FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

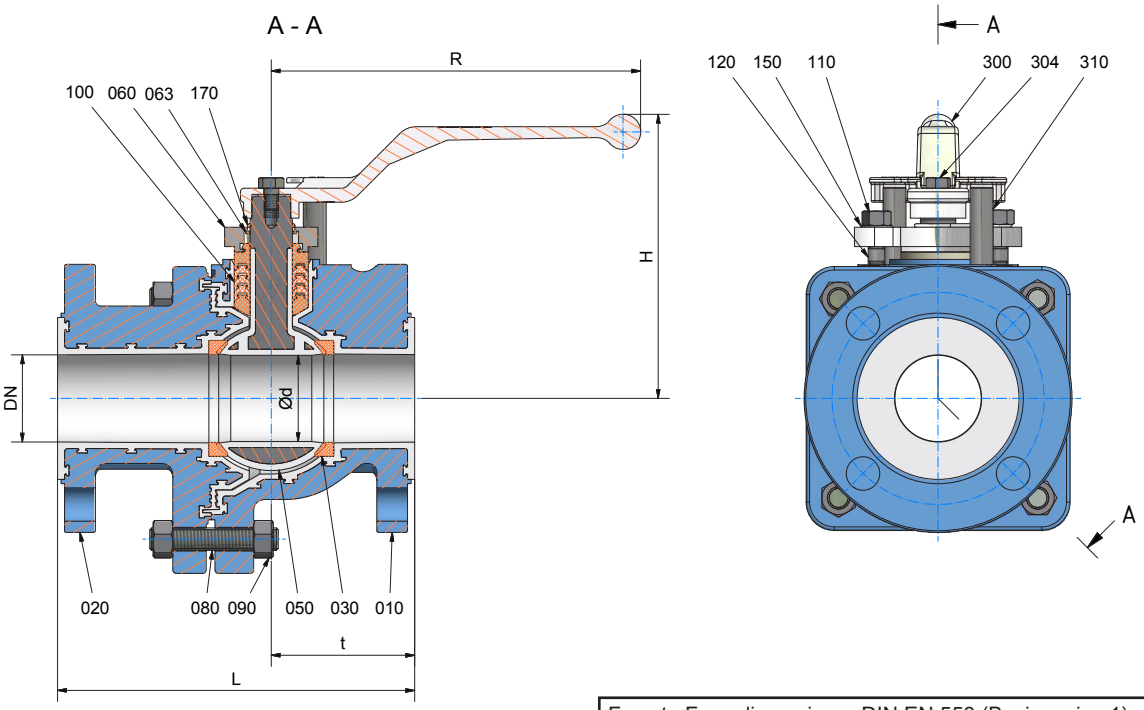
Register 21
CONTENTS - AKH8

Contents

FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

Technical Manual

Technical Data AKH8 (DIN)



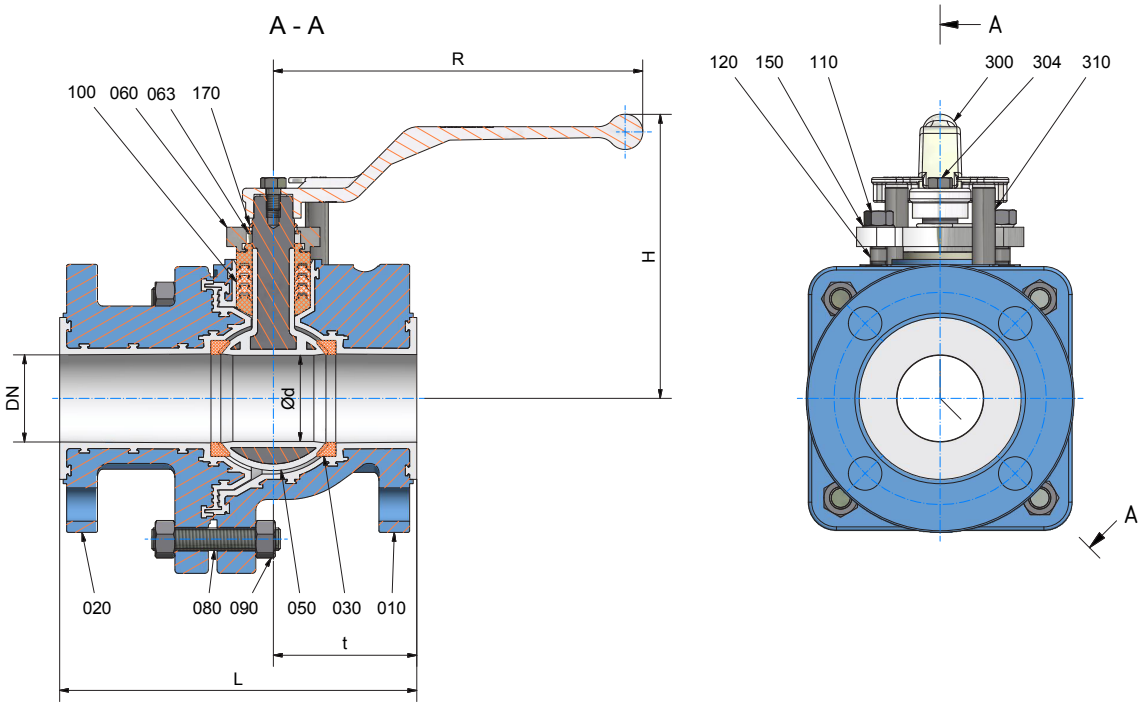
Face to Face dimensions	DIN EN 558 (Basic series 1)
Flange Connection	DIN EN 1092-2 PN 16

DN / DIN		L	H	R	t	Ød	weight	
015	mm	130	127,5	210	60	16	kg	5,0
	inch	5,12	5	8,27	2,36	0,63	lbs	11,0
020	mm	150	127,5	210	63	21	kg	5,5
	inch	5,91	5	8,27	2,48	0,83	lbs	12,2
025	mm	160	127,5	210	57,5	24	kg	8,3
	inch	6,3	5	8,27	2,26	0,94	lbs	18,3
040	mm	200	155,5	312,5	68,5	38	kg	13,6
	inch	7,87	6,12	12,3	2,7	1,5	lbs	30,0
050	mm	230	161,5	312,5	82	49	kg	17,8
	inch	9,06	6,36	12,3	3,23	1,93	lbs	39,2
080	mm	310	209	410	114	80	kg	36,4
	inch	12,2	8,23	16,14	4,49	3,15	lbs	80,2
100	mm	350	224	410	128,5	100,5	kg	47,8
	inch	13,78	8,82	16,14	5,06	3,96	lbs	105,4

FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

Technical Manual

Technical Data AKH8 (ANSI)



Flange Connection: ASME B 16.5 Cass 150
Min. flange thickness acc. to ASME B 16.5 Class 150, Table 9 (Flanged Fittings)

DN / ANSI		L	H	R	t	Ød	weight	
½"	mm	130	127,5	210	60	16	kg	5,0
	inch	5,12	5	8,27	2,36	0,63	lbs	11,0
¾"	mm	150	127,5	210	63	21	kg	5,5
	inch	5,91	5	8,27	2,48	0,83	lbs	12,2
1"	mm	152,5	127,5	210	55,5	24	kg	8,3
	inch	6	5	8,27	2,19	0,94	lbs	18,3
1½"	mm	178	155,5	312,5	68,5	38	kg	13,6
	inch	7,01	6,12	12,3	2,7	1,5	lbs	30,0
2"	mm	203	161,5	312,5	81,5	49	kg	17,8
	inch	7,99	6,36	12,3	3,21	1,93	lbs	39,2
3"	mm	241	209	410	114	80,5	kg	36,4
	inch	9,5	8,23	16,14	4,49	3,17	lbs	80,2
4"	mm	292	224	410	128,5	100,5	kg	47,8
	inch	11,5	8,82	16,14	5,06	3,96	lbs	105,4

FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

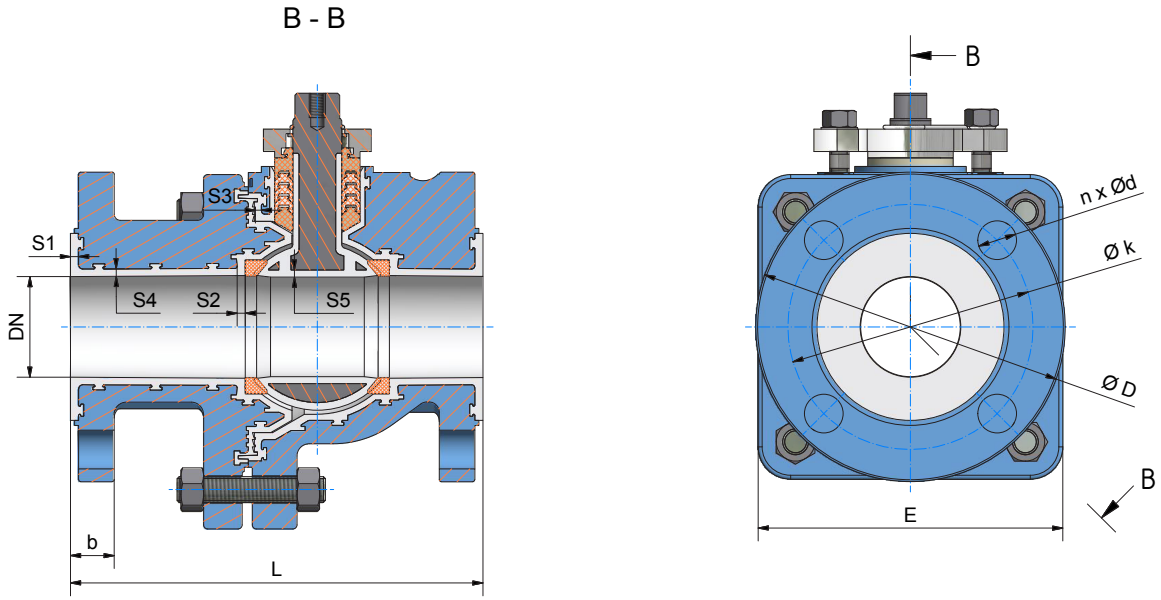
Material specification AKH8

No.	Designation	Quatity	Material	Material-No. / DIN	ASTM / AISI
010	body	1	ductile iron / PFA	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
		1	ductile iron / PFA conductive	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
020	side piece	1	ductile iron / PFA	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
		1	ductile iron / PFA conductive	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
030	seat ring	2	PTFE		
		2	PTFE conductive		
050	ball with stem	1	Duplex stainless steel / PFA		A 995 Gr. CD4MCuN
		1	Duplex stainless steel / PFA conductive		
060	gland follower	1	stainless steel	1.4308 / DIN EN 10283	A 743 CF-8
063	anti blow out ring	1	stainless steel	1.4301 / DIN EN 10088-3	A 194 8
080	stud bold				
	DN 25, 40, DN ½“, 1½“	1 set	stainless steel	1.4301 / DIN EN 10088-3	A 193 B8
	hexagon bold				
	DN 50, 80, 100, DN 2“-4“	1 set	stainless steel	1.4301 / DIN EN 10088-3	A 193 B8
090	hexagon nut	1 set	stainless steel	1.4301 / DIN EN 10088-3	A 194 8
100	packing material (chevron)	1 set	PTFE		
		1 set	PTFE-Graphit		
110	hexagon nut	1 set	stainless steel	1.4301 / DIN EN 10088-3	A 194 8
120	stud bold	2	stainless steel	1.4301 / DIN EN 10088-3	A 194 B8
150	serrated lock washer	2	stainless steel	1.4301 / DIN EN 10088-3	AISI 304
170	grounding device	1	stainless steel	1.4310 / DIN EN 10270-3	AISI 301
300	hand lever	1	die cast metall	ZP0410 / DIN EN 12844	
304	hexagon bolt	1	stainless steel	1.4301 / DIN EN 10088-3	A 193 B8
310	stop	2	stainless steel	1.4301 / DIN EN 10088-3	AISI 304

Valves with conductive lining only contain components with conductive materials

FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

Dimensions AKH8 (DIN)

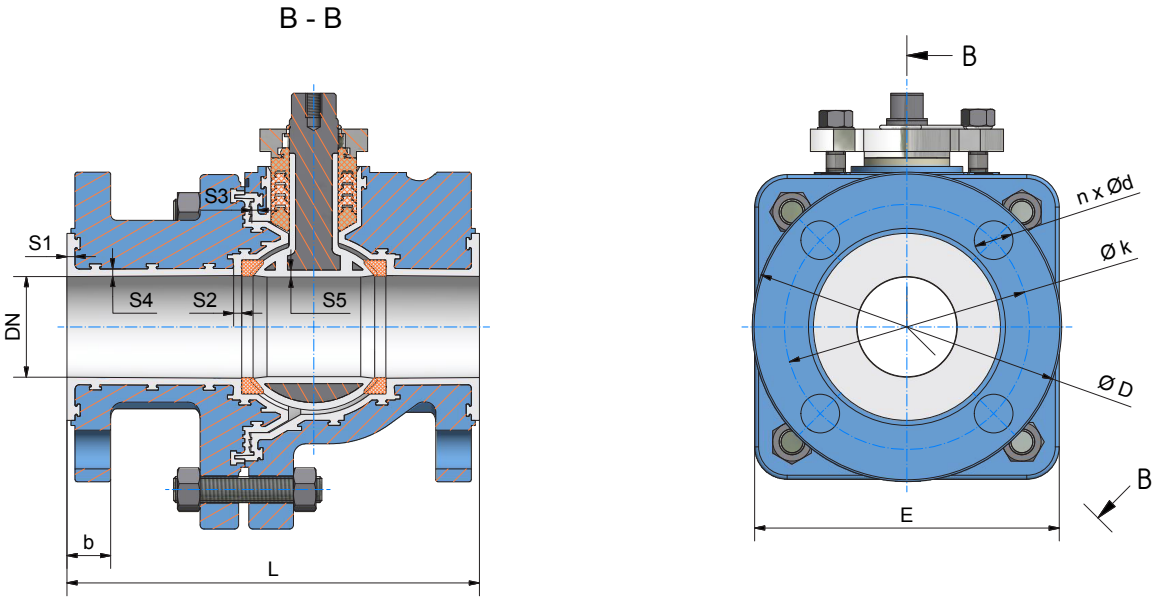


DN / DIN		L	b	ØD	Øk	nxØd	S1	S2	S3	S4	S5	E
015	mm	130	15	95	65	4x14	4	3	3	3,5	7	105
	inch	5,12	0,59	3,74	2,56	4x0,55	0,14	0,12	0,12	0,14	0,28	4,13
020	mm	150	18	105	75	4x14	4	3	3	3,5	4,5	105
	inch	5,91	0,71	4,13	2,95	4x0,55	0,16	0,12	0,12	0,14	0,18	4,13
025	mm	160	19	115	85	4x14	4	3	3	3,5	2,5	105
	inch	6,3	0,75	4,53	3,35	4x0,55	0,16	0,12	0,12	0,14	0,1	4,13
040	mm	200	20	150	110	4x19	4	3,5	3,5	3,5	3,25	144,0
	inch	7,87	0,79	5,91	4,33	4x0,75	0,16	0,14	0,14	0,14	0,13	5,67
050	mm	230	22	165	125	4x19	4	4	3,5	3,5	3	150
	inch	9,06	0,87	6,5	4,92	4x0,75	0,16	0,16	0,14	0,14	0,12	5,91
080	mm	310	26,5	200	160	8x19	4	4	4	4,5	4,25	246
	inch	12,20	1,04	7,87	6,3	8x0,75	0,16	0,16	0,16	0,18	0,17	9,69
100	mm	350	26,5	220	180	8x19	4	5	4	5,5	4,75	266
	inch	13,78	1,04	8,66	7,09	8x0,75	0,16	0,2	0,16	0,22	0,19	10,47

- *stem lining DN 25* *1,5mm (0,059 inch)*
  all other sizes at least *2,5mm (0,098 inch)*
- *DN80, DN100 octagonal*

FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

Dimensions AKH8 (ANSI)



DN / ANSI		L	b	ØD	Øk	nxØd	S1	S2	S3	S4	S5	E
½"	mm	130	15	89	60,5	4x16	4	3	3	3,5	7	105
	inch	5,12	0,59	3,5	2,38	4x0,63	0,14	0,12	0,12	0,14	0,28	4,13
¾"	mm	150	18	98,6	70	4x16	4	3	3	3,5	4,5	105
	inch	5,91	0,71	3,88	2,76	4x0,63	0,16	0,12	0,12	0,14	0,18	4,13
1"	mm	152,5	17	108	79,2	4x16	4	3	3	3,5	2,5	108
	inch	6	0,67	4,25	3,12	4x0,63	0,16	0,12	0,12	0,14	0,1	4,25
1½"	mm	178	20	127	98,6	4x16	4	3,5	3,5	3,5	3,25	144,0
	inch	7,01	0,79	5	3,88	4x0,63	0,16	0,14	0,14	0,14	0,13	5,67
2"	mm	203	21,5	152	120,7	4x19	4	4	3,5	3,5	3	150
	inch	7,99	0,85	6	4,75	4x0,75	0,16	0,16	0,14	0,14	0,12	5,91
3"	mm	241	26,5	190,5	152,4	4x19	4	4	4	4,5	4,25	246
	inch	9,49	1,04	7,5	6	4x0,75	0,16	0,16	0,16	0,18	0,17	9,69
4"	mm	292	26,5	228,6	190,5	8x19	4	5	4	5,5	4,75	266
	inch	11,5	1,04	9	7,5	8x0,75	0,16	0,2	0,16	0,22	0,19	10,47

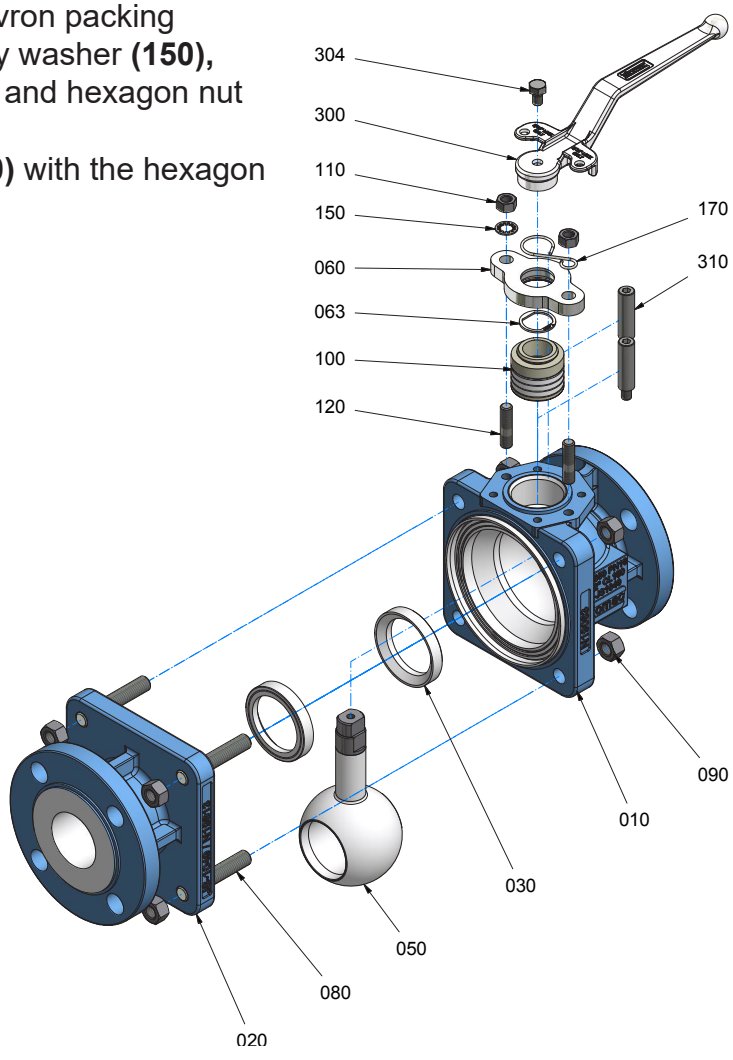
- *stem lining DN 25* *1,5mm (0,059 inch)*
  all other sizes at least *2,5mm (0,098 inch)*
- *DN80, DN100 octagonal*

FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

Assembly Instructions AKH8

The general installation and maintenance instructions must be observed.

1. Assemble stops **(310)**.
2. Screw hexagon bolts **(120)** into the body.
3. Insert first ball seat ring **(030)** into body **(010)**.
4. Insert ball/stem unit **(050)** into the body **(010)**.
5. Install second ball seat ring **(030)** on to ball **(050)**.
6. Install side piece **(020)** on to body **(010)**.
7. Install body bolts **(080)** and hexagon nuts **(090)** and tighten by crisscross method to recommended torques.
8. Assemble chevron packing **(100)**, gland follower **(060)** and blow out ring **(063).**
9. Insert assembled chevron packing **(100, 060, 063)**, safety washer **(150),** grounding strap **(170)** and hexagon nut **(120)**.
10. Install hand lever **(300)** with the hexagon bolt **(304)**.

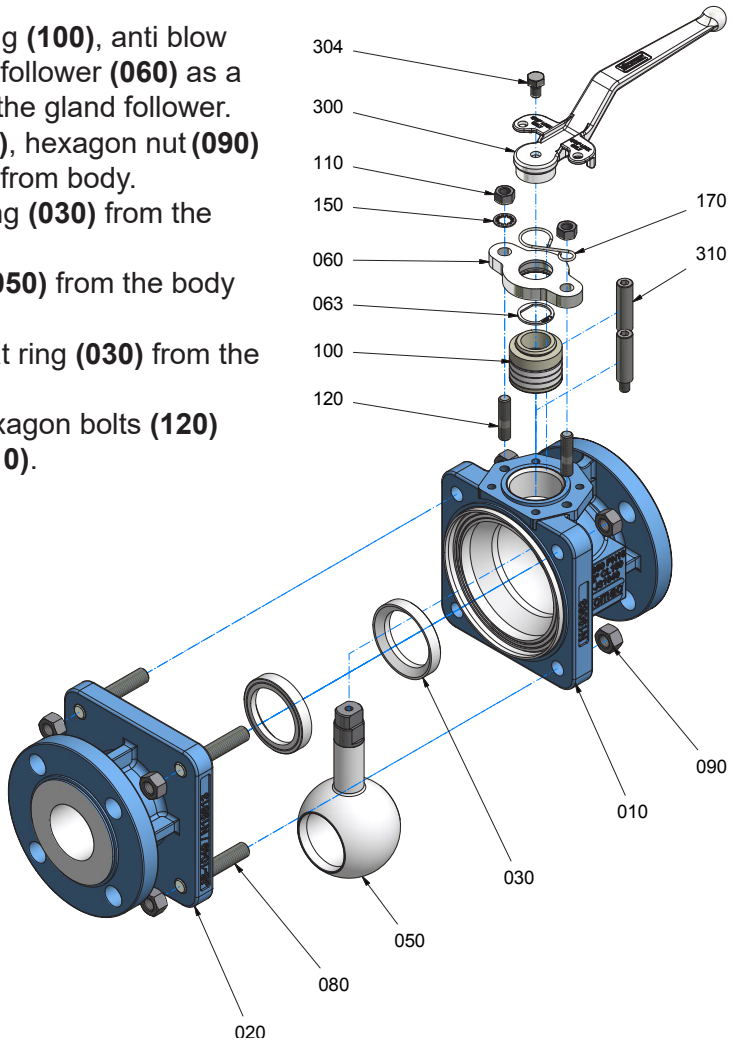


FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

Disassembly Instructions for AKH8

For all jobs which are to be carried out on an installed valve, the works safety requirements and the general accident prevention instructions must be observed. Moreover, the general installation and maintenance instructions for atomac fluorcarbon resin lined valves must be considered.

1. Prior to disassembly, the valve must be cleared of all fluid according to the above-mentioned instructions. Particular care must be taken that during rin sing and draining of the piping, the valve is opened and closed repeatedly. These cycles (opening and closing) are to be repeated during draining of the piping. Only when following this procedure, is it ensured that all remaining pressure inside the body (stem guide and ball seats) is eliminated.
2. For disassembly of the valve, put body on a work bench with a soft cover (rubber mat). Remove hexagon bolt **(304)** and hand lever **(300)** .
3. Release hexagon nut **(120)** and disassemble grounding device **(170)** and safety washer **(150)**.
4. Remove Chevron packing **(100)**, anti blow out ring **(063)** and gland follower **(060)** as a complete unit by pulling the gland follower.
5. Remove body bolts **(080)**, hexagon nut **(090)** and separate side piece from body.
6. Remove first ball seat ring **(030)** from the side piece **(020)**.
7. Remove ball/stem unit **(050)** from the body **(010)**.
8. Remove second ball seat ring **(030)** from the body **(010)**.
9. If necessary, remove hexagon bolts **(120)** and hand lever stops **(310)**.



Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

AKH8 - recommended tightening torques*

Size		tie rods (080/090)		connection flange		gland bolts (100/110/120)	
		Nm	lbf · in	Nm	lbf · in	Nm	lbf · in
015	**½"**	25	221	10	88	4	35
020	**¾"**	25	221	18	160	4	35
025	**1"**	26	230	25	221	4	35
040	**1½"**	54	478	50	442	7	62
050	**2"**	80	708	65	575	7	62
080	**3"**	84	743	55	486	8	71
100	**4"**	138	1221	65	575	8	71

** maximum value*
When bolting together dissimilar materials, always tighten to the lowest recommended torque of the components in the joint. Using higher torques may cause excessive deformation of the „softer" material in the joint

AKH8 - Actuator Sizing Torques

Packingmaterial: chevron PTFE or PTFE-graphite

- **for clean and clear application**

Size		0 bar Δ p Nm	0 psi Δ p lbf · in	10 bar Δ p Nm	150 psi Δ p lbf · in	19 bar Δ p Nm	275 psi Δ p lbf · in	MAST	
								Nm	lbf · in
015	**½"**	8	71	8	74	10	89	60	531
020	**¾"**	8	71	8	74	10	89	60	531
025	**1"**	10	89	10	85	10	89	60	531
040	**1½"**	20	177	33	292	41	363	131	1159
050	**2"**	25	221	41	363	54	478	131	1159
080	**3"**	60	531	102	903	130	1151	502	4443
100	**4"**	80	708	143	1266	190	1682	502	4443

- **for dry and slurry application**

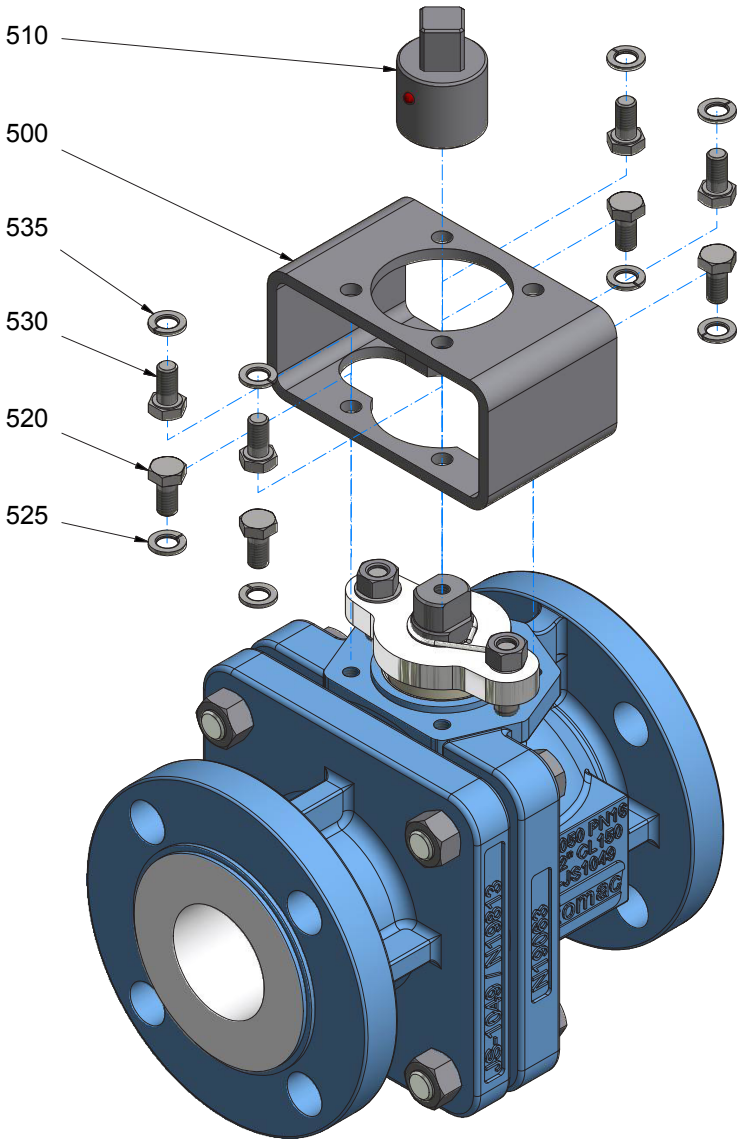
Size		0 bar Δ p Nm	0 psi Δ p lbf · in	10 bar Δ p Nm	150 psi Δ p lbf · in	19 bar Δ p Nm	275 psi Δ p lbf · in	MAST	
								Nm	lbf · in
015	**½"**	11	97	11	97	13	115	60	531
020	**¾"**	11	97	11	97	13	115	60	531
025	**1"**	13	115	12	110	13	115	60	531
040	**1½"**	26	230	43	380	54	478	131	1159
050	**2"**	33	292	53	472	71	628	131	1159
080	**3"**	78	690	133	1174	169	1496	502	4443
100	**4"**	104	920	186	1645	247	2186	502	4443

- *Stated torques are sizing torques. No further safety factors are to be applied against these torques.*
- *The use of ceramic balls in lined valves will result in 15% higher sizing torques.*
- *The use of C-Balls or V-Balls does not result in change in sizing torques.*
- *Stated sizing torques are „Break-Open" and „Re-Seating" torques. Running torques are typically 35% below sizing torques.*
- *The stated „MAST" value is the Maximum Allowable Stem Torque. Beyond this value permanent deformation / destruction of liner is to be expected.*
- *Please note the service conditions of the pressure- / vacuum-temperature-diagrams: register 1, page 13.*

FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

AKH8 with kit for actuator mounting

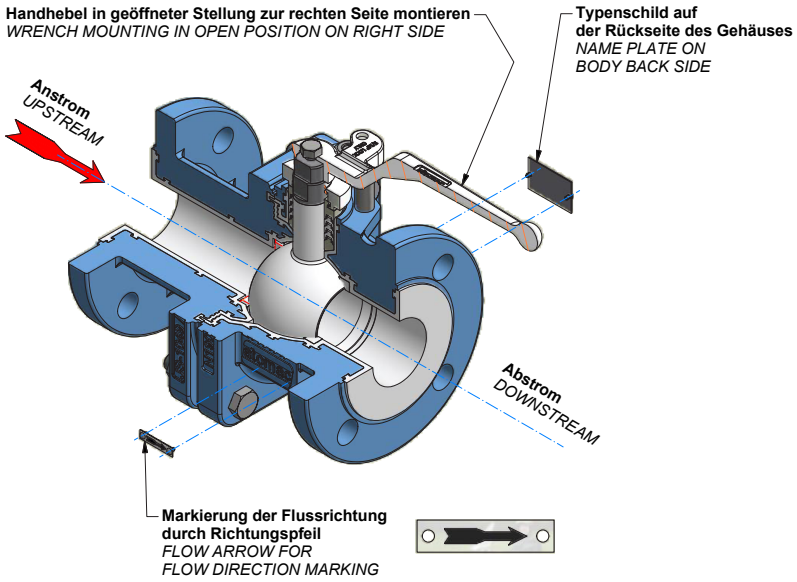
No.	Designation	Quantity	Material	Material-No.	DIN	ASTM / AISI
500	bracket	1	steel (yellow chromated)	1.0037	DIN EN 10025-2	A 283-B
510	adapter	1	stainless steel	1.4101	DIN EN 10088-3	AISI 430 F
520	hexagon bolt	4	stainless steel	1.4301	DIN EN 10088-3	A 193 B8
525	serrated lock washer	4	stainless steel	1.4301	DIN EN 10088-3	AISI 304
530	hexagon bolt	1 set	stainless steel	1.4301	DIN EN 10088-3	A 193 B8
535	serrated lock washer	1 set	stainless steel	1.4301	DIN EN 10088-3	AISI 304

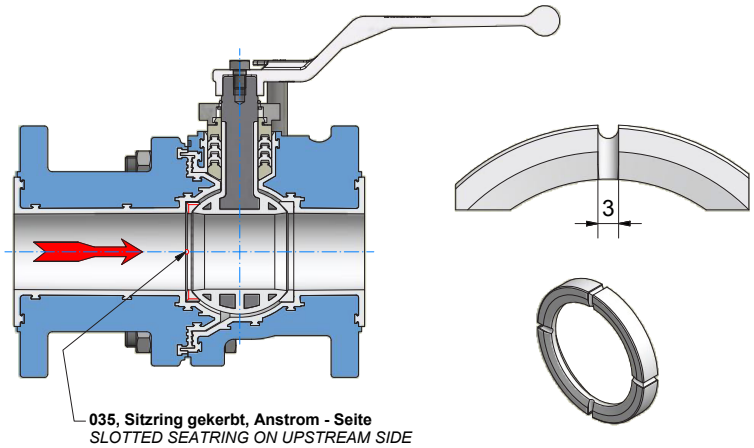


AKH8/DA with pressure compensation grooves by slotted seat ring

See material specification AKH8 page 4.

No.	Designation	Quantity	Material	Material-No. / DIN	ASTM / AISI
035	seat ring with pressure compensation grooves	1	PTFE	pure - PTFE	





See Assembly Instructions AKH8 page 6.

***Attention**, please take care of the tight direction of indicator while assembly.*

9. Install ball seat ring with pressure compensation grooves **(035)** on to ball **(050)**.

Disassembly instruction see AKH8 page 8

FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

Special cleaning and packaging procedures

1. **Recleaning**

The ball valve should be thouroughly cleaned with a clean, dry, lint-free towel and blown off with dry nitrogen gas. This will assure that the valve is free from moisture, grease and other media before packing.

2. **Packing**

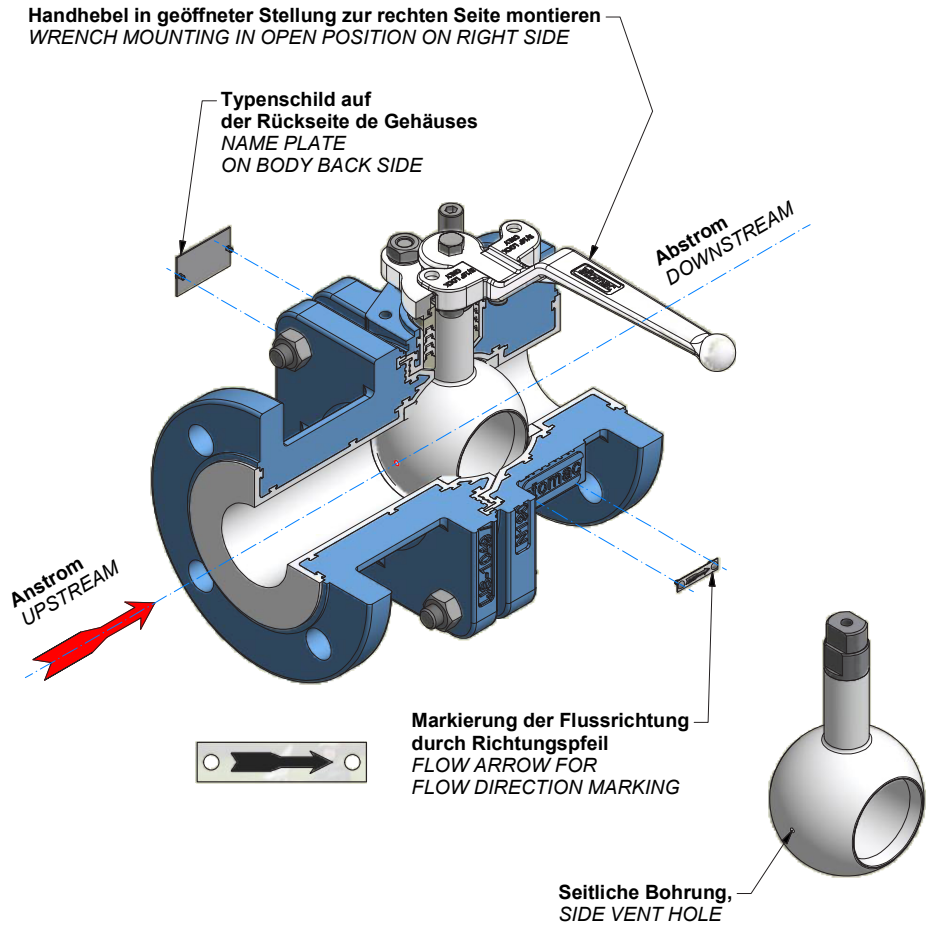
Prior to packing, the ball valve should be jig welded in a PE-foil (0.2 mm thick). The bag contains desiccants acc. to DIN 55473, quantity acc. to DIN 55474 and a moisture indicator.

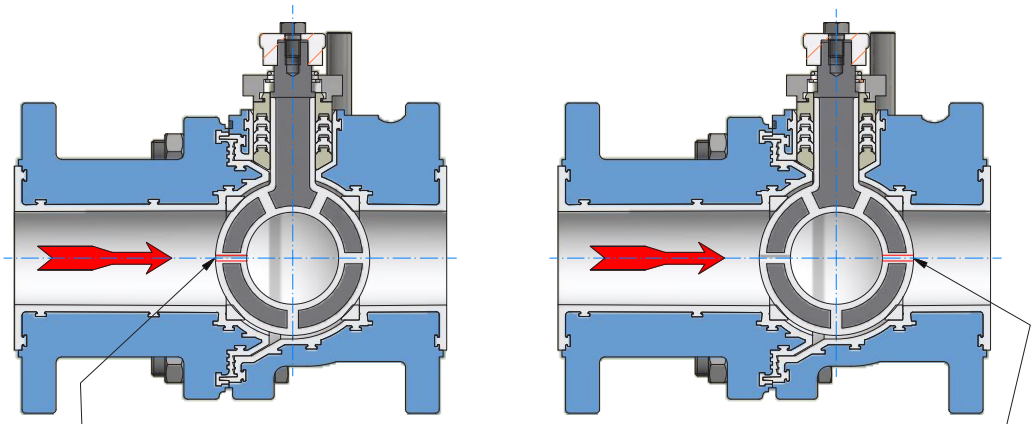
AKH8 - K_v Data and C_v Data (DIN EN 60534-2-3)

Size		K_v m³/h	C_v gal/min
015	**½“**	16,9	19,6
020	**¾“**	24,4	28,4
025	**1“**	38,6	44,9
040	**1½“**	121,4	141,1
050	**2“**	199,9	232,3
080	**3“**	525,8	611,1
100	**4“**	940,2	1092,8

FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

Optional ball with side vent hole



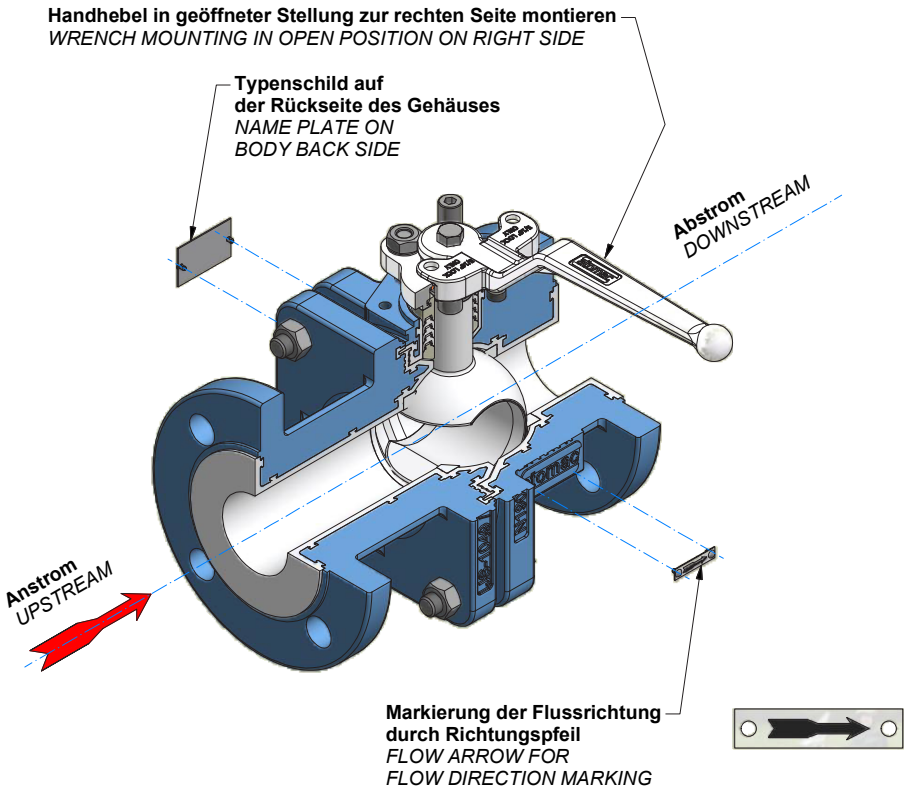


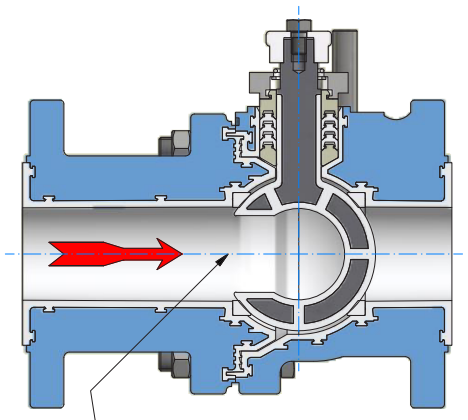
STANDARD
Seitliche Bohrung, Anstrom - Seite
SIDE VENT HOLE ON UPSTREAM SIDE

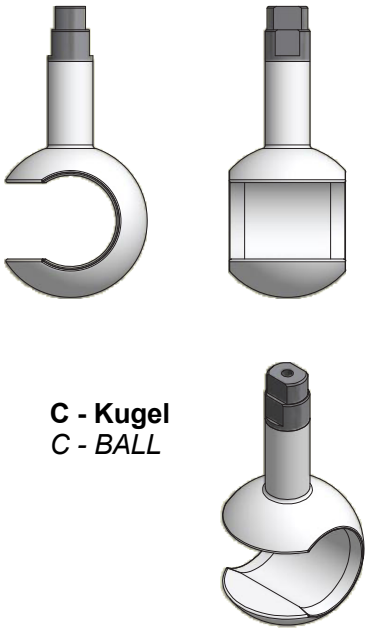
OPTIONAL
Seitliche Bohrung, Abstrom - Seite
SIDE VENT HOLE ON DOWNSTREAM SIDE

FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

Optional with C-ball







C - Kugel
C - BALL

FLOWSERVE
Ahaus GmbH
von-Braun-Straße 19a
D-48683 Ahaus
Postfach 1162 D-48661 Ahaus
Telefon: +49(0) 2561-686-100
Fax: +49(0) 2561-686-200

Optional with V-ball