	235	59	76	28	235	235	78	46
200	8	220	260	64	89	38	235	265	73	89	48	265	275	102	79
250	10	250	290	71	114	53	260	295	83	114	70	310	320	117	114
300	12	290	330	81	114	81	300	335	92	114	100	335	340	140	161
350	14	320	355	92	127	112	329	360	117	127	159	386	385	155	204
400	16	350	385	102	140	141	380	410	133	140	230	420	420	178	345
450	18	375	425	114	152	175	410	450	149	152	262	440	450	200	401
500	20	415	475	127	152	239	455	500	159	152	333	485	490	216	593
600	24	460	520	154	178	347	530	540	181	178	548	580	610	232	705
700	28	525	575	165	229	489	598	610	209	229	832	620	640	292	1172
750	30	590	650	165	-	551	640	630	241	-	1050	620	670	318	1568
800	32	600	660	190	241	738	658	660	241	241	1139	660	700	318	1797
900	36	640	710	200	241	836	700	730	260	241	1388	720	740	330	1954
1000	40	710	730	216	300	1057	720	740	300	300	1462	On Request			

Table 11: *Butterfly valve with an **Wafer-Type** design, **connection dimensions** in mm for **PN 10**, **PN 16** and **PN 25***

Nominal size DN	Flow-direction	PN 10			PN 16			PN 25		
		n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD
80	A / B	4x M16	160	141	4x M16	160	141	4x M16	160	141
100	A / B	4x M16	180	165	4x M16	180	165	4x M20	190	165
150	A / B	4x M20	240	218	4x M20	240	218	4x M24	250	218
200	A / B	4x M20	295	272	4x M20	295	272	4x M24	310	278
250	A / B	4x M20	350	327	4x M24	355	327	4x M27	370	338
300	A / B	4x M20	400	378	4x M24	410	378	4x M27	430	395
350	A / B	4x M20	460	450	4x M24	470	450	4x M30	490	450
400	A / B	4x M24	515	490	4x M27	525	490	4x M33	550	505
450	A / B	4x M24	565	535	4x M27	585	560	4x M33	600	560
500	A / B	4x M24	620	585	4x M30	650	615	4x M33	660	615
600	A / B	4x M27	725	690	4x M33	770	725	4x M36	770	725
700	A / B	4x M27	840	806	4x M33	840	806	4x M39	875	822
750	A / B	On request								
800	A / B	4x M30	950	930	4x M36	950	930	4x M45	990	930
900	A / B	4x M30	1050	1030	4x M36	1050	1030	4x M52	1090	1030
1000	A / B	4x M33	1160	1120	4x M39	1170	1120	4x M52	1210	1120

Table 12: *Butterfly valve with an **Wafer-Type** design, **connection dimensions** in mm for **PN 40** and **PN 63***

Nominal size DN	Flow-direction	PN 40			PN 63		
		nx Ød	Øbcd	ØD	n x Ød	Øbcd	ØD
80	A / B	4x M16	160	141	4x M20	170	140
100	A / B	4x M20	190	165	4x M24	200	164
150	A / B	4x M24	250	220	4x M30	280	250
200	A / B	4x M27	320	290	4x M33	345	306
250	A / B	4x M30	385	350	4x M33	400	356
300	A / B	4x M30	450	410	4x M33	460	413
350	A / B	4x M33	510	470	4x M36	525	480
400	A / B	4x M36	585	535	4x M39	585	535
450	A / B	4x M36	610	566	On request		
500	A / B	4x M39	670	615	4x M45	705	650
600	A / B	4x M45	795	735	4x M52	820	762
700	A / B	4x M45	900	845	4x M52	935	861
750	A / B						
800	A / B	4x M52	1030	960	On request		
900	A / B	4x M52	1140	1080			
1000	A / B	4x M52	1250	1190			

Table 13: *Butterfly valve with an **Wafer-Type** design, **connection dimensions** in mm for **cl150**, **cl150 Series A** and **cl150 Series B***

Nominal size NPS	Flow-direction	cl150			cl150 Series A			cl150 Series B		
		n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD
3	A / B	-	152.4	129	-			-		
4	A / B	4x 5/8-11 UNC	190.5	165						
6	A / B	4x 3/4-10 UNC	241.3	218						
8	A / B	4x 3/4-10 UNC	298.5	272						
10	A / B	4x 7/8-9 UNC	362	327						
12	A / B	4x 7/8-9 UNC	431.8	395						
14	A / B	4x 1-8 UNC	476.3	450						
16	A / B	4x 1-8 UNC	539.8	490						
18	A / B	4x 1.1/8-8 UN	577.9	535						
20	A / B	4x 1.1/8-8 UN	635	585						
24	A / B	4x 1.1/4-8 UN	749.3	695						
28	A / B	-			4x 1.1/4-8 UN	863.6	806	4x 3/4-10 UNC	795.3	765
30	A / B				4x 1.1/4-8 UN	914.4	862	4x 3/4-10 UNC	846.1	813
32	A / B				4x 1.1/2-8 UN	977.9	930	8x 3/4-10 UNC	900.2	864
36	A / B				4x 1.1/2-8 UN	1085.8	1030	8x 7/8-9 UNC	1009.6	980
40	A / B				4x 1.1/2-8 UN	1200.2	1120	4x 1-8 UNC	1120.8	1090

Table 14: *Butterfly valve with an **Wafer-Type** design, **connection dimensions** in mm for **cl300**, **cl300 Series A** and **cl300 Series B***

Nominal size NPS	Flow-direction	cl300			cl300 Series A			cl300 Series B		
		n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD
3	A / B	4x 3/4-10 UNC	168.3	141	-			-		
4	A / B	4x 3/4-10 UNC	200.2	165						
6	A / B	4x 3/4-10 UNC	269.9	220						
8	A / B	4x 7/8-9 UNC	330.2	290						
10	A / B	4x 1-8 UNC	387.4	350						
12	A / B	4x 1.1/8-8 UN	450.8	410						
14	A / B	4x 1.1/8-8 UN	514.4	470						
16	A / B	4x 1.1/4-8 UN	571.5	535						
18	A / B	4x 1.1/4-8 UN	628.6	566						
20	A / B	4x 1.1/4-8 UN	685.8	615						
24	A / B	4x 1.1/2-8 UN	812.8	735						
28	A / B	-			4x 1.5/8-8 UN	939.8	845	4x 1.1/4-8 UN	857.2	800
30	A / B				4x 1.3/4-8 UN	997	917	4x 1.3/8-8 UN	920.8	864
32	A / B				4x 1.7/8-8 UN	1054.1	960	4x 1.1/2-8 UN	977.9	914
36	A / B				4x 2-8 UN	1168.4	1080	4x 1.5/8″-8 UN	1089	1080
40	A / B				4x 1.5/8-8 UN	1155.7	1115	4x 1.5/8-8 UN	1190.6	1115

Table 15: *Butterfly valve with an **Wafer-Type** design, **connection dimensions** in mm for **cl600**, **cl600 Series A** and **cl600 Series B***

Nominal size NPS	Flow-direction	cl600			cl600 Series A			cl600 Series B		
		n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD
3	A / B	4x 3/4-10 UNC	168.3	138	-					
4	A / B	4x 7/8-9 UNC	215.9	176						
6	A / B	4x 1-8 UNC	292.1	250						
8	A / B	4x 1.1/8-8 UN	349.2	306						
10	A / B	4x 1.1/4-8 UN	431.8	356						
12	A / B	4x 1.1/4-8 UN	489	413						
14	A / B	4x 1.3/8-8 UN	527	413						
16	A / B	4x 1.1/2-8 UN	603.2	535						
18	A / B	4x 1.5/8″-8 UN	654	587						
20	A / B	4x 1.5/8″-8 UN	723.9	650						
24	A / B	4x 1.7/8″-8 UN	838.2	762						
28 ... 40	A / B	-			On request					

Dimensions and weights of the control and shut-off butterfly valve with Lug-Type design

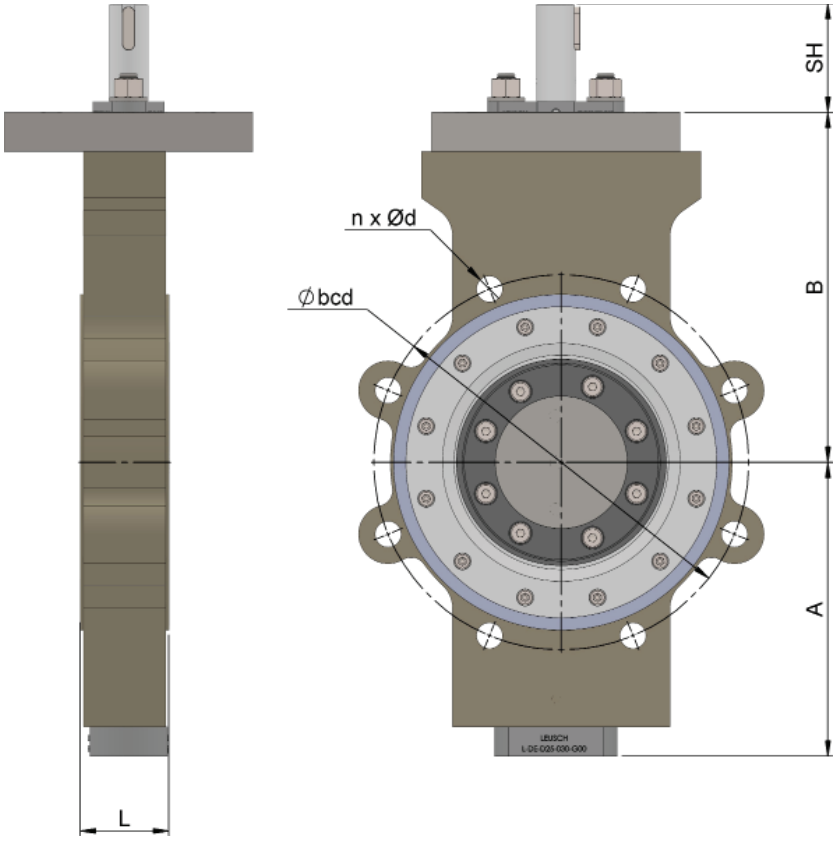

Fig. 7: *Butterfly valve with a **Lug-Type** design*

Table 16: *Butterfly valve with a **Lug-Type** design, dimensions in mm and weights in kg*

Nominal size		PN 10 to 25 / cl150					PN 40 / cl300					PN 63 / cl600			
		A	B	L		Gew.	A	B	L		Gew.	A	B	L	Gew.
DN	NPS			ANSI	DIN				ANSI	DIN					
80	**3**	120	150	48	64	10	120	150	48	64	14	155	135	54	21
100	**4**	150	185	54	64	17	160	190	54	64	25	175	180	64	30
150	**6**	190	225	57	76	37	200	235	59	76	37	235	235	78	56
200	**8**	220	260	64	89	52	235	265	73	89	56	265	275	102	107
250	**10**	250	290	71	114	63	260	295	83	114	86	310	320	117	176
300	**12**	290	330	81	114	111	300	335	92	114	136	335	340	140	235
350	**14**	320	355	92	127	127	329	360	117	127	214	386	385	155	319
400	**16**	350	385	102	140	179	380	410	133	140	293	420	420	178	465
450	**18**	375	425	114	152	229	410	450	149	152	359	440	450	200	572
500	**20**	415	475	127	152	297	455	500	159	152	499	485	490	216	812
600	**24**	460	520	154	178	502	530	540	181	178	806	580	610	232	1137
700	**28**	525	575	165	229	632	598	610	209	229	1193	620	640	292	1586
750	**30**	590	650	165	-	803	640	630	241	-	1493	620	670	318	1856
800	**32**	600	660	190	241	1135	658	660	241	241	1444	660	700	318	2245
900	**36**	640	710	200	241	1263	700	730	260	241	1586	720	740	330	2410
1000	**40**	710	730	216	300	1640	720	740	300	300	2397	On request			

Table 17: *Butterfly valve with a **Lug-Type** design, **connection dimensions** in mm for **PN 10**, **PN 16** and **PN 25***

Nominal size DN	Flow-direction	PN 10		PN 16		PN 25	
		n x Ød	Øbcd	n x Ød	Øbcd	n x Ød	Øbcd
80	A / B	8x M16	160	8x M16	160	8x M16	160
100	A / B	8x M16	180	8x M16	180	8x M20	190
150	A / B	8x M20	240	8x M20	240	8x M24	250
200	A / B	8x M20	295	12x M20	295	12x M24	310
250	A / B	12x M20	350	12x M24	355	12x M27	370
300	A / B	12x M20	400	12x M24	410	16x M27	430
350	A / B	16x M20	460	16x M24	470	16x M30	490
400	A / B	16x M24	515	16x M27	525	16x M33	550
450	A / B	20x M24	565	20x M27	585	20x M33	600
500	A / B	20x M24	620	20x M30	650	20x M33	660
600	A / B	20x M27	725	20x M33	770	20x M36	770
700	A / B	24x M27	840	24x M33	840	24x M39	875
750	A / B	On request					
800	A / B	24x M30	950	24x M36	950	24x M45	990
900	A / B	28x M30	1050	28x M36	1050	28x M45	1090
1000	A / B	28x M33	1160	28x M39	1170	28x M52	1210

Table 18: *Butterfly valve with a **Lug-Type** design, **connection dimensions** in mm for **PN 40 and PN 63***

Nominal size DN	Flow-direction	PN 40		PN 63			PN 100	
		n x Ød	Øbcd	n x Ød	Øbcd	ØD	n x Ød	Øbcd
80	A / B	8x M16	160	8x M20	170	230	8x M24	180
100	A / B	8x M20	190	8x M24	200	250	8x M27	210
150	A / B	8x M24	250	8x M30	280	355	12x M30	290
200	A / B	12x M27	320	12x M33	345	430	12x M33	360
250	A / B	12x M30	385	12x M33	400	510	12x M36	430
300	A / B	16x M30	450	16x M33	460	585	16x M39	500
350	A / B	16x M33	510	16x M36	525	655	16x M45	560
400	A / B	16x M36	585	16x M39	585	703	16x M45	620
450	A / B	20x M36	610	On requset				
500	A / B	20x M39	670	20x M45	705	870	20x M52	760
600	A / B	20x M45	795	20x M52	820	940		
700	A / B	24x M45	900	24x M52	935	1050		
750	A / B							
800	A / B	24x M52	1030					
900	A / B	28x M52	1140	On requset				
1000	A / B	28x M52	1250					

Table 19: *Butterfly valve with a **Lug-Type** design, **connection dimensions** in mm for **cl150**, **cl150 Series A** and **cl150 Series B***

Nominal size DN	Flow-direction	cl150		cl150 Series A		cl150 Series B	
		n x Ød	Øbcd	n x Ød	Øbcd	n x Ød	Øbcd
3	A / B	4x 5/8-11 UNC	152.4	-		-	
4	A / B	8x 5/8-11 UNC	190.5				
6	A / B	8x 3/4-10 UNC	241.3				
8	A / B	8x 3/4-10 UNC	298.5				
10	A / B	12x 7/8-9 UNC	362				
12	A / B	12x 7/8-9 UNC	431.8				
14	A / B	12x 1-8 UNC	476.3				
16	A / B	16x 1-8 UNC	539.8				
18	A / B	16x 1.1/8-8 UN	577.9				
20	A / B	20x 1.1/8-8 UN	635				
24	A / B	20x 1.1/4-8 UN	749.3				
28	A / B	-		28x 1.1/4-8 UN	863.6	40x 3/4-10 UNC	795.3
30	A / B			28x 1.1/4-8 UN	914.4	44x 3/4-10 UNC	846.1
32	A / B			28x 1.1/2-8 UN	977.9	48x 3/4-10 UNC	900.1
36	A / B			32x 1.1/2-8 UN	1085.8	44x 7/8-9 UNC	1009.6
40	A / B			36x 1.1/2-8 UN	1200.2	44x 1-8 UNC	1120.8

Table 20: *Butterfly valve with a **Lug-Type** design, **connection dimensions** in mm for **cl300**, **cl300 Serie A** and **cl300 Serie B***

Nominal size NPS	Flow-direction	cl300		cl300 Series A		cl300 Series B	
		n x Ød	Øbcd	n x Ød	Øbcd	n x Ød	Øbcd
3	A / B	8x 3/4-10 UNC	168.3	-		-	
4	A / B	8x 3/4-10 UNC	200				
6	A / B	12x 3/4-10 UNC	269.9				
8	A / B	12x 7/8-9 UNC	330.2				
10	A / B	16x 1-8 UNC	387.4				
12	A / B	16x 1.1/8-8 UN	450.8				
14	A / B	20x 1.1/8-8 UN	514.4				
16	A / B	20x 1.1/4-8 UN	571.5				
18	A / B	24x 1.1/4-8 UN	628.6				
20	A / B	24x 1.1/4-8 UN	685.8				
24	A / B	24x 1.1/2-8 UN	812.8				
28	A / B	-		28x 1.5/8-8 UN	939.8	36x 1.1/4-8 UN	857.2
30	A / B			28x 1.3/4-8 UN	997	36x 1.3/8-8 UN	920.8
32	A / B			28x 1.7/8″-8 UN	1054.1	32x 1.1/2″-8 UN	977.9
36	A / B			32x 2″-8 UN	1168.4	32x 1.5/8″-8 UN	1089
40	A / B			32x 1.5/8″-8 UN	1155.7	40x 1.5/8″-8 UN	1190.6

Table 21: *Butterfly valve with a **Lug-Type** design, **connection dimensions** in mm for **cl600**, **cl600 Series A** and **cl600 Series B***

Nominal size NPS	Flow-direction	cl600		cl600 Series A		cl600 Series B	
		n x Ød	Øbcd	n x Ød	Øbcd	n x Ød	Øbcd
3	A / B	8x 3/4-10 UNC	168.3	-			
4	A / B	8x 7/8-9 UNC	215.9				
6	A / B	12x 1-8 UNC	292.1				
8	A / B	12x 1.1/8-8 UN	349.2				
10	A / B	16x 1.1/4-8 UN	431.8				
12	A / B	20x 1.1/4-8 UN	489				
14	A / B	20x 1.3/8-8 UN	527				
16	A / B	20x 1.1/2-8 UN	603.2				
18	A / B	20x 1.5/8-8 UN	654				
20	A / B	24 x 1.5/8-8 UN	723.9				
24	A / B	24 x 1.7/8-8 UN	838.2				
28 ... 40	A / B	-		On request			

Dimensions and weights of the control and shut-off butterfly valve with a double-flange design

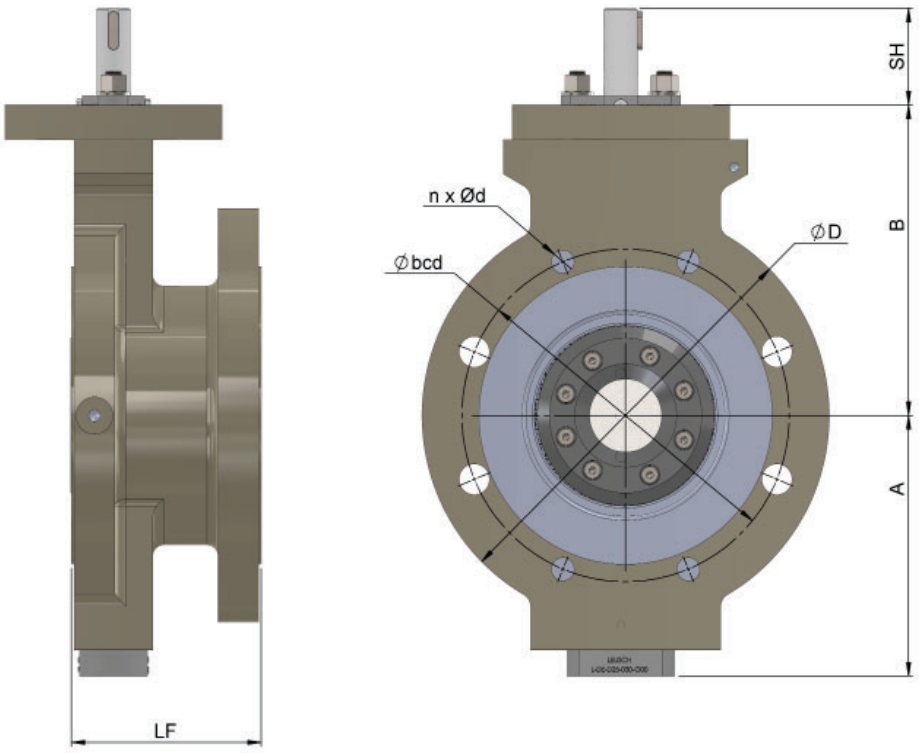

Fig. 8: *Butterfly valve with a **double-flange** design*

Table 22: *Butterfly valve with a **double-flange** design, dimensions in mm and weights in kg*

Nominal size		PN 10 to 25 / cl150				PN 40 / cl300				PN 63 / cl600			
DN	NPS	A	B	L	Gew.	A	B	L	Gew.	A	B	L	Gew.
80	3	120	150	114	17	120	150	114	22	155	135	180	36
100	4	150	185	127	29	160	190	127	39	175	180	190	53
150	6	190	225	140	47	200	235	140	63	235	235	210	99
200	8	220	260	152	70	235	265	152	89	265	275	230	171
250	10	250	290	165	96	260	295	165	130	310	320	250	252
300	12	290	330	178	126	300	335	178	196	335	340	270	327
350	14	320	355	190	187	329	360	190	279	386	385	290	417
400	16	350	385	216	238	380	410	216	363	420	420	310	571
450	18	375	425	222	267	410	450	222	461	440	450	330	729
500	20	415	475	229	370	455	500	229	529	485	490	350	1118
600	24	460	520	267	526	530	540	267	624	580	610	390	1341
700	28	525	575	292	698	598	610	292	1229	620	640	450	2034
750	30	590	650	318	850	640	630	318	1460	620	670	480	2019
800	32	600	660	318	1066	658	660	318	1672	660	700	480	2454
900	36	640	710	330	1314	700	730	330	1914	720	740	480	2639
1000	40	710	730	410	1640	720	740	410	1949	On request			

Table 23: *Butterfly valve with a* ***double-flange*** *design,* ***connection dimensions*** *in mm for* ***PN 10****,* ***PN 16*** *and* ***PN 25***

Nominal size DN	Flow-direction	PN 10			PN 16			PN 25		
		n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD
80	A	8x Ø18	160	210	8x Ø18	160	210	8x Ø18	160	210
	B	4x M16 / 4x Ø18			4x M16 / 4x Ø18			4x M16 / 4x Ø18		
100	A	8x Ø18	180	235	8x Ø18	180	235	8x Ø22	190	235
	B	4x M16 / 4x Ø18			4x M16 / 4x Ø18			4x M20 / 4x Ø22		
150	A	8x Ø22	240	300	8x Ø22	240	300	8x Ø26	250	300
	B	4x M20 / 4x Ø22			4x M20 / 4x Ø22			4x M24 / 4x Ø26		
200	A	8x Ø22	295	360	12x Ø22	295	360	12x Ø26	310	360
	B	4x M20 / 4x Ø22			4x M20 / 8x Ø22			4x M24 / 8x Ø26		
250	A	12x Ø22	350	425	12x Ø26	355	425	12x Ø30	370	425
	B	4x M20 / 8x Ø22			4x M24 / 8x Ø26			4x M27 / 8x Ø30		
300	A	12x Ø22	400	485	12x Ø26	410	485	16x Ø30	430	485
	B	4x M20 / 8x Ø22			4x M24 / 8x Ø26			4x M27 / 12x Ø30		
350	A	16x Ø22	460	556	16 x Ø26	470	556	16x Ø33	490	556
	B	4x M20 / 12x Ø22			4x M24 / 12x Ø26			4x M30 / 12x Ø33		
400	A	16x Ø26	515	620	16x Ø30	525	620	16x Ø36	550	620
	B	4x M24 / 12x Ø26			4x M27 / 12x Ø30			4x M33 / 12x Ø36		
450	A	20x Ø26	565	670	20x Ø30	585	670	20 x Ø36	600	670
	B	4x M24 / 16x Ø26			4x M27 / 16x Ø30			4x M33 / 16x Ø36		
500	A	20x Ø26	620	730	20x Ø33	650	730	20x Ø36	660	730
	B	4x M24 / 16x Ø26			4x M30 / 16x Ø33			4x M33 / 16x Ø36		
600	A	20 x Ø30	725	845	20x Ø36	770	845	20x Ø39	770	845
	B	4x M27 / 16x Ø30			4x M33 / 16x Ø36			4x M36 / 16x Ø39		
700	A	24x Ø30	840	925	24x Ø36	840	925	24x Ø42	875	960
	B	4x M27 / 20x Ø30			4x M33 / 20x Ø36			4x M39 / 20x Ø42		
750	A	On request								
	B									
800	A	24x Ø33	950	1085	24x Ø39	950	1085	24x Ø48	990	1085
	B	4x M30 / 20x Ø33			4x M36 / 20x Ø39			4x M45 / 20x Ø48		
900	A	4x M30 / 24x Ø33	1050	1185	4x M36 / 24x Ø39	1050	1185	28x Ø48	1090	1185
	B							4x M45 / 24x Ø48		
1000	A	28x Ø36	1160	1290	28x Ø42	1170	1290	32x Ø56	1420	1530
	B	4x M33 / 24x Ø36			4x M39 / 24x Ø42			4x M52 / 28x Ø56		

Table 24: *Butterfly valve with a* ***double-flange*** *design,* ***connection dimensions*** *in mm for* ***PN 40*** *and* ***PN 63***

Nominal size DN	Flow-direction	PN 40			PN 63		
		n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD
80	A	8x Ø18	160	210	8x Ø22	170	230
	B	4x M16 / 4x Ø18			4x M20 / 4x Ø22		
100	A	8x Ø22	190	235	8x Ø26	200	273
	B	4x M20 / 4x Ø22			4x M24 / 4x Ø26		
150	A	8x Ø26	250	300	8x Ø33	280	356
	B	4x M24 / 4x Ø26			4x M30 / 4x Ø33		
200	A	12x Ø30	320	381	12x Ø36	345	430
	B	4x M27 / 8x Ø30			4x M33 / 8x Ø36		
250	A	12x Ø33	385	450	12x Ø36	400	508
	B	4x M30 / 8x Ø33			4x M33 / 8x Ø36		
300	A	4x M30 / 12x Ø33	450	521	16x Ø36	460	585
	B				4x M33 / 12x Ø36		
350	A	4x M33 / 12x Ø36	510	585	16x Ø39	525	655
	B				4x M36 / 12x Ø39		
400	A	4x M36 / 12x Ø39	585	660	16x Ø42	585	686
	B				4x M39 / 12x Ø42		
450	A	20x Ø39	610	710	On request		
	B	4 M36 / 16x Ø39					
500	A	4x M39 / 16x Ø42	670	775	4x M45 / 16x Ø48	705	870
	B						
600	A	4x M45 / 16x Ø48	795	920	4x M52 / 16x Ø56	820	945
	B						
700	A	4x M45 / 20x Ø48	900	1035	24x Ø56	935	1050
	B				4x M52 / 16x Ø56		
750	A						
	B						
800	A	4x M52 / 20x Ø56	1030	1093	On request		
	B						
900	A	4x M52 / 24x Ø56	1140	1270			
	B						
1000	A	28x Ø56	1250	1360			
	B	4x M52 / 24x Ø56					

Table 25: *Butterfly valve with a* ***double flange*** *design,* ***connection dimensions*** *in mm for* ***cl150****,* ***cl150 Series A*** *and* ***cl150 Series B***

Nominal size DN	Flow-direction	cl150			cl150 Series A			cl150 Series B		
		n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD
3	A	4x Ø19,1	152.4	210	-			-		
	B									
4	A	8x Ø19,1	190.5	235						
	B	4x 5/8-11 UNC / 4x Ø19,1								
6	A	8x Ø22,4	241.3	300						
	B	4x 3/4-10 UNC / 4x Ø22,4								
8	A	8x Ø22,4	298.5	360						
	B	4x 3/4-10 UNC/ 4x Ø22,4								
10	A	12x Ø25,4	362	425						
	B	4x 7/8-9 UNC / 8x Ø25,4								
12	A	12x Ø25,4	431.8	485						
	B	4x 7/8-9 UNC / 8x Ø25,4								
14	A	12x Ø28,4	476.3	556						
	B	4x 1-8 UNC / 8x Ø28,4								
16	A	16x Ø28,4	539.8	620						
	B	4x 1-8 UNC / 12x Ø28,4								
18	A	16x Ø31,8	577.9	670						
	B	4x 1.1/8-8 UN / 12x Ø31,8								
20	A	20x Ø31,8	635	730						
	B	4x 1.1/8-8 UN / 16x Ø31,8								
24	A	20x Ø34,9	749.3	845						
	B	4x 1.1/4-8 UN / 16x Ø34,9								
28	A	-			28x Ø34,9	863.6	925	40x Ø22,2	795.3	835
	B				4x 1.1/4-8 UN / 24x Ø34,9			4x 3/4-10 UNC / 36x Ø22,2		
30	A				28x Ø34,9	914.4	985	44x Ø22,2	846.1	890
	B				4x 1.1/4-8 UN / 24x Ø34,9			8x 3/4"-10 UNC / 36x Ø22,2		
32	A				4x 1.1/2-8 UN / 24x Ø41,3	977.9	1085	48x Ø22,2	900.1	1085
	B							8x 3/4-10 UNC / 40x Ø22,2		
36	A				4x 1.1/2-8 UN / 28x Ø41,3	1085.8	1185	44x Ø25,4	1009.6	1060
	B							12x 7/8-9 UNC / 32x Ø25,4		
40	A				4x 1.1/2-8 UN / 32x Ø41,3	1200.2	1290	44x Ø28,6	1120.8	1175
	B							8x 1-8 UNC / 36x Ø28,6		

Table 26: *Butterfly valve with a* ***double flange*** *design,* ***connection dimensions*** *in mm for* ***cl300***, ***cl300 Series A*** *and* ***cl300 Series B***

Nominal size DN	Flow-direction	cl300			cl300 Series A			cl300 Series B		
		n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD
3	A	8x Ø22,2	168.3	210	-			-		
	B	4x 3/4-10 UNC / 4x Ø22,2								
4	A	8x Ø22,2	200	260						
	B	4x 3/4-10 UNC / 4x Ø22,2								
6	A	12x Ø22,2	269.9	318						
	B	4x 3/4-10 UNC / 8x Ø22,2								
8	A	12x Ø25,4	330.2	381						
	B	4x 7/8-9 UNC / 8x Ø25,4								
10	A	4x 1-8 UNC/ 12x Ø28,6	387.4	450						
	B									
12	A	4x 1.1/8-8 UN / 12x Ø31,8	450.8	521						
	B									
14	A	4x 1.1/8-8 UN / 16x Ø31,8	514.4	585						
	B									
16	A	4x 1.1/4-8 UN / 16x Ø34,9	571.5	660						
	B									
18	A	8x 1.1/4-8 UN / 16x Ø34,9	628.6	710						
	B									
20	A	4x 1.1/4-8 UN / 20x Ø34,9	685.8	775						
	B									
24	A	4x 1.1/2-8 UN / 20x Ø41,3	812.8	915						
	B									
28	A	-			4x 1.5/8-8 UN / 24x Ø44,5	939.8	1035	8x 1.1/4-8 UN / 28x Ø34,9	857.2	1035
	B									
30	A				8x 1.3/4-8 UN / 20x Ø47,6	997	1093	8x 1.3/8-8 UN / 28x Ø38,1	920.8	995
	B									
32	A				8x 1.7/8-8 UN / 20x Ø50,8	1054.1	1150	8x 1.1/2-8 UN / 24x Ø41,3	977.9	1055
	B									
36	A				8x 2-8 UN / 24x Ø54	1168.4	1270	8x 1.5/8-8 UN / 24x Ø44,5	1089	1172
	B									
40	A				4x 1.5/8-8 UN / 28x Ø44,5	1155.7	1239	8x 1.5/8-8 UN / 32x Ø44,5	1190.6	1275
	B									

Table 27: *Butterfly valve with a* ***double flange*** *design,* ***connection dimensions*** *in mm for* ***cl600****,* ***cl600 Series A*** *and* ***cl600 Series B***

Nominal size NPS	Flow-direction	cl600			cl600 Series A			cl600 Series B		
		n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD	n x Ød	Øbcd	ØD
3	A	8x Ø22,2	168.3	230						
	B	4x 3/4-10 UNC / 4x Ø22,2								
4	A	8x Ø25,4	215.9	273						
	B	4x 7/8-9 UNC/ 4x Ø25,4								
6	A	12x Ø28,6	292.1	356						
	B	4x 1-8 UNC / 8x Ø28,6								
8	A	12x Ø31,8	349.2	430						
	B	4x 1.1/8-8 UN / 8x Ø31,8								
10	A	16x Ø34,9	431.8	508						
	B	8x 1.1/4-8 UN / 8x Ø34,9								
12	A	20x Ø34,9	489	585						
	B	4x 1.1/4-8 UN /16x Ø34,9								
14	A	20x Ø38,1	527	655						
	B	4x 1.3/8-8 UN / 16x Ø38,1								
16	A	20x Ø41,3	603.2	686						
	B	4x 1.1/2-8 UN / 16x Ø41,3								
18	A	4x 1.5/8-8 UN / 16x Ø44,5	654	745						
	B									
20	A	8x 1.5/8-8 UN / 16x Ø44,5	723.9	870						
	B									
24	A	4x 1.7/8-8 UN / 20x Ø50,8	838.2	940						
	B									
28 ... 40	A	-			On request					
	B									

Flow-direction

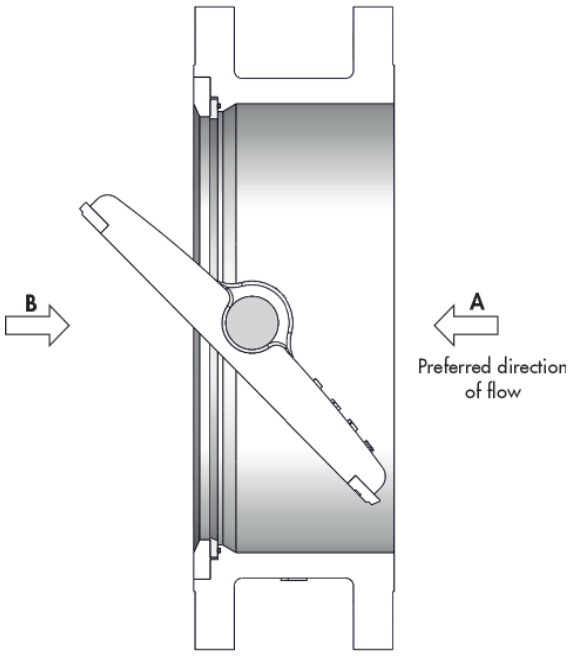

Fig. 9: *Flow-direction*

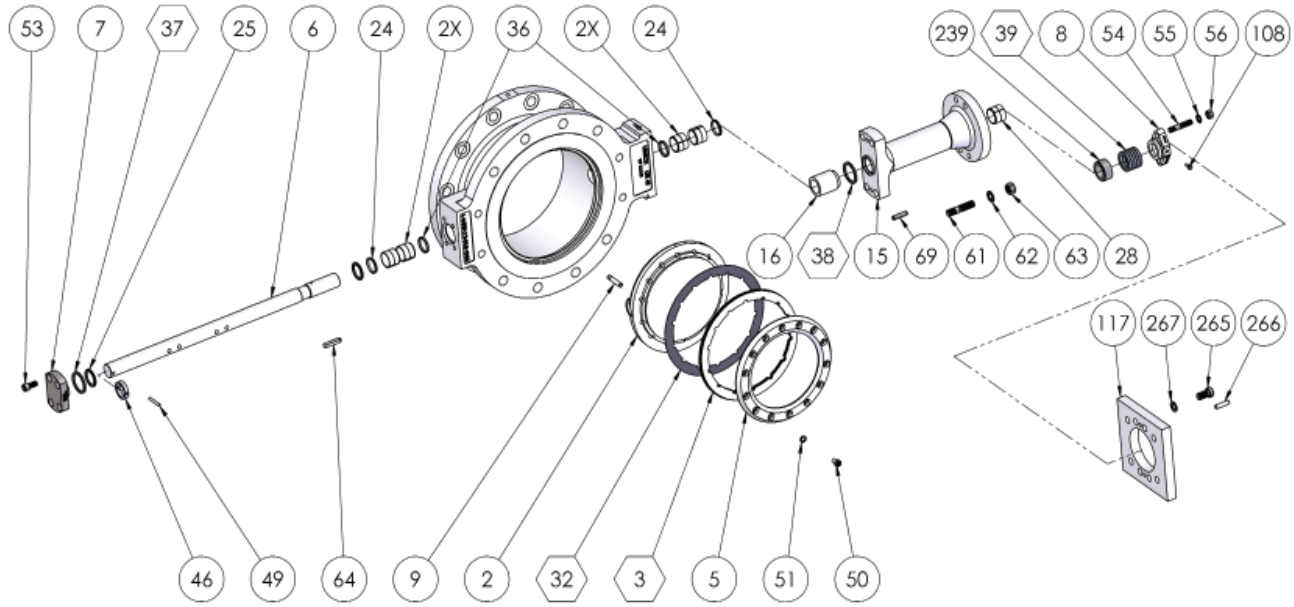

Fig. 10: *Exploded drawing of the control and shut-off butterfly valve*

Table 28: *Parts list for the control and shut-off butterfly valve*

Pos.	Designation
1	Body
2	Disc
3 [1)]	Seal ring
4 [1)]	Seat
5	Retainer ring
6	Shaft
7	Cover
8	Gland
9	Pin
15	Extension
16	Bearing
2X	Bearing
24	Spacer
25	Thrust ring
28	Bearing
31 [1)]	Gasket Body
32 [1)]	Gasket Disc
36	Bearing seal
37 [1)]	Gasket
38 [1)]	Gasket

Pos.	Designation
39 [1)]	Packing
46	Shaftring
49	Pin for shaftring
50 [1)]	Hexagon socket had cap screw
51 [1)]	Screw locking
53	Hexagon socket had cap screw
54	Stud bolt
55	Washer
56	Hexagon nut
61	Stud bolt
62	Screw locking
63	Hexagon nut
64 [1)]	Key
69	Pin
108	hexagon bolt; Screw for blow out secure
117	Adapter plate bracket
239	Support ring
265	Hexagon socket had cap screw
266	Pin
267	Washer

[1)] Recommended spare parts

Selecting and sizing the actuator

1. Calculate the appropriate Kvs coefficient
2. Select the DN and Kvs coefficient from Tables 9 to 12
3. Check the operation condition taking the pressure-temperature diagram into account
4. Select a suitable rotary actuator

Ordering text

Process valve: BR 14t - LTR 43,
Nominal size: DN . . . . . / NPS . . . . .
Nominal pressure: PN . . . . . / cl . . . . .
Any special version: . . . . .

Manual gear or actuator (brand name): . . . . .
Signal pressure: . . . . . bar
Fail-safe position: . . . . .

Limit signal transmitter (brand name): . . . . .
Solenoid valve (brand name): . . . . .
Positioner (brand name): . . . . .

Miscellaneous: . . . . .

Associated Data Sheets

- For pneumatic rotary actuators ▶ TB 31a

Info

All relevant details regarding the version ordered, which deviate from the specified version in this technical description data, can be taken if required, from the corresponding order confirmation.

PDF=557