



# ***Atomac & Durco fully lined process valves and accessories***

Designed and produced by the latest technologies



***Experience In Motion***





## AKH2 Lined Ball Valve\*

A two piece full port standard lined ball valve which offers high safety factors, high stability, rigidity and eliminates a potential leak path. The full port design minimizes pressure losses and increases flow capacities thus reducing energy and pumping costs.

Atomac lined ball valves are engineered to include a free floating ball design which offers the following benefits:

- Low frictional coefficients resulting in low operating torques
- Positive shut - off across the pressure range
- Reduction of stem side loads eliminating potential leaks to atmosphere through the valve gland.

A real anti blow-out stem design offers increased safety. Each lined ball valve has its anti-static device, which provides

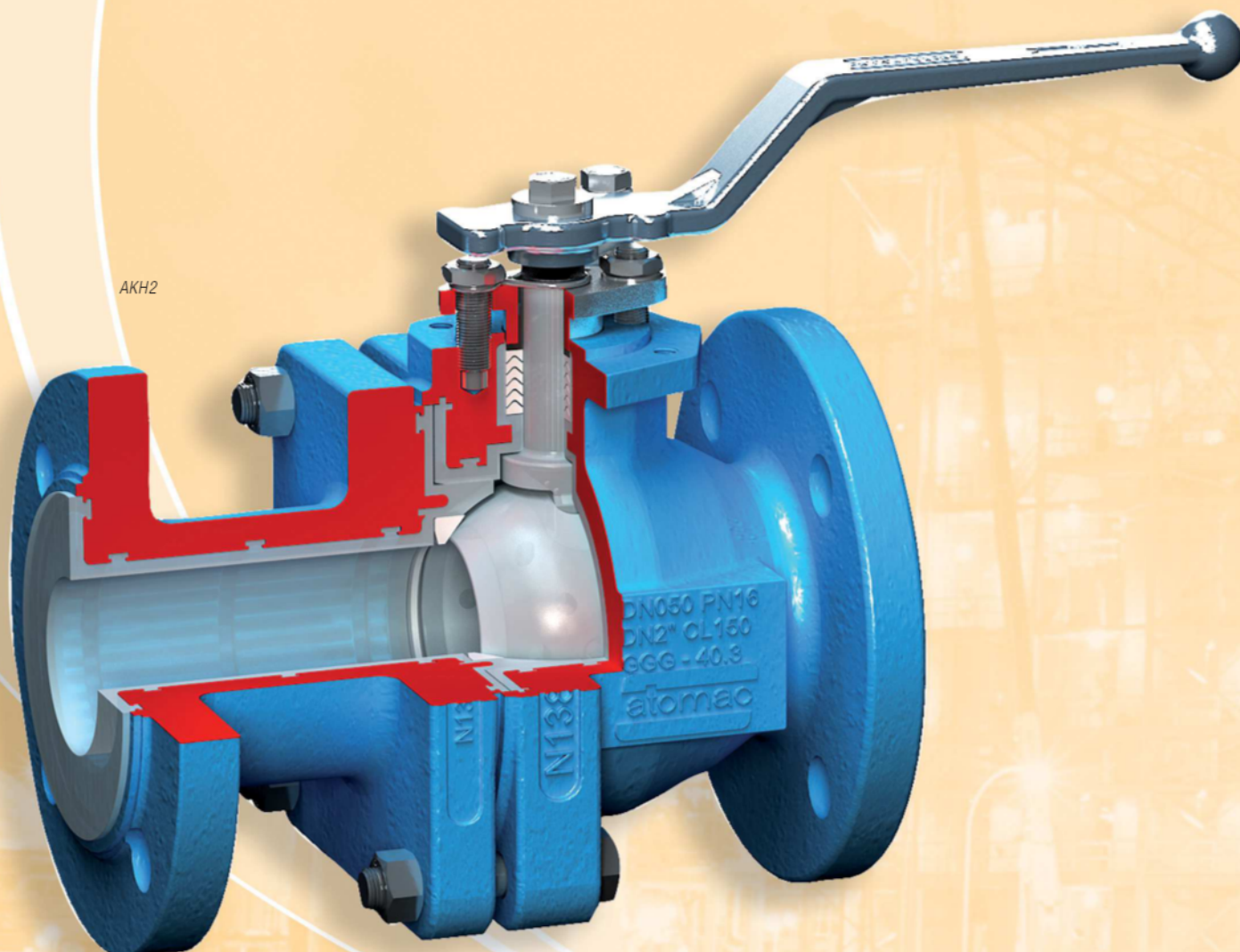
protection against potentially dangerous electrostatic discharges.

Long life seats, large stem sealing area as well as the substantial middle flanges and the molded liner take care for a leak and trouble free valve and minimizes downtime and maintenance.

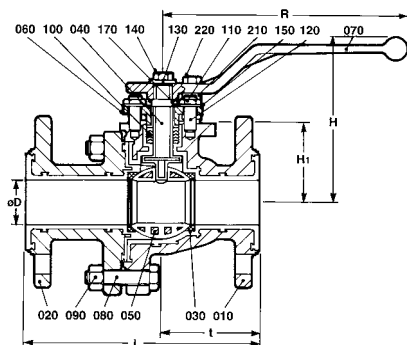
Due to the actuator mounting flanges design according to DIN EN ISO 5211, pneumatic, electric or hydraulic actuators can easily be fitted.

A wide range of liner material can be selected from FEP, PFA, Tefzel, PP, PVDF as well as conductive PFA.

*\* Also available with a V-port ball for precise modulating control service or with C-ball available.*



## AKH2 Full Port Valves



### Material Specification

Item	Qty.	Designation	ASTM	DIN
010	1	body	Ductile Iron A395, FEP/PFA*	GGG40.3 DIN EN 1563
020	1	side piece	Ductile Iron A395, FEP/PFA*	GGG40.3 DIN EN 1563
030	2	seat ring	PTFE	PTFE
040	1	stem	Stainless Steel A351 CD-4MCu, PFA	1.4462
050	1	ball†	Ductile Iron A395, FEP/PFA*	GGG40.3 DIN EN 1563
060	1	gland follower	Stainless Steel A351 CF 8, PTFE-Graphite	1.4308 DIN EN 10283
070	1	hand lever	Galvanized, die cast metal††	2.2141 DIN EN 1774
080	4-8	stud fastener	Stainless Steel A193 B7YC	1.4301 DIN17440
090	8-16	hexagon nut	Stainless Steel A194 7YC	1.4301 DIN17440
100	1	packing	PTFE/PTFE-Graphite*	PTFE
110	2	hexagon nut	A194 7YC	1.4301 DIN17440
120	2	stud fastener	A193 B7YC	1.4301 DIN17440
130	1	lock washer	AISI 304	1.4301 DIN17440
140	1	hexagon fastener	A193 B8	1.4301 DIN17440
150	2	safety washer	AISI A 304	1.4301 DIN17440
170	1	grounding device	Stainless Steel AISI 301	1.4310 DIN17224
210	1	lever stop	Stainless Steel AISI 430F	1.0037 DIN EN 10025
220	1	hexagon fastener	Stainless Steel A193 B8	1.4301 DIN17440

\*Optional †Ceramic ball (AL203) available through 6 in (150 mm). ††3 in (80 mm) and 4 in (100 mm) are DIN EN 1562, 6 in (150 mm) and larger are DIN EN 10025.

### Dimensions/Weights

Size in (mm)	L in (mm)		H in (mm)	R in (mm)	H1 in (mm)	t in (mm)	Weight lbs (kg)	
	ASME	DIN					ASME	DIN
½ (15)	5⅞ (130)°°	5⅞ (130)	4⅜ (120)	6⅞ (160)	1⅞ (48)	2⅞ (60)	9.5 (4.3)	9.5 (4.3)
¾ (20)	5⅞ (150)°°	5⅞ (150)	4⅜ (120)	6⅞ (160)	1⅞ (48)	2¾ (70)	10.1 (4.6)	10.1 (4.6)
1 (25)	6 (152.4)	6⅞ (160)	4⅜ (123)	6⅞ (160)	1⅞ (49)	2⅞ (65)	10.6 (4.8)	11.9 (5.4)
– (32)	—	7⅞ (180)	5⅜ (145)	8¼ (210)	2⅞ (68)	3⅞ (80)	—	21.4 (9.7)
1½ (40)	7 (178)	7⅞ (200)	5⅜ (145)	8¼ (210)	2⅞ (68)	3⅞ (80)	20.3 (9.2)	22.9 (10.4)
2 (50)	8 (203)	9⅞ (230)	6⅞ (160)	8¼ (210)	3¼ (83)	3⅞ (87)	28.4 (12.9)	30.9 (14.0)
– (65)	—	11⅞ (290)	7⅞ (200)	12⅞ (313)	4⅞ (119)	4¼ (108)	—	56.6 (25.7)
3 (80)	9½ (241)	12⅞ (310)	8⅜ (207)	12⅞ (313)	5 (127)	4⅞ (118)	65.0 (29.5)	70.5 (32.0)
4 (100)	11½ (292)	13⅞ (350)	8⅜ (220)	12⅞ (313)	5⅞ (141)	5½ (140)	97.0 (44.0)	104.0 (47.2)
6 (150)	14 (356)	18⅞ (480)	1⅞ (312)	13¼ (337)	8⅞ (204)	7⅞ (180)	207.6 (94.2)	220.4 (100.0)
8 (200/150)*†	18 (457)	18 (457)°	1⅞ (312)	13¼ (337)	8⅞ (204)	9 (229)	238.0 (108.0)	257.9 (117.0)
8 (200)**	18 (457)	18 (457)°	14⅞ (373)	17⅞ (450)	10⅞ (256)	9⅞ (230)	458.4 (208.0)	458.4 (208.0)
10 (250)†	21 (534)	21 (534)°	—	—	12 (301)	10½ (267)	727.3 (330.0)	694.3 (315.0)
12 (300)‡	24 (610)°°	24 (610)	—	—	13½ (343)	11 (294)	1013.8 (460.0)	938.9 (426.0)

\*Pass-through hand lever 26½ in (673) mm \*\*Pass-through hand lever 35½ in (902) mm †Reduced port valve ‡Ball valve only with manual actuator (weight without actuator) °Face to Face dimensions acc. to ANSI B 16.10 °°Face to Face dimensions acc. to DIN EN 558-1

# Actuator Mounting of the AKH2 Full Port Valves

## Torque Ratings

Size		0 psi $\Delta p$ in/lbs (0 bar $\Delta p$ Nm)	150 psi $\Delta p$ in/lbs (10 bar $\Delta p$ Nm)
in	(mm)		
1/2	(15)	70 (8)	9 (79)
3/4	(20)	70 (8)	9 (79)
1	(25)	70 (8)	9 (79)
1 1/2	(40)	159 (18)	177 (20)
2	(50)	203 (23)	221 (25)
3	(80)	442 (50)	531 (60)
4	(100)	619 (70)	708 (80)
6	(150)	1062 (120)	1770 (200)
8/6*	(200/150*)	1062 (120)	1770 (200)
8	(200)	2655 (300)	5310 (600)
10	(250)	3275 (370)	8319 (940)
12	(300)	3540 (400)	15930 (1800)

\*Reduced port valve. Test temperature is 68°F (20°C). Test medium is water. For actuator sizing torques, refer to the Flowserve Technical Manual.

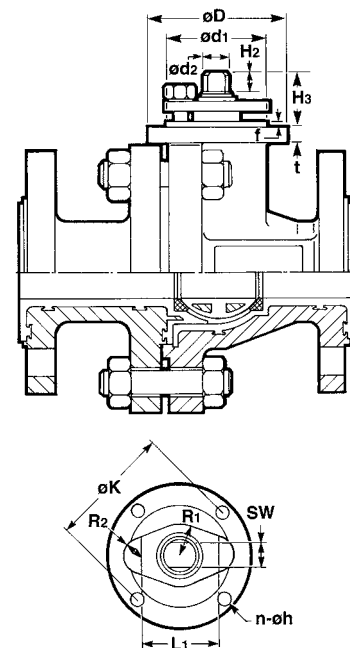
## Flow Rates

Size in (mm)	C <sub>v</sub> (K <sub>v</sub> ) Value
1/2 (15)	10 (8)
3/4 (20)	24 (21)
1 (25)	40 (34)
1 1/2 (40)	173 (149)
2 (50)	323 (267)
3 (80)	831 (715)
4 (100)	1700 (1462)
6 (150)	4860 (4180)
8/6* (200/150*)	3144 (2703)
8 (200)	8320 (7155)
10 (250)	11,900 (10,235)
12 (300)	18,342 (15,774)

C<sub>v</sub> = US gal/min at 1 psi  $\Delta p$

(K<sub>v</sub> = m<sup>3</sup>/hr at 1 bar  $\Delta p$ )

\*Reduced port valve



## Dimensions

Size in (mm)	f in (mm)	t in (mm)	H2 in (mm)	H3 in (mm)	$\phi d2$ in (mm)	$\phi d1$ in (mm)	$\phi D$ in (mm)	L1 in (mm)	R1 in (mm)	R2 in (mm)	$\phi k$ in (mm)	SW in (mm)	n- $\phi h$ in (mm)	Deep in (mm)	ISO
1/2 (15)	1/8 (3)	7/32 (6)	9/32 (7.5)	1 1/16 (27)	1 3/32 (10)	1 3/8 (35)	2 1/2 (65)	1 15/32 (37)	9/16 (14)	1 1/32 (9)	1 31/32 (50)	5/16 (8)	4-M6	5/16 (8)	F05
3/4 (20)	1/8 (3)	7/32 (6)	9/32 (7.5)	1 1/16 (27)	1 3/32 (10)	1 3/8 (35)	2 1/2 (65)	1 15/32 (37)	9/16 (14)	1 1/32 (9)	1 31/32 (50)	5/16 (8)	4-M6	5/16 (8)	F05
1 (25)	1/8 (3)	9/32 (7)	9/8 (9.3)	1 3/16 (30)	1 3/32 (10)	1 3/8 (35)	2 1/2 (65)	1 15/32 (37)	9/16 (14)	1 1/32 (9)	1 31/32 (50)	5/16 (8)	4-M6	5/16 (8)	F05
- (32)	1/8 (3)	13/32 (10)	1 7/32 (12.5)	1 11/32 (34.5)	5/8 (16)	2 5/32 (55)	3 17/32 (90)	1 27/32 (47)	2 5/32 (20)	1 3/32 (10)	2 3/4 (70)	5/16 (8)	4-M8	1 5/32 (12)	F07
1 1/2 (40)	1/8 (3)	13/32 (10)	1 7/32 (12.5)	1 3/8 (35)	5/8 (16)	2 5/32 (55)	3 17/32 (90)	1 27/32 (47)	2 5/32 (20)	1 3/32 (10)	2 3/4 (70)	1 5/32 (12)	4-M8	1 5/32 (12)	F07
2 (50)	1/8 (3)	13/32 (10)	1 7/32 (12.5)	1 15/32 (37)	5/8 (16)	2 5/32 (55)	3 17/32 (90)	1 27/32 (47)	2 5/32 (20)	1 3/32 (10)	2 3/4 (70)	1 5/32 (12)	4-M8	1 5/32 (12)	F07
- (65)	1/8 (3)	1 5/32 (13)	1 19/32 (15.5)	1 13/16 (46)	2 7/32 (22)	2 3/4 (70)	5 (125)	2 9/32 (58)	2 9/32 (23)	9/16 (14)	4 (102)	5/8 (16)	4-M10	1 9/32 (15)	F10
3 (80)	1/8 (3)	1 5/32 (13)	1 19/32 (15.5)	1 13/16 (46)	2 7/32 (22)	2 3/4 (70)	5 (125)	2 9/32 (58)	2 9/32 (23)	9/16 (14)	4 (102)	5/8 (16)	4-M10	1 9/32 (15)	F10
4 (100)	1/8 (3)	1 5/32 (13)	1 19/32 (15.5)	1 13/16 (46)	2 7/32 (22)	2 3/4 (70)	5 (125)	2 9/32 (58)	2 9/32 (23)	9/16 (14)	4 (102)	5/8 (16)	4-M10	1 9/32 (15)	F10
6 (150)	5/32 (4)	9/16 (14)	2 25/32 (19.5)	2 1/4 (57)	1 3/16 (30)	3 11/32 (85)	5 15/32 (139)	2 3/4 (70)	1 3/32 (28)	9/16 (14)	5 (125)	3/4 (20)	4-M12	1 1/16 (18)	F12
8/6* (200/150*)	5/32 (4)	9/16 (14)	2 25/32 (19.5)	2 1/4 (57)	1 3/16 (30)	3 11/32 (85)	5 15/32 (139)	2 3/4 (70)	1 3/32 (28)	9/16 (14)	5 (125)	3/4 (20)	4-M12	1 1/16 (18)	F12
8 (200)	5/32 (4)	9/16 (14)	2 25/32 (19.5)	2 11/32 (59)	1 1/2 (40)	3 11/32 (85)	5 15/32 (139)	3 11/32 (85)	1 3/8 (35)	9/16 (14)	5 (125)	1 1/16 (27)	4-M12	1 1/16 (18)	F12
10 (250)	5/32 (4)	2 1/32 (17)	3 1/8 (35)	3 1/2 (89)	1 31/32 (50)	3 15/16 (100)	6 29/32 (175)	3 23/32 (95)	1 23/32 (48)	5/8 (16)	5 1/2 (140)	1 13/32 (36)	4-M16	1 1/16 (18)	F14
12 (300)	5/32 (4)	2 5/32 (20)	3 1 29/32 (45)	3 29/32 (97)	2 11/32 (60)	5 1/8 (130)	8 1/32 (204)	4 9/16 (110)	2 9/16 (55)	5/8 (16)	6 1/2 (165)	1 13/16 (46)	4-M22	2 7/32 (22)	F16

\*Reduced port.