

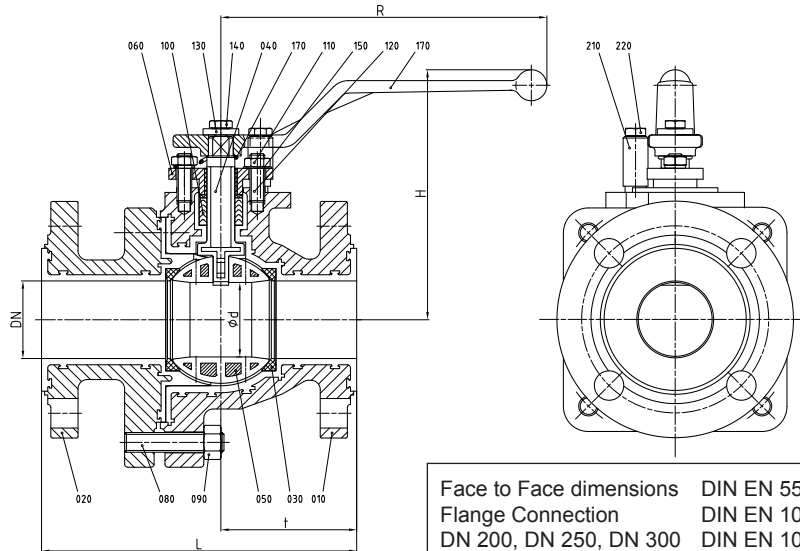
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Technical Manual

Technical Data AKH2 (DIN)

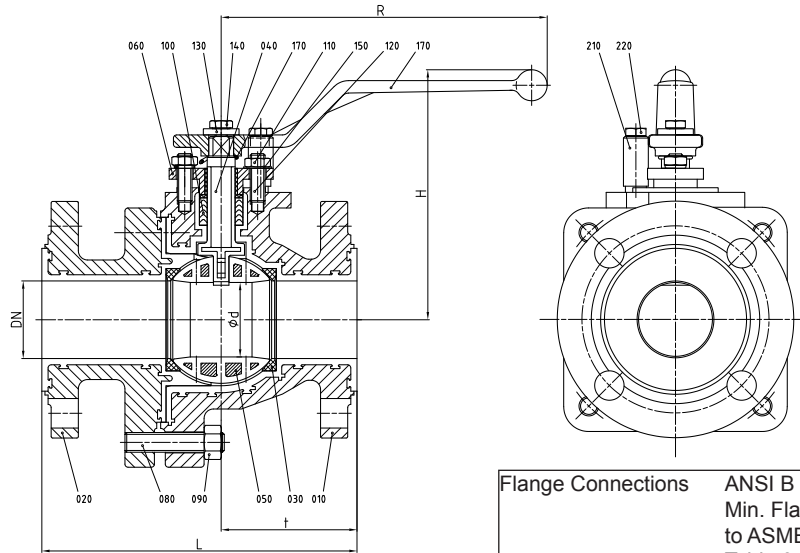


DN / DIN		L	H	R	t	Ød	weight	
015	mm	130	120	160	59,5	15	kg	4,0
	inch	5,12	4,72	6,3	2,34	0,59	lbs	8,8
020	mm	150	120	160	69,5	20	kg	4,8
	inch	5,9	4,72	6,3	2,7	0,79	lbs	10,6
025	mm	160	123	160	65,5	24	kg	5,4
	inch	6,3	4,84	6,3	2,58	0,94	lbs	11,9
032	mm	180	145	210	81	32	kg	10,2
	inch	7,09	5,71	8,27	3,19	1,26	lbs	22,4
040	mm	200	145	210	80	38	kg	10,7
	inch	7,87	5,71	8,27	3,15	1,5	lbs	23,5
050	mm	230	160	210	87,5	48	kg	14,1
	inch	90,6	6,3	8,27	3,44	1,89	lbs	31,0
065	mm	290	200	313	108	65	kg	24,0
	inch	11,42	7,87	12,32	4,25	2,56	lbs	52,8
080	mm	310	205	313	118	80	kg	31,0
	inch	12,2	8,07	12,32	4,65	3,15	lbs	68,2
100	mm	350	220	313	140	100	kg	47,5
	inch	13,78	8,66	12,32	5,51	3,94	lbs	104,5
150	mm	480	312	337°	180	147	kg	100,0
	inch	18,9	12,28	13,27°	7,09	5,79	lbs	220,3
200/150**	mm	457	312	337°	228,5	147	kg	117,0
	inch	18	12,28	13,27°	9	5,79	lbs	257,7
200**	mm	457	373	450°	230	195	kg	208,0
	inch	18	14,69	17,72°	9,06	7,68	lbs	458,1
250**	mm	534	--	--	267	245	kg	320,0
	inch	21	--	--	10,51	9,65	lbs	704,0
300**	mm	610	--	--	294	290	kg	432,0
	inch	24	--	--	11,6	11,42	lbs	957,0

°° pass-through handlever Ø 26,52 inch standard
 ° pass-through handlever Ø 35,43 inch standard
 ** Face-to-Face Dimensions acc. to ANSI B 16.10



Technical Data AKH2 (ANSI)



Flange Connections ANSI B 16.5 Cass 150,
 Min. Flange thickness acc.
 to ASME B 16.5 Cass 150,
 Table 9 (Flanged Fittings)

DN / ANSI		L	H	R	t	Ød	weight	
1/2" **	inch	5,12	4,72	6,3	2,34	0,59	lbs	9,5
	mm	130	120	160	59,5	15	kg	4,3
3/4" **	inch	5,9	4,72	6,3	2,74	0,79	lbs	10,1
	mm	150	120	160	69,5	20	kg	4,6
1"	inch	6	4,84	6,3	2,58	0,98	lbs	11,0
	mm	152	123	160	65,5	25	kg	5,0
1 1/2"	inch	7	5,71	8,27	3,15	1,50	lbs	18,5
	mm	178	145	210	80	38	kg	8,4
2"	inch	8	6,3	8,27	3,44	1,89	lbs	28,2
	mm	203	160	210	87,5	48	kg	12,8
3"	inch	9,5	8,07	12,32	4,65	3,15	lbs	64,0
	mm	241	205	313	118	80	kg	29,1
4"	inch	11,5	8,66	12,32	5,51	3,94	lbs	95,7
	mm	292	220	313	140	100	kg	43,5
6"	inch	14	12,28	13,27°°	7,09	5,79	lbs	213,9
	mm	356	312	337°°	180	147	kg	97,1
8"/6"	inch	18	12,28	13,27°°	9	5,79	lbs	237,9
	mm	457	312	337°°	228,5	147	kg	108,0
8"	inch	18	14,69	17,72°	9,06	7,68	lbs	458,1
	mm	457	373	450°	230	195	kg	208,0
10"	inch	21	-	-	10,51	9,65	lbs	704,0
	mm	534	-	-	267	245	kg	320,0
12" *	inch	24	-	-	11,6	11,42	lbs	991,2
	mm	610	-	-	294	290	kg	450,0
14"***	inch	27,01	-	-	13,50	13,78	lbs	1267,3
	mm	686	-	-	343	350	kg	575,0

°° pass-through handlever Ø 26,52 inch standard
 ° pass-through handlever Ø 35,43 inch standard
 ** Face-to-Face Dimensions acc. to DIN EN 558 (Basic series 1)
 * ball valve only manual actuator (weight without actuator)

Material specification AKH2

No.	Designation	Pieces	Material	Material-No. / DIN	ASTM / AISI
010	body	1	ductile iron / PFA ductile iron / FEP °	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
020	side piece	1	ductile iron / PFA ductile iron / FEP °	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
030	seat ring	2	PTFE	pure - PTFE	
040	stem	1	stainless steel / PFA Hastelloy C4 / PFA **	1.4470 / DIN EN 10283 2.4610 / DIN 17744	A 890 CD3MN
050	ball				
	DN 15 - 50, DN ½"- 2"	1	cast steel / PFA cast steel / FEP°	1.0619 / DIN EN 10213-2	ASTM A216 Grade WCB
	DN 65 - 300, DN 3"- 14"	1	ductile iron / PFA ductile iron / FEP ° ceramic Al ₂ O ₃ * MG-PSZ DN 150/6" °°	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
060	gland follower	1	stainless steel	1.4308 / DIN EN 10283	A 743 CF-8
065	gland insert	1	PTFE-graphite		
070	hand lever				
	DN 15 - 50, DN ½"- 2"	1	die cast metall (galvanized)	ZP0410 / DIN EN 12844	
	DN 65 - 100, DN 3"- 4"	1	ductile iron (galvanized)	EN-GJS-50-7 (GGG-50)	
	DN 150, 200, DN 6", 8"	1	steel	1.0037 / DIN EN 10025-2	A 283 B
080	stud bolt				
	DN 15, 20, 32, 150 - 300, DN ½"- 14"	1 set	stainless steel	1.4301-K70 / DIN EN 10088-3	A 193 B8
	hexagon bolt				
	DN 25, 40, 50, 65, 80, 100	1 set	stainless steel	1.4301-K70 / DIN EN 10088-3	A 193 B8
090	hexagon nut	1 set	stainless stel	1.4301-K70 / DIN EN 10088-3	A 194 8
100	packing material (chevron)	1 set	PTFE ° PTFE-graghit °		
110	hexagon nut	2	stainless steel	1.4301 / DIN EN 10088-3	A 194 8
120	stud bolt	2	stainless steel	1.4301 / DIN EN 10088-3	A 193 B8
130	lock washer	1	stainless steel	1.4301 / DIN EN 10088-3	AISI 304
140	hexagon bolt	1	stainless steel	1.4301 / DIN EN 10088-3	A 193 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
210	stop				
	DN 15 - 100, DN ½"- 4"	1	steel (galvanized)	1.0037 / DIN EN 10025-2	A 283 B
	DN 150, 200, DN 6", 8"	2	stainless steel	1.4104 / DIN EN 10088-3	AISI 430 F
220	hexagon bolt°°	1	stainless steel	1.4301 / DIN EN 10088-3	A 193 B8

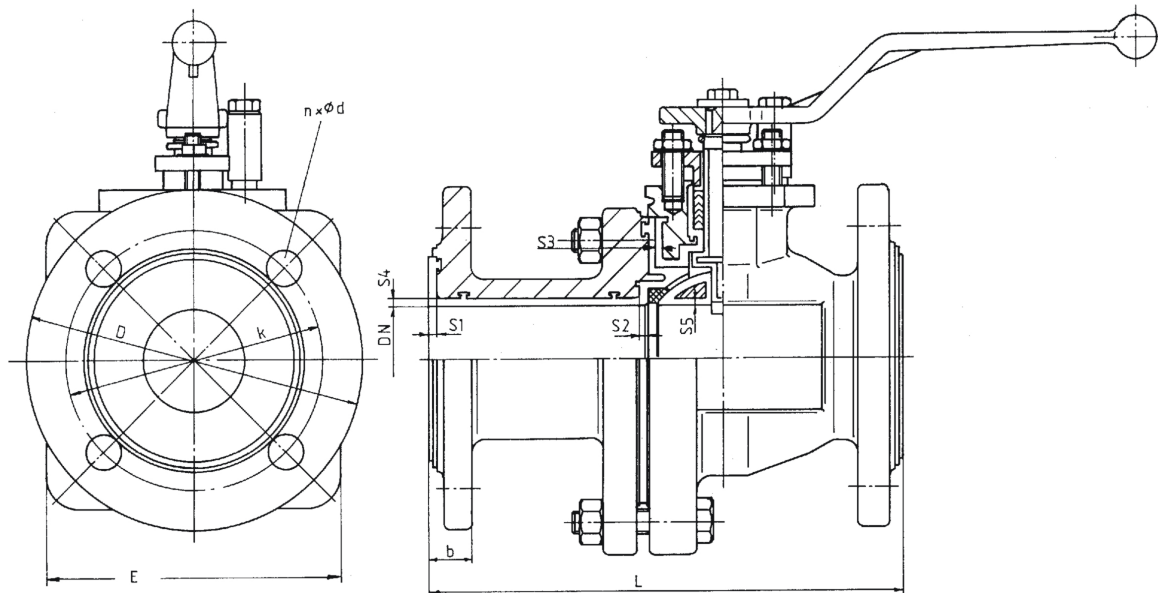
* ceramic ball on request (available up to DN 150 / 6")

** Hastelloy stem on request

° optional

°° DN 6", 8", 150 and 200 - 2 hexagon bolts

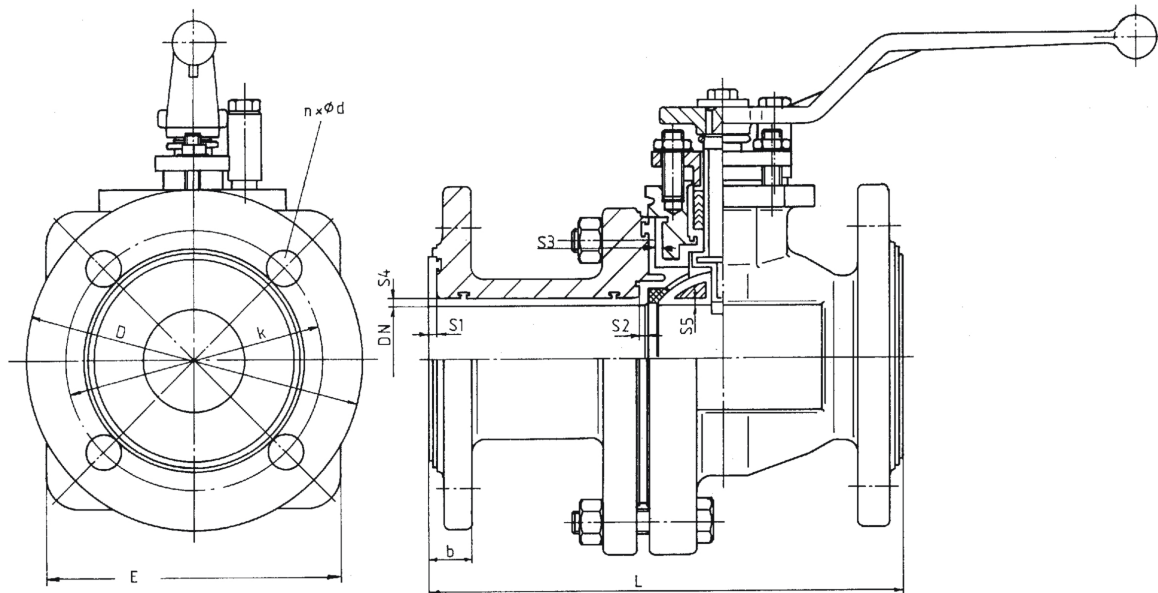
Dimensions AKH2 (DIN)



DN / DIN		L	b	D	k	nxØd	S1	S2	S3	S4	S5	E °
015	mm	130	15	95	65	4x14	3,5	4	2,5	3,5	5	107
	inch	5,12	0,59	3,74	2,65	4x0,55	0,14	0,16	0,1	0,14	0,2	4,21
020	mm	150	16	105	75	4x14	3,5	4	2,5	3,5	2,5	107
	inch	5,9	0,63	4,13	2,95	4x0,55	0,14	0,16	0,1	0,14	0,1	4,21
025	mm	160	16,5	115	85	4x14	3,5	2,5	3	3,5	2,5	106
	inch	6,3	0,65	4,53	3,35	4x0,55	0,14	0,1	0,12	0,14	0,1	4,17
032	mm	180	20	140	100	4x18	4	3	3	4	3,5	124
	inch	7,09	0,79	5,51	3,94	4x0,71	0,16	0,12	0,12	0,16	0,14	4,88
040	mm	200	20	150	110	4x18	4	3	3	4	3	124
	inch	7,87	0,79	5,91	4,33	4x0,71	0,16	0,12	0,12	0,16	0,12	4,88
050	mm	230	20,5	165	125	4x18	4	3	3,5	4	3	144
	inch	9,06	0,81	6,5	4,92	4x0,71	0,16	0,12	0,14	0,16	0,12	5,67
065	mm	290	24	185	145	4x18	4	3	3,5	4,5	3,5	190
	inch	11,42	0,94	7,28	5,71	4x0,71	0,16	0,12	0,14	0,18	0,14	7,48
080	mm	310	26	200	160	8x18	4	5	4	4,5	4,25	230
	inch	12,2	1,02	7,87	6,3	8x0,71	0,16	0,2	0,16	0,18	0,17	9,06
100	mm	350	28	220	180	8x18	4	5	4	5	4,5	250
	inch	13,78	1,1	8,66	7,09	8x0,71	0,16	0,2	0,16	0,2	0,18	9,84
150	mm	480	29	285	240	8x22	4	5	4	6	5,5	Ø365
	inch	18,9	1,14	11,22	9,45	8x0,87	0,16	0,2	0,16	0,23	0,22	Ø14,37
200/150	mm	457	33	340	295	8x22	4	5	4	6	5,5	Ø365
	inch	18	1,3	13,39	11,61	8x0,87	0,16	0,2	0,16	0,23	0,22	Ø14,37
200	mm	457	36,5	340	295	8x22	4	5	4	6	5,5	Ø485
	inch	18	1,44	13,39	11,61	8x0,87	0,16	0,2	0,16	0,23	0,22	Ø19,09
250	mm	534	36,5	406,4	361,9	12x25	4,5	5	4,5	6	5,5	Ø580
	inch	21	1,44	16	14,25	12x1	0,18	0,2	0,18	0,23	0,22	Ø22,83
300	mm	610	43,5	445	400	12x22	4,5	5	4,5	7	6	Ø642
	inch	24,02	1,71	17,52	15,75	12x0,87	0,18	0,2	0,18	0,28	0,23	Ø25,28

- stem lining DN 15, 20 and 25 0,059 inch
 - all other sizes at least 0,098 inch
 ° DN 80 octagonal, DN 100 hexagonal

Dimensions AKH2 (ANSI)



DN / ANSI	L	b	D	k	nxØd	S1	S2	S3	S4	S5	E °	
½"	inch	5,12	0,59	3,5	2,38	4x0,63	0,14	0,16	0,1	0,14	0,2	4,21
	mm	130	15	88,9	60,5	4x16	3,5	4	2,5	3,5	5	107
¾"	inch	5,9	0,63	3,88	2,75	4x0,63	0,14	0,16	0,1	0,14	0,1	4,21
	mm	150	16	98,5	70	4x16	3,5	4	2,5	3,5	2,5	107
1"	inch	6	0,65	4,25	3,13	4x0,63	0,14	0,1	0,13	0,14	0,1	4,17
	mm	152,4	16,5	107,9	79,2	4x16	3,5	2,5	3	3,5	2,5	106
1½"	inch	7	0,79	5	3,88	4x0,63	0,16	0,13	0,13	0,16	0,12	4,88
	mm	178	20	127	98,5	4x16	4	3	3	4	3	124
2"	inch	8	0,81	6	4,75	4x0,75	0,16	0,13	0,14	0,16	0,13	5,67
	mm	203	20,5	152,4	120,5	4x19	4	3	3,5	4	3	144
3"	inch	9,5	1,02	7,5	6	4x0,75	0,16	0,2	0,16	0,17	0,17	9,06
	mm	241	26	190,5	152,5	4x19	4	5	4	4,25	4,25	230
4"	inch	11,5	1,1	9	7,5	8x0,75	0,16	0,2	0,16	0,2	0,18	9,84
	mm	292	28	228,6	190,5	8x19	4	5	4	5	4,5	250
6"	inch	14	1,14	11	9,5	8x0,87	0,16	0,2	0,16	0,23	0,22	Ø14,37
	mm	356	29	279,4	241,5	8x22	4	5	4	6	5,5	Ø365
8"/6"	inch	18	1,3	13,5	11,75	8x0,87	0,16	0,2	0,16	0,23	0,22	Ø14,37
	mm	457	33	342,9	298,5	8x22	4	5	4	6	5,5	Ø365
8"	inch	18	1,44	13,5	11,75	8x0,87	0,16	0,2	0,16	0,23	0,22	Ø19,09
	mm	457	36,5	342,9	298,5	8x22	4	5	4	6	5,5	Ø485
10"	inch	21	1,44	16	14,25	12x1	0,18	0,2	0,18	0,23	0,22	Ø22,83
	mm	534	36,5	406,4	361,9	12x25	4,5	5	4,5	6	5,5	Ø580
12"	inch	24	1,71	19	17	12x1	0,18	0,2	0,18	0,23	0,22	Ø25,28
	mm	610	43,5	482,6	431,8	12x25	4,5	5	4,5	6	5,5	Ø642
14"	inch	27,01	1,71	13,99	18,76	12x1,12	0,18	0,24	0,18	0,24	0,24	Ø27,76
	mm	686	43,5	355,4	476,5	12x28,5	4,5	6	4,5	6	6	Ø705

- stem lining DN ½", ¾" and 1" 0,059 inch
 - all other sizes at least 0,098 inch
 ° DN 3" octagonal, DN 4" hexagonal

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Spare Parts (item n°) - AKH2 Standard Version (DIN)

DIN	Ball			Seat Rings PTFE
	FEP	PFA	Ceramic°	
015	0000266	0000321	0002316	0000159
020	0000267	0000322	0002316	0000159
025	0000268	0000323	0002317	0015001
032	0000269	0000324	---	0000160
040	0000270	0000325	0002319	0000160
050	0000271	0000326	0002320	0000161
065	0000272	0000327	0002321	0000162
080	0000273	0000328	0002322	0000163
100	0000274	0000329	0002323	0000164
150	0000275	0000330	0002405	0000165
200/150	0000275	0000330	---	0000165
200	0000276	0000331	---	0000166
250	0011249	0010845	---	0011250
300	0004048	0004049	---	0006353

DIN	Stem		Packing (set)	
	Stainless Steel / PFA	Hastelloy / PFA	PTFE	PTFE / Graphite
015	0000113	0000114	0000167	0000174
020	0000113	0000114	0000167	0000174
025	0000115	0000116	0000167	0000174
032	0000117	0000118	0000168	0000175
040	0000117	0000118	0000168	0000175
050	0000119	0000120	0000169	0000176
065	0000121	0000122	0000170	0000177
080	0000121	0000122	0000170	0000177
100	0000121	0000122	0000170	0000177
150	0000123	0000124	0000172	0000179
200/150	0000123	0000124	0000172	0000179
200	0000125	0000126	0000173	0000180
250	0010843	---	0011251	0011252
300	0004038	---	0006348	0006349

° Al₂O₃

Technical Manual

Spare Parts (item n°) - AKH2 Standard Version

ANSI	Ball			Seat Rings PTFE
	FEP	PFA	Ceramic [°]	
1/2"	0000266	0000321	0002316	0000159
3/4"	0000267	0000322	0002316	0000159
1"	0000268	0000323	0002317	0015001
1 1/2"	0000270	0000325	0002319	0000160
2"	0000271	0000326	0002320	0000161
3"	0000273	0000328	0002322	0000163
4"	0000274	0000329	0002323	0000164
6"	0000275	0000330	0002405	0000165
8"/6"	0000275	0000330	---	0000165
8"	0000276	0000331	---	0000166
10"	0011249	0010845	---	0011250
12"	0004048	0004049	---	0006353
14"	---	0042879	---	0042881

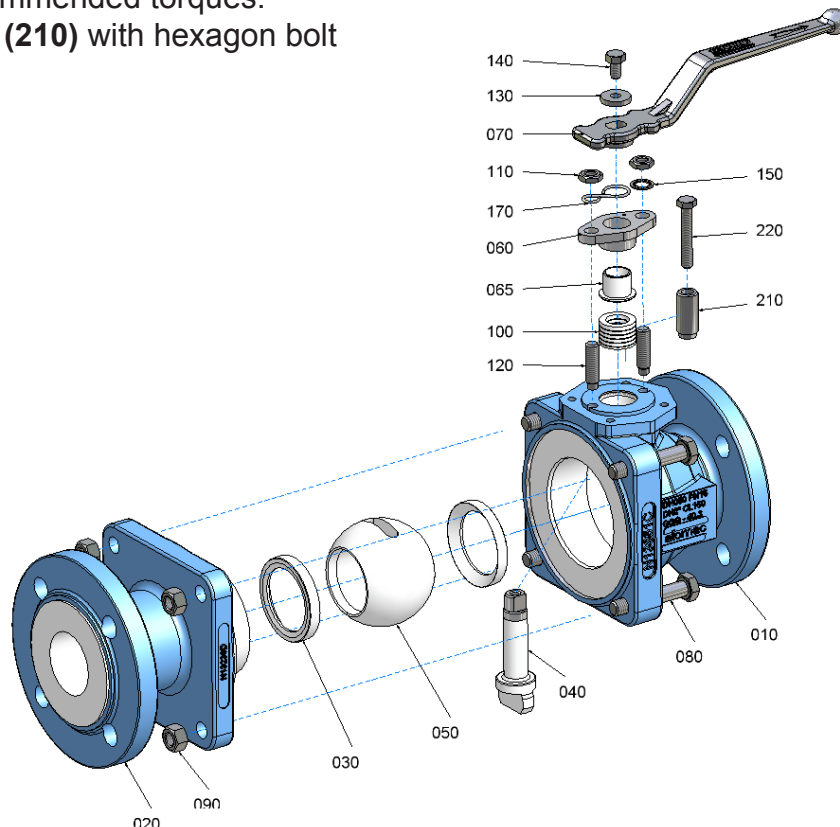
ANSI	Stem		Packing (set)	
	Stainless Steel / PFA	Hastelloy / PFA	PTFE	PTFE / Graphite
1/2"	0000113	0000114	0000167	0000174
3/4"	0000113	0000114	0000167	0000174
1"	0000115	0000116	0000167	0000174
1 1/2"	0000117	0000118	0000168	0000175
2"	0000119	0000120	0000169	0000176
3"	0000121	0000122	0000170	0000177
4"	0000121	0000122	0000170	0000177
6"	0000123	0000124	0000172	0000179
8"/6"	0000123	0000124	0000172	0000179
8"	0000125	0000126	0000173	0000180
10"	0010843	---	0011251	0011252
12"	0004038	---	0006348	0006349
14"	0004038	---	0006348	0006349

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Assembly Instructions AKH2

The general installation and maintenance instructions must be observed.

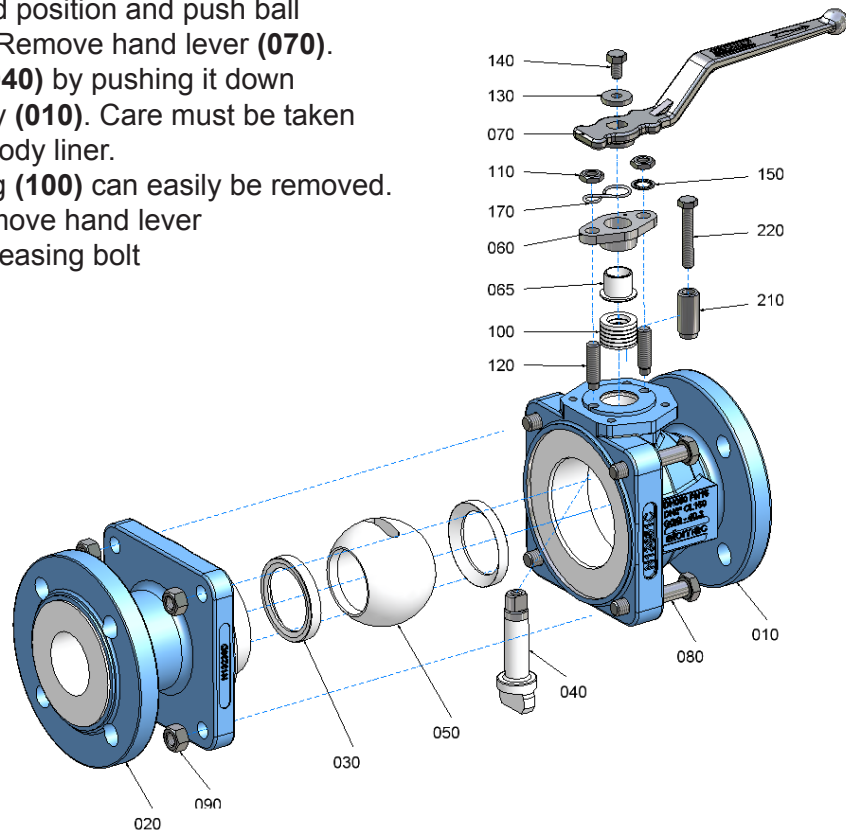
1. Screw stud bolts (120) into body (010).
2. Insert stem (040) from inside of body in such a way that the flat side is parallel to body longitudinal axis.
3. Insert chevron packing (100).
4. Install gland insert (065), gland follower (060), safety washers (150), hexagon nuts (110) and grounding strap (170) also on valves with actuator.
5. Install hand lever (070) on to stem (040) and tighten it using lock washer (130) and hexagon bolt (140).
6. Insert first ball seat ring (030) into body (010).
7. Insert ball (050) to valve stem by pushing the ball in a downward motion through valve body.
8. Turn hand lever 90° of longitudinal axis of body.
9. Install second ball seat ring (030) on to ball (050).
10. Install side piece (020) on to body (010), making sure that recess for stem is on the correct side.
11. Install body bolts (080) and hexagon nuts (090) and tighten by crisscross method to recommended torques.
12. Assemble stop (210) with hexagon bolt (220).



Disassembly Instructions for AKH2

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 fluorocarbon 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 rinsing 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 (110) and lock washer (150).
3. Open valve completely. Remove hand lever.
4. Disassemble grounding device (170).
5. Disassemble gland follower (060) and gland insert (065). If necessary, stud bolts (120) can also be removed now.
6. Remove body bolts (080) and separate side piece from body.
7. Remove first ball seat ring (030).
8. Put ball in closed position and push ball out of the body. Remove hand lever (070).
9. Remove stem (040) by pushing it down through the body (010). Care must be taken not to damage body liner.
10. Chevron packing (100) can easily be removed.
11. If necessary, remove hand lever stop (210) by releasing bolt (220).



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AKH2 - recommended tightening torques*

DN	tie rods (080/090)		connection flange		gland bolts (110/120/150)	
	Nm	in.lbs	Nm	in.lbs	Nm	in.lbs
015	25	221	10	88	4	35
½"	24	212	8	71	4	35
020	25	221	18	160	4	35
¾"	24	212	11	97	4	35
025	26	230	25	221	4	35
1"	26	230	15	133	4	35
032	54	478	40	354	7	62
040	54	478	50	442	7	62
1½"	59	522	26	257	7	62
050	80	708	65	575	7	62
2"	87	770	60	531	7	62
065	141	1248	90	796	8	71
080	84	743	55	486	8	71
3"	87	770	100	885	8	71
100	138	1221	65	575	8	71
4"	143	1266	76	673	8	71
150	178	1575	130	1150	12	106
6"	180	1593	129	1142	12	106
200/150	178	1575	190	1681	12	106
8"/6"	180	1593	188	1664	12	106
200	240	2124	190	1682	15	133
8"	275	2440	195	1725	15	133
250	302	2673	232	2053	17	150
10"	280	2478	241	2133	17	150
300	418	3699	316	2796	20	177
12"	408	3611	335	2965	20	177
14"	463	4098	308	2726	20	177

* maximum value

Manual Actuator

(worm gear)

The fully closed, waterproof actuator consists of a body with lid, worm gear, input shaft and hand wheel. For the correct adjustment of the ball position, there are two adjustable stops mounted in the body.

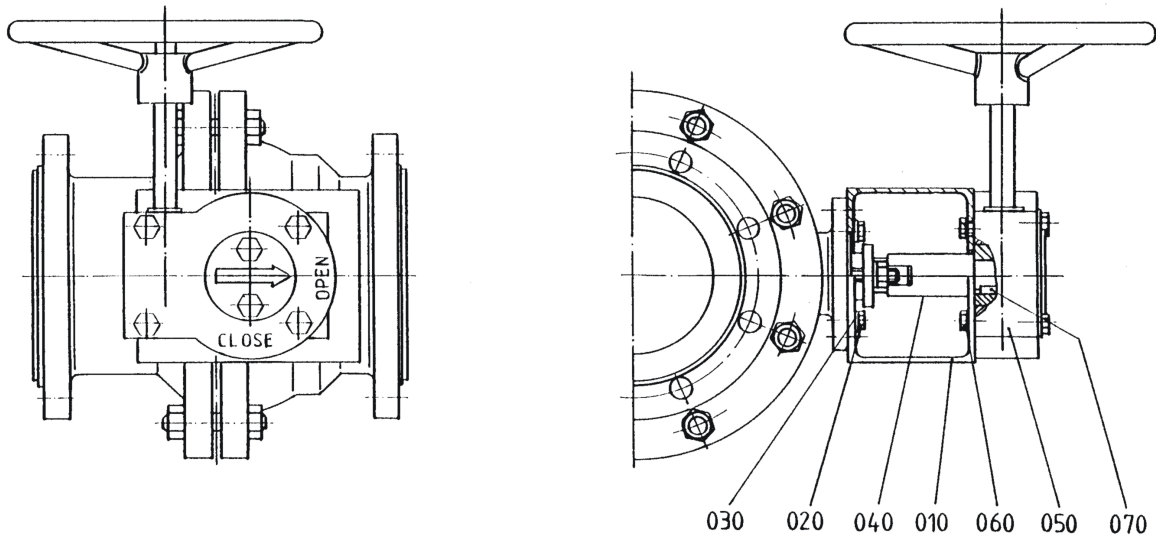
The gear is fully greased and does not need any further lubrication.

The actuator with hand wheel is mounted on a bracket with four stainless steel bolts. The on/off position is indicated through a pointer. The actuator is self-locked.

Material specification

Designation	Material
Body	Gray Iron
Worm	Spheroidal Graphite Cast Iron
Input Shaft	AISI 410
Hand Wheel	Steel

Material specification - AKH2 with manual actuator



No.	Designation	Pieces	Material	Material-No.	DIN	ASTM / AISI
010	actuator	1	steel	1.0037	DIN EN 10025-2	A 283 B
020	hexagon bolt	4	stainless steel	1.4301	DIN EN 10088-3	A 193 B8
030	serrated lock washer	4	stainless steel	1.4301	DIN EN 10088-3	AISI 304
040	adapter	1	stainless steel	1.4104	DIN EN 10088-3	AISI 430 F
050	actuator	1				
060	hexagon bolt	4	stainless steel	1.4301	DIN EN 10088-3	A 193 B8
070	key	1	steel	1.0050	DIN EN 10277-1	A 572 GR 50

AKH2 - Actuator Sizing Torques

Packingmaterial: chevron PTFE or PTFE-graphite

- for clean and clear application

Size	0 bar Δ p Nm	0 psi Δ p in/lbs	10 bar Δ p Nm	150 psi Δ p in/lbs	19 bar Δ p Nm	275 psi Δ p in/lbs	MAST		
							Nm	in/lbs	
015	1/2"	7	62	7	62	8	71	40	354
020	3/4"	7	62	7	62	8	71	40	354
025	1"	7	62	8	71	8	71	40	354
032	-	20	177	27	239	34	301	115	1018
040	1 1/2"	20	177	27	239	34	301	115	1018
050	2"	27	239	34	301	45	398	130	1151
065	-	51	451	73	646	93	426	420	3717
080	3"	59	522	85	752	108	956	420	3717
100	4"	79	699	119	1053	158	1398	420	3717
150	6"	210	1859	300	2655	360	3186	1107	9798
200/150*	8"/6"	210	1859	300	2655	360	3186	1107	9798
200	8"	480	4248	700	6196	900	7966	2180	19295
250	10"	600	5310	1430	12657	1760	15577	8355	73948
300	12"	1150	10178	2400	21242	2900	25667	13250	117272
350	14"	2200	19472	3300	29207	4200	37173	13250	117272

- for dry and slurry application

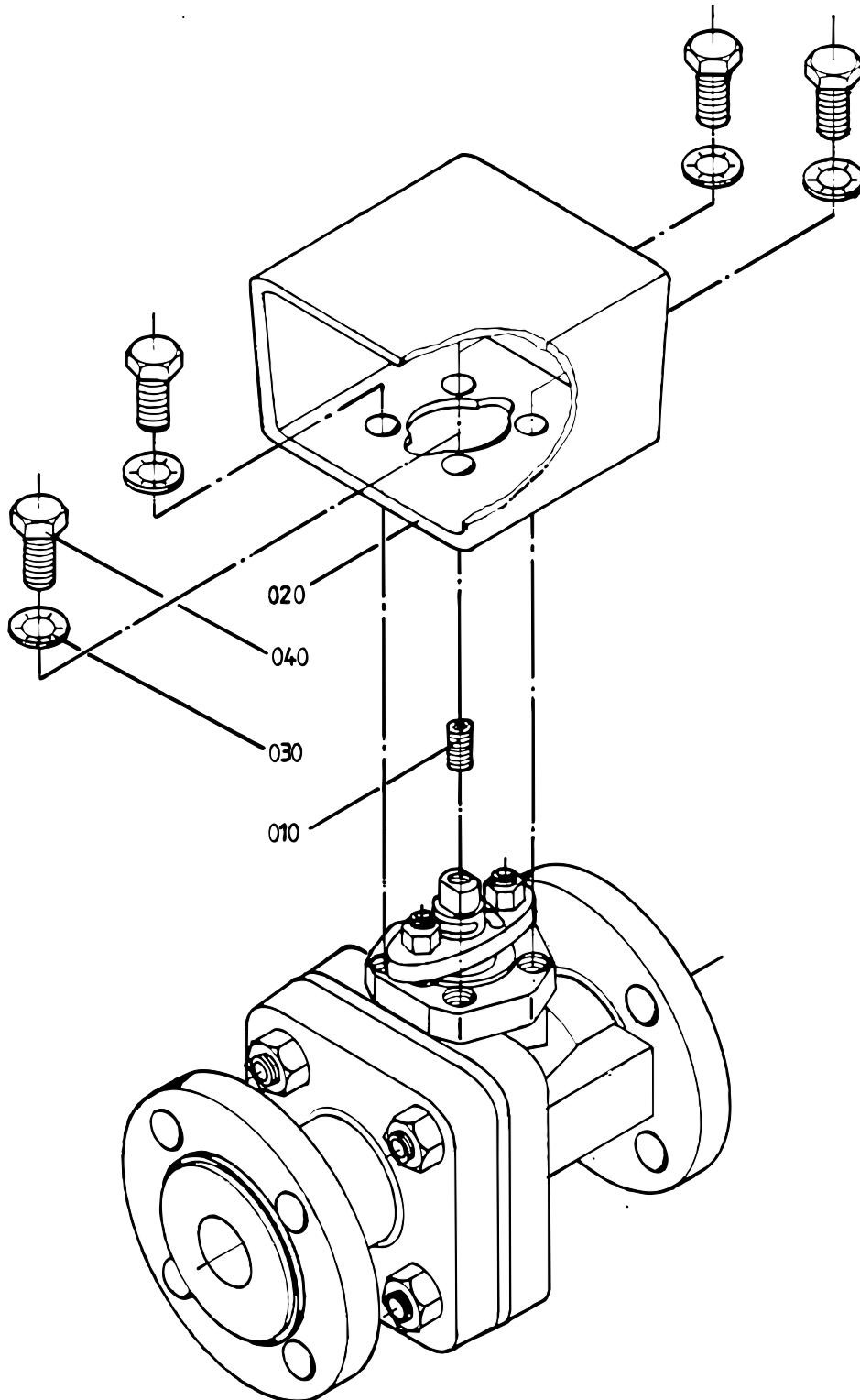
Size	0 bar Δ p Nm	0 psi Δ p in/lbs	10 bar Δ p Nm	150 psi Δ p in/lbs	19 bar Δ p Nm	275 psi Δ p in/lbs	MAST		
							Nm	in/lbs	
015	1/2"	9	81	9	81	10	92	40	354
020	3/4"	9	81	9	81	10	92	40	354
025	1"	9	81	10	92	10	92	40	354
032	-	26	230	35	311	44	391	115	1018
040	1 1/2"	26	230	35	311	44	391	115	1018
050	2"	35	311	44	391	59	518	130	1151
065	-	66	587	95	840	121	1070	420	3717
080	3"	77	679	111	978	140	1243	420	3717
100	4"	103	909	155	1369	205	1818	420	3717
150	6"	273	2416	390	3452	468	4142	1107	9798
200/150*	8"/6"	273	2416	390	3452	468	4142	1107	9798
200	8"	624	5523	910	8054	1170	10355	2180	19295
250	10"	780	6904	1859	16454	2288	20251	8355	73948
300	12"	1495	13232	3120	27614	3770	33367	13250	117272
350	14"	2860	25313	4290	37970	5460	48325	13250	117272

* reduced port

- 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.



AKH2 with actuator mounting

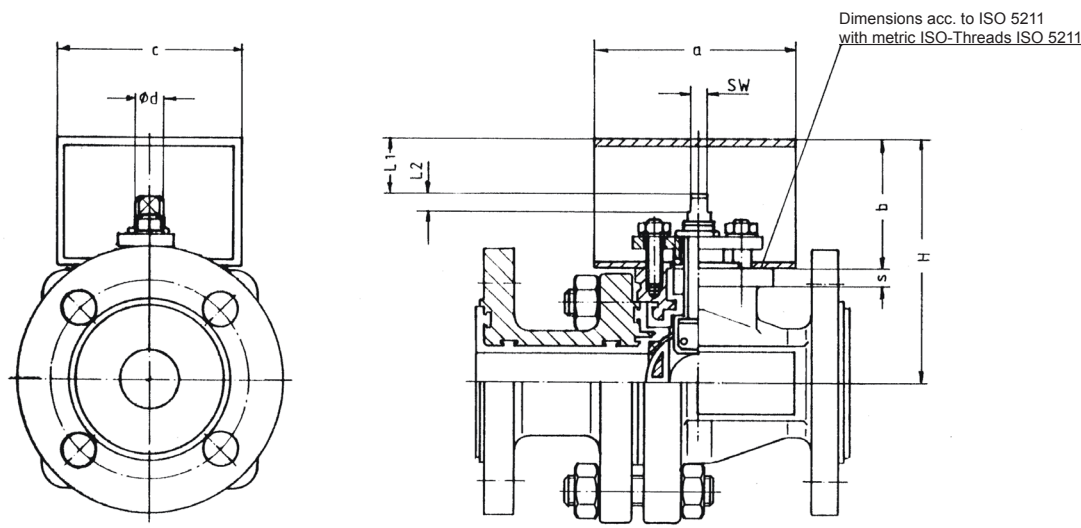


Material specification - AKH2 with actuator mounting

No.	Designation	Pieces	Material	Material-No.	DIN	ASTM / AISI
010	threaded pin	1	stainless steel	1.4301	DIN EN 10088-3	A 193 B8
020	actuator bracket	1	steel (yellow chromated)	1.0037	DIN EN 10025-2	A 283-B
030	serrated lock washer	4	stainless steel	1.4301	DIN EN 10088-3	AISI 304
040	hexagon bolt	4	stainless steel	1.4301	DIN EN 10088-3	A 193 B8

Item-No. 010 "threaded pin" is used with sizes DN 15, 20, 25 and ½", ¾", 1"

AKH2 - Dimension sheet for actuator mounting acc. to NAMUR - recommendation



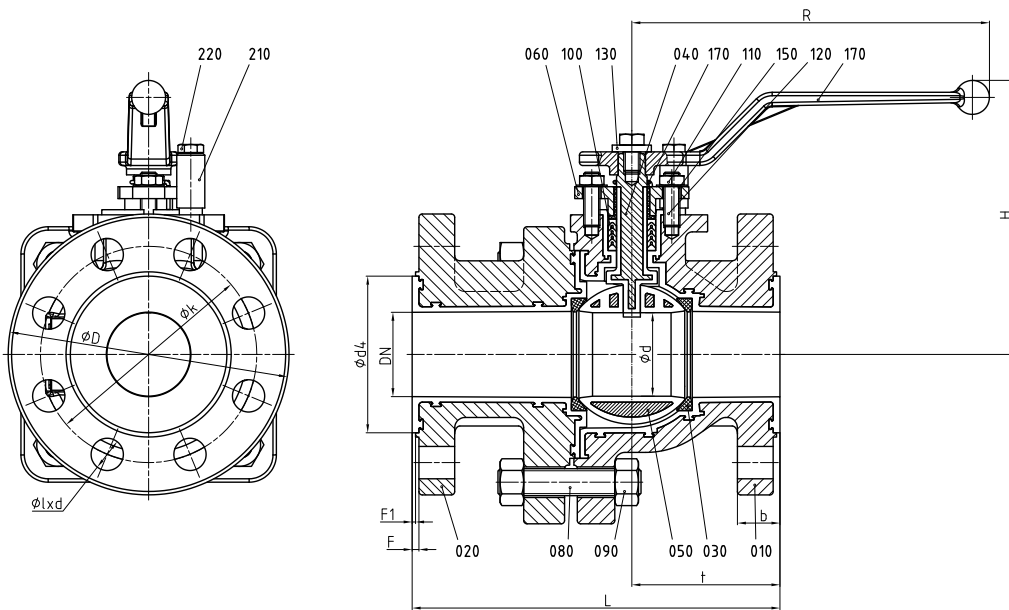
DIN	ANSI					+0,1	0					DIN EN ISO 5211
		H	a	b	c	SW ^{-0,1}	d ^{-0,1}	S	L1	L2	ISO 5211	
015	1/2"	mm	107,5	75	60	100	8	10	7,5	33,5	7,5	F05
		inch	4,23	2,95	2,36	3,94	0,315	0,393	0,3	1,32	0,3	
020	3/4"	mm	107,5	75	60	100	8	10	7,5	33,5	7,5	F05
		inch	4,23	2,95	2,36	3,94	0,315	0,393	0,3	1,32	0,3	
025	1"	mm	109	75	60	100	8	10	7,5	30,5	9,3	F05
		inch	4,29	2,95	2,36	3,94	0,315	0,393	0,3	1,2	0,37	
032	-	mm	129	100	60	100	12	16	10	25,5	12,5	F07
		inch	5,08	3,94	2,36	3,94	0,472	0,63	0,39	1	0,49	
040	1 1/2"	mm	129	100	60	100	12	16	10	25,5	12,5	F07
		inch	5,08	3,94	2,36	3,94	0,472	0,63	0,39	1	0,49	
050	2"	mm	142	100	60	100	12	16	10	23	12,5	F07
		inch	5,59	3,94	2,36	3,94	0,472	0,63	0,39	0,91	0,49	
065	-	mm	200	135	80	140	16	22	13	34	15,5	F10
		inch	7,87	5,31	3,15	5,51	0,63	0,866	0,51	1,34	0,61	
080	3"	mm	207	135	80	140	16	22	13	34	15,5	F10
		inch	8,15	5,31	3,15	5,51	0,63	0,866	0,51	1,34	0,61	
100	4"	mm	222	135	80	140	16	22	13	34	15,5	F10
		inch	8,74	5,31	3,15	5,51	0,63	0,866	0,51	1,34	0,61	
150	6"	mm	284	135	80	140	20	30	14	23	19,5	F12
		inch	11,18	5,31	3,15	5,51	0,787	1,181	0,55	0,91	0,77	
200/150	8"/6"	mm	284	135	80	140	20	30	14	23	19,5	F12
		inch	11,18	5,31	3,15	5,51	0,787	1,181	0,55	0,91	0,77	
200	8"	mm	376	225	120	220	27	40	14	61	19,5	F12
		inch	14,8	8,86	4,72	8,66	1,063	1,575	0,55	2,4	0,77	
250	10"	mm	421	225	120	220	36	50	17	31	35	F14
		inch	16,57	8,86	4,72	8,66	1,417	1,969	0,67	1,22	1,38	
300	12"	mm	463	225	120	220	46	60	19	23	45,0	F16
		inch	18,23	8,86	4,72	8,66	1,811	2,362	0,75	0,91	1,77	
-	14"	mm	493	225	120	220	46	60	19	27	45	F16
		inch	19,41	8,86	4,72	8,66	1,81	2,36	0,75	1,06	1,77	

Material Specification AKH2 300lbs

No.	Designation	Pieces	Material	Material-No. / DIN	ASTM / AISI
010	body	1	carbon steel / PFA carbon steel / FEP °	WCB / 1.0619	A216
020	side piece	1	carbon steel / PFA carbon steel / FEP °	WCB / 1.0619	A216
030	seat ring	2	PTFE	pure - PTFE	
040	stem	1	stainless steel / PFA Hastelloy C4 / PFA **	1.4470 / DIN EN 10283 2.4610 / DIN 17744	A 890 CD3MN
050	ball				
	DN 1" - 2"	1	cast steel / PFA cast steel / FEP °	1.0619 / DIN EN 10213-2	ASTM A216 Grade WCB
	DN 3" - 6"	1	ductile iron / PFA ductile iron / FEP ° ceramic Al ₂ O ₃ * MG-PSZ DN 150/6"	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
060	gland follower	1	stainless steel	1.4308 / DIN EN 10283	A 743 CF-8
065	gland insert	1	PTFE-graphite		
070	hand lever				
	DN 1" - 2"	1	die cast metall (galvanized)	ZP0410 / DIN EN 12844	
	DN 3" - 4"	1	ductile iron (galvanized)	EN-GJS-50-7 (GGG-50)	
	DN 6"	1	steel	1.0037 / DIN EN 10025-2	A 283 B
080	stud bolt				
	DN 1" - 6"	1 set	stainless steel	1.4301-K70 / DIN EN 10088-3	A 193 B7YC
090	hexagon nut	1 set	stainless stel	1.4301-K70 / DIN EN 10088-3	A 194 2HYC
100	packing material (chevron)	1 set	PTFE ° PTFE-graghit °		
110	hexagon nut	2	stainless steel	1.4301 / DIN EN 10088-3	A 194 8
120	stud bolt	2	stainless steel	1.4301 / DIN EN 10088-3	A 193 B8
130	lock washer	1	stainless steel	1.4301 / DIN EN 10088-3	AISI 304
140	hexagon bolt	1	stainless steel	1.4301 / DIN EN 10088-3	A 193 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
210	stop				
	DN 1" - 4"	1	steel (galvanized)	1.0037 / DIN EN 10025-2	A 283 B
	DN 6"	2	stainless steel	1.4104 / DIN EN 10088-3	AISI 430 F
220	hexagon bolt°°	1	stainless steel	1.4301 / DIN EN 10088-3	A 193 B8

- * ceramic ball on request
- ** Hastelloy stem on request
- ° optional
- °° DN 6" - 2 hexagon bolts

Dimension AKH2 300lbs



ANSI		L	b	ØD	F	F1	Ød	Ød4	Øk	Ølx d	H	R	t
1"	mm	165	19,5	124	4	2	24	51	88,9	19x4	123	160	59,5
	inch	6,5	0,77	4,88	0,16	0,08	0,94	2,01	3,5	0,75x4	4,84	6,3	2,34
1½"	mm	190	22,5	155,4	4	2	38	73	114,3	22x4	145	210	78
	inch	7,48	0,89	6,12	0,16	0,08	1,5	2,87	4,5	0,87x4	5,71	8,27	3,07
2"	mm	216	25	165	4	2	48	92	127	19x8	160	210	87
	inch	8,5	0,98	6,5	0,16	0,08	1,89	3,62	5	0,75x8	6,3	8,27	3,43
3"	mm	282	30,5	209,6	4	2	80,5	127	168	22x8	205	313	128
	inch	11,1	1,2	8,25	0,16	0,08	3,17	5	6,61	0,87x8	8,07	12,32	5,04
4"	mm	305	34	254	4	2	100,5	157	200	22x8	220	313	142
	inch	12,01	1,34	10	0,16	0,08	3,96	6,18	7,87	0,87x8	8,66	12,32	5,59
6"	mm	403	38,5	317,5	4	2	150	208	269,7	22x12	312	337*	180,5
	inch	15,87	1,52	12,5	0,16	0,08	5,91	8,19	10,62	0,87x12	12,28	13,27	7,11

* pass-through handlever Ø 674 mm standard

Technical Manual

AKH2-300 - recommended tightening torques*

DN	tie rods (080/090)		connection flange		gland bolts (110/120/150)	
	Nm	in.lbs	Nm	in.lbs	Nm	in.lbs
½"	35	310	15	133	4	35
1"	45	398	35	310	4	35
1½"	105	929	75	664	7	62
2"	155	1372	50	443	7	62
3"	160	1416	95	841	8	71
4"	210	1859	145	1283	8	71
6"	515	4558	140	1239	12	106
8"	600	5310	225	1991	15	133
10"	650	5753	290	2567	17	150
12"	810	7169	450	3983	20	177
14"	1160	10267	380	3363	20	177

* maximum value

Material specification AKH2/DA

No.	Designation	Pieces	Material	Material-No. / DIN	ASTM / AISI
010	body	1	ductile iron / PFA ductile iron / FEP °	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
020	side piece	1	ductile iron / PFA ductile iron / FEP °	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
030	seat ring	1	PTFE	pure - PTFE	
035	seat ring with pressure compensation grooves	1	PTFE	pure - PTFE	
040	stem	1	stainless steel / PFA Hastelloy C4 / PFA **	1.4470 / DIN EN 10283 2.4610 / DIN 17744	A 890 CD3MN
050	ball				
	DN 15 - 50, DN ½"- 2"	1	cast steel / PFA cast steel / FEP °	1.0619 / DIN EN 10213-2	ASTM A216 Grade WCB
	DN 65 - 300, DN 3"- 12"	1	ductile iron / PFA ductile iron / FEP ° ceramic Al ₂ O ₃ * MG-PSZ DN 150/6"	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
060	gland follower	1	stainless steel	1.4308 / DIN EN 10283	A 743 CF-8
065	gland insert	1	PTFE-graphite		
070	hand lever				
	DN 15 - 50, DN ½"- 2"	1	die cast metall (galvanized)	ZP0410 / DIN EN 12844	
	DN 65 - 100, DN 3"- 4"	1	ductile iron (galvanized)	EN-GJS-50-7 (GGG-50)	
	DN 150, 200, DN 6", 8"	1	steel	1.0037 / DIN EN 10025-2	A 283 B
080	stud bolt				
	DN 15, 20, 32, 150 - 300, DN ½"- 12"	1 set	stainless steel	1.4301-K70 / DIN EN 10088-3	A 193 B8
	hexagon bolt				
	DN 25, 40, 50, 65, 80, 100	1 set	stainless steel	1.4301-K70 / DIN EN 10088-3	A 193 B8
090	hexagon nut	1 set	stainless stel	1.4301-K70 / DIN EN 10088-3	A 194 8
100	packing material (chevron)	1 set	PTFE ° PTFE-graghit °		
110	hexagon nut	2	stainless steel	1.4301 / DIN EN 10088-3	A 194 8
120	stud bolt	2	stainless steel	1.4301 / DIN EN 10088-3	A 193 B8
130	lock washer	1	stainless steel	1.4301 / DIN EN 10088-3	AISI 304
140	hexagon bolt	1	stainless steel	1.4301 / DIN EN 10088-3	A 193 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
210	stop				
	DN 15 - 100, DN ½"- 4"	1	steel (galvanized)	1.0037 / DIN EN 10025-2	A 283 B
	DN 150, 200, DN 6", 8"	2	stainless steel	1.4104 / DIN EN 10088-3	AISI 430 F
220	hexagon bolt°	1	stainless steel	1.4301 / DIN EN 10088-3	A 193 B8

* ceramic ball on request (available up to DN 150 / 6")

** Hastelloy stem on request

° optional

°° DN 6", 8", 150 and 200 - 2 hexagon bolts

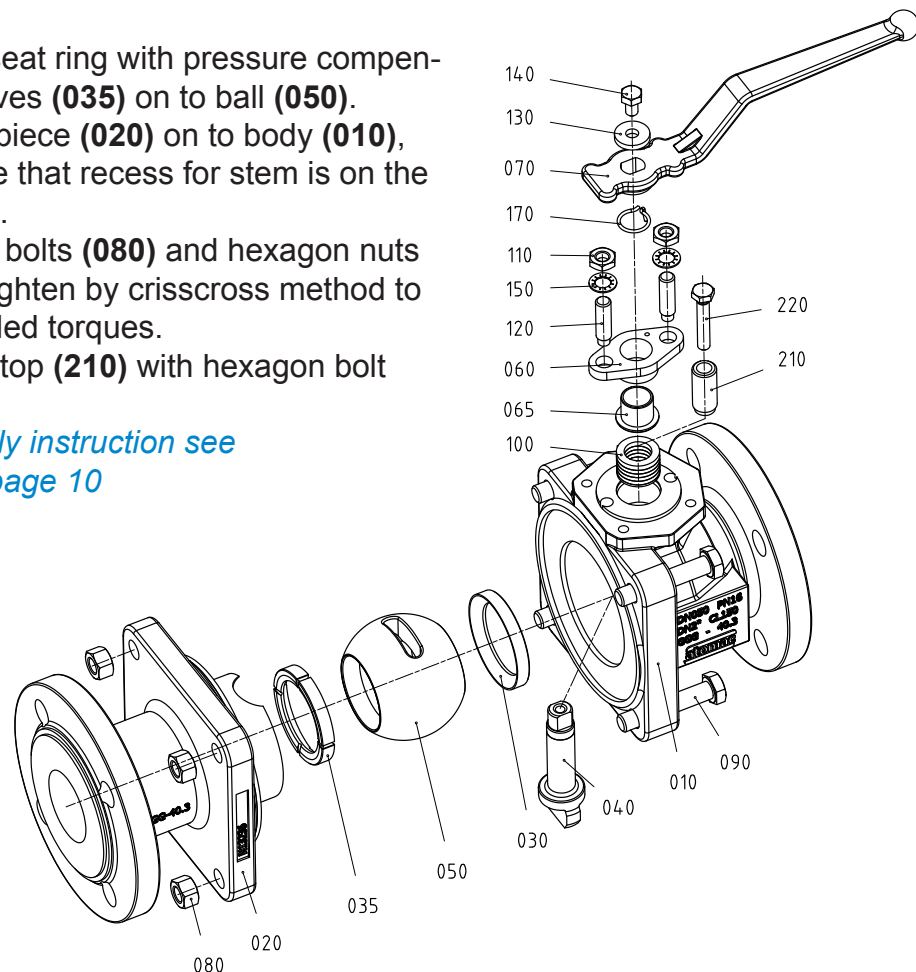
Assembly Instructions AKH2/DA

The general installation and maintenance instructions must be observed.

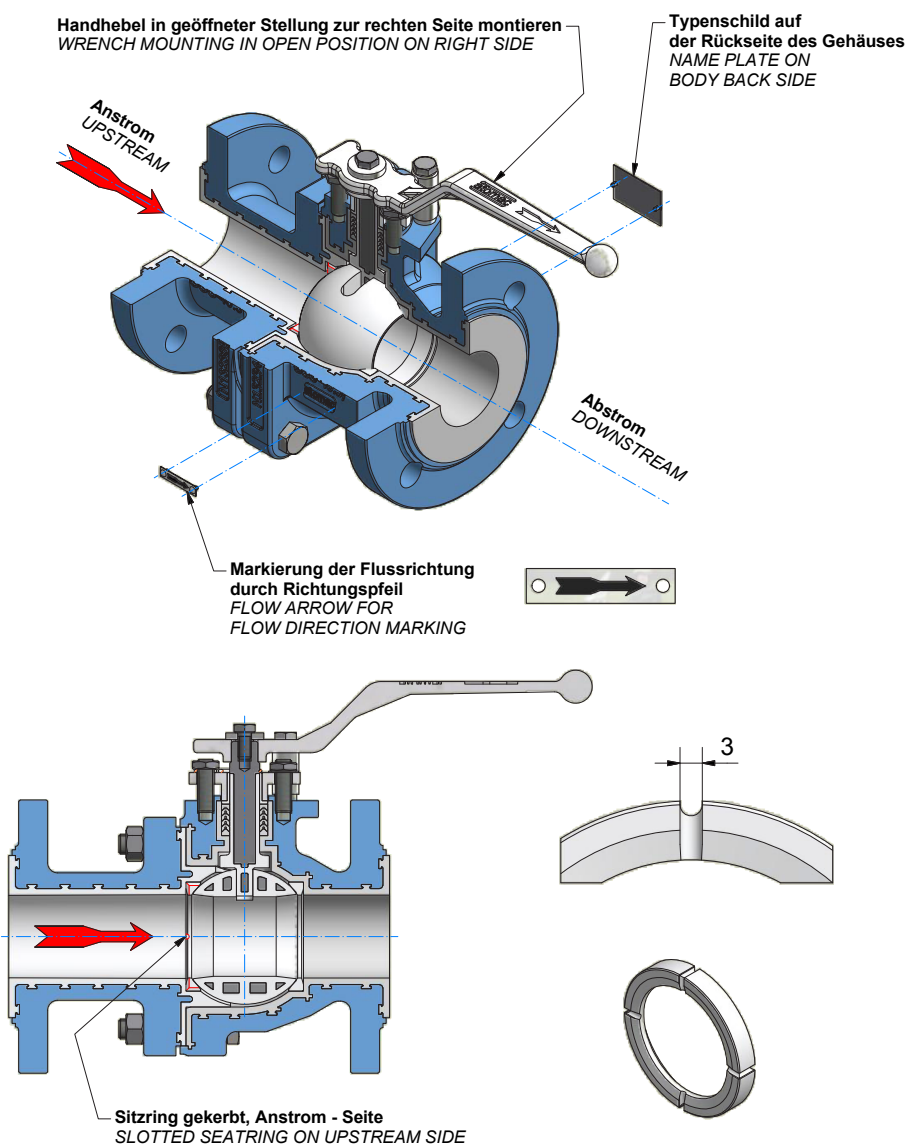
Attention, please take care of the tight direction of indicator while assembly.

1. Screw stud bolts (120) into body (010).
2. Insert stem (040) from inside of body in such a way that the flat side is parallel to body longitudinal axis.
3. Insert chevron packing (100).
4. Install gland insert (065), gland follower (060), safety washers (150), hexagon nuts (110) and grounding strap (170) also on valves with actuator.
5. Install hand lever (070) on to stem (040) and tighten it using lock washer (130) and hexagon bolt (140).
6. Insert first ball seat ring (030) into body (010).
7. Insert ball (050) to valve stem by pushing the ball in a downward motion through valve body.
8. Turn hand lever 90° of longitudinal axis of body.
9. Install ball seat ring with pressure compensation grooves (035) on to ball (050).
10. Install side piece (020) on to body (010), making sure that recess for stem is on the correct side.
11. Install body bolts (080) and hexagon nuts (090) and tighten by crisscross method to recommended torques.
12. Assemble stop (210) with hexagon bolt (220).

Disassembly instruction see register 2, page 10



**Optional with pressure compensation grooves
 by slotted seat ring**



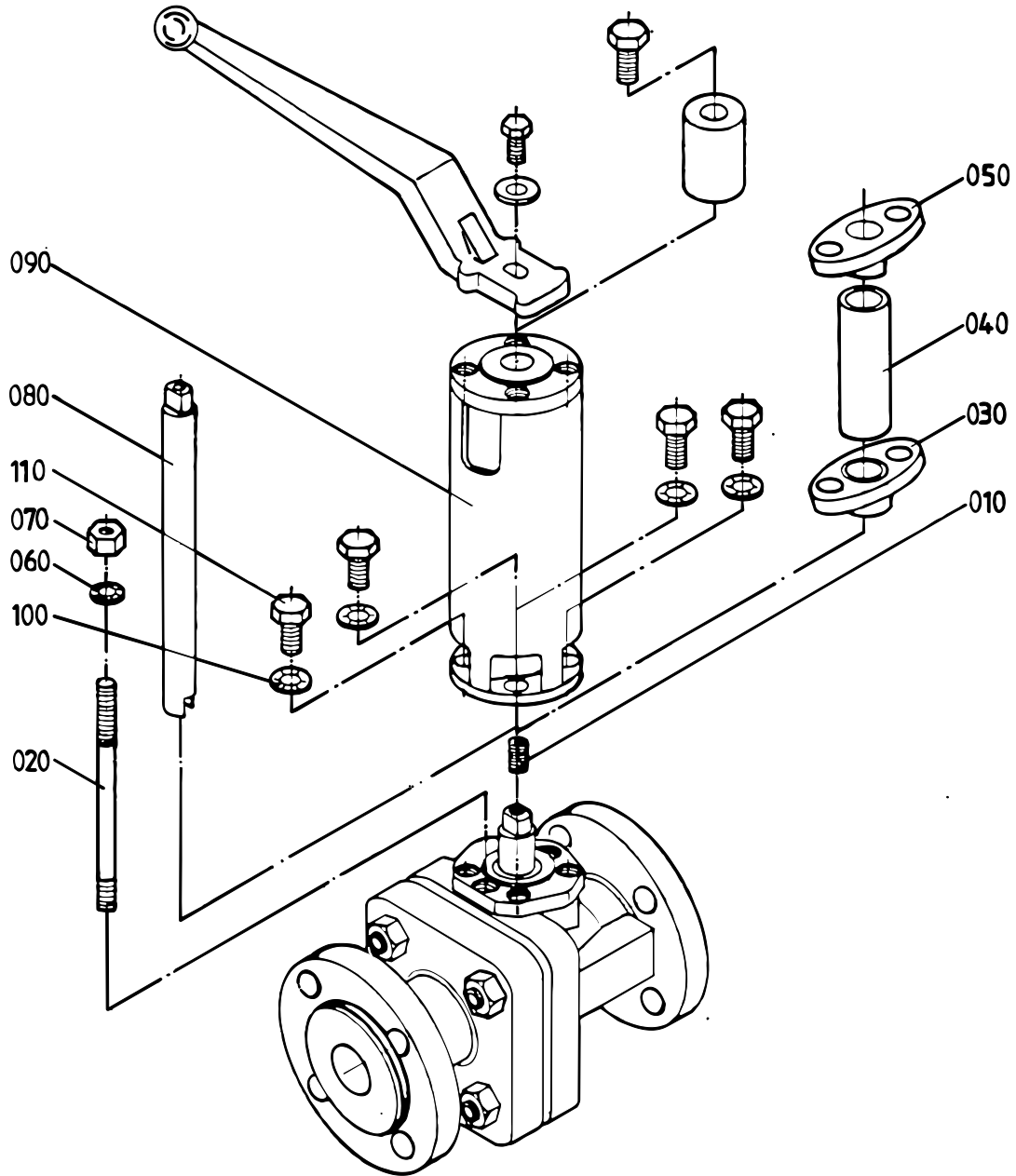
1. Recleaning

The ball valve should be thoroughly 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.

AKH2 with stem extension

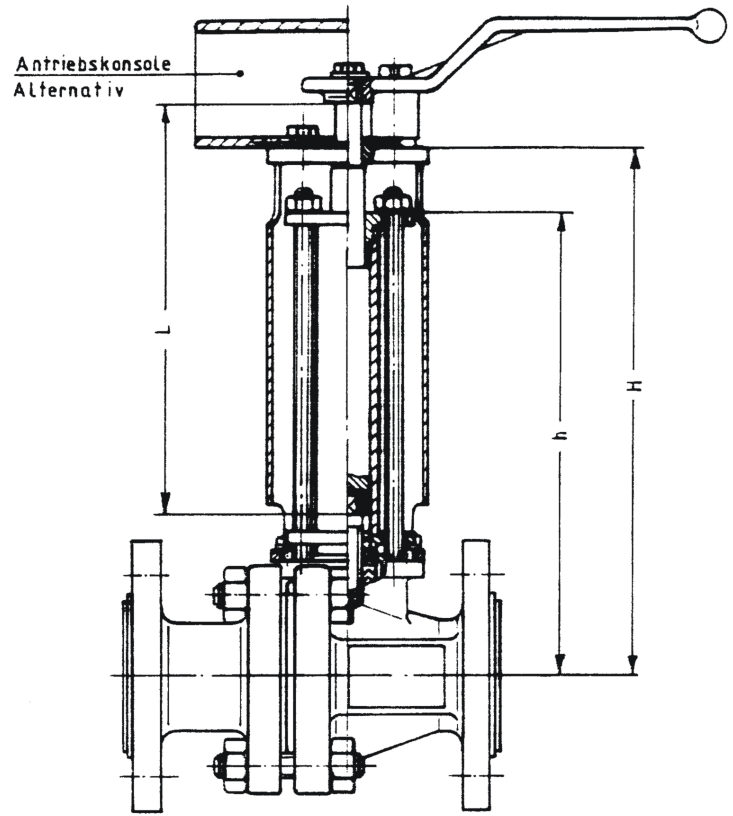


Material specification - AKH2 with stem extension

No.	Designation	Pieces	Material	Material-No.	DIN	ASTM / AISI
010	threaded pin	1	stainless steel	1.4301	DIN EN 10088-3	A 193 B8
020	stud bolt	2	stainless steel	1.4301	DIN EN 10088-3	A 193 B8
030	gland follower	1	stainless steel / PTFE-graphite	1.4308	DIN EN 10283	A 351 CF 8
040	distance pipe	1	steel	1.0305	DIN EN 10216-2	A 192
050	gland	1	stainless steel	1.4308	DIN EN 10283	A 743 CF 8
060	serrated lock washer	2	stainless steel	1.4301	DIN EN 10088-3	AISI 304
070	hexagon nut	2	stainless steel	1.4301	DIN EN 10088-3	A 194 8
080	extended stem	1	stainless steel	1.4104	DIN EN 10088-3	AISI 430 F
090	mounting	1	steel	1.0037	DIN EN 10025-2	A 283 B
100	serrated lock washer	4	stainless steel	1.4301	DIN EN 10088-3	AISI 304
110	nster	4	stainless steel	1.4301	DIN EN 10088-3	A 193 B8

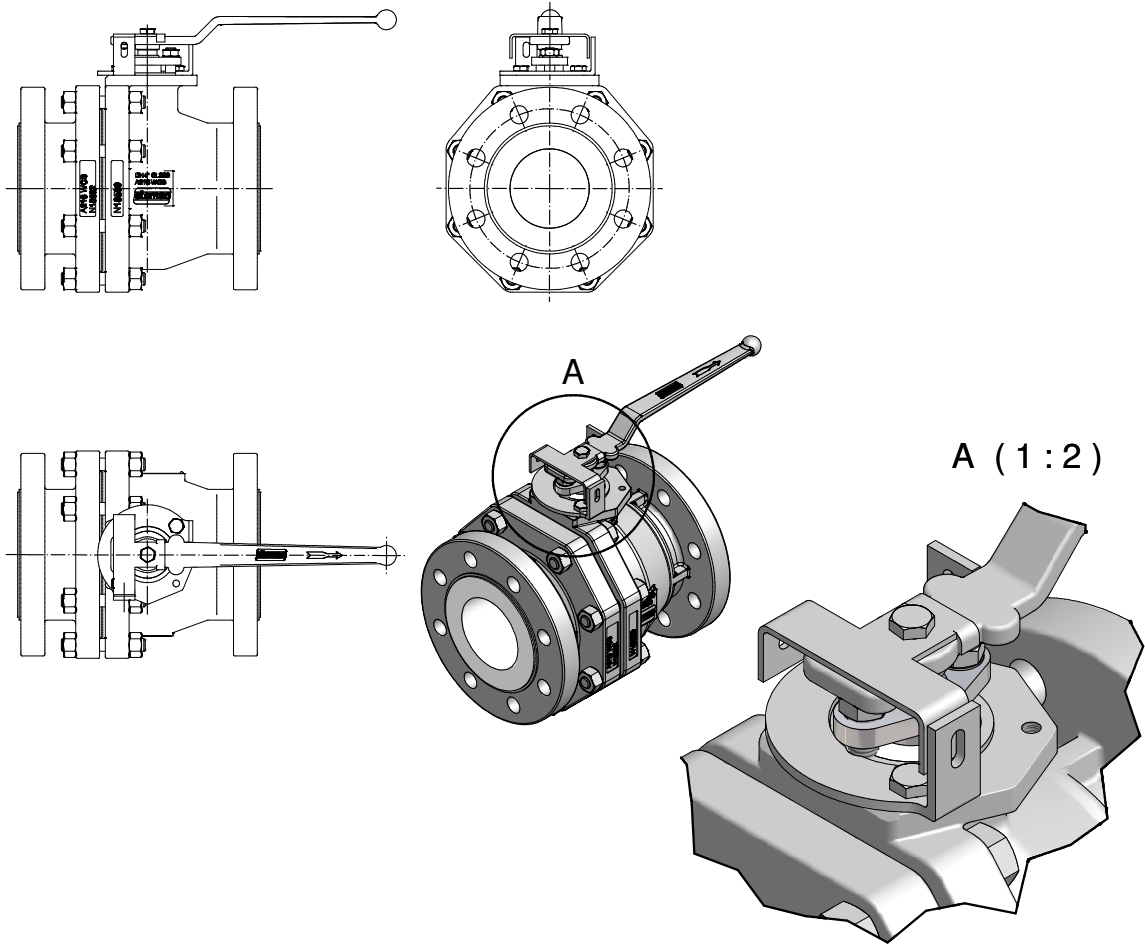
Item - No. 010 „threaded pin“ is used with sized DN 15, 20, 25 and 1 / 2“, 3 / 4“, 1“ only.

Technical Data - AKH2 with stem extension



DIN	ANSI		L	H	h
015, 020	1/2", 3/4"	mm	100	147,5	124
		inch	3,94	5,81	4,88
025	1"	mm	100	149	126
		inch	3,94	5,87	4,96
032, 040	1 1/2"	mm	100	169	139
		inch	3,94	6,65	5,43
050	2"	mm	100	182	151
		inch	3,94	7,17	5,94
065	-	mm	130	249	211
		inch	5,12	9,8	8,31
080	3"	mm	130	256	220
		inch	5,12	10,08	8,66
100	4"	mm	130	271	235
		inch	5,12	10,67	9,25
150, 200/150	6", 8"/6"	mm	160	364	320
		inch	6,3	14,33	12,6

AKH2 with lockable hand lever



**Material specification -
 AKH2 with lockable hand lever**

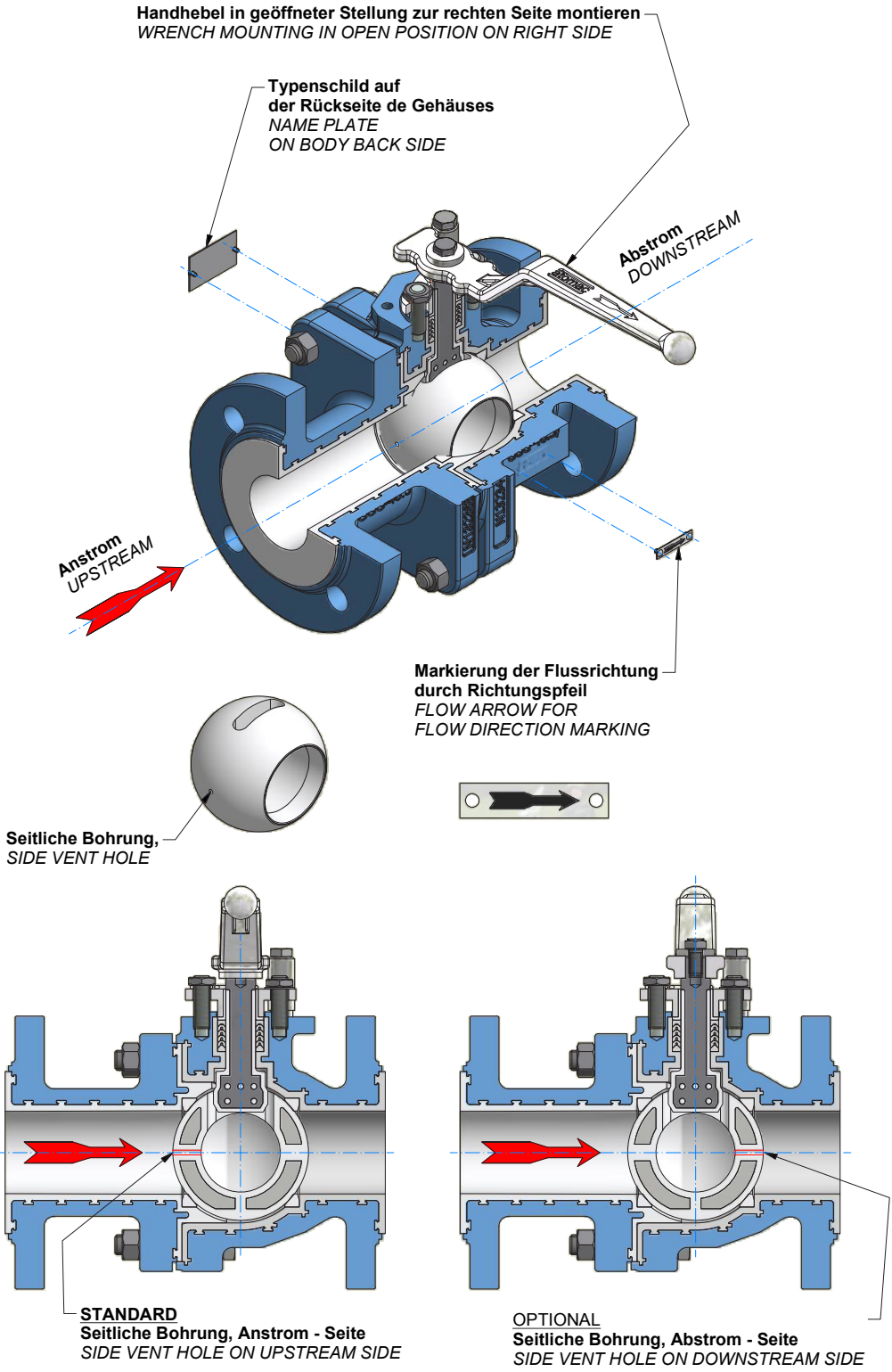
Designation	Pieces	Material	Material-No.	DIN	ASTM / AISI
lockable hand lever	1	stainless steel	1.4301	DIN EN 10088-3	AISI 304
stop bolt	1	Stainless steel / duroplastic	1.4301	DIN EN 10088-3	AISI 304

**AKH2 - K_v Data and C_v Data
(DIN EN 60534-2-3)**

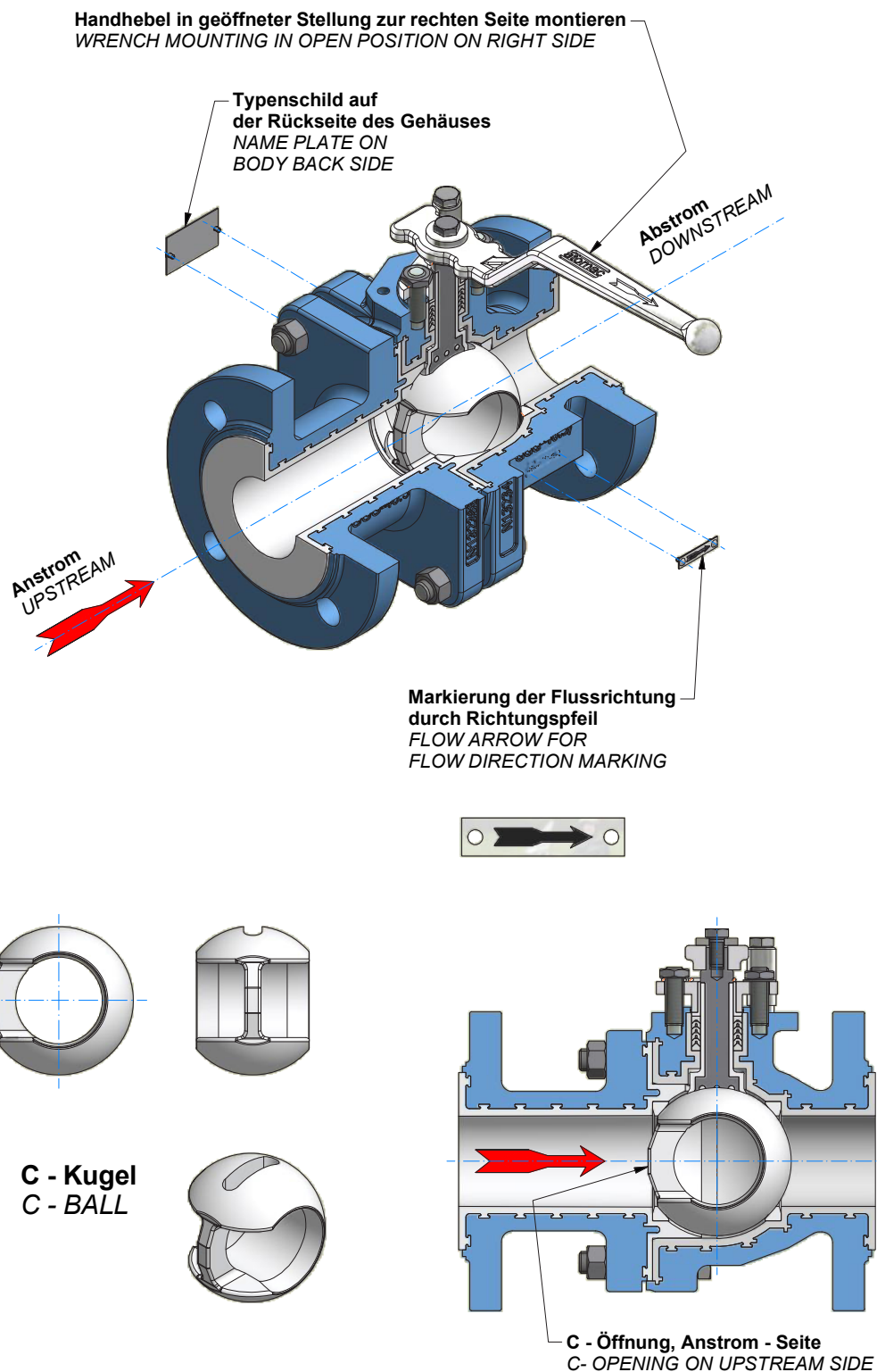
DIN	ANSI	K _v m ³ /h	C _v gal/min
015	½"	16,9	19,6
020	¾"	24,4	28,4
025	1"	38,6	44,9
032	-	68,4	79,5
040	1 ½"	121,4	141,1
050	2"	199,9	232,3
065	-	329,3	382,7
080	3"	525,8	611,1
100	4"	940,2	1092,8
150	6"	2134,0	2480,3
200*	8**	1501,8	1745,5
200	8"	3941,0	4580,6
250	10"	5226,0	6074,2
300	12"	7591,0	8823,0
-	14"	at time not available	

*reduced port

Optional ball with side vent hole



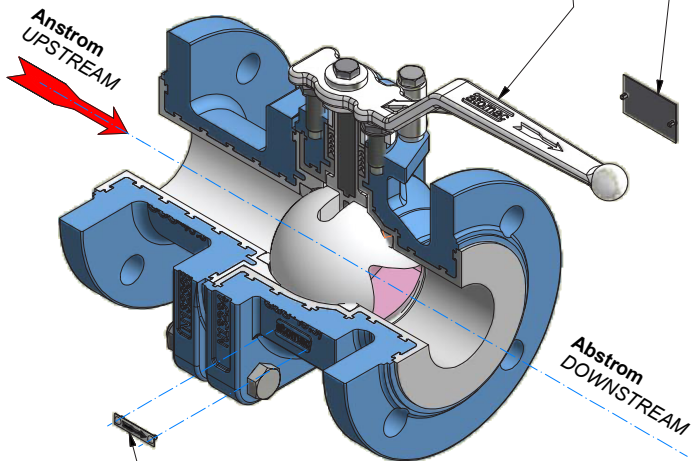
Optional with C-ball



Optional with V-ball or S-ball

Handhebel in geöffneter Stellung zur rechten Seite montieren
 WRENCH MOUNTING IN OPEN POSITION ON RIGHT SIDE

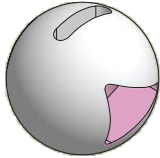
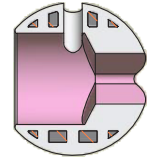
Typenschild auf der Rückseite des Gehäuses
 NAME PLATE ON BODY BACK SIDE



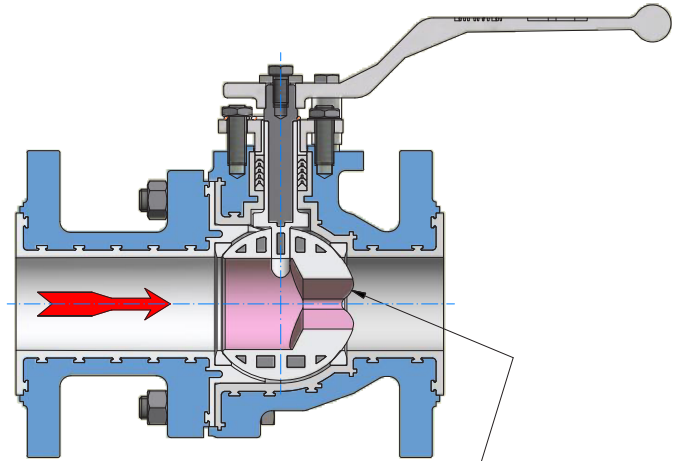
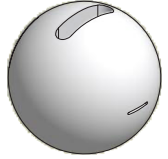
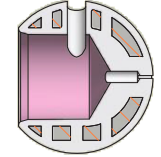
Markierung der Flussrichtung durch Richtungspfeil
 FLOW ARROW FOR FLOW DIRECTION MARKING



V - Kugel
V - BALL



S - Kugel
S - BALL



Kleine Öffnung, Abstrom - Seite
 SMALL OPENING ON DOWNSTREAM SIDE