

Technical Manual

Register 4 CONTENTS - APN / SG and APN / T



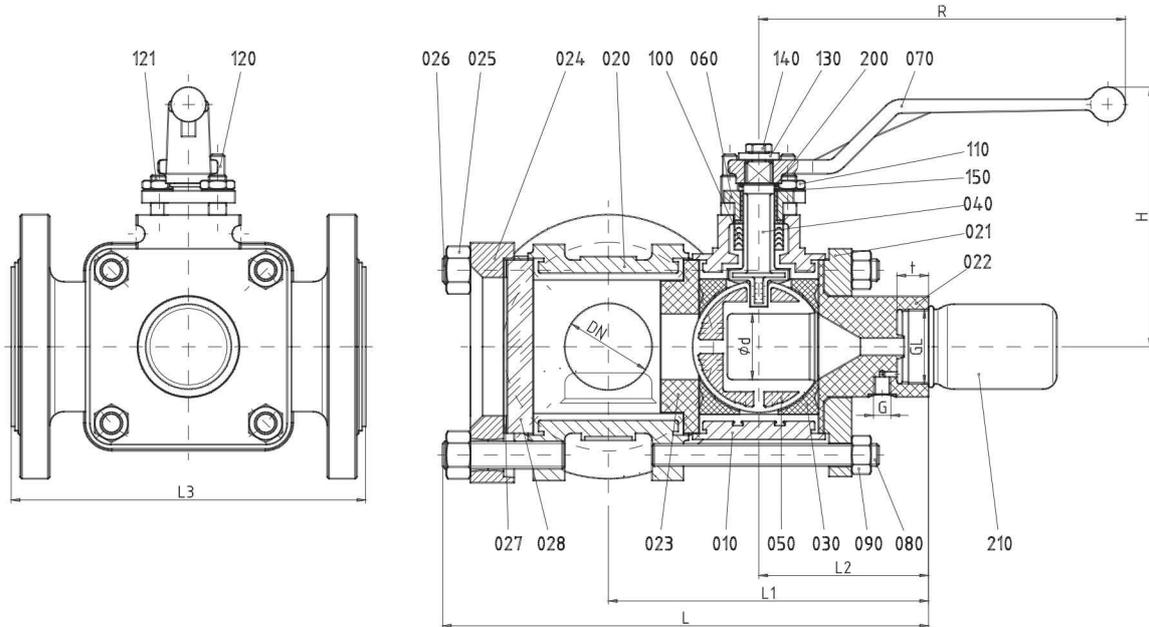
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Contents

<i>Technical Data APN / SG acc. to DIN</i>	2
<i>Technical Data APN / SG acc. to ANSI</i>	3
<i>Material Specification APN / SG</i>	4
<i>Assembly Instructions APN / SG</i>	5
<i>Disassembly Instructions APN / SG</i>	6
<i>Recommended tightening torques APN / SG</i>	8
<i>Sight-glass - recommended tightening torques</i>	8
<i>Technical Data APN / T acc. to DIN</i>	9
<i>Material Specification APN / T</i>	10
<i>Assembly Instructions APN / T</i>	11
<i>Disassembly Instructions APN / T</i>	12
<i>Recommended tightening torques</i>	13



Technical Data APN / SG



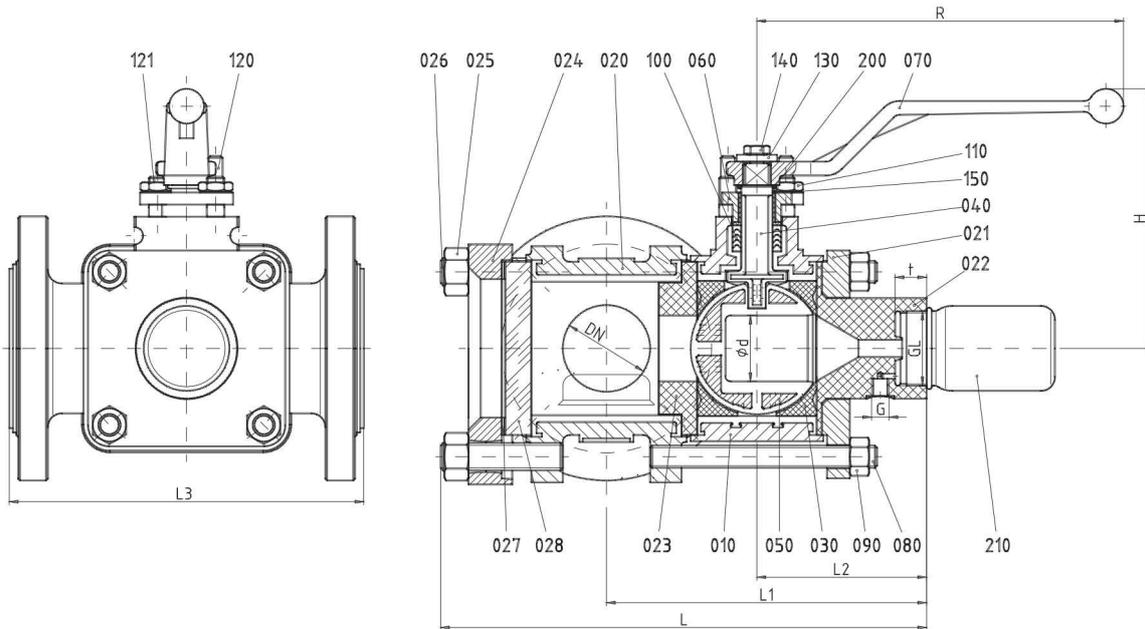
DIN		L	L ₁	L ₂	L ₃	H	R	GL DIN 168-1
025	mm	203	138	79	160	120	160	GL32
	inch	7,99	5,43	3,11	6,3	4,84	6,3	
040	mm	239	165	92	200	145	210	GL45
	inch	9,41	6,5	3,62	7,87	5,71	8,27	
050	mm	278	183	97	230	160	210	GL45
	inch	10,94	7,2	3,82	9,06	6,3	8,27	
080**	mm	340	215	97	310	160	210	GL45
	inch	13,39	8,46	3,82	12,2	6,3	8,27	

DIN		t	G	Ød	max. sampl.vol. cm ³ *	weight	
025	mm	15	G 1/8	20	7,54	kg	6,6
	inch	0,59		0,79		lbs	14,5
040	mm	18	G 1/8	32	34,58	kg	11,5
	inch	0,71		1,26		lbs	25,3
050	mm	18	G 1/8	38	45	kg	15,4
	inch	0,71		1,5		lbs	33,9
080**	mm	18	G 1/8	38	45	kg	28,0
	inch	0,71		1,5		lbs	61,6

* Other sampling volumes upon request.

** Sampling valve unit DN 050

Technical Data APN / SG



ANSI		L	L ₁	L ₂	L ₃	H	R	GL DIN 168-1
1"	mm	203	138	79	152,4	120	160	GL32
	inch	7,99	5,43	3,11	6	4,84	6,3	
1½"	mm	239	165	92	178	145	210	GL45
	inch	9,41	6,5	3,62	7	5,71	8,27	
2"	mm	278	183	97	203	160	210	GL45
	inch	10,94	7,2	3,82	8	6,3	8,27	
3" **	mm	340	215	97	241	160	210	GL45
	inch	13,39	8,46	3,82	9,5	6,3	8,27	

ANSI		t	G	Ød	max. sampl.vol. cm ³	weight	
1"	mm	15	G 1/8	20	7,54	kg	6,0
	inch	0,59		0,79		lbs	13,2
1½"	mm	18	G 1/8	32	34,58	kg	10,1
	inch	0,71		1,26		lbs	22,3
2"	mm	18	G 1/8	38	45	kg	18,0
	inch	0,71		1,5		lbs	39,7
3" **	mm	18	G 1/8	38	45	kg	28,0
	inch	0,71		1,5		lbs	61,6

* Other sampling volumes upon request.
 ** Sampling valve unit DN 2"

Technical Manual

Material specification APN / SG

No.	Designation	Pieces	Material	Material-No./DIN	ASTM / AISI
010	center piece	1	ductile iron / PFA ° ductile iron / FEP °	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
020	body piece	1	ductile iron / PFA ° ductile iron / FEP °	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
021	flange	1	steel	1.0570 DIN EN 10025-2	A 714
022	side piece	1	PTFE	pure - PTFE	
023	spacer	1	PTFE	pure - PTFE	
024	flange	1	ductile iron	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
025	hexagon nut	4	stainless steel	1.4301 / DIN EN 10088-3	A 194 8
026	stud bolt	4	stainless steel	1.4301 / DIN EN 10088-3	A 194 9
027	flat gasket	1	UNITEC 300 green	DIN 3535-6	
028	glass	1	borosilicate-glass	DIN 7080	
030	seat ring	2	PTFE	pure - PTFE	
040	stem	1	stainless steel / PFA ° stainless steel / FEP ° Hastelloy C4 / PFA °° Hastelloy C4 / FEP °°	1.4470 / DIN EN 10283 2.4610 / DIN 17744	A 890 CD3MN A 890 CD3MN
050	ball	1	ductile iron / PFA ° ductile iron / FEP °	GG-25 / DIN EN 1561	A 48-40B
060	gland follower	1	stainless steel / PTFE-graphite	1.4308 / DIN EN 10283	A 743 CF-8
070	hand lever	1	die cast metall	ZP0410 / DIN EN 12844	
080	stud bolt	1 set	stainless steel	1.4301-K70 / DIN EN 10088-3	A 193 B8
090	hexagon nut	1 set	stainless steel	1.4301-K70 / DIN EN 10088-3	A 194 8
100	packing material (chevron)	1 set	PTFE ° PTFE-graphite °		
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
121	stud bolt	1	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
200	grounding device	1	stainless steel	1.4310 / DIN EN 10270-3	AISI 301
210	bottle	1	glass	DIN 168	

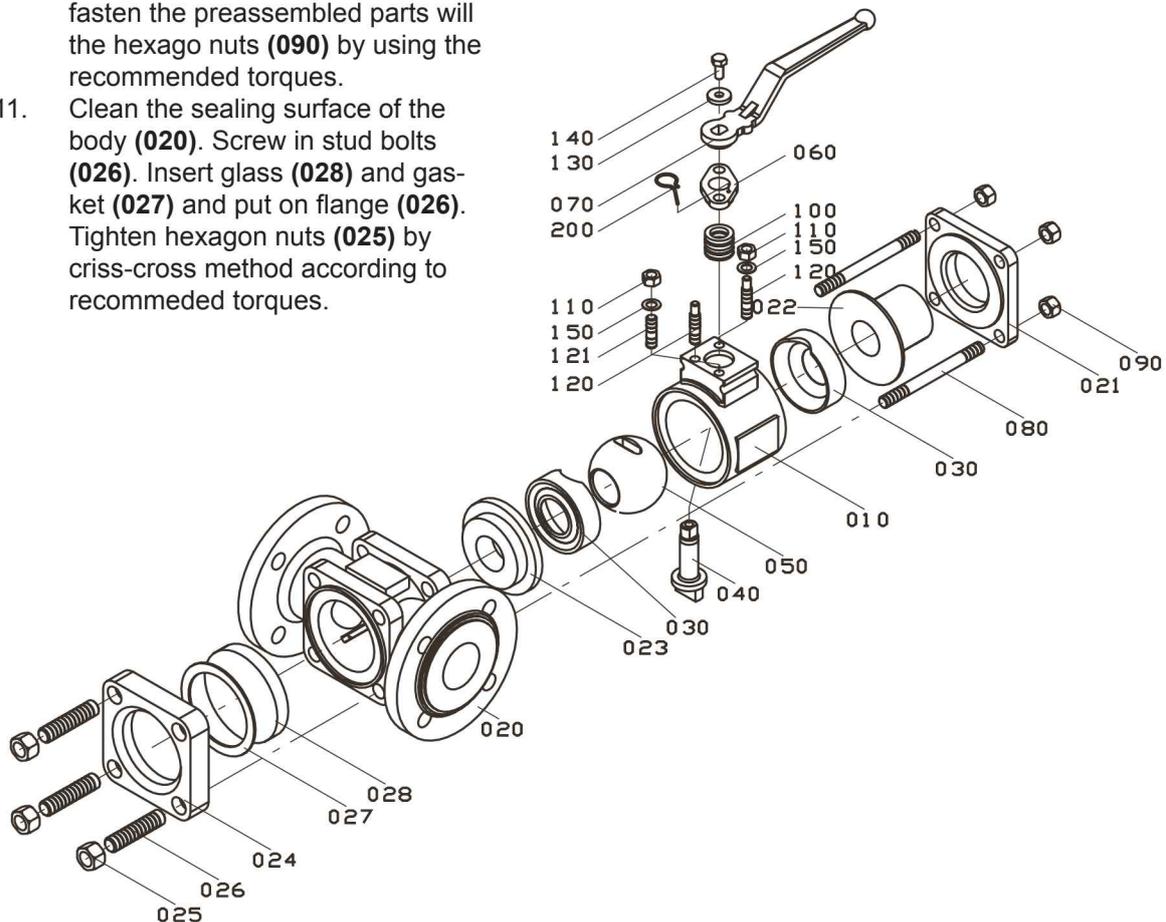
° optional

°° Hastelloy stem on request

ASSEMBLY INSTRUCTIONS APN / SG

The general installation and maintenance instructions must be observed.

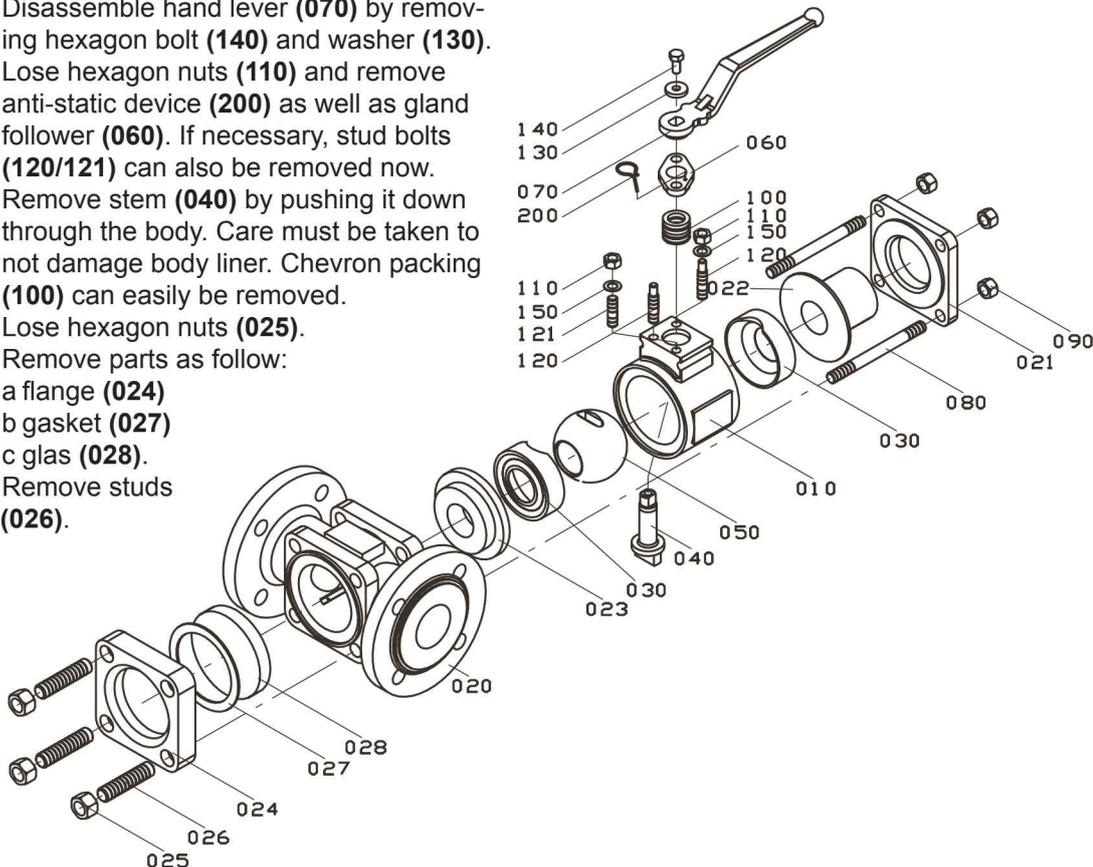
1. Screw stud bolts (**120 and 121**) into center piece (**010**). Make sure that the longer bolts (**120**) are screwed side by side and the shorter (**121**) is screwed diagonal.
2. Insert stem (**040**) from inside of the center piece (**010**) in such a way that the flat side is parallel to the longitudinal axis of the center piece (**010**).
3. Insert chevron packing (**100**).
4. Install gland follower (**060**), safety washer (**150**), hexagon nuts (**110**) and grounding device (**200**).
5. Assemble hand lever (**070**) onto stem (**040**) and tighten it by using lock washer (**130**) and hexagon bolt (**140**).
6. Insert ball (**050**) to valve stem (**040**) by pushing the ball in a downward motion through center piece (**010**).
7. Turn hand lever (**070**) 90° off longitudinal axis of center piece (**010**) (open position).
8. Insert ball seat ring (**030**) into center piece (**010**).
9. Place body (**020**) and spacer (**023**) on the left, and side piece (**022**) on the right side of the center piece (**010**). Take attention of the right position of the bleed hole in the side piece (**022**). Put the flange (**021**) over the side piece (**022**).
10. Install studs (**080**) into the body (**020**) and fasten the preassembled parts with the hexagon nuts (**090**) by using the recommended torques.
11. Clean the sealing surface of the body (**020**). Screw in stud bolts (**026**). Insert glass (**028**) and gasket (**027**) and put on flange (**026**). Tighten hexagon nuts (**025**) by criss-cross method according to recommended torques.



DISASSEMBLY INSTRUCTIONS APN / SG

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 cleaned of all fluid according to the above-mentioned instructions. Particular care must be taken that during the rinsing and draining of the piping the valve is opened and closed repeatedly. These cycles (opening and closing) are to be repeated when emptying 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. Put body on a work bench with a soft cover (rubber mat).
3. Remove hexagon nuts (090) and studs (080).
4. Remove parts in the following sequence:
 - body (020)
 - flange (021)
 - side piece (022)
 - seat rings (030)
 - spacer (023)
5. To remove the ball (050), put hand lever (070) in closed position (90° to longitudinal axis of the valve). The ball (050) can easily be pushed out of the center piece (010).
6. Disassemble hand lever (070) by removing hexagon bolt (140) and washer (130).
7. Lose hexagon nuts (110) and remove anti-static device (200) as well as gland follower (060). If necessary, stud bolts (120/121) can also be removed now.
8. Remove stem (040) by pushing it down through the body. Care must be taken to not damage body liner. Chevron packing (100) can easily be removed.
9. Lose hexagon nuts (025).
10. Remove parts as follow:
 - a flange (024)
 - b gasket (027)
 - c glas (028).
11. Remove studs (026).



Technical Manual

Recommended Tightening torques APN / SG*

DN	tie rods (080/090)		gland bolts (110/120/150)	
	Nm	lbf · in	Nm	lbf · in
025	13	116	4	35
1"	13	116	4	35
040	26	231	7	62
1½"	26	231	7	62
050	30	267	7	62
2"	30	267	7	62
080	30	267	7	62
3"	30	267	7	62

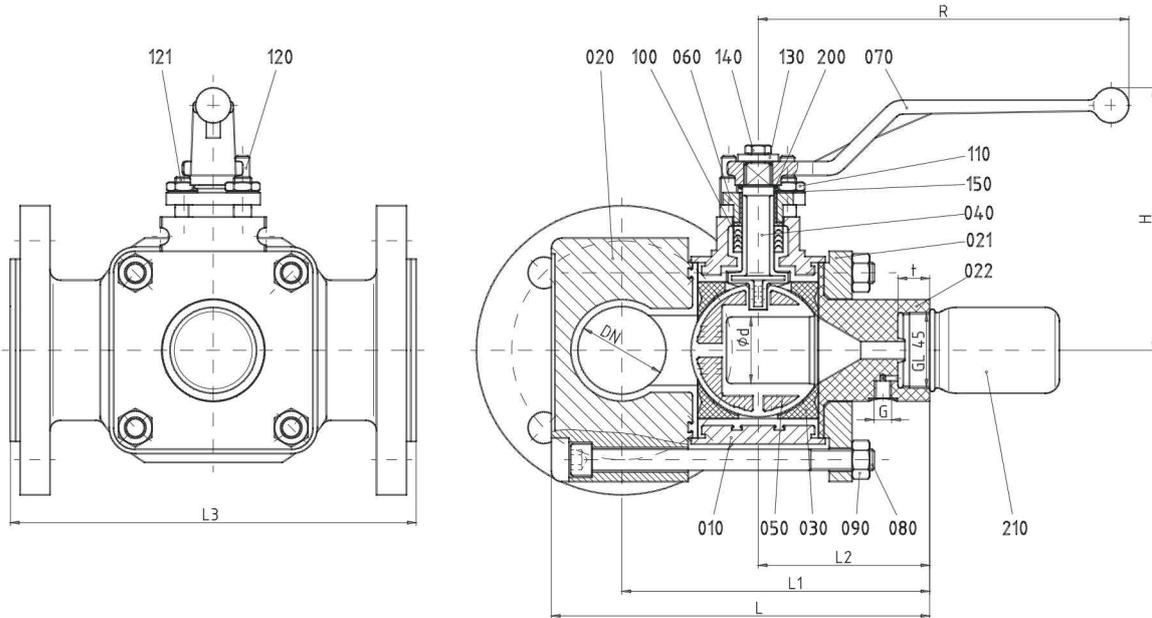
* maximum value

Sight Glass - Recommended Tightening torques*

DN	tie rods (025/026)		connection flange	
	Nm	lbf · in	Nm	lbf · in
025	14	124	25	221
1"	15	133	15	133
040	22	195	50	442
1½"	24	212	26	230
050	40	354	65	575
2"	42	372	60	531
080	40	354	65	575
3"	42	372	60	531

* maximum value

Technical Data APN / T



DN / DIN		L	L ₁	L ₂	L ₃	H	R	GL DIN 168-1
025	mm	151	126	79	160	120	160	GL32
	inch	5,94	4,96	3,11	6,3	4,84	6,3	
050	mm	214	174	7	230	160	210	GL45
	inch	8,43	6,85	3,82	9,06	6,3	8,27	
080**	mm	244	189	97	310	160	210	GL45
	inch	9,61	7,44	3,82	12,2	6,3	8,27	

DN / DIN		t	G	Ød	max. sampl.vol. cm ³	weight	
025	mm	15	G 1/8	20	7,54	kg	7,2
	inch	0,59		0,79		lbs	15,8
050	mm	18	G 1/8	38	45	kg	16,6
	inch	0,71		1,5		lbs	36,6
080**	mm	18	G 1/8	38	45	kg	21,6
	inch	0,71		1,5		lbs	47,6

* Other sampling volumes upon request.
 ** Sampling valve unit DN 050

Material specification APN / T

No.	Designation	Pieces	Material	Material-No./DIN	ASTM / AISI
010	center piece	1	ductile iron / PFA ° ductile iron / FEP °	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
020	body piece	1	ductile iron / PFA ° ductile iron / FEP °	EN-JS1049 (GGG-40.3) / DIN EN 1563	A 395
021	flange	1	steel	1.0570 DIN EN 10025-2	A 714
022	side piece	1	PTFE	pure - PTFE	
030	seat ring	2	PTFE	pure - PTFE	
040	stem	1	stainless steel / PFA ° stainless steel / FEP ° Hastelloy C4 / PFA °° Hastelloy C4 / FEP °°	1.4470 / DIN EN 10283 2.4610 / DIN 17744	A 890 CD3MN
050	ball	1	ductile iron / PFA ° ductile iron / FEP °	GG-25 / DIN EN 1561	A 48-40B
060	gland follower	1	stainless steel / PTFE-graphite	1.4308 / DIN EN 10283	A 743 CF-8
070	hand lever	1	die cast metall	ZP0410 / DIN EN 12844	
080	stud bolt	1 set	stainless steel	1.4301-K70 / DIN EN 10088-3	A 193 B8
090	hexagon nut	1 set	stainless steel	1.4301-K70 / DIN EN 10088-3	A 194 8
100	packing material (chevron)	1 set	PTFE ° PTFE-graphite °		
110	socket head cap screw	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
121	stud bolt	1	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
200	grounding device	1	stainless steel	1.4310 / DIN EN 10270-3	AISI 301
210	bottle	1	glass	DIN 168	

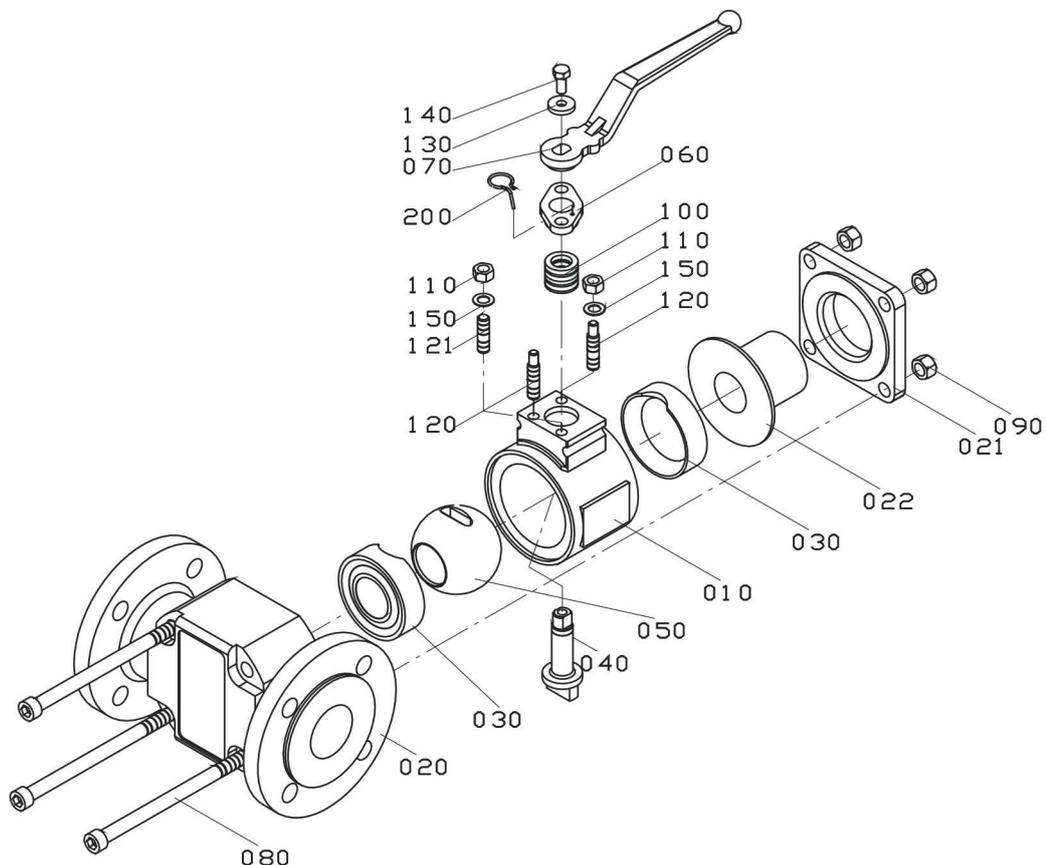
° optional

°° Hastelloy stem on request

ASSEMBLY INSTRUCTIONS APN / T

The general installation and maintenance instructions must be observed.

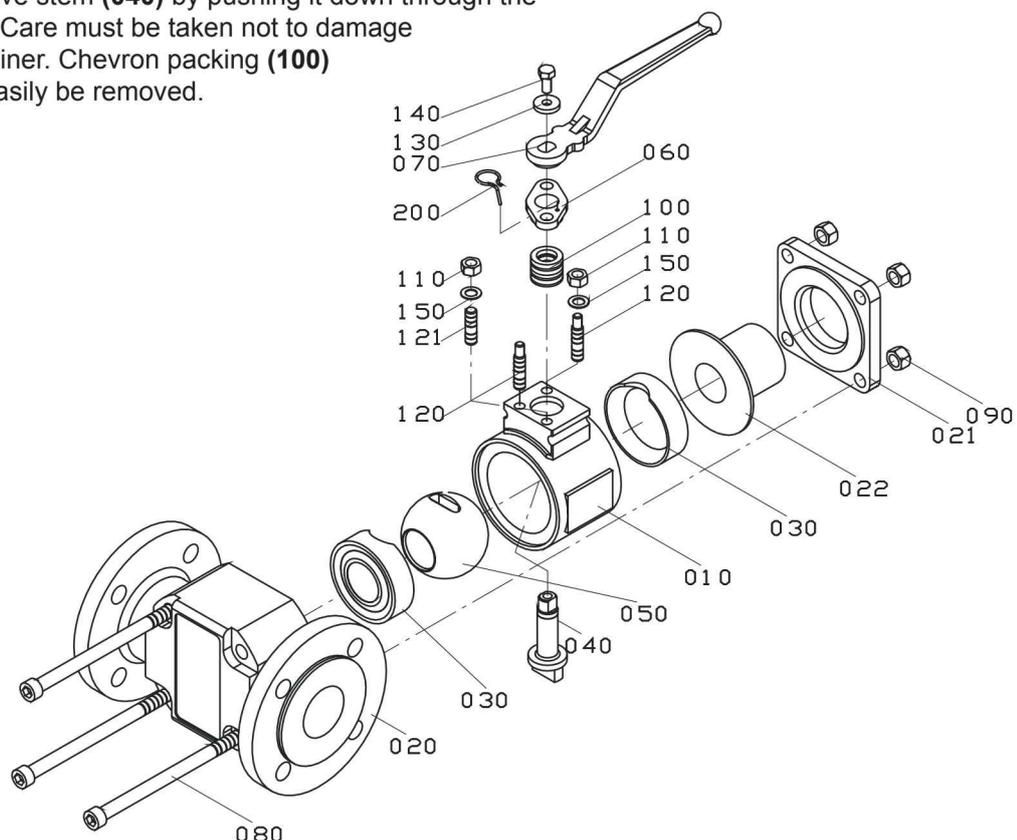
1. Screw stud bolts (**120 and 121**) into center piece (**010**). Make sure that the longer bolts (**120**) are screwed side by side and the shorter (**121**) is screwed diagonal.
2. Insert stem (**040**) from inside of the center piece (**010**) in such a way that the flat side is parallel to the longitudinal axis of the center piece (**010**).
3. Insert chevron packing (**100**).
4. Install gland follower (**060**), safety washer (**150**), hexagon nuts (**110**) and grounding device (**200**).
5. Assemble hand lever (**070**) onto stem (**040**) and tighten it by using lock washer (**130**) and hexagon bolt (**140**).
6. Insert ball (**050**) to valve stem (**040**) by pushing the ball (**050**) in a downward motion through valve center piece (**010**).
7. Turn hand lever (**070**) 90° off longitudinal axis of center piece (**010**) (open position).
8. Insert ball seat ring (**030**) into center piece (**010**).
9. Place body (**020**) on the right and side piece (**022**) and left side of the center piece (**010**). Take attention of the right position of the bleed hole of the side piece (**022**). Put the flange (**021**) over the side piece (**022**).
10. Install socket head cap screws (**080**) and hexagon nuts (**090**) and tighten by using recommended torques.



DISASSEMBLY INSTRUCTIONS APN / T

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 the rinsing and draining of the piping the valve is opened and closed repeatedly. These cycles (opening and closing) are to be repeated when emptying the piping. Only when following this procedure, it is ensured that all remaining pressure inside the body (stem guide and ball seats) is eliminated.
2. Put valve on a work bench with a soft cover (rubber mat).
3. Remove hexagon nuts (090) and socket head cap screws (080).
4. Remove parts in the following sequence:
 - body (020)
 - flange (021)
 - side piece (022)
 - seat rings (030)
5. To remove the ball (050), put hand lever (070) closed position (90° to longitudinal axis of the valve). The ball (050) can easily be pushed out of the center piece (010).
6. Disassemble hand lever (070) by removing hexagon bolt (140) and washer (130).
7. Lose hexagon nuts (110) and remove anti-static device (200) as well as gland follower (060). If necessary, stud bolts (120/121) can also be removed now.
8. Remove stem (040) by pushing it down through the body. Care must be taken not to damage body liner. Chevron packing (100) can easily be removed.



Recommended Tightening torques APN / T*

DN	tie rods (080/090)		gland bolts (110/120/150)	
	Nm	lbf · in	Nm	lbf · in
025	13	116	4	35
050	30	267	7	62
080	30	267	7	62

* maximum value