



Atomac Lined Ball Valve

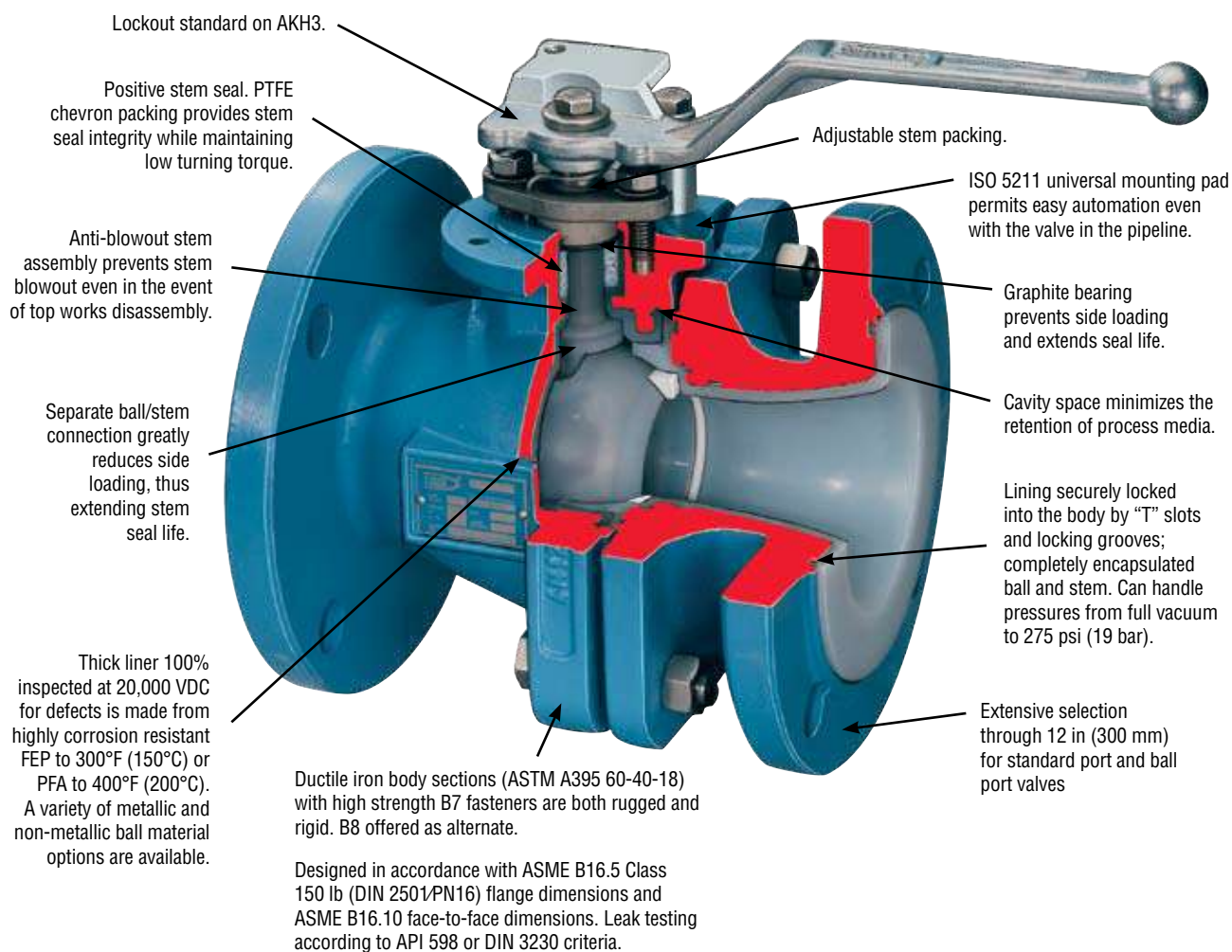
For Top Performance, Reliability and Safety



Experience In Motion



AKH3 Standard Port and AKH2A Full Port Valves





AKH3 Standard Port and AKH2A Full Port Valves

Flowserve is the world's leader in the design and manufacture of corrosion resistant fluoropolymer lined valves. Atomac valves provide bubble-tight shutoff, low maintenance, no-leak stem seals and the safety assurance of a blowout-proof stem assembly. For performance, safety and reliability, Atomac is the valve of choice.

AKH2 Full Port

Minimizes pressure loss and increases flow capacity to reduce energy and pumping costs. ½ in (15 mm) through 12 in (300 mm). DIN dimensional only – not available to ASME dimensions. See page 12 for technical data.

AKH2A ANSI Full Port

Same benefits as AKH2 in an ASME dimensional valve. 1 in (25 mm) through 6 in (150 mm). See page 17 for technical data.

AKH3 Standard Port

ASME dimensional valve permits replacement of present valves with no need to alter existing piping. 1 in (25 mm) through 12 in (300 mm). See page 15 for technical data.

Available Options

Control Valves

Characterized ball available for throttling applications. See page 6 for technical data.

Extended Packing

Fully lined stuffing box with purge connection and live-loading for additional fugitive emission protection available on AKH2, AKH2A and AKH3 (TA Luft Certified).

Chlorine Service

Specially prepared and trimmed per Durco standard chlorine cleaning procedure.

Stem Extensions

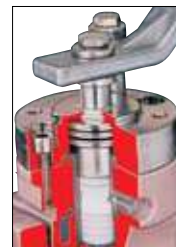
Allow for insulation of valve.

Atomac/Automax® Rotary Control Valve Packages

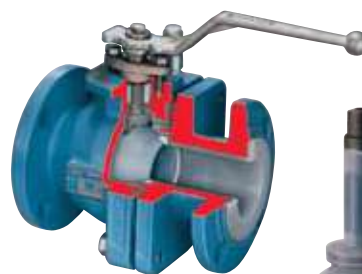
Precision control, corrosion resistance, positive stem sealing, and bubble tight shut-off in a low torque rotary control valve at a fraction of the cost of traditional rising stem valves. See page 7 for technical data.



Rotary Control Valve Packages



Extended Packing



AKH3 Standard Port

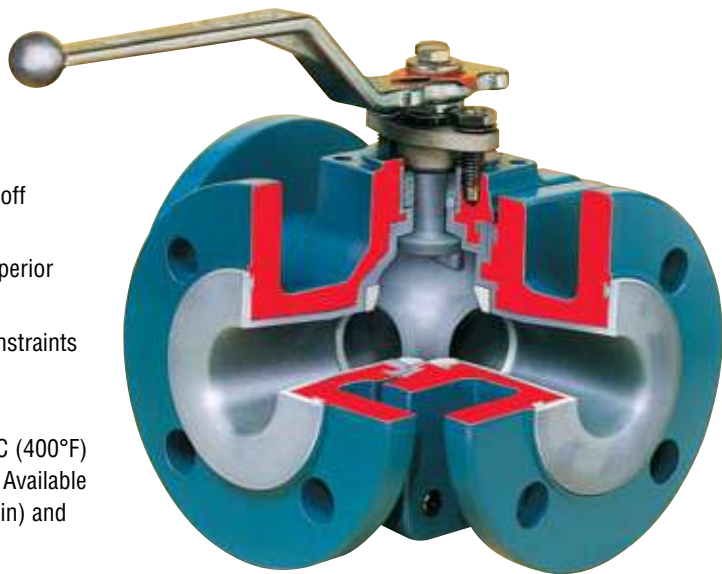


Characterized Ball

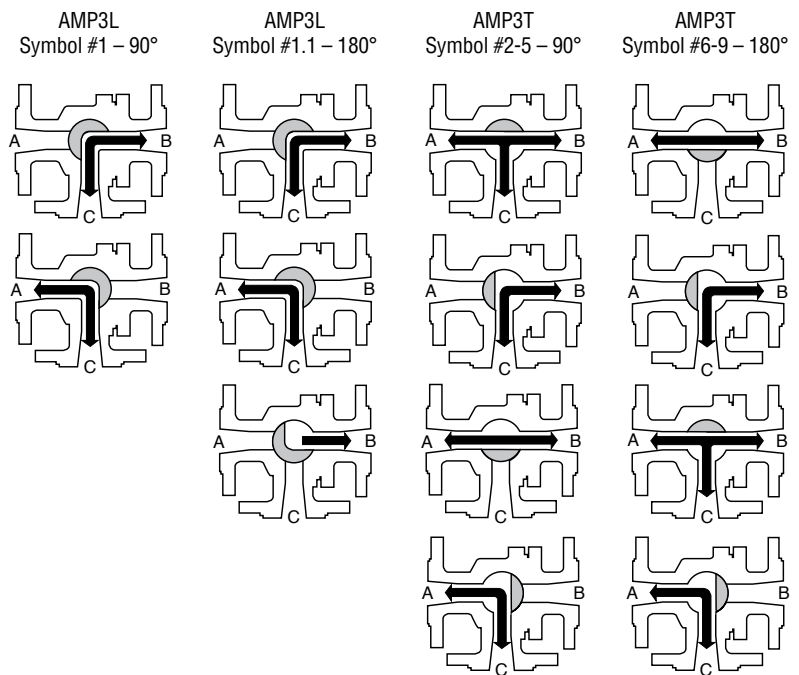
AMP3 Three-Way Lined Valves

The AMP3, 3-way ball valve is the best choice for corrosive diverter valve applications.

- High flow capacity with minimal pressure loss through the valve, thereby reducing plant operating costs.
- Floating ball seat design for bubble-tight shutoff across the pressure range.
- Lower cost than alloy valves with equal or superior corrosion resistance in difficult services.
- Compact design permits use where space constraints are a concern.
- PFA standard material for valve lining and encapsulated ball. Rated for services to 200°C (400°F) and ambient pressures to 19.6 bar (285 psi). Available in 25 mm (1 in), 40 mm (1 1/2 in), 50 mm (2 in) and 80 mm (3 in) sizes.



AMP3L	
Symbol #1 – 90°	Symbol #1.1 – 180°
B/C	B/C
A/C	A/C
	B
AMP3T	
Symbol #2 – 90°	Symbol #6 – 180°
A/B/C	A/B
B/C	B/C
	A/B/C
Symbol #3 – 90°	Symbol #7 – 180°
A/B	A/C
B/C	A/B/C
	B/C
Symbol #4 – 90°	Symbol #8 – 180°
A/B/C	A/B/C
A/C	A/C
	A/B
Symbol #5 – 90°	Symbol #9 – 180°
A/B	A/C
A/C	A/B
	B/C



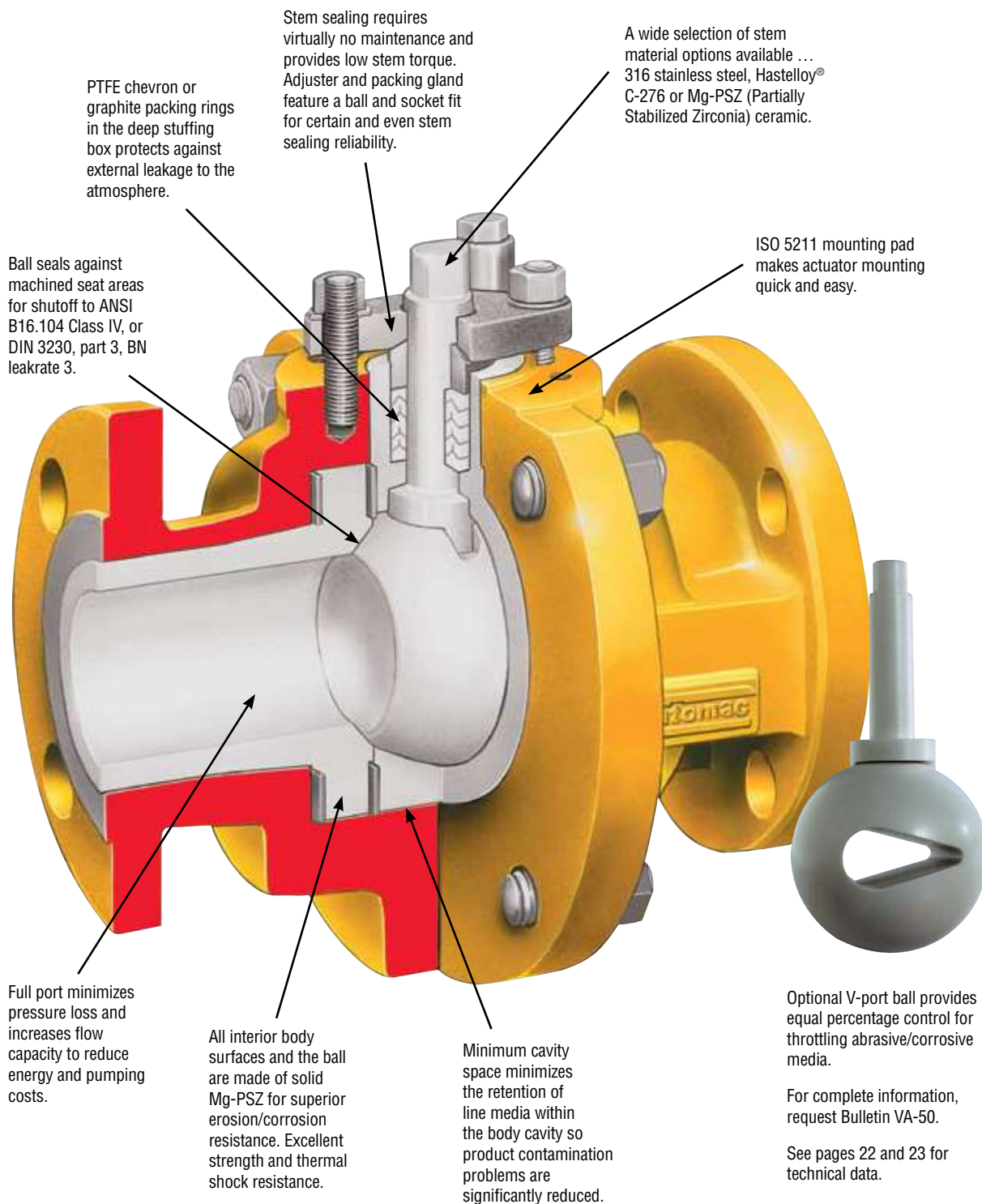
Optional flow arrangements may be available upon request.

Consult factory for pressure-temperature curve.

See page 18 for technical data.

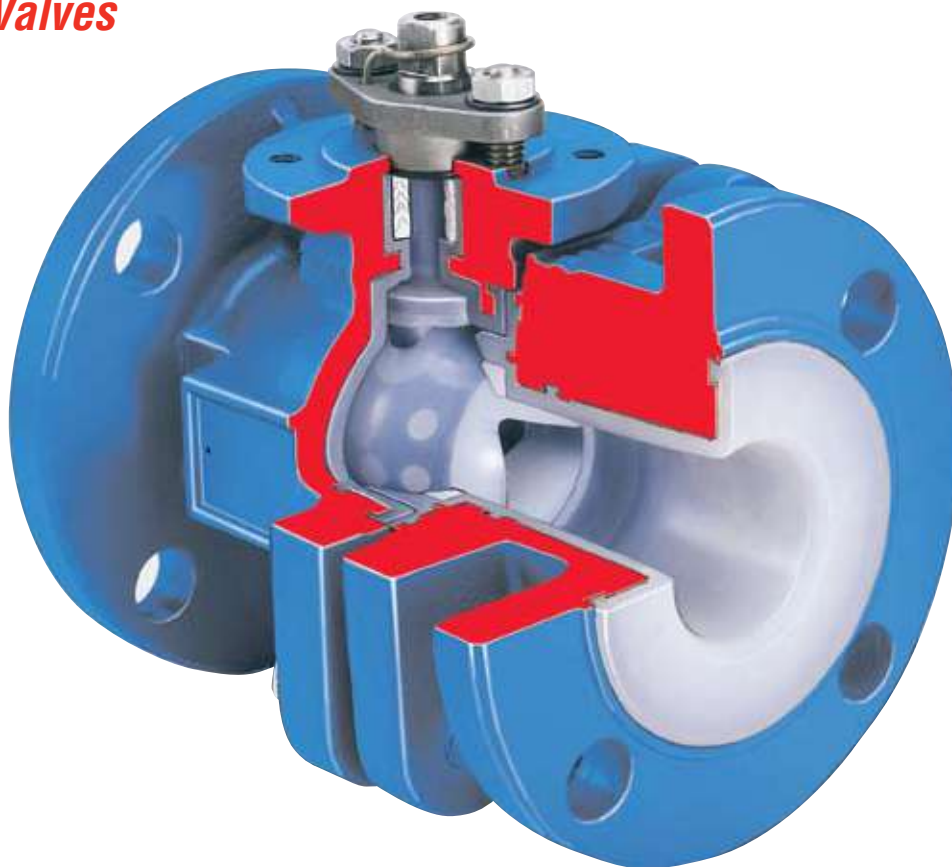
AKH5 Ceramic Lined Valves

Recommended when nothing else will work in abrasive slurries, high temperature corrosives and services with large temperature fluctuations. Available in 25 mm (1 in), 40 mm (1½ in), 50 mm (2 in), 80 mm (3 in) and 100 mm (4 in) sizes.



V-Port Control Valves

In addition to the features and benefits that have made it the process industry's most preferred lined ball valve worldwide, Atomac offers the V-port ball valve for precise modulating control services. Atomac V-port valves are available in 1 in (25 mm), 1½ in (40 mm), 2 in (50 mm), 3 in (80 mm) and 4 in (100 mm) sizes and in models AKH3, AKH2A, AKH2.



Maximum C_v (K_v) Values for V-Port AKH3 Valves

in (mm)	C_v	K_v
1 (25)	6/14	5/12
1½ (40)	15	13
2 (50)	40	36
3 (80)	65	56
4 (100)	141	122
6 (150)	189	163

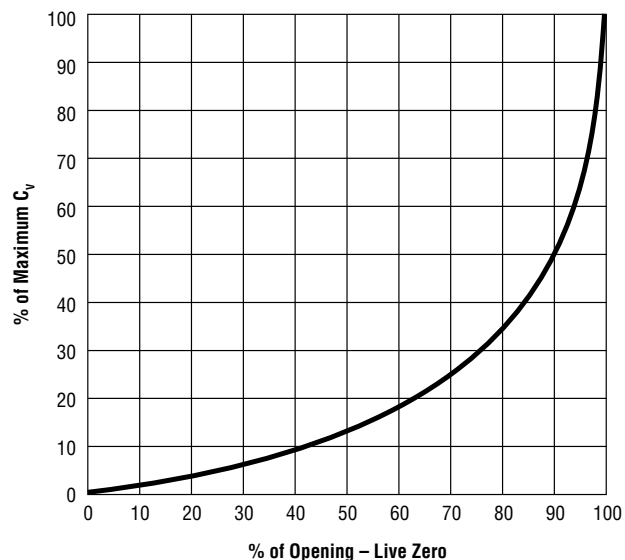
C_v = US gal/min at 1 psi Δp (K_v = m³/hr at 1 bar Δp)

Refer to Sections II and IV of the Durco Technical Manual for valve and actuator sizing.

Consult factory for AKH2A data.

ISO 5211 mounting pad facilitates actuation.

A Typical Characteristic Curve for V-Port AKH3 Valves



Actuation Options for Atomac Lined Valves

An Atomac ball valve features:

- Low, constant and predictable torque
- Thrust bearing supported stem to eliminate side-loading of packing and subsequent leakage during cycling
- Floating ball seat design for bubble-tight shutoff
- Long-life seats to minimize downtime and maintenance
- ISO 5211 mounting flanges

Manual Operation

All Atomac ball valves are fitted with a hand wrench as standard for manual operation. A gearbox option is also available for valve sizes 6 in (150 mm) and above.

Actuation

The modular construction of Atomac ball valves allows for easy use of all types of actuation devices. Actuators can be mounted to the valves on-site, without removing them from the pipeline.

Automax®

Flowserve's Automax is a specialist in valve automation systems offering rack and pinion, heavy-duty and electric actuators along with positioners, limit switches, engineered special control circuits and related accessories.



Torque Ratings – AKH2 & 2A – Full Port*

Size in (mm)	Torque at 0 psi Δ p in/lbs (0 bar Δ p Nm)	Torque at 150 psi Δ p in/lbs (10 bar Δ p Nm)
½ (15)	53 (6)	53 (6)
¾ (20)	53 (6)	53 (6)
1 (25)	53 (6)	53 (6)
1½ (40)	132 (15)	177 (20)
2 (50)	132 (15)	177 (20)
3 (80)	484 (55)	619 (70)
4 (100)	619 (70)	796 (90)
6 (150)	1062 (180)	1770 (200)
8 (200)	2655 (300)	5310 (600)
10 (250)	2566 (290)	10,620 (1200)
12 (300)	3540 (400)	15,930 (1800)

* AKH2A available in size 1"–6" only. Test temperature 68°F (20°C).
Test media: water.

Torque Ratings – AKH3 – Standard Port

Size in (mm)	Torque at 0 psi Δ p in/lbs (0 bar Δ p Nm)	Torque at 150 psi Δ p in/lbs (10 bar Δ p Nm)
1 (25)	53 (6)	53 (6)
1½ (40)	53 (6)	53 (6)
2 (50)	132 (15)	177 (20)
3 (80)	132 (15)	177 (20)
4 (100)	484 (55)	619 (70)
6 (150)	619 (70)	796 (90)
8 (200)	1062 (180)	1770 (200)
10 (250)	2655 (300)	5310 (600)
12 (300)	2655 (300)	5310 (600)

* AKH2A available in size 1"–6" only. Test temperature 68°F (20°C). Test media: water.

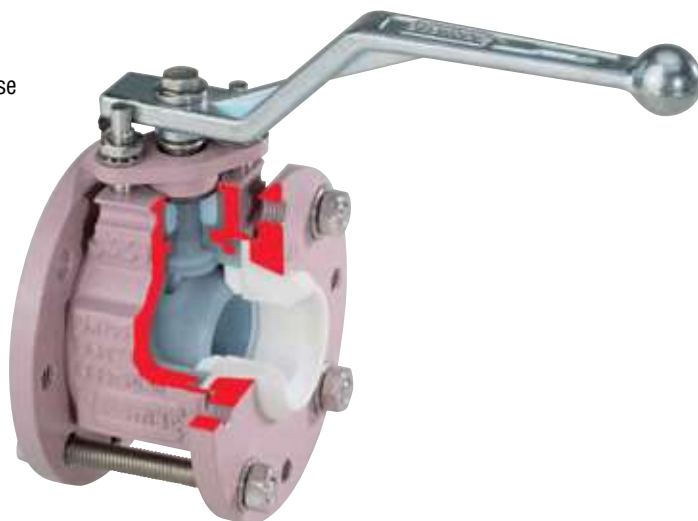
AKH7 for Glass Pipe Systems

AKH7-KP valves are easy to install in glass pipe systems with socket/ball or plane ends according to DIN/ISO 3587 and 4704.

- Molded fluorocarbon resin liners are made of either FEP or PFA, depending upon application, for both long service and high corrosion resistance due to their uniform and blowhole-free thickness. The liners' non-stick properties are also ideal for handling highly viscous fluids or for those process applications with high purity requirements.
- Anti-static device protects against potentially dangerous electrostatic discharges.
- Stem is internally assembled to eliminate possibility of blowout.
- Long-term protection against atmospheric leakage is provided by PTFE chevron packing rings in the deep stuffing box and by the molded liner/seal.

- For flange/glass end connections the AKH7-KPF is available.
- AKH7 valves are also available with conductive material for the linings, seals and gland packings.

See page 20 for technical data.



AKH6 Fully Lined Tank Drain Valves

The AKH6 tank drain valve offers broad service flexibility and superior performance.

- Meets the design criteria of ASME B16.5 Class 150 (DIN 2501-PN 16) and is leak tested to API 598 (DIN 3230).

- Designed with a larger inlet port, the valve's full port design minimizes pressure loss and increases flow capacity to reduce energy and pumping costs.
- Primarily used for tank drainage, AKH6 valves are also commonly installed in place of reducing spools to downsize piping dimensions.
- FEP and PFA liners offer both long service life and superior corrosion resistance. The liners' inert non-stick properties make it ideal for highly viscous or high purity services.

Available in sizes:

- 1 in (25 mm) x 2 in (50 mm)
- 1 1/2 in (40 mm) x 3 in (80 mm)
- 2 in (50 mm) x 3 in (80 mm)
- 2 in (50 mm) x 4 in (100 mm)
- 3 in (80 mm) x 4 in (100 mm)
- 4 in (100 mm) x 6 in (150 mm)
- 6 in (150 mm) x 8 in (200 mm)

See page 19 for technical data.

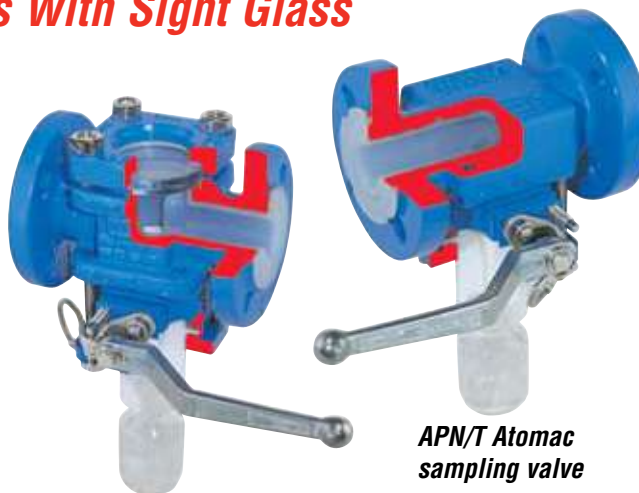


APN/T Lined Sampling Valves APN/SG Lined Sampling Valves With Sight Glass

Atomac APN valves provide safe sampling of toxic and highly corrosive media without interruption of process flow.

- Available in DIN 2501-PN16 and ANSI B16.5 Class 150 designs
- Maximum pressure to 87 psi (6 bar)
- Sampling volumes between 25 and 100 ml
- Optional connections for sample bottles
- Designed with a minimum of dead space
- Adaptable for use in vertical piping systems
- Easily automated
- FEP, PFA or conductive linings available

See pages 24 and 25 for technical data.



**APN/SG Atomac
sampling valve with
sight glass**

**APN/T Atomac
sampling valve**

ASG Lined Sight Glass

The Atomac Sight Glass Offers Clear Visual Inspection From Either Side

The integrated drip lip with its cast core provides visual flow indication even at low velocity.*

Highly Corrosion Resistant Liners

All internal components other than the glass have the same molded fluoro-carbon liners. These are made of either FEP or PFA, depending upon application, and offer both long service life and high corrosion resistance due to the thick, uniform, blowhole-free liner.

The liners' non-stick and inert properties are ideal for highly viscous and high purity applications.

Safety Glass

Borosilicate glass is utilized to withstand high temperatures, mechanical stress and corrosion.

See pages 26 and 27 for technical data.

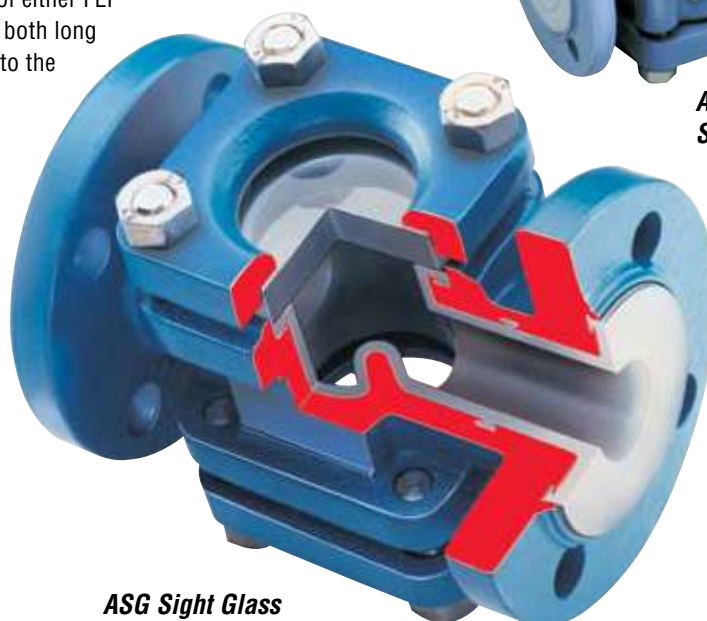
*Optional: Rotor



ASG4 4-Way Sight Glass



**ASG Three-Way
Sight Glass**



ASG Sight Glass

ARV2* and ARL Lined Check Valves, ARV/SG Lined Check/Sight Glass Combination

Universal Application

The Atomac check valve can be installed either vertically or horizontally**, dependent upon application.

Solid PTFE Ball†

The ball has the same properties as the FEP or PFA lining material.

Full Port Design

The full port design offers excellent flow characteristics to minimize pressure loss.

Low Opening Pressure

The minimum opening pressure required to unseat the ball in the vertical position is 0.07 bar (1 psi).

Safety Glass

Borosilicate glass, in accordance with DIN 7080, is utilized to withstand high temperatures, mechanical stress and corrosion. For those applications requiring a higher flow capacity, Atomac check valve type ARV/SG should be considered.

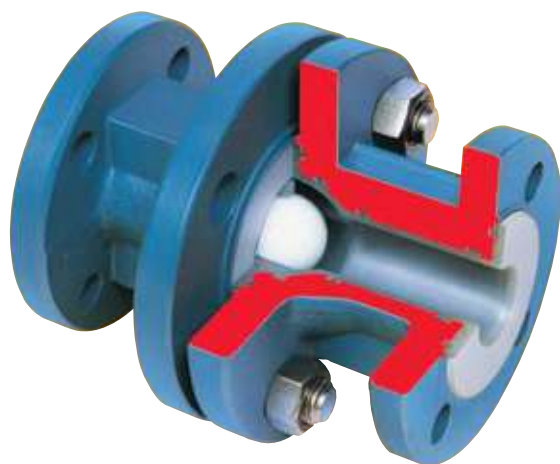
See pages 28 and 29 for technical data.

** Now available upon request in 10 in (250 mm) and 12 in (300 mm) sizes.*

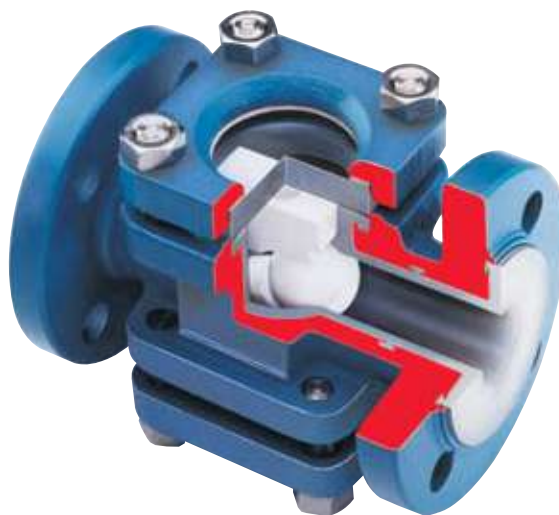
*** Contact your nearest Flowserve office for installation instructions.*

† Optional: Hollow PTFE Ball

See pages 28 and 29 for technical data.



ARV2 Check Valve



***ARV/SG Check
Valve/Sight Glass
Combination***



ARL 45° Angle Check

ASF Lined Strainer

Flow Characteristics

The flow path through the filter insert is a larger area than the original pipe cross-section. This minimizes possible pressure loss.

Corrosion Resistant Filter Insert

The insert consists of two perforated PTFE cylinders with an ETFE filter screen in between. This design offers the same outstanding corrosion resistant properties as the FEP or PFA lining material. Standard mesh is 60 (300 micron).

Optional mesh: 169 (100 micron); 35 (500 micron); 19 (1,000 micron). Other mesh openings on request.

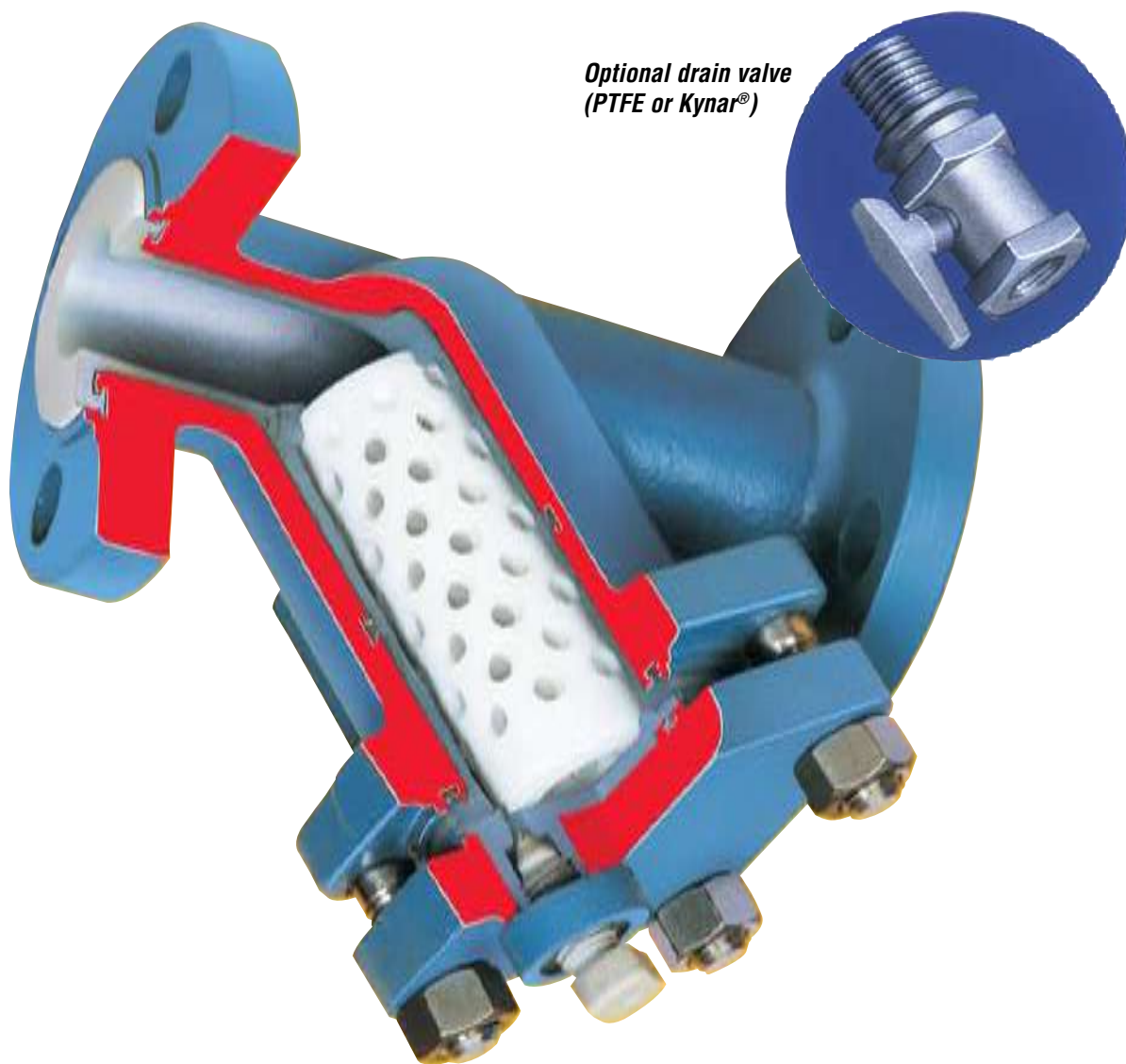
Easy Servicing and Maintenance

The filter insert can be changed or easily cleaned without removing the strainer from the line.

For added operator safety and convenience, an optional ball valve may be specified in place of the PTFE plug. The residual fluid in the insert area can be removed by means of the PTFE drain plug. This can be done prior to removing the access flange when changing or cleaning the filter.

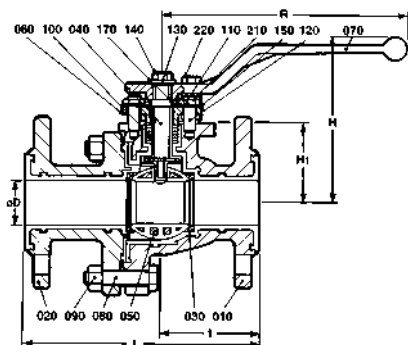
See page 14 for technical data.

® Kynar is a registered trademark of ELF Atochem North America, Inc.



Optional drain valve
(PTFE or Kynar®)

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)	4⅝ (120)	6⅞ (160)	1⅞ (48)	2⅞ (60)	9.5 (4.3)	9.5 (4.3)
¾ (20)	5⅞ (150)°°	5⅞ (150)	4⅝ (120)	6⅞ (160)	1⅞ (48)	2¾ (70)	10.1 (4.6)	10.1 (4.6)
1 (25)	6 (152.4)	6⅞ (160)	4⅝ (123)	6⅞ (160)	1⅞ (49)	2⅞ (65)	10.6 (4.8)	11.9 (5.4)
– (32)	—	7⅞ (180)	5⅝ (145)	8¼ (210)	2⅞ (68)	3⅞ (80)	—	21.4 (9.7)
1½ (40)	7 (178)	7⅞ (200)	5⅝ (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)	8⅝ (207)	12⅞ (313)	5 (127)	4⅞ (118)	65.0 (29.5)	70.5 (32.0)
4 (100)	11½ (292)	13⅝ (350)	8⅝ (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 Δp in/lbs (0 bar Δp Nm)	150 psi Δp in/lbs (10 bar Δp 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.

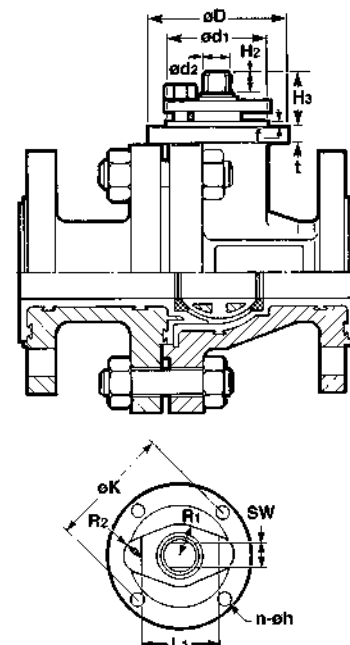
Flow Rates

Size in (mm)	C _v (K _v) 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_v = US gal/min at 1 psi Δp

(K_v = m³/hr at 1 bar Δp)

*Reduced port valve

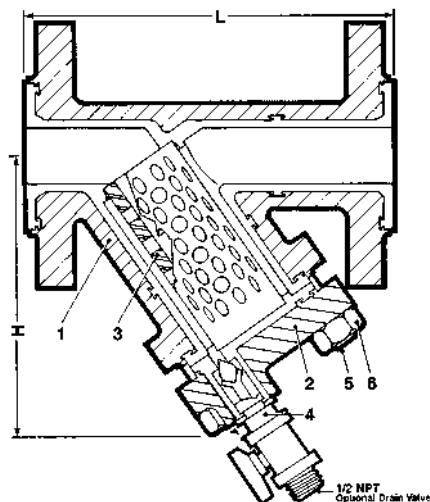


Dimensions

Size in (mm)	f in (mm)	t in (mm)	H2 in (mm)	H3 in (mm)	$\phi d2$ in (mm)	$\phi d1$ in (mm)	ϕD in (mm)	L1 in (mm)	R1 in (mm)	R2 in (mm)	ϕk in (mm)	SW in (mm)	n- ϕh 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 9/32 (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 9/32 (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 9/32 (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 5/32 (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 5/32 (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 5/32 (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)	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.

ASF Strainer



Dimensions/Weights

Size in (mm)	L in (mm)		H in (mm)	Weight lbs (kgs)	
	ASME	DIN		ASME	DIN
1 (25)	6½ (165)	6¾ (160)	5 (125)	10.8 (4.9)	10.6 (4.8)
1½ (40)	—	7¾ (200)	5¾ (150)	—	20.1 (9.1)
2 (50)	9 (228.6)	9¼ (230)	6½ (165)	27.3 (12.4)	26.9 (12.2)
3 (80)	12½ (317.5)	12¾ (310)	11 (280)	61.7 (28.0)	59.5 (27.0)
4 (100)	14½ (368)	13¾ (350)	12 (305)	82.7 (37.5)	75.4 (34.2)
6 (150*)	18½ (470)	18½ (470)	16¾ (409)	198.4 (90.0)	198.4 (90)
8** (200)	23¾ (600)	23¾ (600)	23¼ (595)	462.8 (210.0)	462.8 (210.0)

*Face to Face Dimensions acc. to ANSI B16.10.

**Face to Face Dimensions acc. to DIN EN558-1.

Material Specification

Item	Qty.	Designation	ASTM	DIN
1	1	body	Ductile Iron/FEP A395	GGG-40.3
			Ductile Iron/PFA A395	GGG-40.3
2	1	flange	Ductile Iron ASTM A395	GGG-40.3
3	1	filter	PTFE/ETFE	PTFE/ETFE
4	1	plug	PTFE	PTFE
5	4-8	stud fastener	ASTM A193 B7YC	1.4301 DIN17440
6	4-8	hexagon nut	ASTM A194 7YC	1.4301 DIN17440

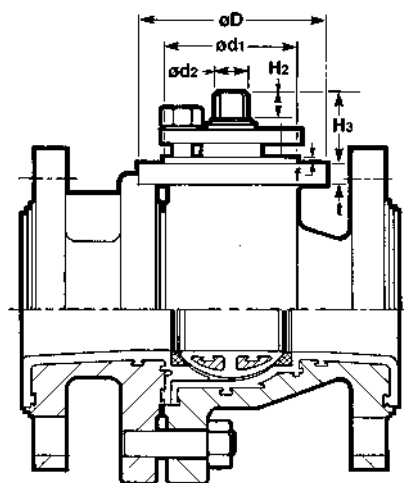
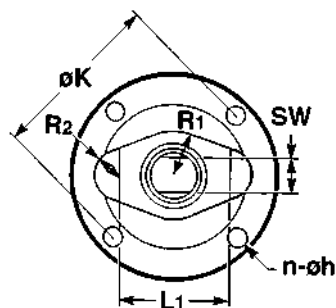
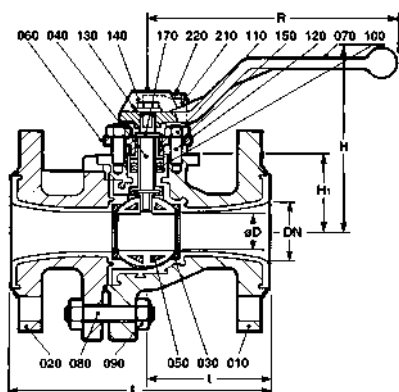
Flow Rates

Size in (mm)	Filter in µm C _v (K _v) 100	Filter in µm C _v (K _v) 300	Filter in µm C _v (K _v) 500	Filter in µm C _v (K _v) 1000
1 (25)	8.1 (7.0)	8.3 (7.1)	8.4 (7.2)	9.2 (7.9)
1½ (40)	21.9 (18.8)	24.8 (21.3)	27.4 (23.6)	28.0 (24.1)
2 (50)	34.4 (29.6)	36.1 (31.1)	37.5 (32.3)	41.4 (35.4)
3 (80)	91.1 (78.4)	97.4 (83.8)	105.1 (90.4)	109.4 (94.1)
4 (100)	152.7 (131.4)	163.0 (140.2)	172.8 (148.7)	178.2 (153.3)
6 (150)	333.7 (287.1)	356.0 (306.3)	389.6 (335.2)	405.5 (348.9)
8 (200)	544.0 (468.0)	556.7 (479.0)	576* (495*)	596.3 (513.0)

*Estimated Value

C_v = US gal/min at 1 psi Δp (K_v = m³/hr at 1 bar Δp). Flow rates for other mesh sizes available upon request.

AKH3 Standard Port Valves



Dimensions/Weights

Size in (mm)	L in (mm)	H in (mm)	R in (mm)	H1 in (mm)	ØD in (mm)	Weight lbs (kg)
1 (25)	5 (127)	4 ²³ / ₃₂ (120)	6 ⁵ / ₈ (160)	1 ⁷ / ₈ (48)	¾ (19)	9.7 (4.4)
1½ (40)	6½ (165)	4 ²³ / ₃₂ (120)	6 ⁵ / ₈ (160)	1 ¹⁵ / ₁₆ (49)	1 (25)	13.7 (6.2)
2 (50)	7 (178)	5 ²³ / ₃₂ (145)	8¼ (210)	2 ¹¹ / ₁₆ (68)	1 ⁹ / ₁₆ (40)	21.5 (10.6)
3 (80)	8 (203)	6 ⁵ / ₈ (160)	8¼ (210)	3¼ (83)	1 ³¹ / ₃₂ (50)	35.5 (16.1)
4 (100)	9 (229)	8 ¹ / ₁₆ (205)	12 ⁵ / ₁₆ (313)	5 (127)	3 ³ / ₂ (80)	66.4 (30.2)
6 (150)	10½ (267)	8 ²³ / ₃₂ (220)	12 ⁵ / ₁₆ (313)	5 ⁹ / ₁₆ (141)	4 (100)	110.4 (50.1)
8 (200)	11½ (292)	12¼ (312)	13¼ (337)*	8 (203)	5 ⁷ / ₈ (149)	235.8 (107.0)
10 (250)	13 (330)	14 ¹ / ₁₆ (373)	17 ¹ / ₁₆ (450)*	10 ¹ / ₁₆ (256)	7 ⁷ / ₈ (200)	436.41 (98.0)
12 (300)	14 (356)	14 ¹ / ₁₆ (373)	17 ¹ / ₁₆ (450)*	10 ¹ / ₁₆ (256)	7 ⁷ / ₈ (200)	506.9 (230.0)

*Pass-through hand lever 26½ in (673 mm) is standard. °Pass-through hand lever 36 in (900 mm) is standard.

Material Specification

Item	Qty.	Designation	ASTM	DIN
010	1	body	Ductile Iron A395, FEP/PFA/PP*	GGG40.3 DIN EN 1563
020	1	side piece	Ductile Iron A395, FEP/PFA/PP*	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 304	1.4301 DIN17440
170	1	grounding device	Stainless Steel AISI 301	1.4310 DIN17224
210	1	lever stop	Stainless (galvanized) A 283 B	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).

††4 in (100 mm) and 6 in (150 mm) are DIN EN 1562, 8 in (200 mm) and larger are DIN EN 10025.

AKH3 Standard Port Valves

Torque Ratings

Size in (mm)	0 psi Δp (0 bar Δp) in/lbs (Nm)	150 psi Δp (10 bar Δp) in/lbs (Nm)
1 (25)	70 (8)	70 (8)
1½ (40)	70 (8)	70 (8)
2 (50)	160 (18)	177 (20)
3 (80)	203 (23)	221 (25)
4 (100)	480 (55)	619 (70)
6 (150)	619 (70)	708 (80)
8 (200)	1062 (120)	1770 (200)
10 (250)	2655 (300)	5310 (600)
12 (300)	2655 (300)	5310 (600)

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 _v (K _v)
1 (25)	26 (22)
1½ (40)	42 (36)
2 (50)	195 (168)
3 (80)	207 (178)
4 (100)	643 (553)
6 (150)	1050 (903)
8 (200)	3495 (2957)
10 (250)	4029 (3465)
12 (300)	3365 (2895)

C_v = US gal/min at 1 psi Δp

(K_v = m³/hr at 1 bar Δp)

Dimensions

Size in (mm)	f in (mm)	t in (mm)	H2 in (mm)	H3 in (mm)	ød2 in (mm)	ød1 in (mm)	øD in (mm)	L1 in (mm)	R1 in (mm)	R2 in (mm)	øk in (mm)	SW in (mm)	n-øh	Deep in (mm)	ISO
1 (25)	⅛ (3)	⅞ ₃₂ (6)	⅝ ₁₆ (7.5)	1⅞ ₁₆ (27)	1⅜ ₃₂ (10)	1⅜ (35)	2⅞ ₁₆ (65)	1⅞ ₃₂ (37)	⅞ ₁₆ (14)	11/32 (9)	2 (50)	⅝ ₁₆ (8)	4-M6	⅝ ₁₆ (8)	F05
1½ (40)	⅛ (3)	⅞ ₃₂ (7)	⅜ (9.3)	1⅞ ₁₆ (30)	1⅜ ₃₂ (10)	1⅜ (35)	2⅞ ₁₆ (65)	1⅞ ₃₂ (37)	⅞ ₁₆ (14)	11/32 (9)	2 (50)	⅝ ₁₆ (8)	4-M6	⅝ ₁₆ (8)	F05
2 (50)	⅛ (3)	1⅜ ₃₂ (10)	½ (12.5)	1⅜ (35)	⅝ (16)	2¾ (70)	3⅞ ₃₂ (90)	1⅞ ₃₂ (47)	2⅝ ₃₂ (20)	13/32 (10)	2¾ (70)	1⅝ ₃₂ (12)	4-M8	1⅝ ₃₂ (12)	F07
3 (80)	⅛ (3)	1⅜ ₃₂ (10)	½ (12.5)	1⅝ ₃₂ (37)	⅝ (16)	2¾ (70)	3⅞ ₃₂ (90)	1⅞ ₃₂ (47)	2⅝ ₃₂ (20)	13/32 (10)	2¾ (70)	1⅝ ₃₂ (12)	4-M8	1⅝ ₃₂ (12)	F07
4 (100)	⅛ (3)	1⅝ ₃₂ (13)	⅝ (15.5)	1⅞ ₃₂ (47)	2⅞ ₃₂ (22)	2¾ (70)	5 (125)	2⅞ ₃₂ (58)	2⅞ ₃₂ (23)	9/16 (14)	4 (102)	⅝ (16)	4-M10	1⅞ ₃₂ (15)	F10
6 (150)	⅛ (3)	1⅝ ₃₂ (13)	⅝ (15.5)	1⅞ ₃₂ (46)	2⅞ ₃₂ (22)	2¾ (70)	5 (125)	2⅞ ₃₂ (58)	2⅞ ₃₂ (23)	9/16 (14)	4 (102)	⅝ (16)	4-M10	1⅞ ₃₂ (15)	F10
8 (200)	⅝ ₃₂ (4)	⅞ ₁₆ (14)	¾ (19.5)	2¼ (57)	1⅞ ₁₆ (30)	3⅞ ₃₂ (85)	5⅞ ₃₂ (150)	2¾ (70)	1⅞ ₃₂ (28)	9/16 (14)	5 (125)	2⅝ ₃₂ (20)	4-M12	1⅞ ₁₆ (18)	F12
10 (250)	⅝ ₃₂ (4)	⅞ ₁₆ (14)	¾ (19.5)	2⅞ ₃₂ (59)	1⅞ ₃₂ (40)	3⅞ ₃₂ (85)	5⅞ ₃₂ (150)	3⅞ ₃₂ (85)	1⅞ (35)	9/16 (14)	5 (125)	1⅞ ₁₆ (27)	4-M12	1⅞ ₁₆ (18)	F12
12 (300)	⅝ ₃₂ (4)	⅞ ₁₆ (14)	¾ (19.5)	2⅞ ₃₂ (59)	1⅞ ₃₂ (40)	3⅞ ₃₂ (85)	5⅞ ₃₂ (150)	3⅞ ₃₂ (85)	1⅞ (35)	9/16 (14)	5 (125)	1⅞ ₁₆ (27)	4-M12	1⅞ ₁₆ (18)	F12

• Reduced port. †Consult factory.

Atomac AKH2A ANSI Dimensional Full Port Valves

Dimensions/Weights

Size in (mm)	L in (mm)	H in (mm)	R in (mm)	ϕD in (mm)	Weight lbs (kg)	ISO
1 (25)	5 (127)	4 ²³ / ₃₂ (120)	6 ⁵ / ₁₆ (160)	1 (25)	9.04 (4.1)	F05
1½ (40)	6½ (165)	5 ²³ / ₃₂ (145)	8 ³ / ₃₂ (210)	1½ (40)	16.75 (7.6)	F07
2 (50)	7 (178)	6 ⁵ / ₁₆ (160)	8 ³ / ₃₂ (210)	2 (50)	27.77 (12.6)	F07
3 (80)	8 (203)	8 ¹ / ₁₆ (205)	12 ¹ / ₃₂ (313)	2 ²⁷ / ₃₂ (72)	61.71 (28.0)	F10
4 (100)	9 (229)	8 ²¹ / ₃₂ (220)	12 ¹ / ₃₂ (313)	3 ²³ / ₃₂ (95)	79.34 (36.0)	F10
6 (150)	10½ (267)	11 ²⁵ / ₃₂ (299)	13 ³ / ₃₂ (337)*	5 (130)	154.28 (70.0)	F12

*Pass-through hand lever 26½ in (673 mm) is standard.

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 A304	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 ** Available in selected sizes † Ceramic ball (AL2O3) available through 2 in (50 mm).

†† 3 in (80 mm) and 4 in (100 mm) are DIN EN 1562, 6 in (150 mm) and larger are DIN EN 10025.

Flow Rates

Size in (mm)	C _v (K _v) Value
1 (25)	40 (34)
1½ (40)	173 (149)
2 (50)	310 (267)
3 (80)	669 (575)
4 (100)	1484 (1276)
6 (150)	3515 (3022)

C_v = US gal/min at 1 psi Δ p

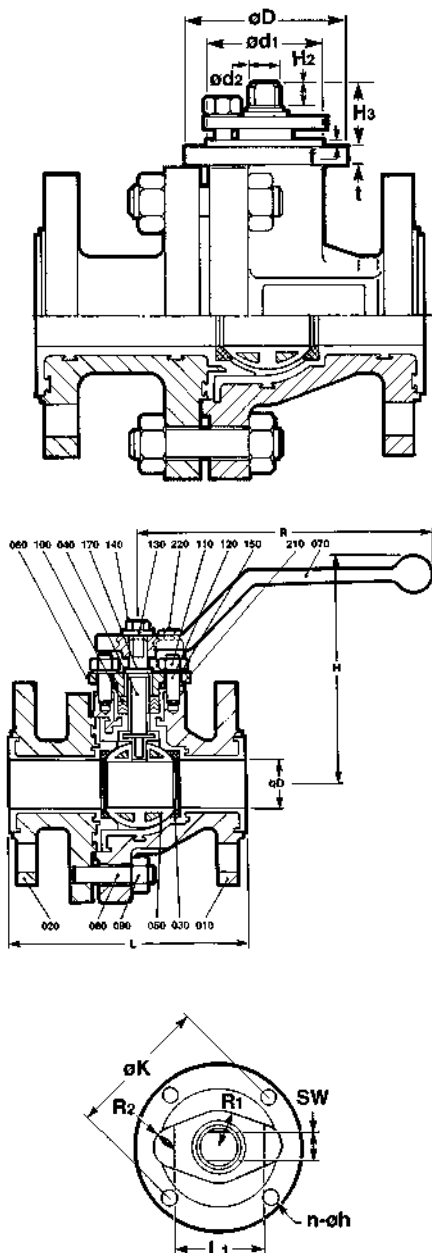
(K_v = m³/hr at 1 bar Δ p)

Torque Ratings

Size in (mm)	0 psi Δ p (0 bar Δ p) in/lbs (Nm)	10 psi Δ p (150 bar Δ p) in/lbs (Nm)
1 (25)	70 (8)	70 (8)
1½ (40)	159 (18)	177 (20)
2 (50)	203 (23)	221 (25)
3 (80)	398 (45)	442 (50)
4 (100)	478 (54)	637 (72)
6 (150)	110 (974)	1682 (190)

Test temperature is 20°C (68°F).

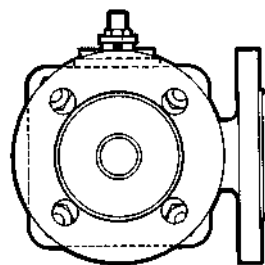
Test medium is water. For actuator sizing torques, refer to the Flowserve Technical Manual.



AMP3 Three-Way Valves

Dimensions/Weights

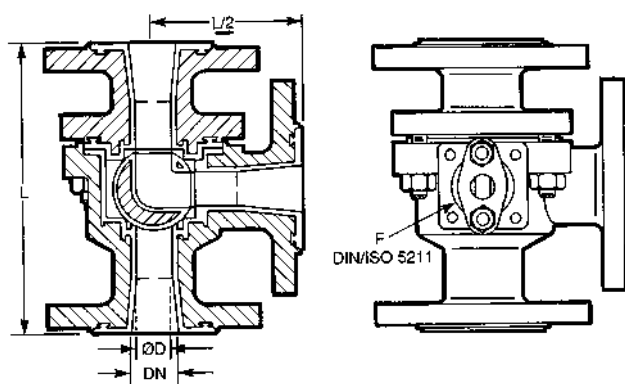
Size mm (in)	L mm (in)	L/2 mm (in)	F	Weight kg (lbs)
1 (25)	6 ⁵ / ₁₆ (160)	3 ⁵ / ₃₂ (80)	F05	11.5 (5.2)
1½ (40)	7 ⁷ / ₈ (200)	3 ¹⁵ / ₁₆ (100)	F07	26.4 (12.0)
2 (50)	9 ¹ / ₁₆ (230)	4 ¹⁷ / ₃₂ (115)	F07	36.8 (16.7)
3 (80)	12 ⁷ / ₃₂ (310)	6 ³ / ₃₂ (155)	F10	70.5 (32.0)
4 (100)	13 ²⁵ / ₃₂ (350)	6 ⁷ / ₈ (175)	F10	99.2 (45.0)



Torque Ratings

Size in (mm)	0 psi Δ p (0 bar Δ p) Nm (in/lbs)	10 psi Δ p (150 bar Δ p) Nm (in/lbs)
1 (25)	124 (14)	177 (20)
1½ (40)	195 (22)	265 (30)
2 (50)	265 (30)	363 (41)
3 (80)	725 (82)	1018 (115)
4 (100)	973 (110)	1363 (154)

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



Flow Rates: L-Ball

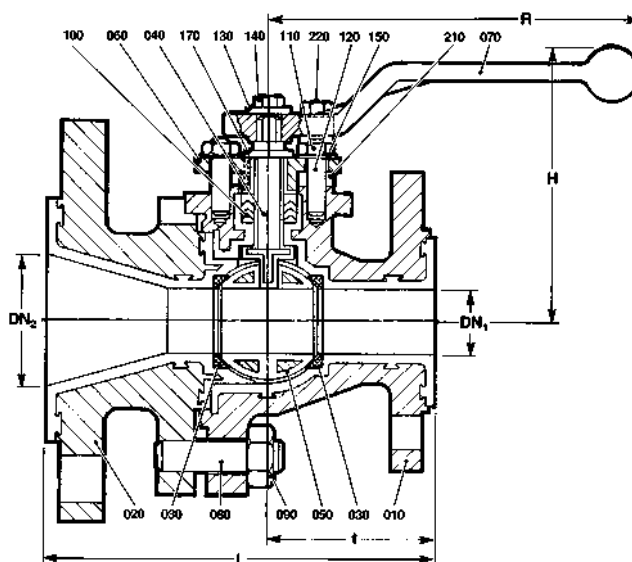
Size in (mm)	C _v (K _v) Value*
1 (25)	13.8 (11.9)
1½ (40)	36.5 (31.4)
2 (50)	60.0 (51.6)
3 (80)	124.4 (107.0)
4 (100)	221.7 (190.7)

C_v = US gal/min at 1 psi Δ p

(K_v = m³/hr at 1 bar Δ p)

* Contact your nearest office or agent for actuator mount information.

AKH6 Tank Drain Valves



Dimensions/Weights

Size in (mm)	L in (mm)		t mm (in)	R mm (in)	H mm (in)	Weight lbs (kg)	
	ASME	DIN				ASME	DIN
1x2 (25/50)	5 ²⁹ / ₃₂ (150)	5 ²⁹ / ₃₂ (150)	2 ⁹ / ₁₆ (65)	6 ⁵ / ₁₆ (160)	4 ²³ / ₃₂ (120)	13.2 (6.0)	14.5 (6.6)
1½x3 (40/80)	7 ⁹ / ₃₂ (185)	7 ⁹ / ₃₂ (185)	3 ¹ / ₁₆ (80)	8 ⁹ / ₃₂ (210)	5 ³ / ₄ (145)	28.7 (3.0)	28.7 (13.0)
2x3 (50/80)	7 ¹⁹ / ₃₂ (195)	7 ¹⁹ / ₃₂ (195)	3 ⁷ / ₁₆ (88)	8 ⁹ / ₃₂ (210)	6 ⁵ / ₁₆ (160)	34.4 (15.6)	35.7 (16.2)
2x4 (50/100)	7 ⁷ / ₈ (200)	7 ⁷ / ₈ (200)	3 ⁷ / ₁₆ (88)	8 ⁹ / ₃₂ (210)	6 ⁵ / ₁₆ (160)	40.8 (18.5)	38.6 (17.5)
2x6 (50/150)	7 ²¹ / ₃₂ (185)	7 ²¹ / ₃₂ (185)	3 ⁷ / ₁₆ (88)	8 ⁹ / ₃₂ (210)	6 ⁵ / ₁₆ (160)	49.8 (22.6)	49.8 (22.6)
3x4 (80/100)	9 ⁹ / ₈ (245)	9 ⁹ / ₈ (245)	4 ¹⁹ / ₃₂ (118)	12 ¹¹ / ₃₂ (313)	8 ¹ / ₁₆ (205)	68.3 (31.0)	68.3 (31.0)
3x8 (80/200)	—	8 (200)	4 ¹⁹ / ₃₂ (118)	12 ¹¹ / ₃₂ (313)	8 ¹ / ₁₆ (205)	—	145.5 (66.0)
4x6 (100/150)	11 ¹³ / ₃₂ (290)	11 ¹³ / ₃₂ (290)	5 ¹ / ₂ (140)	12 ¹¹ / ₃₂ (313)	8 ²¹ / ₃₂ (220)	110.2 (50.0)	101.4 (46.0)
6x8 (150/200)	12 (305)	12 (305)	7 ⁹ / ₃₂ (180)	13 ¹ / ₄ (337)	12 ¹ / ₁₆ (312)	335.01 (52.0)	335.0 (152.0)

Flange connections per DIN 2501/PN16 (ANSI B16.5 Class 150 lbs).

Torque Ratings

Size mm (in)	0 psi Δ p (0 bar Δ p) Nm (in/lbs)	10 psi Δ p (150 bar Δ p) Nm (in/lbs)
1x2 (25/50)	71 (8)	71 (8)
1½x3 (40/80)	159 (18)	177 (20)
2x3 (50/80)	203 (23)	221 (25)
2x4 (50/100)	203 (23)	221 (25)
2x6 (50/150)	203 (23)	221 (25)
3x4 (80/100)	442 (50)	531 (60)
3x8 (80/200)	442 (50)	531 (60)
4x6 (100/150)	619 (70)	708 (80)
6x8 (150/200)	1062 (120)	1770 (200)

Test temperature is 68°F (20°C).

Test medium is water. For actuator sizing torques, refer to the Flowserve Technical Manual.

Flow Rates

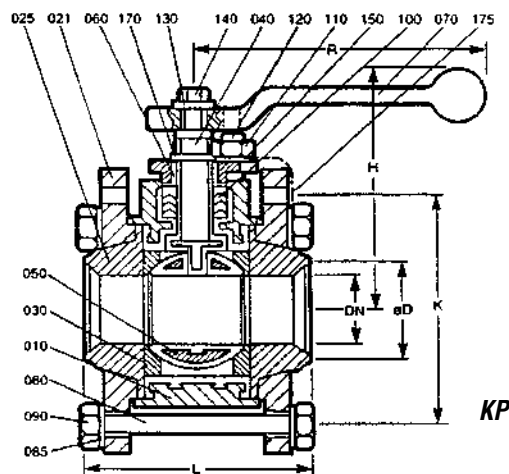
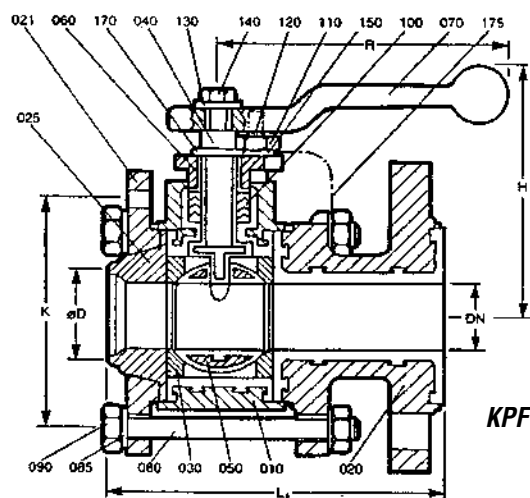
Size Outlet/Inlet in (mm)	C _v (K _v)	ISO 5211
1x2 (25/50)	37.3 (32.1)	F05
1½x3 (40/80)	135.2 (116.3)	F07
2x3 (50/80)	80.7 (69.4)	F07
2x4 (50/100)	77.5 (66.7)	F07
2x6 (50/150)	70.3 (60.5)*	F07
3x4 (80/100)	667.5 (574.3)	F10
3x8 (80/200)	617 (531)*	F10
4x6 (100/150)	333.7 (287.1)	F10
6x8 (150/200)	1388 (1195)*	F12

C_v = US gal/min at 1 psi Δ p

(K_v = m³/hr at 1 bar Δ p)

*Estimated value

Atomac AKH7 Ball Valves



Dimensions/Weights

Size in (mm)	L in (mm)	L1 in (mm)	ØD in (mm)	K in (mm)	H in (mm)	R in (mm)	Weight AKH7-KP lbs (kg)	Weight AKH7-KPF lbs (kg)
1 (25)	3 ⁵ / ₂ (80)	4 ²³ / ₃₂ (120)	1 ¹ / ₂ (35)	3 ¹¹ / ₃₂ (85)	4 ¹⁹ / ₃₂ (118)	6 ⁵ / ₁₆ (160)	4.8 (2.2)	7.3 (3.3)
1½ (40)	4 ⁵ / ₁₆ (110)	6 ³ / ₃₂ (155)	2 (51)	4 ⁵ / ₁₆ (110)	5 ³ / ₄ (146)	8 ⁹ / ₃₂ (210)	11.5 (5.2)	15.4 (7.0)
2 (50)	5 (125)	7 (178)	2½ (64)	5 (125)	5 ²⁹ / ₃₂ (150)	8 ⁹ / ₃₂ (210)	16.5 (7.5)	19.0 (8.6)
4 (100)	7 ⁷ / ₈ (200)	10 ¹³ / ₁₆ (275)	4 ⁹ / ₁₆ (116)	7 ³ / ₃₂ (180)	8 ⁹ / ₃₂ (210)	12 ¹¹ / ₃₂ (313)	70.5 (32.0)	79.3 (36.0)

Material Specification

Item	KP	KPF	Designation	ASTM	DIN
010	1	1	centerpiece	Ductile Iron A395, FEP/PFA*	GGG40.3 DIN EN 1563
020	–	1	side piece	Ductile Iron A395, FEP/PFA*	GGG40.3 DIN EN 1563
021	2	1	flange side piece	Steel	1.0570 DIN EN 10025
025	2	1	socket/ball side piece	PTFE glass	PTFE glass
030	2	2	seat ring	PTFE	PTFE
040	1	1	stem	Stainless Steel A351 CD-4MCu, PFA	1.4462/PFA
050	1	1	ball	Ductile Iron A395, FEP/PFA, alt. AL203*	GGG40.3 DIN EN 1563
060	1	1	gland follower	Stainless Steel A351 CF8, PTFE-Graphite	1.4308 DIN10283/PTFE-Graphite
070	1	1	hand lever	Galvanized, die cast metal**	2.2141 DIN EN 1774**
080	4	4	stud fastener	A193 B7YC	1.4301 DIN17440
085	8	8	washer	AISI 304	1.4301 DIN17440
090	8	8	hexagon nut	A194 7YC	1.4301 DIN17440
100	1 set	1 set	packing	PTFE/PTFE-Graphite*	PTFE/PTFE-Graphite*
110	2	2	hexagon nut	A194 7YC	1.4301 DIN17440
120	2	2	stud fastener	A193 B7YC	1.4301 DIN17440
130	1	1	lock washer	AISI 304	1.4301 DIN17440
140	1	1	hexagon fastener	A193 B8	1.4301 DIN17440
150	2	2	safety washer	AISI 304	1.4301 DIN17440
170	1	1	grounding device	Stainless Steel AISI 301	1.4310 DIN17224
175	1	1	grounding strap	Stainless Steel AISI 304	1.4301/PVC

*Optional **4 in (100 mm) are DIN EN 1562.

Atomac AKH7 Ball Valves

Torque Ratings

Size in (mm)	0 psi Δp (0 bar Δp) in/lbs (Nm)	150 psi Δp (10 bar Δp) in/lbs (Nm)
1 (25)	71 (8)	71 (8)
1½ (40)	159 (18)	177 (18)
2 (50)	203 (23)	221 (23)
4 (100)	708 (80)	1018 (80)

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 _v (K _v)
1 (25)	39 (34)
1½ (40)	173 (149)
2 (50)	310 (267)
4 (100)*	1700 (1462)

C_v = US gal/min at 1 psi Δp

(K_v = m³/hr at 1 bar Δp)

*Estimated value

Dimensions

Size in (mm)	H in (mm)	H1 in (mm)	a in (mm)	b in (mm)	c in (mm)	ød1 in (mm)	e in (mm)	f in (mm)	g in (mm)	SW in (mm)	ød1 in (mm)	L1 in (mm)	L2 in (mm)
1 (25)	3 ⁵ / ₃₂ (80)	1 ² / ₃₂ (36)	1 ² / ₃₂ (42)	1 ¹⁵ / ₃₂ (37)	3 ² / ₃₂ (93)	7/ ₃₂ (6)	1 ²³ / ₃₂ (44)	2 ¹ / ₃₂ (52)	3/ ₈ (9.5)	5/ ₁₆ (8)	1 ³ / ₃₂ (10)	9/ ₃₂ (6.5)	9/ ₃₂ (7.5)
1½ (40)	4 ¹⁹ / ₃₂ (116)	2 ⁵ / ₃₂ (55)	2 ¹ / ₃₂ (60)	1 ²⁷ / ₃₂ (47)	5 ¹ / ₃₂ (133)	1 ³ / ₃₂ (10)	2 ¹ / ₈ (54)	2 ¹⁵ / ₁₆ (75)	9/ ₃₂ (7)	1 ⁵ / ₃₂ (12)	5/ ₈ (16)	½ (12.5)	½ (12.5)
2 (50)	4 ²³ / ₃₂ (120)	2 ⁵ / ₃₂ (55)	2 ¹ / ₃₂ (60)	1 ²⁷ / ₃₂ (47)	5 ¹ / ₃₂ (133)	1 ³ / ₃₂ (10)	2 ¹ / ₈ (54)	2 ¹⁵ / ₁₆ (75)	9/ ₃₂ (7)	1 ⁵ / ₃₂ (12)	5/ ₈ (16)	½ (12.5)	½ (12.5)
4 (100)	7 ¹⁷ / ₃₂ (191)	2 ⁹ / ₁₆ (65)	2 ¹ / ₁₆ (68)	2 ² / ₃₂ (67)	7/ ₈ (181)	1 ³ / ₃₂ (10)	2 ⁷ / ₃₂ (57)	3 ¹⁵ / ₁₆ (100)	1 ³ / ₁₆ (20.5)	5/ ₈ (16)	7/ ₈ (22)	5/ ₈ (16)	1 ⁹ / ₃₂ (15)

All dimensions are approximate and for illustration purposes only. For exact dimensions request certified dimensional prints.

AKH5 Ceramic Lined Valves

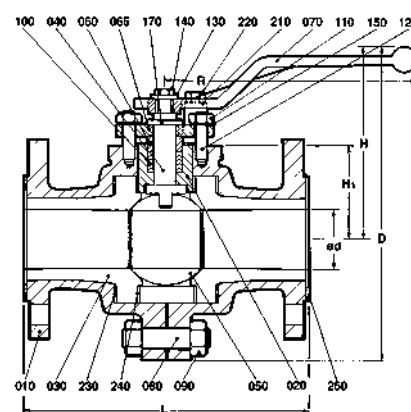
Dimensions/Weights

Size in (mm)	L in (mm)		H in (mm)	R in (mm)	H1 in (mm)	øD in (mm)	D in (mm)	Weight lbs (kg)	
	ASME	DIN						ASME	DIN
1 (25)	6 (152.4)	6 ⁵ / ₁₆ (160)	4 ¹³ / ₁₆ (122)	6 ⁵ / ₁₆ (160)	1 ²⁹ / ₃₂ (49)	1 (25)	7 ¹ / ₁₆ (195)	15.2 (6.9)	16.1 (7.3)
1½ (40)	7 (178)	7 ⁷ / ₈ (200)	5 ²⁹ / ₃₂ (150)	8 ⁹ / ₃₂ (210)	2 ⁹ / ₁₆ (65)	1 ⁹ / ₁₆ (40)	7 ⁷ / ₃₂ (240)	30.4 (13.8)	32.0 (14.5)
2 (50)	8 (203)	9 ¹ / ₁₆ (230)	6 ⁵ / ₁₆ (160)	8 ⁹ / ₃₂ (210)	3 ³ / ₃₂ (77)	1 ³¹ / ₃₂ (50)	10 ⁷ / ₃₂ (260)	40.8 (18.5)	42.1 (19.1)
3 (80)	9½ (241)	12 ⁷ / ₃₂ (310)	8 (205)	12 ¹¹ / ₃₂ (313)	4 ²⁵ / ₃₂ (121)	3 ¹ / ₃₂ (77)	13 ³ / ₁₆ (335)	88.2 (40.0)	97.0 (44.0)
4 (100)	11½ (292)	13 ²⁵ / ₃₂ (350)	8 ⁹ / ₃₂ (210)	12 ¹¹ / ₃₂ (313)	5 ⁹ / ₃₂ (131)	3 ¹ / ₁₆ (97)	14 (355)	121.0 (55.0)	121.0 (55.0)

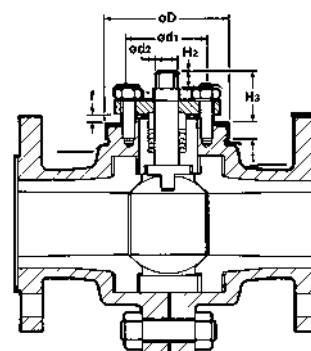
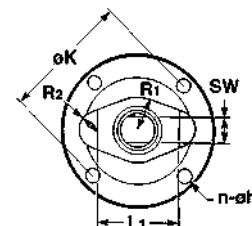
Material Specification

Item	Qty.	Designation	ASTM	DIN
010	2	two-piece body	Ductile Iron A395	GGG40.3 DIN EN 1563
020	1	body center	Mg-PSZ Zirconia Ceramic	Zirkonoxid/Cerconia
030	2	bushing	Mg-PSZ Zirconia Ceramic	Zirkonoxid/Cerconia
040	1	stem	AISI 431 (Hast. C-276* or Mg-PSZ Zirconia Ceramic*)	1.2316 DIN17350
050	1	ball	Mg-PSZ Zirconia Ceramic	Zirkonoxid/Cerconia
060	1	packing gland	Stainless Steel AISI 304	1.4301 DIN17440
065	1	adjuster	Stainless Steel AISI 304	1.4301 DIN17440
070	1	hand lever	Galvanized, die cast metal	2.2141 DIN EN 1774
080	4-8	stud fastener	Stainless Steel ASTM 193 B7YC	1.4301 DIN17440
090	8-16	hexagon nut	Stainless Steel ASTM 194 7YC	1.4301 DIN17440
100	1 set	chevron packing	PTFE to 392°F/Grafseal to 662°F	PTFE/Grafseal
110	2	hexagon nut	Stainless Steel ASTM A 194 7YC	1.4301 DIN17440
120	2	stud fastener	Stainless Steel ASTM A 193 B7YC	1.4301 DIN17440
130	1	safety washer	Stainless Steel AISI 304	1.4301 DIN17440
140	1	hexagon fastener	Stainless Steel ASTM A 193 B8	1.4301 DIN17440
150	2	lock washer	Stainless Steel AISI 304	1.4301 DIN17440
170	1	grounding device	Stainless Steel AISI 301	1.4310 DIN17224
210	1	stop post	Galvanized A283 B	1.0037 DIN EN 10025
220	1	hexagon fastener	Stainless Steel A193 B8	1.4301 DIN17440
230	2	flat gasket	Gylon Fawn to 392°F/ Grafseal to 662°F	Gylon Fawn/Grafseal
240	2	flat gasket	Gylon Fawn to 392°F/ Grafseal to 662°F	Gylon Fawn/Grafseal
250	2	flat gasket	Gylon Fawn to 392°F/ Grafseal to 662°F	Gylon Fawn/Grafseal

* Optional



These dimensions pertain to AKH5 valves with either stainless steel or Hastelloy C-276 stems. Connection dimensions according to DIN 2501-PN16 (ANSI B16.5 Class 150).



AKH5 Ceramic Lined Valves

Torque Ratings

Size in (mm)	44 psi Δ p (3 bar Δ p) in/lbs (Nm)	87 psi Δ p (6 bar Δ p) in/lbs (Nm)	150 psi Δ p (10 bar Δ p) in/lbs (Nm)	235 psi Δ p (16 bar Δ p) in/lbs (Nm)
1 (25)	27 (3)	31 (3.5)	44 (5)	71 (8)
1½ (40)	53 (6)	84 (9.5)	93 (10.5)	164 (18.5)
2 (50)	97 (11)	186 (21)	221 (25)	407 (46)
3 (80)	443 (50)	841 (95)	1106 (125)	1947 (220)
4 (100)	487 (55)	1106 (125)	1460 (165)	2124 (240)

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 _v (K _v)
1 (25)	50.4 (43.4)
1½ (40)	137.3 (118.1)
2 (50)	226.6 (195.0)
3 (80)	596.8 (513.5)
4 (100)	948.0 (815.6)

C_v = US gal/min at 1 psi Δ p

(K_v = m³/hr at 1 bar Δ p)

Actuator Mounting of the AKH5 Ceramic Valve

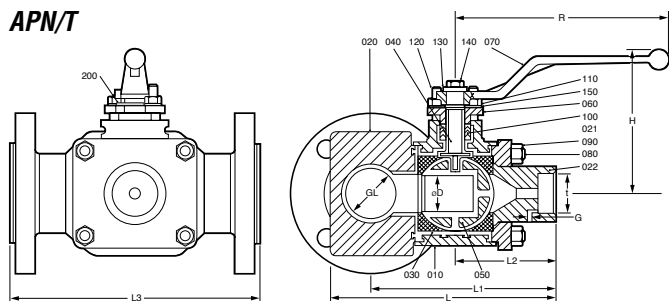
Dimensions

Size in (mm)	f in (mm)	t in (mm)	H2 in (mm)	H3 in (mm)	ød2 in (mm)	ød1 in (mm)	øD in (mm)	L1 in (mm)	R1 in (mm)	R2 in (mm)	øk in (mm)	SW in (mm)	n-øh in	Deep in (mm)
1 (25)	7/64 (3)	9/32 (7)	3/8 (10)	17/32 (31)	25/64 (10)	13/8 (35)	29/16 (65)	129/32 (42)	41/64 (16)	23/64 (9)	131/32 (50)	5/16 (8)	4-M6	5/16 (8)
1½ (40)	7/64 (3)	19/62 (10)	1/2 (15)	19/16 (40)	5/8 (16)	211/64 (68)	339/64 (90)	29/32 (58)	25/32 (20)	25/64 (10)	23/4 (70)	15/32 (12)	4-M8	31/64 (12)
2 (50)	7/64 (3)	19/62 (10)	1/2 (15)	117/32 (39)	5/8 (16)	211/64 (68)	339/64 (90)	29/32 (58)	25/32 (20)	25/64 (10)	23/4 (70)	15/32 (12)	4-M8	31/64 (12)
3 (80)	7/64 (3)	39/64 (13)	39/64 (16)	127/32 (47)	59/64 (22)	249/64 (70)	459/64 (125)	261/64 (75)	11/32 (26)	1/2 (13)	41/64 (102)	5/8 (16)	4-M10	1/2 (15)
4 (100)	7/64 (3)	39/64 (13)	39/64 (16)	127/32 (47)	59/64 (22)	249/64 (70)	459/64 (125)	261/64 (75)	11/32 (26)	1/2 (13)	41/64 (102)	5/8 (16)	4-M10	1/2 (15)

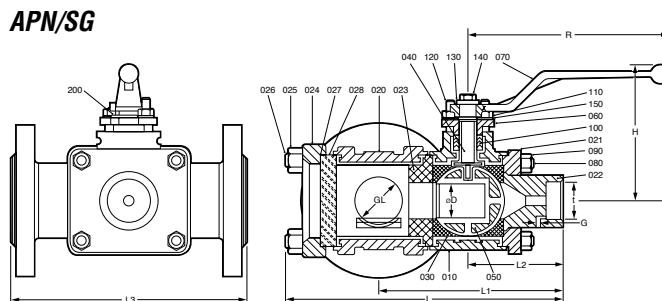
APN/T Sampling Valves

APN/SG Sampling Valves/Sight Glass

APN/T



APN/SG



Connection dimensions according to DIN 2501-PN16 (ANSI B16.5 Class 150).

Material Specification (APN/T & APN/SG)

Item	Qty.	Designation	ASTM	DIN
10	1	center piece	A395. FEP/PFA*	GGG-40.3 DIN EN 1563
20	1	body piece	A395. FEP/PFA*	GGG-40.3 DIN EN 1563
21	1	flange	A714	1.0570 DIN EN 10025
22	1	side piece	PTFE	PTFE
23	1	spacer	PTFE	PTFE
24	1	flange	A395	GGG-40.3 DIN EN 1563
25	4	hexagon nut	A194 7YC	1.4301 DIN 17440
26	4	stud bolt	A193 B8	1.4301 DIN 17440
27	1	flat gasket	Asbestos free	DIN 3535/4
28	1	glass	Borosilicate glass	DIN 7080
30	2	seat ring	PTFE	PTFE
40	1	stem	A351 CD4MCU/PFA	1.4462
50	1	ball	A395/PFA	GGG-40.3 DIN EN 1563
60	1	gland follower	A351 CF-8	1.4308 DIN EN 10025
70	1	hand lever	Galvanized die cast metal	2.2141 DIN EN 1774
80	4	socket head cap screws	A193 B7YC	1.4301 DIN 17440
		stud bolts (APN/SG)	A193 B7YC	1.4301 DIN 17440
90	4	hexagon nut	A194 7YC	1.4301 DIN 17440
100	1 set	packing material (chevron)	PTFE	PTFE
110	2	hexagon nut	A194 7YC	1.4301 DIN 17440
120	3	stud bolt	A193 B8	1.4301 DIN 17440
130	1	lock washer	AISI 304	1.4301 DIN 17440
140	1	hexagon bolt	A193 B8	1.4301 DIN 17440
150	2	serrated lock washer	AISI 304	1.4301 DIN 17440
200	1	grounding device	AISI 304	1.4301 DIN 17224

*Optional

APN/T Sampling Valves

APN/SG Sampling Valves/Sight Glass

Dimensions – DIN (APN/T)

Size in (mm)	L in (mm)	L1 in (mm)	L2 in (mm)	L3 in (mm)	H in (mm)	R in (mm)	GL DIN 168	t in (mm)	G (in)	øD in (mm)	Sampling Vol. cm ³	Weight lbs (kg)
1 (25)	5 ¹⁵ / ₁₆ (151)	4 ³¹ / ₃₂ (126)	3 ³ / ₃₂ (79)	6 ⁵ / ₁₆ (160)	4 ¹⁵ / ₃₂ (120)	6 ⁵ / ₁₆ (160)	GL32	1 ⁹ / ₃₂ (15)	G 1/8	2 ⁵ / ₃₂ (20)	7.54	15.8 (7.2)
2 (50)	8 ⁷ / ₁₆ (214)	6 ²⁷ / ₃₂ (174)	3 ¹³ / ₁₆ (97)	9 ¹ / ₁₆ (230)	6 ⁵ / ₁₆ (160)	8 ¹ / ₄ (210)	GL45	2 ³ / ₃₂ (18)	G 1/8	1 ¹ / ₂ (38)	45	36.6 (16.6)
3 (80)	9 ¹⁹ / ₃₂ (244)	7 ⁷ / ₁₆ (189)	3 ¹³ / ₁₆ (97)	12 ⁷ / ₃₂ (310)	6 ⁵ / ₁₆ (160)	8 ¹ / ₄ (210)	GL45	2 ³ / ₃₂ (18)	G 1/8	1 ¹ / ₂ (38)	45	47.6 (21.6)

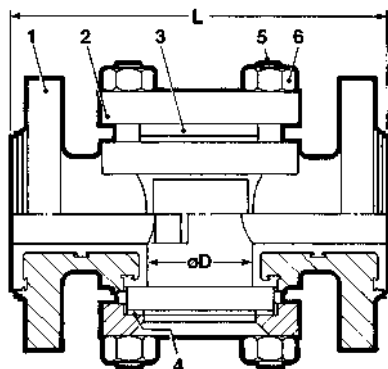
Dimensions – DIN (APN/SG)

Size in (mm)	L in (mm)	L1 in (mm)	L2 in (mm)	L3 in (mm)	H in (mm)	R in (mm)	GL DIN 168	t in (mm)	G (in)	øD in (mm)	Sampling Vol. cm ³	Weight lbs (kg)
1 (25)	8 (203)	5 ⁵ / ₁₆ (138)	3 ³ / ₃₂ (79)	6 ⁵ / ₁₆ (160)	4 ¹⁵ / ₃₂ (120)	6 ⁵ / ₁₆ (160)	GL32	1 ⁹ / ₃₂ (15)	G 1/8	2 ⁵ / ₃₂ (20)	7.54	14.5 (6.6)
1 ¹ / ₂ (40)	9 ¹³ / ₃₂ (239)	6 ¹ / ₂ (165)	3 ⁵ / ₈ (92)	7 ⁷ / ₈ (200)	5 ²³ / ₃₂ (145)	8 ¹ / ₄ (210)	GL45	2 ³ / ₃₂ (18)	G 1/8	1 ¹ / ₄ (32)	34.58	25.3 (11.5)
2 (50)	10 ¹⁵ / ₁₆ (278)	7 ⁷ / ₃₂ (183)	3 ¹³ / ₁₆ (97)	9 ¹ / ₁₆ (230)	6 ⁵ / ₁₆ (160)	8 ¹ / ₄ (210)	GL45	2 ³ / ₃₂ (18)	G 1/8	1 ¹ / ₂ (38)	45	33.9 (15.4)
2/3 (50/80)	13 ³ / ₈ (340)	8 ¹⁵ / ₃₂ (215)	3 ¹³ / ₁₆ (97)	12 ⁷ / ₃₂ (310)	6 ⁵ / ₁₆ (160)	8 ¹ / ₄ (210)	GL45	2 ³ / ₃₂ (18)	G 1/8	1 ¹ / ₂ (38)	45	61.6 (28.0)

Dimensions – ASME (APN/SG)

Size in (mm)	L in (mm)	L1 in (mm)	L2 in (mm)	L3 in (mm)	H in (mm)	R in (mm)	GL DIN 168	t in (mm)	G (in)	øD in (mm)	Sampling Vol. cm ³	Weight lbs (kg)
1 (25)	8 (203)	5 ⁵ / ₁₆ (138)	3 ³ / ₃₂ (79)	6 (152.4)	4 ¹⁵ / ₃₂ (120)	6 ⁵ / ₁₆ (160)	GL32	1 ⁹ / ₃₂ (15)	G 1/8	2 ⁵ / ₃₂ (20)	7.54	13.2 (6)
1 ¹ / ₂ (40)	9 ¹³ / ₃₂ (239)	6 ¹ / ₂ (165)	3 ⁵ / ₈ (92)	7 (178)	5 ²³ / ₃₂ (145)	8 ¹ / ₄ (210)	GL45	2 ³ / ₃₂ (18)	G 1/8	1 ¹ / ₄ (32)	34.58	22.3 (10.1)
2 (50)	10 ¹⁵ / ₁₆ (278)	7 ⁷ / ₃₂ (183)	3 ¹³ / ₁₆ (97)	8 (203)	6 ⁵ / ₁₆ (160)	8 ¹ / ₄ (210)	GL45	2 ³ / ₃₂ (18)	G 1/8	1 ¹ / ₂ (38)	45	39.7 (18)
2/3 (50/80)	13 ³ / ₈ (340)	8 ¹⁵ / ₃₂ (215)	3 ¹³ / ₁₆ (97)	9 ¹ / ₂ (241)	6 ⁵ / ₁₆ (160)	8 ¹ / ₄ (210)	GL45	2 ³ / ₃₂ (18)	G 1/8	1 ¹ / ₂ (38)	45	61.7 (28)

ASG Sight Glass



Dimensions/Weights

Size in (mm)	L mm (in)		øD in (mm)	Weight kgs (lbs)	
	ASTM	DIN		ASTM	DIN
1 (25)	6 (152.4)	6 ⁵ / ₁₆ (160)	1 ²³ / ₃₂ (45)	10.4 (4.7)	11.5 (5.2)
1½ (40)	7 (178)	7 ⁷ / ₈ (200)	2 ⁹ / ₃₂ (58)	15.2 (6.9)	20.1 (9.1)
2 (50)	8 (203)	9 ¹ / ₁₆ (230)	3 (77)	24.9 (11.3)	27.6 (12.5)
– (65)	—	11 ¹³ / ₃₂ (290)	3 (77)	—	33.1 (15.0)
3 (80)	9½ (241)	12 ⁷ / ₃₂ (310)	3 ¹⁵ / ₁₆ (100)	39.7 (18.0)	43.6 (19.8)
4 (100)	11½ (292)	13 ²⁵ / ₃₂ (350)	5 (125)	62.2 (28.2)	61.9 (28.1)
6 (150)	—	18 ²⁹ / ₃₂ (480)	7 (175)	—	134.4 (61.0)

Connection dimensions according to DIN 2501-PN16 (ANSI B16.5 Class 150).

Material Specification

Item	Qty.	Designation	ASTM	DIN
1	1	body	Ductile Iron/FEP A395	GGG-40.3 DIN EN 1563
			Ductile Iron/PFA A395	GGG-40.3 DIN EN 1563
2	2	flange	Ductile Iron ASTM A395	GGG-40.3 DIN 3N 1563
3	2	glass	Borosilicate Glass	DIN 7080
4	2	gasket	Universal, asbestos free	DIN 3535/6
5	8-16	stud fastener	ASTM A193 B7YC	1.4301 - DIN 17440
6	8-16	hexagon nut	ASTM A194 7YC	1.4301 - DIN 17440

Flow Rates

Size in (mm)	C _v (K _v)
1 (25)	31.7 (27.3)
1½ (40)	95.9 (82.5)
2 (50)	146.2 (125.8)
– (65)	250.4 (215.4)
3 (80)	384.1 (330.5)
4 (100)	598.7 (515.1)
– (150)	1423.5 (1224.7)

C_v = US gal/min at 1 psi Δ p

(K_v = m³/hr at 1 bar Δ p)

ASG3 3-Way Sight Glass

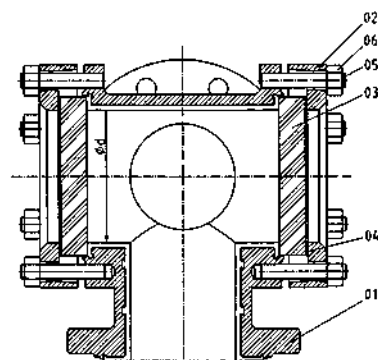
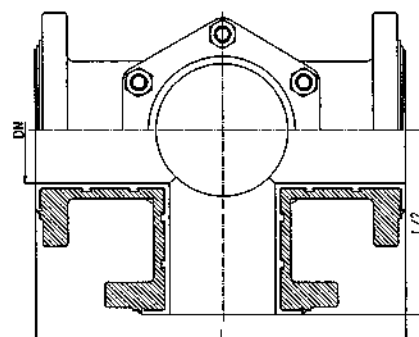
Material Specification

Item	Qty.	Designation	ASTM	DIN
10	1	body	Ductile Iron/FEP A395	GGG-40.3 DIN EN 1563
			Ductile Iron/PFA A395	GGG-40.3 DIN EN 1563
20	2	flange	Ductile Iron A395	GGG-40.3 DIN EN 1563
30	2	glass	Borosilicate-Glass	DIN 7080
40	2	flat gasket	Free of asbestos	DIN 3535-6
50	1 set	stud bolt	Stainless Steel A 193 B7YC8	1.4301 DIN 17440
60	1 set	hexagon nut	Stainless Steel A 194 7YC	1.4301 DIN 17440

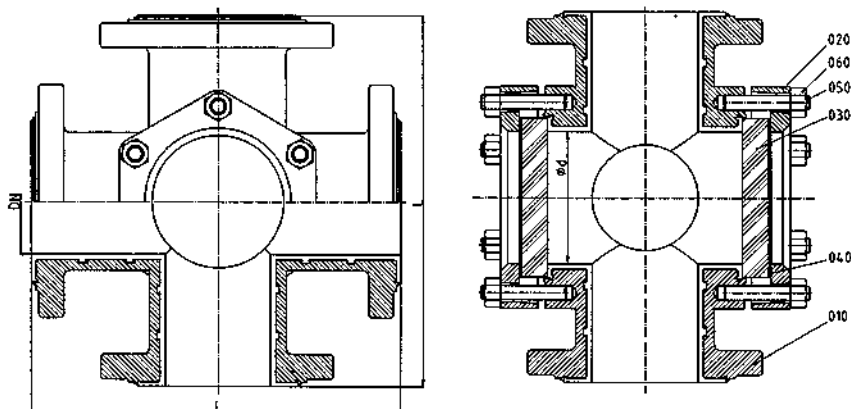
Dimensions

Size in (mm)	L in (mm)	L2 in (mm)	ød in (mm)	Weight lbs (kg)
1 (25)	6 ⁵ / ₁₆ (160)	3 ⁵ / ₃₂ (80)	1 ²⁵ / ₃₂ (45)	13 ¹⁵ / ₁₆ (6.34)
2 (50)	9 ¹ / ₁₆ (230)	4 ¹⁷ / ₃₂ (115)	3 ¹ / ₃₂ (77)	33 ²¹ / ₃₂ (15.3)
3 (80)	12 ⁷ / ₃₂ (310)	6 ¹ / ₈ (155)	3 ¹⁵ / ₁₆ (100)	58 ³ / ₄ (26.7)
4 (100)	13 ²⁵ / ₃₂ (350)	6 ⁷ / ₈ (175)	4 ²⁹ / ₃₂ (125)	61 ²⁹ / ₃₂ (28.1)

Connection dimensions according to DIN 2501-PN16 (ANSI B16.5 Class 150).



ASG4 4-Way Sight Glass



Material Specification

Item	Qty.	Designation	ASTM	DIN
10	1	body	Ductile Iron/FEP A395	GGG-40.3 DIN EN 1563
			Ductile Iron/PFA A395	GGG-40.3 DIN EN 1563
20	2	flange	Ductile Iron A395	GGG-40.3 DIN EN 1563
30	2	glass	Borosilicate-Glass	DIN 7080
40	2	flat gasket	Free of asbestos	DIN 3535-6
50	1 set	stud bolt	Stainless Steel A 193 B7YC	1.4301 DIN 17440
60	1 set	hexagon nut	Stainless Steel A 194 7YC	1.4301 DIN 17440

Dimensions

Size in (mm)	L in (mm)	ød in (mm) ¹	Weight lbs (kg)
1 (25)	6 ⁵ / ₁₆ (160)	1 ²⁵ / ₃₂ (45)	16,5 (7.5)
2 (50)	9 ¹ / ₁₆ (230)	3 ¹ / ₃₂ (77)	40,4 (18.38)

Connection dimensions according to
DIN 2501-PN16 (ANSI B16.5 Class 150).

ARL 45° (Y) Check Valves

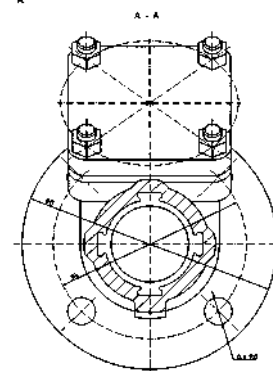
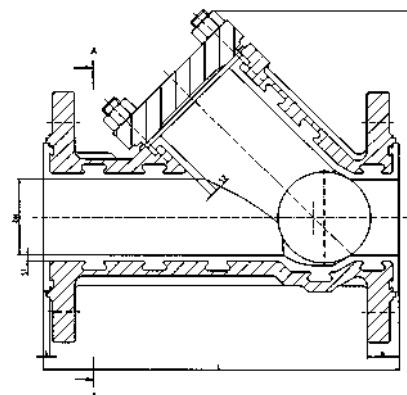
Material Specification

Item	Qty.	Designation	ASTM	DIN
10	1	body	Ductile Iron/FEP A395	GGG-40.3 DIN EN 1563
			Ductile Iron/PFA A395	GGG-40.3 DIN EN 1563
20	1	flange	Ductile Iron A395	GGG-40.3 DIN EN 1563
30	1	ball	PTFE - Solid Bal	Pure - PTFE
40	4	stud bolt	Stainless Steel A193 B7YC	1.4301 DIN 17440
50	4	hexagon nut	Stainless Steel A194 7YC	1.4301 DIN 17440
60	1	flat gasket	Free of asbestos	DIN 3535-6

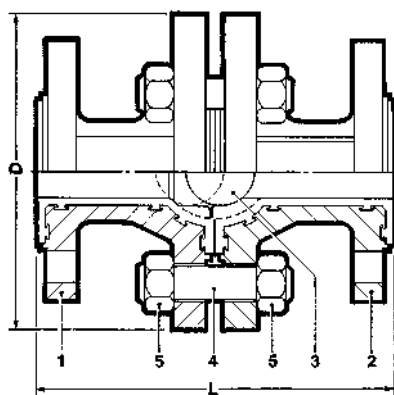
Dimensions

Size in (mm)	L in (mm)	b in (mm)	D in (mm)	k in (mm)	S1 in (mm) ¹	S2 in (mm)
1 (25)	6 ⁵ / ₁₆ (160)	2 ¹ / ₃₂ (16.5)	4 ¹⁷ / ₃₂ (115)	3 ¹¹ / ₃₂ (85)	1/8 (3)	5/16 (3.5)
1½ (40)	7 ⁷ / ₈ (200)	2 ⁵ / ₃₂ (20)	5 ²⁹ / ₃₂ (150)	4 ¹¹ / ₃₂ (110)	5/32 (4)	5/32 (4)
2 (50)	9 ¹ / ₁₆ (230)	2 ⁵ / ₃₂ (20)	6½ (165)	4 ²⁹ / ₃₂ (125)	5/32 (4)	5/32 (4.5)
3 (80)	12 ³ / ₁₆ (310)	3 ¹ / ₃₂ (25)	7 ⁷ / ₈ (200)	6 ⁵ / ₁₆ (160)	7/32 (5)	7/32 (5)

Connection dimensions according to DIN 2501-PN16 (ANSI B16.5 Class 150).



ARV2 Check Valves



Flow Rates

Size in (mm)	C _v (K _v)
½ (15)	8.1 (7.0)
¾ (20)	18.6 (16.0)
1 (25)	27.3 (23.5)
– (32)	46.8 (40.3)
1½ (40)	67.4 (58.0)
2 (50)	145.3 (125.0)
– (65)	208.3 (179.2)
3 (80)	316.6 (272.4)
4 (100)	573.8 (493.7)
6 (150)	1246.9 (1072.8)
8 (200)	2290.7 (1970)*

Dimensions/Weights

Size in (mm)	L in (mm)		D in (mm)	Weight lbs (kgs)	
	ASME	DIN		DIN	ASME
½ (15)	5 (130)	5½ (130)	4½ (105)	7.3 (3.3)	7.5 (3.4)
¾ (20)	6 (150)	5 ²⁹ / ₃₂ (150)	4½ (105)	8.2 (3.7)	8.8 (4.0)
1 (25)	6 (152.4)	6 ⁵ / ₈ (160)	5½ (140)	12.1 (5.5)	14.3 (6.5)
– (32)	—	7 ⁵ / ₃₂ (180)	5 ²⁹ / ₃₂ (150)	—	18.1 (8.2)
1½ (40)	7 (178)	7 ⁷ / ₈ (200)	6½ (165)	20.5 (9.3)	24.2 (11.0)
2 (50)	8 (203)	9 ¹ / ₁₆ (230)	7 ⁷ / ₃₂ (185)	30.2 (13.7)	30.4 (13.8)
– (65)	—	11 ¹³ / ₃₂ (290)	8 ²¹ / ₃₂ (220)	—	47.8 (21.7)
3 (80)	9½ (241)	12 ¹ / ₃₂ (310)	9 ²⁷ / ₃₂ (250)	65.9 (29.9)	67.2 (30.5)
4 (100)	11½ (292)	13 ²⁵ / ₃₂ (350)	11 ⁷ / ₃₂ (285)	90.4 (41.0)	92.6 (42.0)
6 (150)*	14 (356)	14 (356)	15 ¹⁵ / ₁₆ (404)	167.7 (76.1)	171.9 (78.0)
8 (200)*	18 (457)	18 (457)	20¼ (515)	365.9 (166.0)	341.6 (155.0)

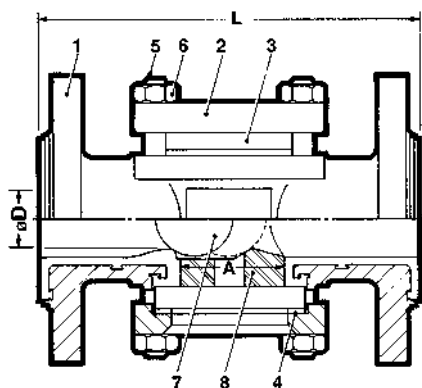
*Face to Face Dimensions acc. to ANSI B16.10.

Connection dimensions according to DIN 2501-PN16 (ANSI B16.5 Class 150).

Material Specification

Item	Qty.	Designation	ASTM	DIN
1	1	body piece	Ductile Iron/FEP A395	GGG-40.3
			Ductile Iron/PFA A395	GGG-40.3
2	2	body piece	Ductile Iron/FEP A395	GGG-40.3
			Ductile Iron/PFA A395	GGG-40.3
3	1	ball	PTFE	PTFE
4	4-12	stud fastener	ASTM A193 B7YC	1.4301 DIN17440
5	8-24	hexagon nut	ASTM A194 7YC	1.4301 DIN17440

ARV/SG Check Valves/Sight Glass Combination



Dimensions/Weights

Size in (mm)	L in (mm)		øD in (mm)	A in (mm)	Weight lbs (kgs)	
	ASME	DIN			ASME	DIN
1 (25)	6 (152.4)	6 $\frac{3}{8}$ (160)	1 (25)	1 $\frac{1}{32}$ (33)	10.4 (4.7)	11.7 (5.3)
1½ (40)	7 (178)	7 $\frac{1}{8}$ (200)	1¼ (32)	1 $\frac{25}{32}$ (45)	19.8 (9.0)	24.2 (11.0)
2 (50)	8 (203)	9 $\frac{1}{16}$ (230)	1 $\frac{1}{8}$ (40)	2 $\frac{1}{16}$ (65)	23.8 (10.8)	26.9 (12.2)
3 (80)	9½ (241)	12 $\frac{7}{32}$ (310)	2 $\frac{1}{8}$ (65)	3 $\frac{1}{2}$ (80)	40.1 (18.2)	46.7 (21.2)
4 (100)	11½ (292)	13 $\frac{25}{32}$ (350)	3 $\frac{1}{2}$ (80)	3 $\frac{1}{4}$ (100)	62.2 (28.2)	63.0 (28.6)

Connection dimensions according to DIN 2501-PN16 (ANSI B16.5 Class 150).

Flow Rates

Size in (mm)	C _v (K _v)
1 (25)	14.5 (12.5)
1½ (40)	30.1 (25.9)
2 (50)	55.9 (48.1)
3 (80)	110.9 (95.4)
4 (100)	185.2 (159.3)

C_v = US gal/min at 1 psi Δp

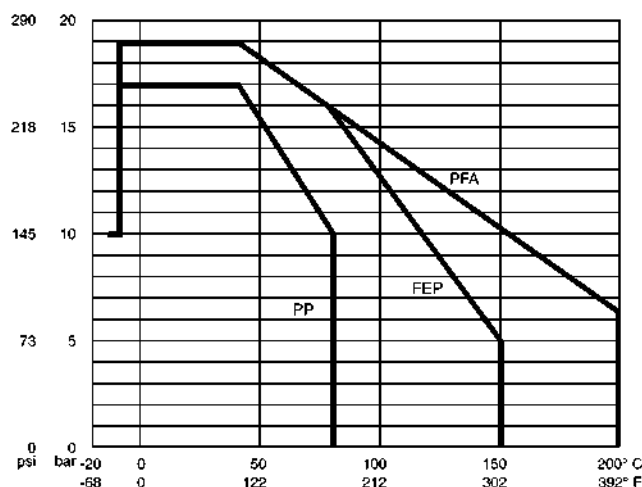
(K_v = m³/hr at 1 bar Δp)

Material Specification

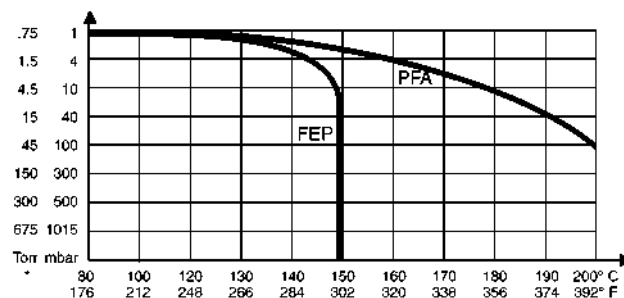
Item	Qty.	Designation	ASTM	DIN
1	1	body	Ductile Iron/FEP A395	GGG-40.3
			Ductile Iron/PFA A395	GGG-40.3
2	1	flange	Ductile Iron ASTM A395	GGG-40.3
3	2	glass	Borosilicate Glass	DIN 7080
4	2	gasket	Asbestos free	DIN 3535/4
5	8-16	stud fastener	ASTM A193 B7YC	1.4301 DIN17440
6	8-16	hexagon nut	ASTM A194 7YC	1.4301 DIN17440
7	1	ball	PTFE	PTFE
8	2	ball guide	PTFE	PTFE

Pressure/Temperature and Vacuum/Temperature Ratings

Pressure/Temperature Ratings



Vacuum/Temperature Ratings



Vacuum Rating: 1 mbar to 120°C (250°F) PFA
265 mbar to 180°C (350°F) PFA

*mm of mercury

*For applications below 14°F (-10°C) consult factory.

How to Order Atomac Lined Valves and Valve Equipment

How To Specify Atomac Fully Lined Ball Valves

Ball valves shall be ASME Class 150 (PN16) fully fluorocarbon lined and have a two-piece ductile cast iron body to GGG-40.3 (ASTM A395) or stainless steel. Flanges shall conform to ASME B16.5 (DIN 2501) and face-to-face dimensions to ASME B16.10 (DIN 3202/F1) – long pattern for full port and short pattern for standard port. It shall have an integral universal actuator mounting pad in accordance with ISO 5211. The body liner must be held in place internally as well as on the flange face with “T” slot locking grooves and have full vacuum rating capability. The ball must also be fully coated and be of the free floating design sealing on replaceable PTFE seats.

The valve stem shall be a CD4MCu (1.4462) insert coated with PFA, have a cast in shoulder and be internally installed into a lined recess in the body to prevent “blowout.” The valve stem seal must be a deep stuffing box design with chevron stem packing and have independent packing adjustment by a gland with PTFE-graphite bearing. Product marking must be in accordance with MSS-SP25, permanently serialized and color coded for quick liner identification.

In order to follow the Flowserve commitment to continuous improvement, we reserve the right to change product and performance specifications without notice.

How To Order

Example: 4 AKH2A FEP

4 in (100 mm) AKH2A full port valve with FEP liner and encapsulated ball.

	Size	Model	Liner Material	Body Material	Options			
					Special Ball for sizes 1"–3"			Double Stuffing Box
					"V"	"C"	Ceramic	
Ball Valves								
Full port, ASME	1 in-6 in (25 mm-150 mm)	AKH2A	PFA, FEP, PP	DCI, CF8M	CV	CB	CER	DB/SB
Standard port, ASME	1 in-12 in (25 mm-305 mm)	AKH3	PFA, FEP, PP, PVDF	DCI, CF8M	CV*	CB	CER	DB/SB
Full port, DIN	½ in-12 in (13 mm-305 mm)	AKH2	PFA, FEP, PP	DCI, CF8M	CV	CB	CER	DB/SB
3-way	1 in-3 in (25 mm-80 mm)	AMP3	PFA	DCI, CF8M				
Tank drain	1 in x 2 in (25 mm-50 mm)	AKH6	PFA, FEP, PP	DCI, CF8M				
	4 in x 6 in (100 mm-150 mm)			DCI, CF8M				
Glass pipe	1 in-4 in (25 mm-100 mm)	AKH7	PFA, FEP, PP	DCI, CF8M				
Other Equipment								
Check valve	½ in-8 in (15 mm-200 mm)	ARV2	PFA, FEP	DCI, CF8M				
45° "Y"	1 in-3 in (25 mm-80 mm)	ARL	PFA, FEP	DCI, CF8M				
Sight glass, 2-way	1 in-6 in (15 mm-150 mm)	ASG	PFA, FEP	DCI, CF8M				
Sight glass, 3-way	1 in-4 in (15 mm-100 mm)	ASG3	PFA, FEP	DCI, CF8M				
Sight glass, 4-way		ASG4	PFA, FEP	DCI, CF8M				
Check/sight glass	1 in-6 in (15 mm-150 mm)	ARVSG	PFA, FEP	DCI, CF8M				
Sampling	1 in-3 in (25 mm-80 mm)	APN/T	PFA, FEP	DCI, CF8M				
Sampling/sight glass	1 in-3 in (25 mm-80 mm)	APN/SG	PFA, FEP	DCI, CF8M				
Strainer	1 in-6 in (15 mm-150 mm)	ASF	PFA, FEP	DCI, CF8M				

*Note: For 1 in (25 mm) AKH3 valve, specify CV or 6 or 14.

Size	Model	Stem	Gasket
Ceramic Lined Valves			
1 in-4 in (15mm-100mm)	AKH5	C=ceramic S=316SS HC=Hastelloy® C	200=PTFE 350=Grafoil®

Example: 2 AKH5 S 200

2 in (50 mm) AKH5 ceramic lined valve with ceramic ball, 316 stainless steel stem and PTFE gasketry.

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® Grafoil is a registered trademark of Union Carbide.

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Selection, Installation, Operation and Maintenance

Although Flowserve can, and often does, provide general guidelines, it is obviously not possible to provide application specific data and warnings for all conceivable applications. The purchaser/end user must therefore assume the ultimate responsibility for the proper selection, installation, operation and maintenance of the products. Read the appropriate IOM available from Flowserve Ahaus GmbH before installing, operating or repairing any valve. The purchaser/end user should train its employees and/or contractors in the safe use of the Flowserve products in connection with the purchaser's manufacturing processes.

Design Changes

In order to follow the Flowserve commitment to continuous improvement, we reserve the right to change product and performance specifications without notice.



For actuating options, see page 7.



United States

Flowserve Corporation
Flow Control Division
1978 Foreman Drive
Cookeville, Tennessee 38501
Phone: 931 432 4021
Fax: 931 432 3105

Europe

Flowserve Ahaus GmbH
Von Braun Strasse 19a
D-48683 Ahaus
Germany
Phone: + 49.2561.686.0
Fax: + 49.2561.68639

Asia Pacific

Flowserve Pte. Ltd.
12 Tuas Avenue 20
Republic of Singapore 638824
Phone: 65 862 3332
Fax: 65 862 2800

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To find your local Flowserve representative:

For more information about Flowserve Corporation, visit
www.flowserve.com or call USA 1 800 225 6989

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