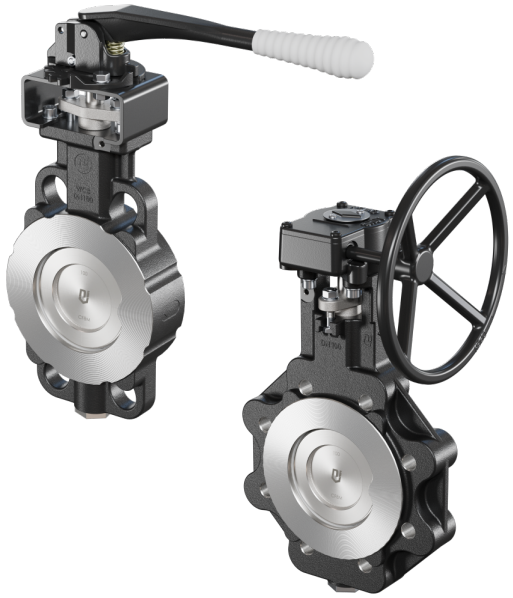
Double eccentric butterfly valve TYPE AK11 and AK12



Description:

Double eccentric / offset butterfly valves are used in pipelines to regulate or shut off the flow of media. They are characterized by their special design with two eccentric axes, which enable low-friction opening and closing. These butterfly valves minimize seat wear and ensures perfect tightness.

Product features:

- Suitable for neutral / non-neutral **gaseous & liquid media**
- Double eccentric design
- Split stem allows higher Kv/Cv values
- Simple operation, assembly and installation
- Top flange according to ISO 5211
- Consider flow direction (see arrow)!

Connection:	Temperature:	Pressure:
DN50 to DN400	-29°C to +200°C consider the pressure-temperature diagram	Up to 50,0 bar depending on version

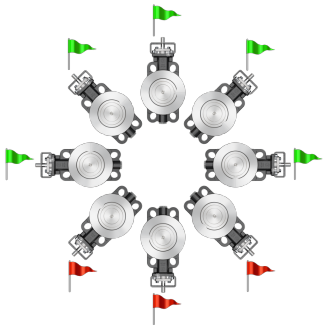
Type AK11	WAFER type with through holes
Type AK12	LUG type with threaded holes
Design:	Double eccentric butterfly valve Wafer or Lug type
Body:	Carbon steel 1.0625 (A216WCB) with protective coating RAL 9005
Disc:	DN50 - DN125: Stainless steel 1.4408 (CF8M) DN150 - DN400: Stainless steel 1.4027 (ASTM CA-40)
Seat material:	R-PTFE (PTFE with 25% glass fiber)
Stem:	Split stem, stainless steel 1.4021 (AISI 420)
Connection:	Flange EN1092 PN10/16/25/40, ANSI Class150 and ANSI Class300 - depending on size *
Leak test:	DIN EN 12266-1 Leakage rate A; API 598 - only applies if the flow direction is correct!
Overall length:	EN 558-1 series 20 (ISO 5752-20); API 609 table 3 - Exception: size DN350
Actuation:	DN50 - DN150: Carbon steel lever (lever DN150 up to max. 16 bar) Recommended from DN125: Worm gearbox made of cast iron
Max. pressure:	DN50 - DN100: 50 bar | DN125 - DN200: 40 bar | DN250 - DN400: 25 bar

* Types AK11 and AK12 have a multi-flange connection according to EN1092 PN10-PN16-PN25-PN40 as well as ANSI150 and, through DN300, to ANSI300. For LUG type AK12, the holes are drilled accordingly the PN/ANSI stage ordered (see article number system on the last page).

Installation position:

- Actuation/stem upwards!
- Consider the direction of flow! The correct flow direction is indicated by an arrow on the housing.

  The tightness of the butterfly valve is only guaranteed if the flow direction is correct.



Valve designs:

AK11 - Butterfly valve WAFER type with through holes

DN50 - DN125

DN150 - DN400

AK12 - Butterfly valve LUG type with threaded holes

DN50 - DN65

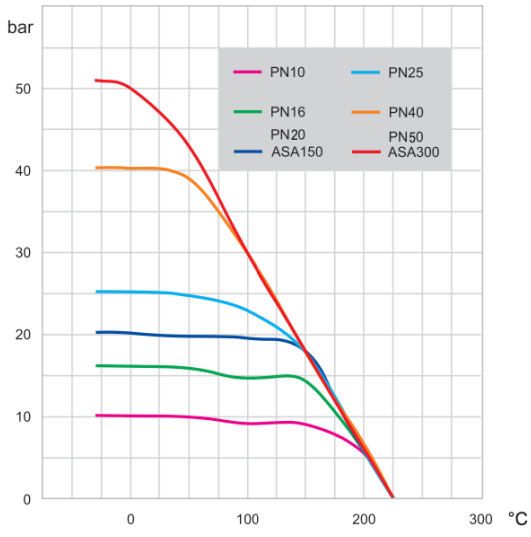
DN80 - DN125

DN150 - DN400 *

* The number of holes may differ from the illustration depending on the selected nominal diameter and PN/ANSI class. Number of holes according to standard.

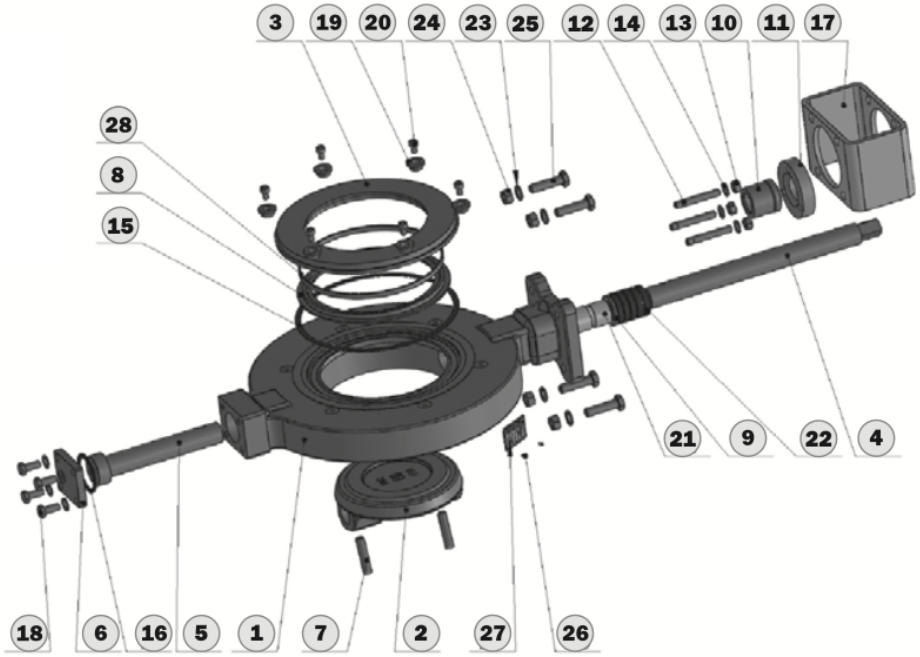
Pressure-temperature diagram:

Body A216 WCB / PTFE seat



Maximum temperatures are only permissible for certain media, pressures and short-term use. Please contact our sales team.

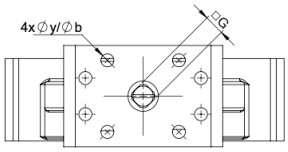
Parts list and material:

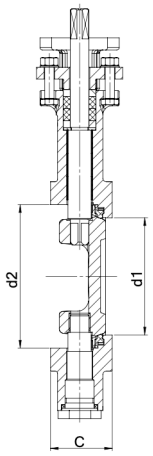


Pos.	Name	Material
1	Body	Carbon steel 1.0625 (A216 WC8)
2	Disc	DN50 - DN125: stainless steel 1.4408 (CF8M) / DN150 - DN400: stainless steel 1.4027 (ASTM CA-40)
3	Pressure flange	Carbon steel 1.0425 / stainless steel 1.4404 (AISI 316L)
4	Stem	Stainless steel 1.4021 (AISI 420)
5	Pivot	DN50 - DN125: stainless steel 1.4404 (AISI 316L) / DN150 - DN400: stainless steel 1.4021 (AISI 420)
6	Cover	from DN150: carbon steel 1.4025 / stainless steel 1.4401 (AISI 316)
7	Pin	from DN150: stainless steel 1.4021 (AISI 420)
8	Seat	R-PTFE (PTFE reinforced with 25% glass fiber)
9	Washer	Stainless steel 1.4404 (AISI 316L)
10	Stuffing box	Only from DN150: Stainless steel 1.4401 (AISI 316)
11	Sealing flange	DN50 - DN125: Stainless steel 1.4308 (CF8) / DN150 - DN400: Stainless steel 1.4301 (AISI 304)
12	Bolt	Stainless steel A4
13 / 24	Nut	Stainless steel A4
14 / 23	Washer	Stainless steel A4
15	Flange sealing	Graphite min. 98%
16	Cover seal	Graphite
17	Bracket	DN50 - DN125: carbon steel 1.0553 / DN150 - DN400: carbon steel 1.0576
18 / 20 / 25	Bolt	Stainless steel A4
19	Sleeve	Stainless steel 1.4404 (AISI 316L)
21	Bushing	TP IGUS
22	Sealing	Graphite min. 98%
26	Rivet	Stainless steel A4
27	Type plate	Stainless steel
28	Sealing	Stainless steel 1.4404 (AISI 316L)

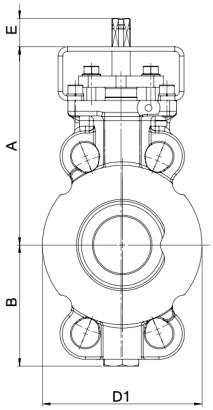
Dimensions TYPE AK11 / AK12:

DN50 - DN125:

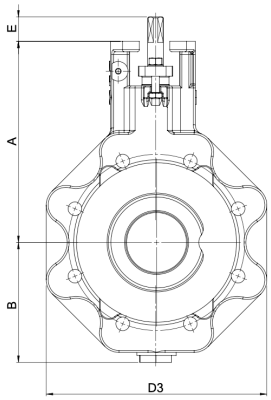




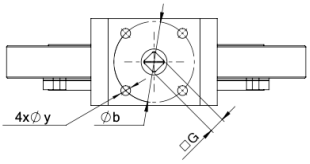
AK11

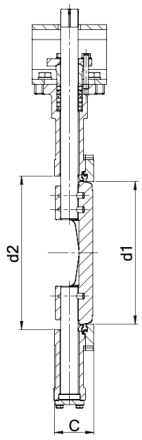


AK12

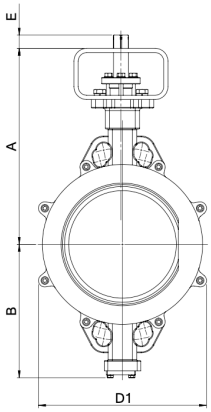


DN150 - DN400:

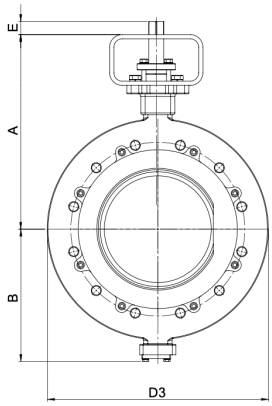




AK11



AK12 *

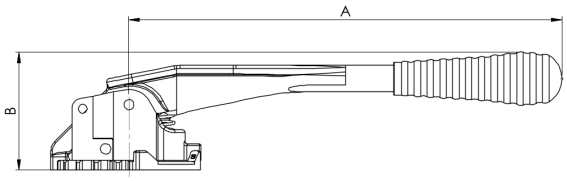


DN NPS	50 2"	65 2 ½"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"	350 14"	400 16"
d1	49	65	81	100	123	146	194	240	287	313	364
d2	68	82	100	123	146	155	204	259	309	342	405
A	163	170	174	206	215	307	339	395	460	508	556
B	93	100	106	123	137	214	246	275	313	355	402
C	44	47	47	53	57	57	61	69	79	92	103
D1	104	123	140	163	193	252	307	349	393	448	542
D3	154	178	196	225	260	318	381	450	521	577	657
s1	12	39	65	85	113	136	185	224	270	300	342
s2	37	55	72	91	110	143	193	236	284	308	360
E	25	25	25	25	25	25	25	31	31	45	58
G	14	14	14	14	14	17	22	22	27	27	36
ISO 5211 flange	F07	F07	F07	F07	F07	F07/F10	F10	F12	F14	F16	F16
y	9	9	9	9	9	11	11	13	17	22	22
b	70	70	70	70	70	102	102	125	140	165	165
KV value (m^3 /h)	87	148	312	456	750	1125	1950	3100	4510	6120	8605
CV value (USG/min)	102	173	364	532	876	1313	2277	3619	5265	7145	10046
Weight AK11 (kg)	5,1	5,8	6,8	8,5	11,8	21	29	46	67	91	132
Weight AK12 (kg)	7,3	9,0	10,1	12,2	16,5	28	41	70	105	140	211
Lever weight (kg)	1,26	1,26	1,26	1,26	1,26	1,4	-	-	-	-	-
Gearbox weight (kg)	2,9	2,9	2,9	2,9	2,9	5,5	5,5	6,5	12	13	24,6

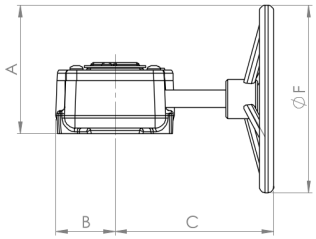
* Flange AK12: Number of holes according to standard depending on nominal size and selected PN/ANSI class

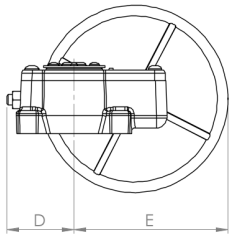
Actuation:

Hand lever DN50 - DN150 made of carobn steel
Lever DN150 only for max. 16 bar



Cast iron worm gearbox with handwheel





	DN	50 2"	65 2 ½"	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"	350 14"	400 16"
Lever	Lever type	HB02	HB02	HB02	HB02	HB02	HB02	--	--	--	--	--
	A	270	270	270	270	270	362	--	--	--	--	--
	B	75	75	75	75	75	90	--	--	--	--	--
	Lever weight	1,26	1,26	1,26	1,26	1,26	1,40	--	--	--		
Gearbox	Gearbox type	HB03	HB03	HB03	HB03	HB03	HB03	HB03	HB03	HB03	HB03	HB03
	A	127	127	127	127	127	184	184	238	341	352	398
	B	46	46	46	46	46	58	58	67	78	78	110
	C	139	139	139	139	139	209	209	255	350	275	346
	D	59	59	59	59	59	95	95	131	219	219	245
	E	141	141	141	141	141	205	205	267	381	381	454
	F	200	200	200	200	200	300	300	400	600	600	700
	Gearbox weight	2,9	2,9	2,9	2,9	2,9	5,5	5,5	6,5	12	13	24,6

Operating torques (Nm)* vs. working pressure:

DN NPS	DN50 2"	DN65 2 ½"	DN80 3"	DN100 4"	DN125 5"	DN150 6"	DN200 8"	DN250 10"	DN300 12"	DN350 14"	DN400 16"
16 bar	19	35	50	77	110	145	278	567	650	1378	2248
25 bar	22	45	58	79	120	185	366	732	900	1900	3483
40 bar	32	53	62	90	150	242	485	--	--	--	--
50 bar	35	60	65	105	--	--	--	--	--	--	

* Values for R-PTFE seat. Torque specification without safety factor. A safety factor of at least 1.2 is recommended.

Options (on request):

- Sizes DN450 – DN600
- Higher temperatures
- Different body, disc and seat materials
- Body / disc coatings
- SIL2 / SIL3 certification
- Flange connection acc. to PN6 and ANSI300
- TA-Luft sealed valve (stem is sealed with a special graphite gland)
- Special design for vacuum applications (vacuum max. 0,01 bar abs. and tightness on both sides)
- Fire Safe

Article number:

AK11:

Type	Housing bore*	Body material	Seat	Actuation	Size
AK11 - WAFER	1 - PN10/16/25/40, ANSI150, ANSI300	0 - Carbon steel	0 - R-PTFE	0 - Lever** 1 - Gearbox 6 - Bare shaft	08 - DN50 09 - DN65 10 - DN80 11 - DN100 12 - DN125 13 - DN150 14 - DN200 15 - DN250 16 - DN300

Type	Housing bore*	Body material	Seat	Actuation	Size
AK11 - WAFER	1 - PN10/16/25/40, ANSI150	0 - Carbon steel	0 - R-PTFE	1 - Gearbox 6 - Bare shaft	17 - DN350 18 - DN400

AK12:

Type	Housing bore*	Body material	Seat	Actuation	Size
AK12 – LUG type	1 - PN10/16/25/40 4 - ANSI150	0 - Carbon steel	0 - R-PTFE	0 - Lever 1 - Gearbox 6 - Bare shaft	08 - DN50 09 - DN65 10 - DN80

Type	Housing bore*	Body material	Seat	Actuation	Size
AK12 – LUG type	1 - PN10/16 3 - PN25/40 4 - ANSI150	0 - Carbon steel	0 - R-PTFE	0 - Lever** 1 - Gearbox 6 - Bare shaft	11 - DN100 12 - DN125 13 - DN150

Type	Housing bore*	Body material	Seat	Actuation	Size
AK12 – LUG type	0 - PN10 1 - PN16 2 - PN25 3 - PN40 4 - ANSI150	0 - Carbon steel	0 - R-PTFE	1 - Gearbox 6 - Bare shaft	14 - DN200 15 - DN250 16 - DN300

Type	Housing bore*	Body material	Seat	Actuation	Size
AK12 – LUG type	0 - PN10 1 - PN16 2 - PN25 3 - PN40 4 - ANSI150	0 - Carbon steel	0 - R-PTFE	1 - Gearbox 6 - Bare shaft	17 - DN350 18 - DN400

Example no. AK11100110:

AK11	**1**	**0**	**0**	**1**	**10**

Article no. AK11100110
Double-eccentric butterfly valve WAFER type
Hosuing bore: PN10+40 + ANSI150-300
Body: Carbon steel
Seat: R-PTFE
Actuation: Gearbox
Size: DN80

* connection acc. to PN6 on request; AK12: connection acc. to ANSI300 on request
** possible up to DN150, lever for DN150 up to max. 16bar

Illustration similar, subject to technical and dimensional changes.