

# Triple eccentric butterfly valve TYPE AK13 and AK14



### Description:

Dreifachexzentrische Absperrklappen werden in Rohrleitungen eingesetzt, um den Durchfluss von Medien zu regeln oder abzusperren. Sie zeichnen sich durch ihre spezielle Konstruktion mit drei exzentrischen Achsen aus. Diese ermöglicht eine verbesserte Leistung und Dichtheit, insbesondere bei hohen Drücken und Temperaturen.

### Product features:

- Suitable for neutral / non-neutral **gaseous & liquid media**
- Triple eccentric / triple offset design
- Split stem allows higher Kv/Cv values
- Top flange according to ISO 5211
- Consider flow direction (see arrow)!

**Connection:**  
DN80 to DN500

**Temperature:**  
-60°C to +320°C  
depending on version; consider the pressure-temperature-diagram

**Pressure:**  
max. 50,0 bar  
depending on version

**Type AK13 WAFER**  
**Type AK14 LUG type:**

WAFER type with through holes  
LUG type with threaded holes

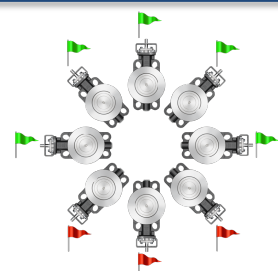
<b>Design:</b>	Triple eccentric butterfly valve WAFER or LUG type
<b>Body:</b>	Carbon steel 1.0625 (A216WCB)   Stainless steel 1.4408 (CF8M)
<b>Coating:</b>	Celerol® coating black, top coat 962-15, min. thickness 60-80 µm
<b>Disc:</b>	Stainless steel 1.4408 (CF8M) / 1.4027 (CA40) – depending on version, see part list page 5
<b>Seat material:</b>	Lamellar – stainless steel 1.4401 (AISI 316) + graphite
<b>Stem:</b>	Split sealed stem, stainless steel / duplex – depending on version, see part list page 5
<b>Connection:</b>	Flange EN1092 PN10/16/25/40, ANSI Class150 and ANSI Class300 – depending on size *
<b>Leak test:</b>	DIN EN 12266-1, Class A/B (A: Liquids, B: Gas); ISO 5208, Class A/B; API 598, table 5; ANSI/FCI 70-2, class IV -> only with correct flow direction!
<b>Overall length:</b>	EN 558-1 row 20 (ISO 5752-20); API 609, category B
<b>Actuation:</b>	Worm gearbox made of cast iron
<b>Max. pressure:</b>	DN80-DN125: 50 bar   DN150-DN200: 40 bar   DN250-DN500: 25 bar
<b>Temperature:</b>	Carbon steel: -29°C to 320°C (up to +425°C on request) Stainless steel: -60°C to 320°C (up to +500°C on request)

\* Types AK13 and AK14 have a multi-flange connection according to EN1092 PN10-PN16-PN25-PN40 as well as ANSI150-ANSI300. Starting DN350, the flange is according to PN16-PN25-PN40-ANSI150. The holes are drilled accordingly the PN/ANSI stage ordered (See article number system on the last page) for LUG type AK14.

### 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:**

**AK13 – Butterfly valve WAFER type with through holes**

**DN80 – DN125**



**DN150 – DN200**



**DN250 – DN400**



**AK14 – Butterfly valve LUG type with threaded holes**

**DN80**



**DN100 – DN125**



**DN150 – DN400 \***

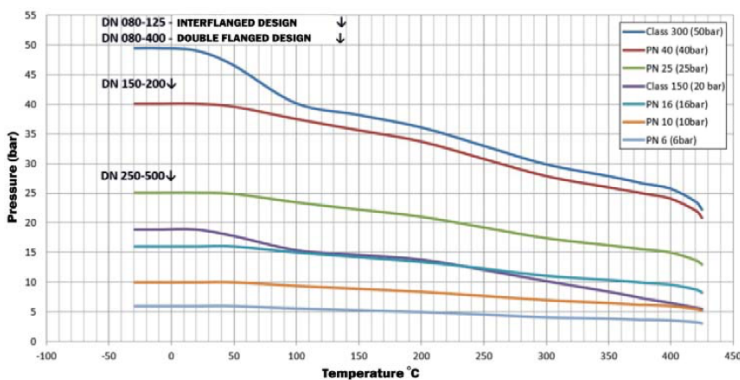


\* The number of holes may differ from the illustration depending on the selected nominal diameter and PN/ANSI class. Number of holes according to standard.

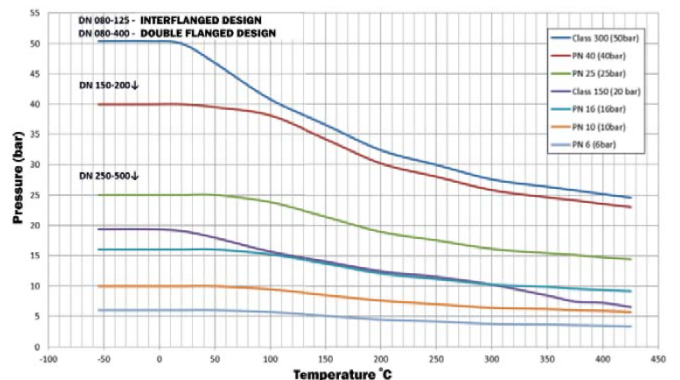
**Pressure-temperature diagram:**

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

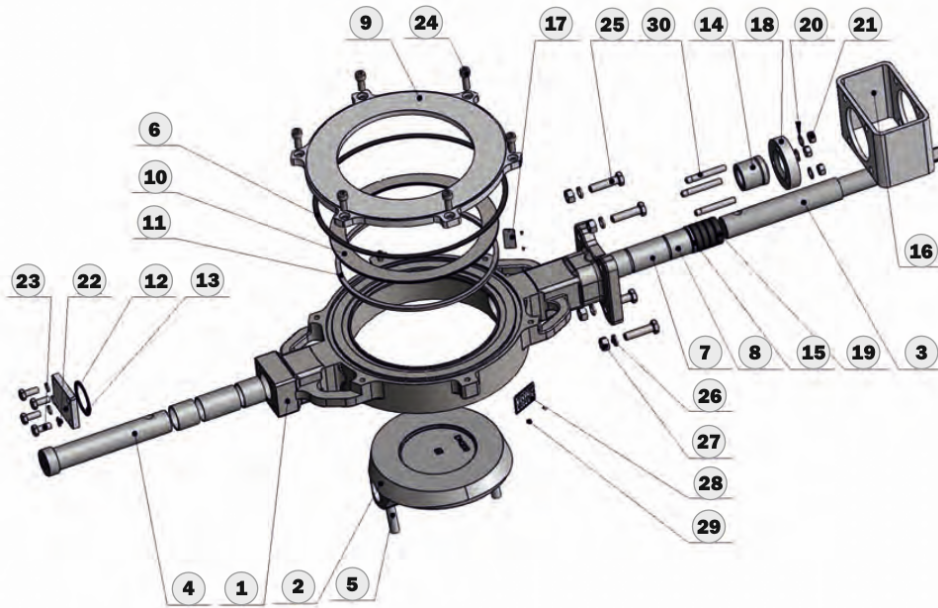
**Body: carbon steel 1.0625**



**Body: stainless steel 1.4408**



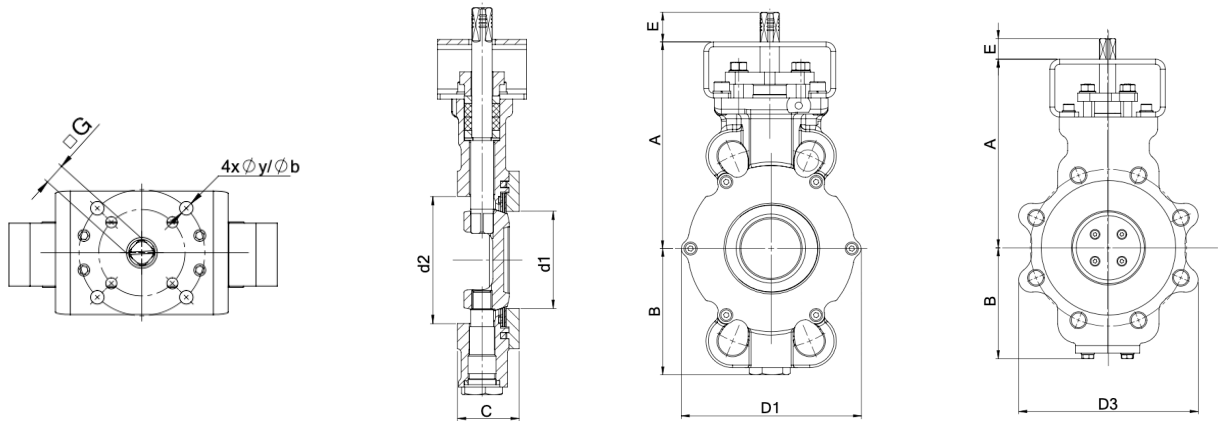
Parts list and material:



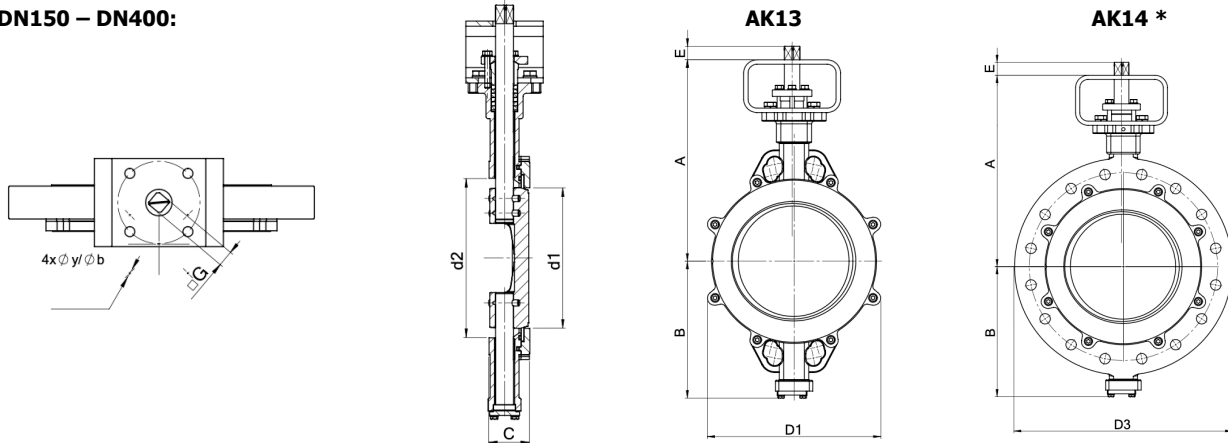
Pos.	Name	Material	
		Carbon steel	Stainless steel
1	Body	Carbon steel 1.0625 (A216 WC8)	Stainless steel 1.4408 (A351 CF8M)
2	Disc	DN80-125: Stainless steel 1.4408 (CF8M) DN150-500: Stainless steel (ASTM CA-40)	Stainless steel 1.4408 (CF8M)
3	Shaft	Stainless steel 1.4021 (AISI 420)	Duplex 1.4462 (2205)
4	Lower stem	Stainless steel 1.4021 (AISI 420)	Duplex 1.4462 (2205)
5	Bolt	Stainless steel 1.4021 (AISI 420)	Duplex 1.4462 (2205)
6	Flange sealing	Graphite	
7 / 8	Bushing	Stainless steel 1.4404 (AISI 316L)	
9	Flange	Carbon steel 1.0425 verzinkt	Stainless steel 1.4404 (AISI 316L)
10	Seat	Lamellar – Stainless steel 1.4401 (AISI 316) + graphite	
11	Seal	Stainless steel 1.4542 + graphite	
12	Packing	Carbon steel 1.0425	Stainless steel 1.4404 (AISI 316)
13	Stuffing box	Graphite	
14	Lock washer	Stainless steel 1.4401 (AISI 316)	
15	Sleeve	Stainless steel 1.4401 (AISI 316)	
16	Bracket	Profile: 1.0576; Bogen: 1.0553	
17 / 28	Type plate	Stainless steel 1.4301	
18	Bushing	Stainless steel 1.4301	
19	Seal	Graphite	
20 / 22 / 26	Washer	Stainless steel A4	
21 / 27	Nut	Stainless steel A4	
23 / 24 / 25 / 30	Bolt	Stainless steel A4	
29	Rivet	Stainless steel A4	

Dimensions TYPE AK13 / AK14:

DN80 – DN125:



DN150 – DN400:

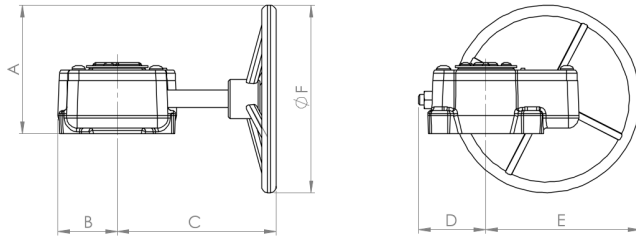


DN NPS	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"	350 14"	400 16"	500 20"
d1	77	90	110	146	194	238	287	323	385	451
d2	100	123,5	146	155	204	259	309	342	405	502
A	173,5	228,5	148	307	228,5	395	459,5	506	556	638
B	119,9	134,4	155,2	213,4	245,8	274,3	312,8	354,9	401	431,5
C	47	53	57	57	61	69	79	92	103	127
D1	139,5	163	193	253	305	349	393	448	542	615
D3	193	217,6	250	318	381	450	521	577	657	730
s1	61	73	96	136	185	224	270	300	342	421,5
s2	70,8	83,2	106	143	193	236	284	308	360	439
E	25	25	25	25	25	31	31	45	58	110
G / M / N	14	17	17	17	22	22	27	27	36	60 / 18 / 68,4
ISO 5211 flange	F07	F07/10	F07/10	F10	F10	F12	F14	F16	F16	F25
y	9	9/11	9/11	11	11	13	17	22	22	22
b	70	70/102	70/102	102	102	125	140	165	165	254
KV value (m <sup>3</sup> /h)	312	456	750	1125	1950	2940	4270	5550	7870	11674
CV value (USG/min)	364	532	876	1305	2262	3410	4953	6438	9129	13541
Weight AK13 (kg)	8	12	17	21	28	46	67	100	131	275
Weight AK14 (kg)	15	15	20	30	46	70	105	148	200	360
Weight Gearbox (kg)	2,9	2,9	5,5	5,5	5,5	7	9,5	26	38	40

**Actuation:**

Manual gearbox housing is made from cast iron with suitable surface treatment and protection degree class IP 67. Self-locking design of the worm gear enables both to adjust basic positions open/shut and to control (throttle) media flow. End-limit positions of the gearbox are set by means of stop screws.

The gearbox optionally can be equipped with a lockable system secured by a padlock, used with a chain or equipped with end-limit position sensors.



	DN	80 3"	100 4"	125 5"	150 6"	200 8"	250 10"	300 12"	350 14"	400 16"	500 20"
Gearbox	A	127,5	127,5	183,5	183,5	183,5	187,5	241,5	448	455	363,3
	B	47	47	58	58	58	67	78	110	142,5	175
	C	138	138	209	209	209	240	265	346	386,5	429,5
	D	59	59	95	95	95	81	118	295,5	270	175
	E	140	140	205	205	205	219	281	504,5	530	440
	F	200	200	300	300	300	300	400	800	800	500
	Weight gearbox		2,9	2,9	5,5	5,5	5,5	7	9,5	26	38

**Operating torques (Nm) vs. working pressure** – operating torques are mentioned without safety factor

DN NPS	DN80 3"	DN100 4"	DN125 5"	DN150 6"	DN200 8"	DN250 10"	DN300 12"	DN350 14"	DN400 16"	DN500 20"
<b>10 bar</b>	35	65	85	110	280	283	600	1100	1600	2490
<b>16 bar</b>	42	70	95	140	330	418	900	1500	2270	4100
<b>25 bar</b>	57	70	110	190	370	460	1030	1900	2430	5200
<b>30 bar</b>	70	85	130	210	490	656	1150	2500	3100	6500
<b>40 bar</b>	85	100	150	261	530	--	--	--	--	--
<b>50 bar</b>	105	150	200	--	--	--	--	--	--	--

**Closing torques (Nm)** – closing torques are mentioned without safety factor

DN NPS	DN80 3"	DN100 4"	DN125 5"	DN150 6"	DN200 8"	DN250 10"	DN300 12"	DN350 14"	DN400 16"	DN500 20"
<b>Closing torque water</b>	84	140	175	220	450	420	400	450	500	1750
<b>Closing torque air</b>	84	140	175	220	450	565	550	1000	1300	3590
<b>Max. shaft torque carbon steel</b>	183	327	327	635	635	767	1747	2800	5078	9190
<b>Max. shaft torque stainless steel</b>	183	327	327	635	635	822	1300	2300	3800	6877

## Options (on request):

- Size DN600
- Higher temperatures
- Different body, disc and seat materials
- Body / disc coatings
- TA-Luft sealed valve
- SIL2 / SIL3 certification
- ANSI300
- Double flanged design
- End-limit position sensors
- ATEX
- Vacuum
- Fire-Safe

Article number:

**AK13:**

Type	Housing bore*	Body material	Seat	Actuation	Size
AK13 – WAFER type	1 – PN10/16/25/40, ANSI150, ANSI300	0 – Carbon steel 1 – Stainless steel	0 – Lamellar	1 – Gearbox 6 – Bare safe	10 – DN80 11 – DN100 12 – DN125 13 – DN150 14 – DN200 15 – DN250 16 – DN300

Type	Housing bore*	Body material	Seat	Actuation	Size
AK13 – WAFER type	1 – PN10/16/25/40, ANSI150	0 – Carbon steel 1 – Stainless steel	0 – Lamellar	1 – Gearbox 6 – Bare safe	17 – DN350 18 – DN400 20 – DN500

**AK14:**

Type	Housing bore*	Body material	Seat	Actuation	Size
AK14 – LUG type	1 – PN10/16/25/40, ANSI150	0 – Carbon steel 1 – Stainless steel	0 – Lamellar	1 – Gearbox 6 – Bare safe	10 – DN80

Type	Housing bore*	Body material	Seat	Actuation	Size
AK14 – LUG type	1 – PN10/16 3 – PN25/40 4 – ANSI150	0 – Carbon steel 1 – Stainless steel	0 – Lamellar	1 – Gearbox 6 – Bare safe	11 – DN100 12 – DN125 13 – DN150

Type	Housing bore*	Body material	Seat	Actuation	Size
AK14 – LUG type	0 – PN10 1 – PN16 2 – PN25 3 – PN40 4 – ANSI150	0 – Carbon steel 1 – Stainless steel	0 – Lamellar	1 – Gearbox 6 – Bare safe	14 – DN200 15 – DN250 16 – DN300

Type	Housing bore*	Body material	Seat	Actuation	Size
AK14 – LUG type	0 – PN10 (ON REQUEST) 1 – PN16 2 – PN25 3 – PN40 4 – ANSI150	0 – Carbon steel 1 – Stainless steel	0 – Lamellar	1 – Gearbox 6 – Bare safe	17 – DN350 18 – DN400 20 – DN500

**Example no. AK14100113:**

<b>AK14</b>	<b>1</b>	<b>0</b>	<b>0</b>	<b>1</b>	<b>13</b>
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Article no. AK14100113  
 Triple-eccentric butterfly valve LUG type  
 Housing bore: PN10/16  
 Body: Carbon steel  
 Seat: Lamellar (Stainless steel + graphite)  
 Actuation: Gearbox  
 Size: DN150

\* Body in general acc. to PN10-16-25-40, ANSI150 and, up to including DN300, ANSI300. For LUG type body differs acc to housing bore; AK14: bore acc to ANSI300 on request

Illustration similar, subject to technical and dimensional changes.