

# SERIES AK 30, 35 & 36

## 1/4 INCH DIAPHRAGM VALVE

Packless – manual and pneumatic (NC & NO)



- All metal seals to atmosphere
- Compression tube fitting, NPT and BSPT connections available
- Field repairable
- Machined from bar stock
- SS 316L construction
- Operating pressures from 125 psig (9 bar) to 3,000 psig (207 bar)
- Lock Out / Tag Out (LOTO) options
- Flow capacity 0.23 to 0.29 C<sub>v</sub>
- Constant bleed option 5, 8 and 15 slpm of N<sub>2</sub> @ 80 psig (5.5 bar) refer to PN 430
- Cleaned for O<sub>2</sub> service
- Internal manual knob stop prevents overstressing seat
- Two step pneumatic valve option: dual operation – metered or full open
- Installation and operating instructions available at [www.aptech-online.com](http://www.aptech-online.com) in the Tech Briefs section

### Manual valves

	PSIG / BAR	
	250 / 17	3,000 / 207
<b>AK 3600</b> – Round knob, multi-turn		●
<b>AK 3625</b> – Lever valve, 1/4 turn – LOTO, PL 225 optional – Lever position indicates valve status		●
<b>AK 3650</b> – Round knob, 1/4 turn – Open/closed status indication window – Switch option for remote monitoring		●
<b>AK 3652</b> – Round knob, 1/4 turn – Open/closed status indication window – Unique design combines scalloped round knob with raised rectangular section	●	
<b>AK 3657 and 3659</b> – Round knob, 1/4 turn – Pull, then turn to open – operational safety feature – Open/closed status indication window – LOTO – integral standard feature	●	●
	AK 3659	AK 3657

### Pneumatic valves, normally closed (NC)

	PSIG / BAR			
	125 / 9	145 / 10	300 / 21	3,000 / 207
<b>AK 3000 and 3002</b> – Switch option for remote monitoring				●
<b>AK 3540</b>		●		
<b>AK 3540VS</b>	●			
<b>AK 3542</b>	●			
<b>AK 3550</b> – Switch option for remote monitoring			●	
<b>AK 3571</b> – Dual mode – metered or full open	●			

### Pneumatic valve, normally open (NO)

	PSIG / BAR	
	250 / 17	3,000 / 207
<b>AK 3080</b> – Switch option for remote monitoring		●
<b>AK 3580</b> – Switch option for remote monitoring	●	

All specifications subject to change without notice.

# HIGH PURITY ~ HIGH VALUE

## Engineering Data — Manual valves

Operating pressure	AK 3652, 3659 AK 3600, 3625, 3650, 3657	Vacuum to 250 psig (17 bar) Vacuum to 3,000 psig (207 bar)
Flow coefficient (C <sub>v</sub> )	AK 3600, 3625, 3650, 3652 AK 3657, 3659	0.29 (X <sub>T</sub> = 0.6)

## Engineering Data — Pneumatic valves

Operating pressure	AK 3540VS, 3542, 3571 AK 3540 AK 3580 AK 3550 AK 3000, 3002, 3080	Vacuum to 125 psig (9 bar) Vacuum to 145 psig (10 bar) Vacuum to 250 psig (17 bar) Vacuum to 300 psig (21 bar) Vacuum to 3,000 psig (207 bar)
Flow coefficient (C <sub>v</sub> )	AK 3000, 3080 AK 3002 AK 3540, 3542, 3550, 3571, AK 3580	0.23 (X <sub>T</sub> = 0.5) 0.28 (X <sub>T</sub> = 0.5) 0.29 (X <sub>T</sub> = 0.6)
Status	AK 3000, 3002, 3540, 3542 AK 3550, 3571 AK 3080, 3580	Normally closed (NC) Normally closed (NC) Normally open (NO)
Actuation pressure	AK 3000, 3002, 3540, 3550 AK 3080, 3571, 3580 AK 3542	70 to 110 psig (5 to 8 bar) 70 to 110 psig (5 to 8 bar) 60 to 110 psig (4 to 8 bar)
Actuation port	AK 3000, 3002, 3080, 3540, AK 3580 AK 3542 AK 3550, 3571	1/8 NPT, top port  M5, top port M5, side port

## Engineering Data — Other parameters all valves

Inlet and outlet connectors	1/4 inch compression, NPT or BSPT
Internal volume	0.06 in <sup>3</sup> (1.07 cm <sup>3</sup> )
Operating temperature	-40° to +160° F (-40° to 71° C)*
Proof pressure	150% of operating pressures
Burst pressure	300% of operating pressures
Leak rate	1 x 10 <sup>-9</sup> sccs

## Engineering Data — Wetted materials all valves

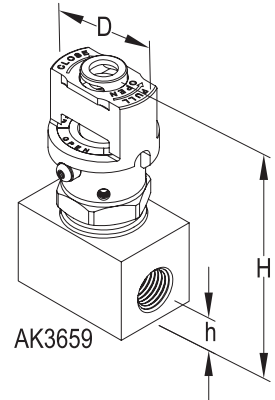
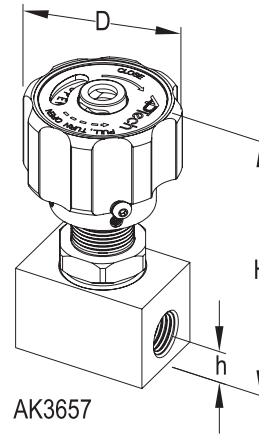
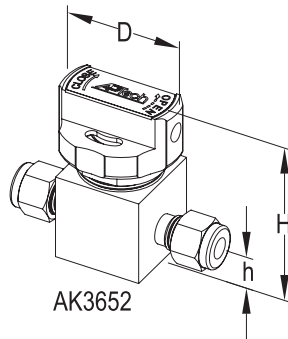
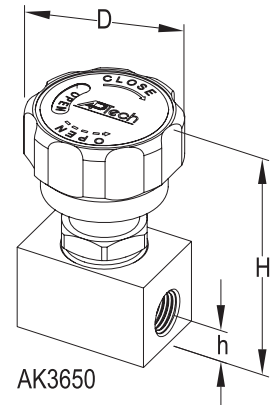
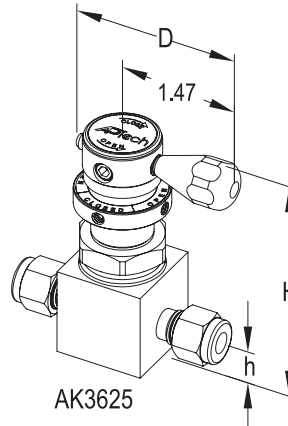
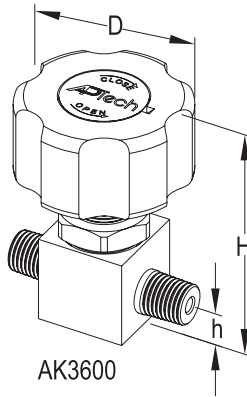
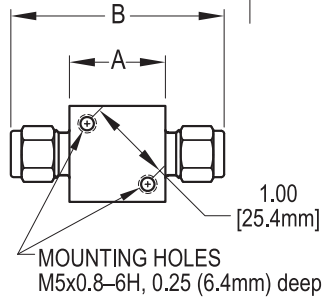
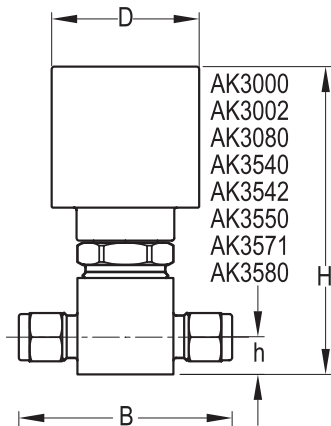
Body	SS 316L
Diaphragm	Ni-Co alloy / UNS R30003
Seat	PCTFE (Polyimide optional)

## AK 3571 — Metered flow range tolerance at 80 psig N<sub>2</sub> inlet, 0 psig outlet

10 to 20 slpm	+/- 6 slpm
21 to 50 slpm	+/- 10 slpm
51 to 100 slpm	+/- 15 slpm
101 to 200 slpm	+/- 20 slpm

\*VS option 14° to 194°F (-10° to + 90°C).

All specifications subject to change without notice.



VALVE	D		H	
	inch	mm	inch	mm
AK3000	ø1.98	50.3	~4.10	104
AK3002	ø1.98	50.3	~4.10	104
AK3080	ø1.98	50.3	4.89	124
AK3540	ø1.46	37.1	~3.49	89
AK3542	ø1.57	40.0	~2.24	57
AK3550	ø1.37	34.8	~3.28	83
AK3571	ø1.72	43.7	~3.63	92
AK3580	ø1.46	37.1	~3.17	81
AK3600	ø2.12	53.8	~3.00	76
AK3625	2.04	51.8	~2.94	75
AK3650	ø1.87	47.5	~3.02	77
AK3652	ø1.50	38.1	~2.17	55
AK3657	ø1.87	47.5	~3.60	91
AK3659	ø1.30	33.0	~3.13	80

- All manual valves are shown in open position.
- All dimensions in inches (mm).
- Metric dimensions are for reference only.
- All specifications subject to change without notice.

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

- 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

## Status indicating switch options

### Pneumatic valve

- ISC: NC switch AK 3550 & 3580
- ISO: NO switch AK 3550 & 3580
- IS: switch AK 3000

### Manual valve

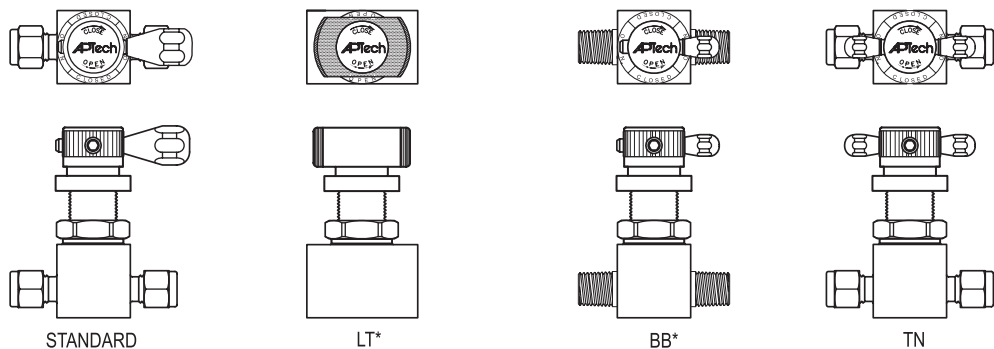
- ISH: switch AK 3650

Please refer to the Installation and Operating Instructions for further information regarding switches.

## AK 3625 handle options

### Handle color options

- RD = Red
- WT = White
- BL = Blue
- GR = Green
- Black (standard)



\*LT and BB handle options limit valve operating pressure to 250 psig (17 bar)

**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 3652S 2P 4T 4T	
<b>AK 3652</b>	<b>Series</b>	AK 3000, 3002, 3080 AK 3540, 3542, 3550 AK 3571, 3580 AK 3600, 3625 AK 3650, 3652, 3657, 3659	<b>Options</b>
<b>S</b>	<b>Material</b>	S = Stainless steel (SS)	VS = Polyimide Seat P = Panel mount, manual valves* (except 3652, 3659 & 4659)
<b>2P</b>	<b>Ports</b>	2P = 2 ports	ISC = NC switch 3550 & 3580 ISO = NO switch 3550 & 3580 IS = Switch 3000, 3002, 3080 ISH = Switch 3650
<b>4T 4T</b>	<b>Connections Inlet / Outlet</b>	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  Inlet and outlet connections must be the same.	RD = Red 3625 lever WT = White 3625 lever BL = Blue 3625 lever GR = Green 3625 lever LT = 3625 handle option BB = 3625 handle option TN = 3625 handle option MXXX** = 3571 metered adjusts flow in slpm at 80 psig N <sub>2</sub>

\*Refer to manual for installation information.  
\*\*NOTE: Replace XXX with flow rate using 3 digits, example 50 slpm = M050.

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.