

Butterfly valve of SG-cast iron PN 16



Operation

The butterfly valve is a stop and regulating valve which is tight for both directions of flow. The valve is used for example in

- water pipe system
- oil and gas pipes
- steam lines

Nominal pressure PN16 bar, to special order PN25
Closing pressure max 16 bar

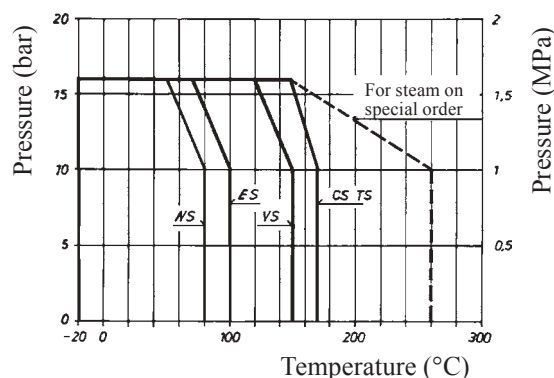
Disc seal alternatives max./ min.

DN80 ... DN700
- AISI 316 +170 °C (+260 °C for steam) / -20 °C

DN80 ... DN600

- EPDM heat resistant +100 °C/ -20 °C
- NBR (Nitril) oil resistant +80 °C/ -20 °C
- FPM (Viton) chemical-resistant +150 °C/ -20 °C
- PTFE chemicals +170 °C/ -20 °C

Maximum closing pressure difference depends on the working temperature



Design

The butterfly valve is flangeless and has a double excentric disc. The disc is of stainless steel. It is mounted to the shaft with tangential conical keys. The shaft has O-ring seals. The butterfly valve is supplied complete with optional actuators

- handlever DN 80-150
- manual gear DN 80-700
- electric, pneumatic or hydraulic actuator

Face to face lengths according ISO 5752 series 16

The mounting is between drilled flanges according to SFS 2123 = DIN 2501 PN 20, PN 16, PN 10
To special order between PN 25 drilled flanges.

Nominal sizes DN 80 - 700

Conform with the requirements of the Council Directive 97/23/EC on Pressure Equipment, marking: **CE** 0434

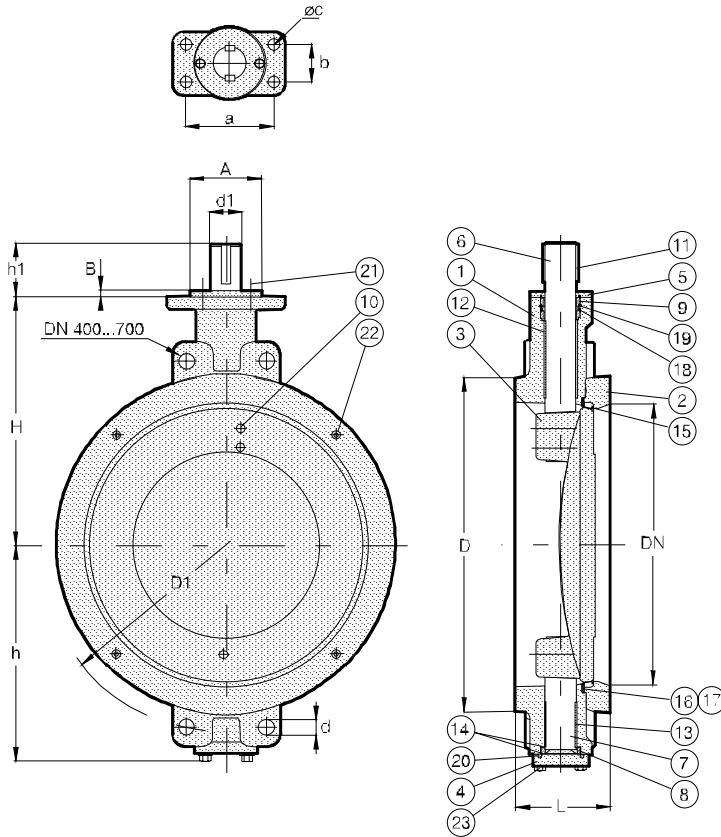
Code number Seat

245CS_ _ _ METAL
245ES_ _ _ EPDM
245NS_ _ _ NBR (Nitril)
245VS_ _ _ FPM (Viton)
245TS_ _ _ PTFE

245_ _ _ with manual lever (Flanges drilled PN 16)
245_ _ _ Z with bare shaft (Flanges drilled PN 16)
245_ _ _ M with gear (Flanges drilled PN 16)
245_ _ _ N1 with manual lever (Flanges drilled PN 25)
245_ _ _ Z1 with bare shaft (Flanges drilled PN 25)
245_ _ _ M1 with gear (Flanges drilled PN 25)

For steam on special order.

Butterfly valve



Parts

- | | | |
|----------------------|-----------|-----------------------------------|
| 1. Body | DN 80-600 | GRP 370 |
| | DN 700 | HII |
| 2. Counter flange | DN 80-600 | GRP 370 |
| | DN 700 | HII |
| 3. Disc | | W:no 4408 |
| 4. Subshaft cover | | Fe 37 B |
| 5. Gland | | GRP 400 |
| 6. Stem | | W:no 4460 |
| 7. Subshaft | | W:no 4460 |
| 8. Retaining ring | | W:no 4401 |
| 9. Bearing bush | | W:no 4401 |
| 10. Conical pin | | W:no 4460 |
| 11. Key | | Fe |
| 12. Bearing | | PTFE+AISI 316 net |
| 13. Subshaft bearing | | PTFE+AISI 316 net |
| 14. Bearing | | PTFE+AISI 316 net |
| 15. Seat ring | | AISI 316, EPDM,
NBR, FPM, PTFE |
| 16. Shim | | SFS5811 carbon fibre |
| 17. Shim | | SFS5811 carbon fibre |
| 18. O-ring | | EPDM, NBR, FPM |
| 19. O-ring | | EPDM, NBR, FPM |
| 20. O-ring | | EPDM, NBR, FPM |
| 21. Socket screw | | |
| 22. Socket screw | | |
| 23. Hexagonal screw | | |

Seal alternatives



AISI 316

EPDM

PTFE

NITRIL

VITON

Dimensions

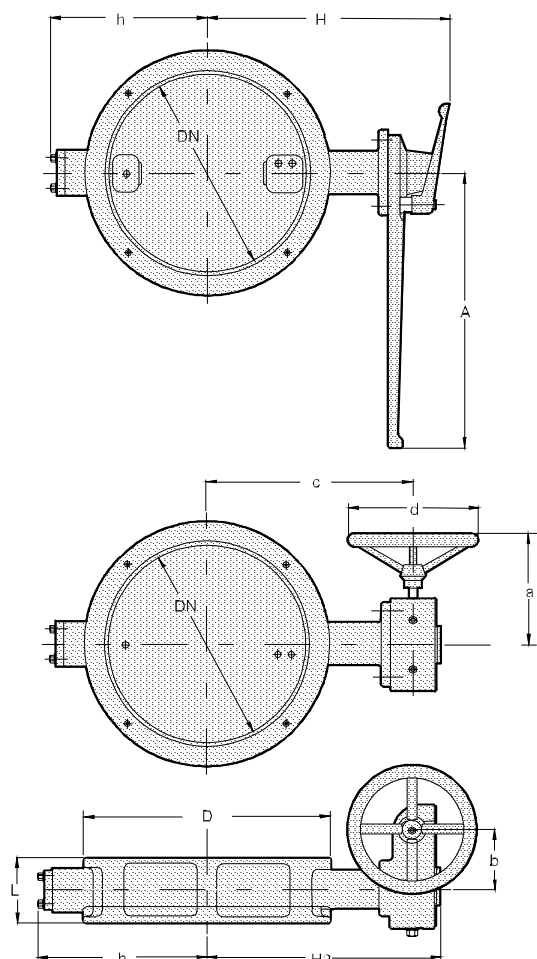
DN	PN	D	d1	h1	L	H	h	A	B	a	b	c	Connection				N	2) Weight kg
													PN 10		PN 16			
													D1	d	D1	d	qty	
80	16	138	15	45	64	130	109	60	7,5	85	26	11	-	-	-	-	8	7
100	16	160	20	52	64	148	123	60	7,5	85	26	11	-	-	-	-	8	8
125	16	190	20	52	70	160	135	60	7,5	85	26	11	-	-	-	-	8	11
150	16	215	25	58	76	180	153	66,7	7,5	105	45	11	-	-	-	-	8	16
200	16	270	30	63	89	205	201	66,7	7,5	105	45	11	-	-	-	-	¹⁾ 12	32
250	16	324	35	69	114	248	236	88,9	7,5	110	48	14	-	-	-	-	12	51
300	16	375	40	75	114	280	265	88,9	7,5	110	48	14	-	-	-	-	12	62
350	16	435	40	75	127	305	309	88,9	7,5	110	48	14	-	-	-	-	16	76
400	16	485	50	86	140	370	335	114,3	8,5	140	60	18	515	ø27	525	ø30	16	123
450	16	537	50	86	152	395	360	114,3	8,5	140	60	18	565	M24	585	M27	³⁾ 8+16	156
500	16	590	60	103	152	458	385	120,7	8,5	150	60	22	620	M24	650	M30	³⁾ 8+16	200
600	16	690	70	119	178	530	445	152,4	10,5	175	75	22	725	M27	770	M33	³⁾ 8+16	296
700	16	800	70	119	229	580	490	152,4	10,5	175	75	22	840	M27	840	M33	³⁾ 8+20	420

1) PN 10 = 8 pcs

2) with actuator

3) stud bolts

Butterfly valves Actuators



Butterfly valves are supplied with following actuator options:

- a lever or gear,
- electric, pneumatic or hydraulic actuators.

Hand lever

A lever is suitable for manual operation of small sizes of butterfly valves DN 80 to 200, except for valves with metal to metal seats, where gear and handwheel is used in size DN 200 and larger. The position of the disc can be firmly fixed in any position between open and closed by the locking device incorporated. The hand lever is supplied positioned crosswise to the pipe with the valve closed.

Dimensions

DN	A	H	h
80	300	205	109
100	300	225	123
125	300	235	135
150	420	270	153
200	420	295	201

Manual gear

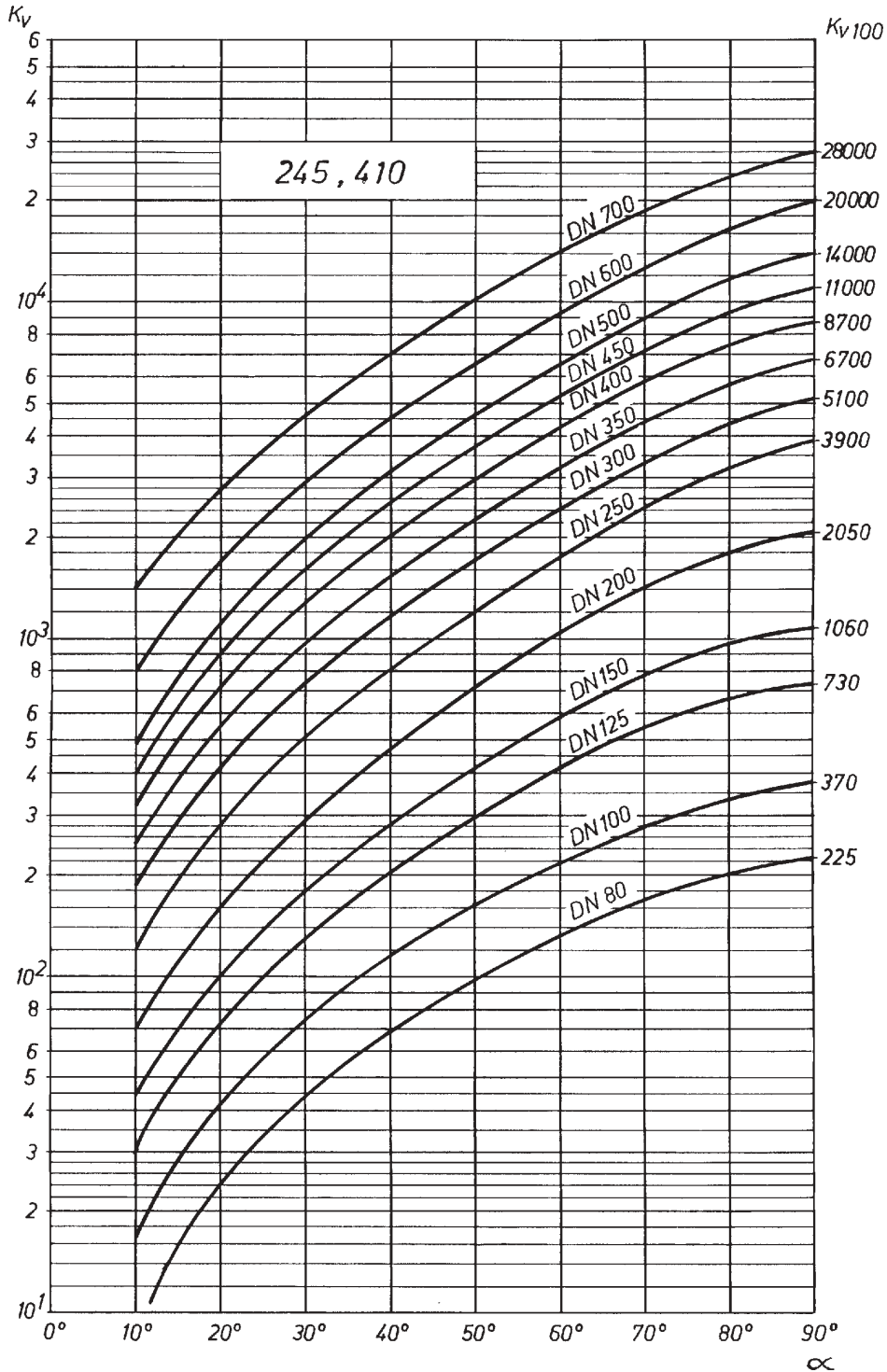
The valves are supplied with gearbox and handwheel. The disc position is shown by a mechanical indicator on the actuator.

Dimensions

DN	D	L	h	H2	a	b	c	d
80	138	64	109	197	176	52	165	203
100	160	64	123	215	176	52	183	203
125	190	70	135	227	176	52	195	203
150	215	76	153	261	202	67	222	203
200	270	89	201	286	247	67	247	305
250	324	114	236	342	264	90	298	305
300	375	114	265	374	264	90	330	305
350	435	127	309	399	264	90	355	305
400	485	140	335	476	362	123	420	457
450	537	152	360	501	362	123	445	457
500	590	152	385	564	387	154	508	457
600	690	178	445	720	505	181	591	457
700	800	229	490	770	505	181	641	457

Regulating curves

The diagram presents the K-values of butterfly valves
 - the capacity factors for different disc positions



WATER:

Volume flow:

$$Q = K_v \sqrt{\frac{\Delta p}{\rho}}$$

Flow velocity:

$$v = 354 \frac{Q}{DN^2}$$

- K_v = kv-value — Capacity factors
- DN = nominal valve size (mm)
- α = disc opening angle
- Q = volume flow m^3/h
- Δp = pressure difference bar
- ρ = density of liquid kg/dm^3
- v = flow velocity m/s