

SERIES AK 3004, 3604 & 3624 AK 3007 & 3627

1/4 INCH DIAPHRAGM VALVE — HIGH PRESSURE
Packless – manual and pneumatic (NC)



- Operating pressures to 4,500 psig (310 bar)
- Replaceable seat
- Stainless steel 316L
- Captured seat option (OX) for high pressure oxygen service and oxidizer
- LOTO and indicating switch options
- Multi-port options available (refer to page 4)
- Constant bleed option 5, 8 and 15 slpm of N₂ @ 80 psig (5.5 bar) refer to PN 430
- Machined from bar stock
- Cleaned for O₂ service
- Field repairable
- Installation and operating instructions available at www.aptech-online.com in the Tech Briefs section

Manual valves

	PSIG / BAR	
	3,700 / 255	4,500 / 310
AK 3604 – Round knob, multi-turn	●	
AK 3624 – Lever valve, 1/4 turn – LOTO, PL 225 optional – Lever position indicates valve status	●	
AK 3627 – T handle valve, 1/4 turn – Handle position indicates valve status		●

Pneumatic valves, normally closed (NC)

	PSIG / BAR	
	3,700 / 255	4,500 / 310
AK 3004 – Switch option for remote monitoring	●	
AK 3007 – Switch option for remote monitoring		●

All specifications subject to change without notice.

HIGH PRESSURE – HIGH PURITY – HIGH VALUE

Engineering Data — Manual valves

Operating pressure	AK 3604, 3624 AK 3627	Vacuum to 3,700 psig (255 bar) Vacuum to 4,500 psig (310 bar)
Flow coefficient (C _v)	AK 3604, 3624, 3627	0.29 (X _T = 0.6)

Engineering Data — Pneumatic valves

Operating pressure	AK 3004 AK 3007	Vacuum to 3,700 psig (255 bar) Vacuum to 4,500 psig (310 bar)
Flow coefficient (C _v)	AK 3004, 3007	0.23 (X _T = 0.5)
Status	AK 3004, 3007	Normally closed (NC)
Actuation pressure	AK 3004, 3007	70 to 110 psig (5 to 8 bar)
Actuation port	AK 3004, 3007	1/8 NPT, top port

Engineering Data — Other parameters all valves

Inlet and outlet connectors	1/4 inch compression, NPT or BSPT	
Internal volume	0.06 in ³ (1.07 cm ³)	
Operating temperature	AK 3007, 3627 AK 3004, 3604, 3624	-40° to +140° F (-40° to 60° C) -40° to +120° F (-40° to 49° C)
Proof pressure	150% of operating pressures	
Burst pressure	300% of operating pressures	
Leak rate	1 x 10 ⁻⁹ sccs He	

Engineering Data — Wetted materials all valves

	S	
Body	SS 316L	
Diaphragm	Ni-Co Alloy / UNS R30003	
Seat	AK 3004, 3604, 3624 AK 3007, 3627	PCTFE (Polyimide or PEEK optional) Polyimide or PEEK
Seat insert	AK 3004, 3604, 3624 OX	Seat: PCTFE Insert: Ni-Cr-Mo alloy / UNS N06022

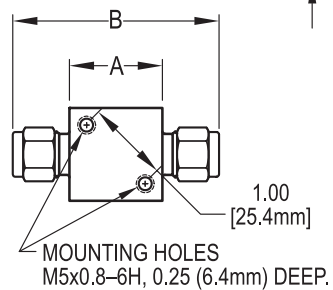
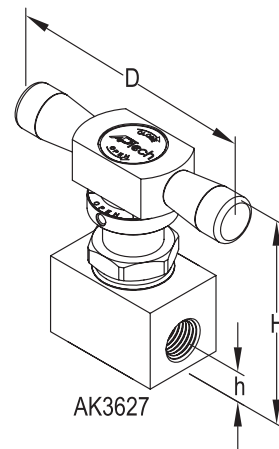
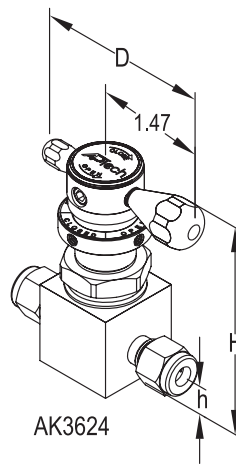
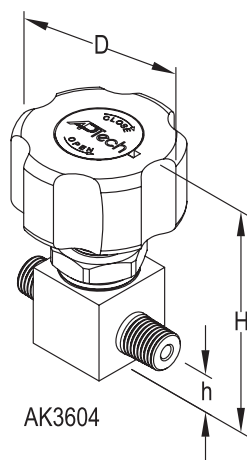
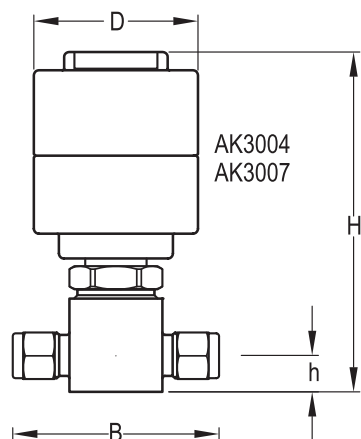
Seat Matrix

	PCTFE	Polyimide	PEEK
AK 3004, 3604, 3624	●	○	○
AK 3004, 3604, 3624 OX	●	NA	NA
AK 3007, 3627	NA	○ ¹	○ ¹

¹ Must select either VS or PK seat. ● Standard ○ Optional NA Not available

All specifications subject to change without notice.

NOTE: Cycle life of AK 3004, 3604, 3624, 3007 and 3627 is 5,000 cycles at full rated pressure.



MOUNTING HOLES
M5x0.8-6H, 0.25 (6.4mm) DEEP.

BOTTOM VIEW

- Metric dimensions are for reference only.
- Height of the valve (H) is an approximate value.
- All specifications subject to change without notice.
- All manual valves are shown in open position.

VALVE	D		H	
	inch	mm	inch	mm
AK3004	ø1.98	50.3	4.10	104
AK3007	ø1.98	50.3	4.89	124
AK3604	ø2.12	53.8	3.00	76
AK3624	2.47	62.7	2.94	75
AK3627	3.48	88.4	2.95	75

CONNECTION	A		B		h	
	inch	mm	inch	mm	inch	mm
4Tx4T	1.12 sq	28.4	2.56	65.0	0.44	11.2
4Nx4N	1.12 sq	28.4	2.32	58.9	0.44	11.2
4BRNx4BRN	1.12 sq	28.4	2.32	58.9	0.44	11.2
4x4	N/A	N/A	1.70	43.2	0.44	11.2
4BRx4BR	N/A	N/A	1.70	43.2	0.44	11.2

HIGH RELIABILITY – HIGH VALUE

AK Valves

- Internal stop prevents over stressing seat – knob and lever position does not change with time
- Replaceable seat
- High leak integrity – all metal seals to atmosphere
- Designed and manufactured for high purity gas applications
- Helium leak tested

Pressure Regulators with 4,500 psig (310 bar) or higher source pressure rating

- AK 1500 HR single stage diaphragm type regulator
- AK 1700 HR two stage diaphragm type regulator
- KT 10 and KT 12 single stage, piston type regulator

CAUTION: Product selection is the sole responsibility of the user, regardless of any recommendations or suggestions made by the factory. The user shall make selections based upon their own analysis and testing with regard to function, material compatibility and product ratings. Proper installation, operation and maintenance are also required to assure safe, trouble free performance.

Sample Order Number		AK 3004S 2P 44																	
AK 3004	Series	AK 3004, 3007 AK 3604 AK 3624 AK 3627	44 Connections Inlet / Outlet																
S	Material	S = Stainless steel (SS)																	
2P	Ports	2P = 2 ports																	
			Options																
			4 = 1/4 inch NPT female 4N = 1/4 inch NPT male 4T = 1/4 inch compression 4BR = 1/4 inch BSPT female 4BRN = 1/4 inch BSPT male VS = Polyimide seat P = Panel mount, manual valves* PK = PEEK seat IS = Indicating switch* (AK 3004 or 3007 only) OX = Seat insert (AK 3004, 3604, 3624 only) *Refer to manual for installation information.																
			<table border="0"> <thead> <tr> <th>SEAT MATRIX</th> <th>PCTFE</th> <th>VS</th> <th>PEEK</th> </tr> </thead> <tbody> <tr> <td>AK 3004, 3604, 3624</td> <td>●</td> <td>○</td> <td>○</td> </tr> <tr> <td>AK 3004, 3604, 3624 OX</td> <td>●</td> <td>NA</td> <td>NA</td> </tr> <tr> <td>AK 3007, 3627</td> <td>NA</td> <td>○¹</td> <td>○¹</td> </tr> </tbody> </table>	SEAT MATRIX	PCTFE	VS	PEEK	AK 3004, 3604, 3624	●	○	○	AK 3004, 3604, 3624 OX	●	NA	NA	AK 3007, 3627	NA	○ ¹	○ ¹
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AP Tech has product options and variations which are not documented in data sheets. If you have a model number that is not defined by the ordering information, please consult the factory or your local representative.

¹ Must select either VS or PK seat.
 ● Standard
 ○ Option selectable
 NA Not available