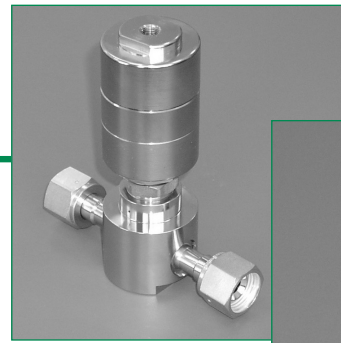


# SERIES AP 3100

## 1/2 INCH DIAPHRAGM VALVE

High Pressure ~ High Flow



- Designed for bulk specialty gas systems (BSGS)
- Replaceable seat
- No differential pressure rating (will not lock up with reverse pressure)
- 316L SS secondary remelt construction (Ni-Cr-Mo super alloy optional)
- Vacuum to 3,000 psig (207 bar)  
AP 3113, 3102, 3150 and 3157 vacuum to 1,300 psig (90 bar)
- 1.0  $C_v$  flow capacity  
AP 3102 – 1.3  $C_v$   
AP 3100 and 3130 – 0.7  $C_v$
- Manual or pneumatic actuation
- LOTO compatible
- Installation and operating instructions available at [www.aptech-online.com](http://www.aptech-online.com) in the Tech Briefs section

### Manual valves

#### AP 3100 and 3102

- Multi-turn round knob

#### AP 3125

- Lever valve, 1/4 turn activation
- LOTO, PL 225 optional
- Optional lever colors and configuration
- Lever position indicates valve status

#### AP 3150

- Round knob, 1/4 turn
- Open/closed status indication window
- Optional status indication switch (ISH)

#### AP 3157

- Round knob, 1/4 turn
- Pull, then turn to open – operational safety feature
- Open/closed status indication window
- LOTO – standard feature

### Pneumatic valves

#### AP 3113

- Normally closed (NC)
- Full 1.0  $C_v$  rating at lower pressure 1,300 psig (90 bar)
- LOTO, PL 210 optional
- Optional status indicator switch (IS)

#### AP 3130

- Normally closed (NC)
- Full 3,000 psig (207 bar) pressure rating with lower  $C_v$  0.7
- LOTO, PL 210 optional
- Optional status indicator switch (IS)

All specifications subject to change without notice.

## HIGH PRESSURE ~ HIGH FLOW ~ HIGH PURITY

### Engineering Data — AP 3113 and AP 3130 Series – Pneumatic Valves

Inlet pressure	AP 3113 AP 3130	Vacuum to 1,300 psig (90 bar) Vacuum to 3,000 psig (207 bar)
Outlet pressure		Vacuum to inlet pressure
Proof pressure		150% of maximum rating
Burst pressure		300% of maximum rating
Actuation pressure		70 to 110 psig (4.8 to 7.6 bar)
Status		Normally closed
Actuation port		1/8 inch NPT, top port
Flow coefficient (C <sub>v</sub> )*	AP 3113 AP 3130	1.0 (X <sub>T</sub> = 0.7) 0.7 (X <sub>T</sub> = 0.5)

### Engineering Data — AP 3100, AP 3102, AP 3125, AP 3150 and AP 3157 Series – Manual Valves

Inlet pressure	AP 3100, AP 3125 AP 3102, AP 3150, AP 3157	Vacuum to 3,000 psig (207 bar) Vacuum to 1,300 psig (90 bar)
Outlet pressure		Vacuum to inlet pressure
Proof pressure		150% of operating pressures
Burst pressure		300% of operating pressures
Flow coefficient (C <sub>v</sub> )*	AP 3102 AP 3125, AP 3150, AP 3157 AP 3100	1.3 (X <sub>T</sub> = 1.0) 1.0 (X <sub>T</sub> = 0.6) 0.7 (X <sub>T</sub> = 0.5)

\*Flow coefficient based on 1/2 inch connectors.

### Engineering Data — Other parameters all valves

Inlet and outlet connectors	1/2 inch face seal or tube weld (3/4 inch face seal or tube weld, 1/4 inch face seal** or 3/8 inch tube weld optional)
Internal volume	0.36 in <sup>3</sup> (6.0 cm <sup>3</sup> ) for body
Operating temperature (PCTFE seat)	-40° to +150° F (-40° to 65° C)***
Surface finish	15 μin Ra max / 10 μin. Ra avg. (0.4/0.25 μm) standard; 10 μin (0.25 μm); 7 μin (0.18 μm); and 5 μin (0.13 μm) Ra max optional
Inboard leakage	2 x 10 <sup>-10</sup> sccs
Outboard leakage	2 x 10 <sup>-9</sup> sccs He at 500 psig inlet pressure
Leakage across seat	1 x 10 <sup>-9</sup> sccs He at 500 psig inlet pressure

\*\*1/4 inch face seal are high flow type.

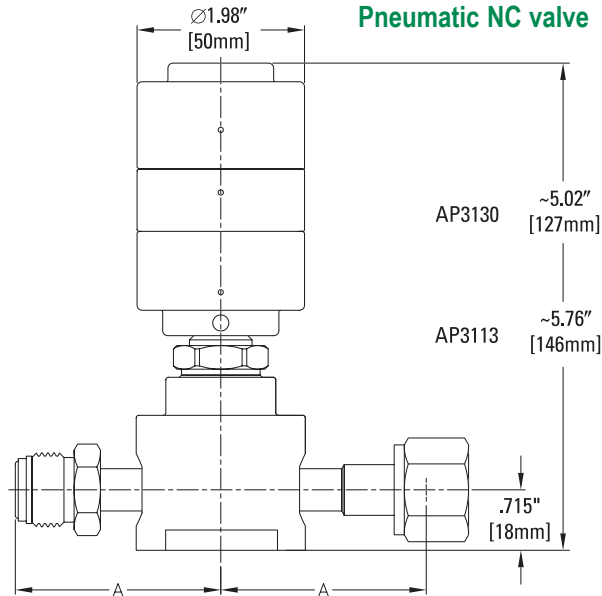
\*\*\*VS option 14° to 194°F (-10° to + 90°C).

### Engineering Data — Wetted materials

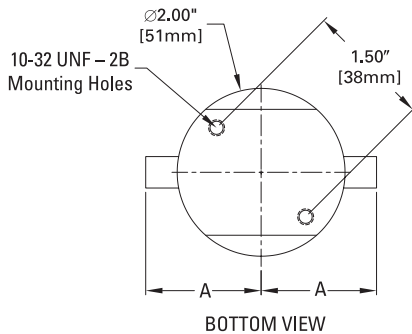
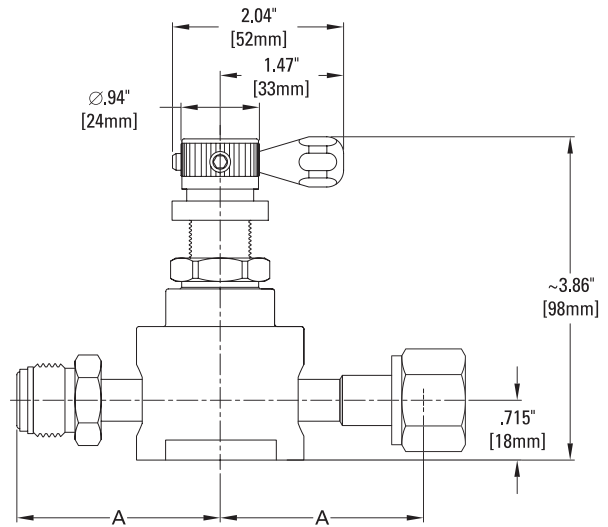
	S	H
Body	SS 316L secondary remelt	Ni-Cr-Mo alloy / UNS N06022
Spring	SS 316	Ni-Cr-Fe alloy / UNS N06600
Diaphragm	Ni-Co alloy / UNS R30003	Ni-Co alloy / UNS R30003
Seat	PCTFE (Polyimide optional)	PCTFE
Poppet	SS 316L	Ni-Cr-Mo alloy / UNS N06022

All specifications subject to change without notice.

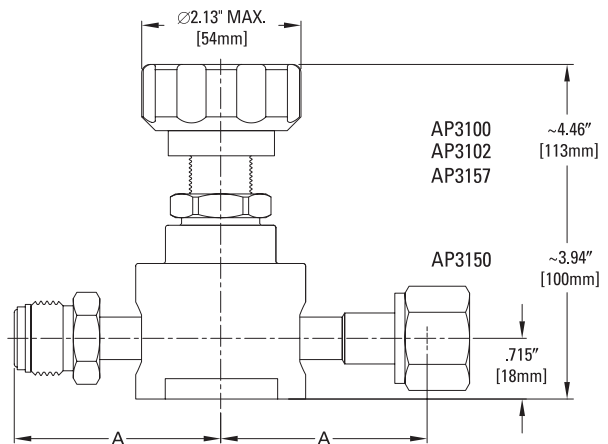
**AP 3113 & 3130  
Pneumatic NC valve**



**AP 3125  
Manual 1/4 turn lever valve**



**AP 3100 – Multi-turn knob valve  
AP 3102 – Multi-turn knob valve  
AP 3150 – 1/4 turn indicating knob valve  
AP 3157 – 1/4 turn, pull/twist LOTO**



CONNECTION	A	
	inch	mm
FV4, MV4	2.000±.020	50.8
FV8, MV8	2.425±.020	61.6
TW4, TW6	1.375±.020	34.9
TW8	1.790±.020	45.5
FV12, MV12	3.500±.030	88.9
TW12	3.250±.030	82.6

Metric dimensions are for reference only.

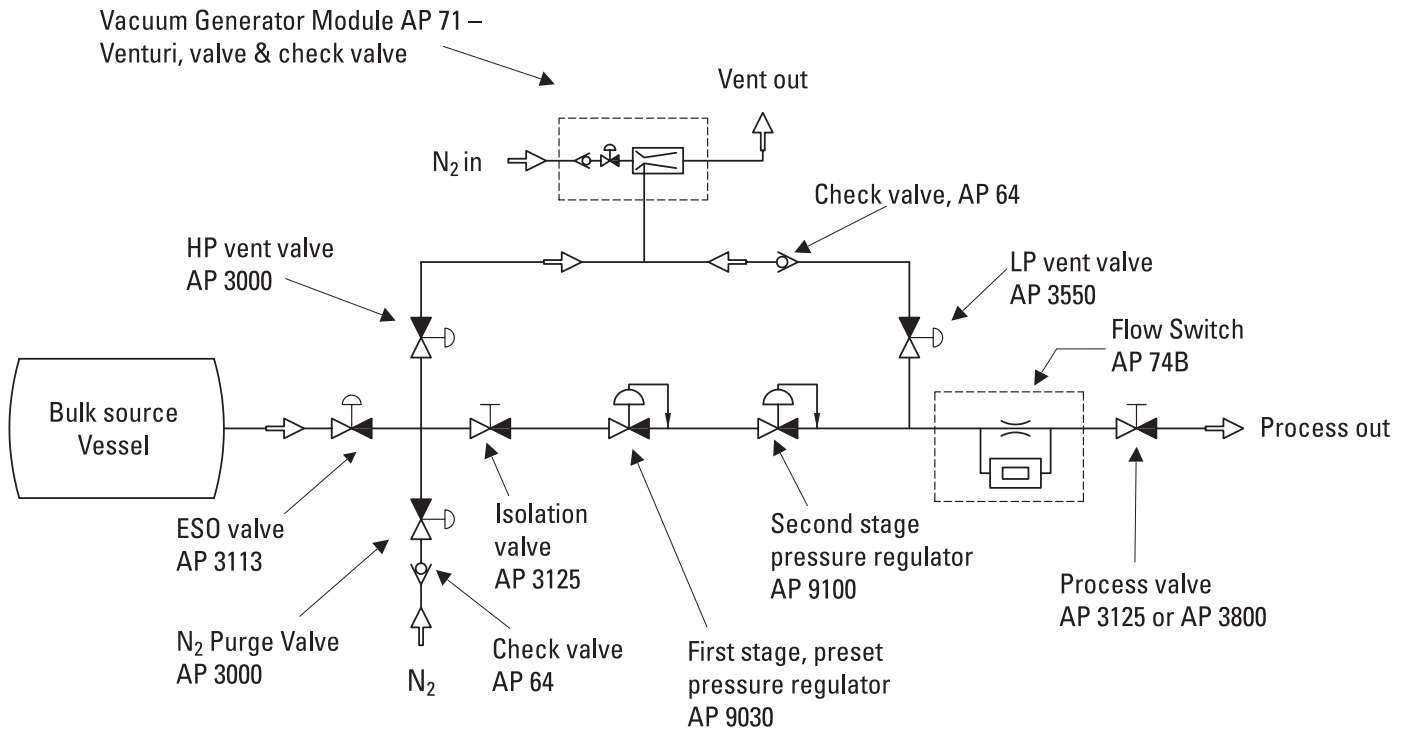
**The AP 3100 Series – Tomorrow’s BSGS valve, today**

The AP 3100 Series is a complete family of 1/2 inch diaphragm valves designed to deliver both bulk specialty and house gases. Manual and pneumatic versions coupled with a variety of connections and options provide an array of choices to suit most any application. High pressure welds with high flow to meet today’s emerging challenge in bulk specialty gas system (BSGS) delivery.

Though this is a spring type diaphragm valve, it embraces ultraclean technology to deliver ultra high purity gases, contributing virtually no contamination to the process stream. The design is also unique in that there is no differential backpressure rating common to most spring type diaphragm valves. One can flow at full rated pressure in either direction through the valve. The only caveat is that in the reverse flow direction, the valve does not achieve full flow capacity,  $C_v$ , until the pressure differential (outlet to inlet) is less than 40 psi (2.8 bar).

Naturally, the AP 3100 Series is manufactured utilizing state of the art techniques, as are all AP Tech products.

## Typical Location of AP Tech Components in Bulk HCl Delivery System



Note: This schematic is intended as an example of AP Tech component usage only. It does not include pressure measurement, filtration, etc. which must be included in a system.

Specific component selection may vary per application.

**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		AP 3113SM 2PW MV8 MV8 VS	
<b>AP 3113</b>   Series		AP 3100 AP 3102 AP 3113 AP 3125 AP 3130 AP 3150 AP 3157	
<b>S</b>   Material		S = Stainless steel (SS) 15 µin Ra Max (standard) H = Ni-Cr-Mo alloy / UNS N06022	
<b>M</b>   Surface Finish Options		M = 10 µin. Ra max	
<b>2PW</b>   Ports		2PW = 2 ports	
			<b>MV8 MV8</b>   Connections Inlet / Outlet
			FV4 = 1/4 inch face seal female MV4 = 1/4 inch face seal male TW6 = 3/8 inch tube weld stub FV8 = 1/2 inch face seal female MV8 = 1/2 inch face seal male TW8 = 1/2 inch tube weld stub FV12 = 3/4 inch face seal female* MV12 = 3/4 inch face seal male* TW12 = 3/4 inch tube weld stub  (Other fittings available but Ni-Co-Mo alloy limited to 1/2 inch.) *Caution: Verify mating fittings are of proper pressure rating for application.
			<b>VS</b>   Options
			VS = Polyimide Seat IS = Indicator Switch (3113 and 3130 only) ISH = Indicator Switch Handle (3150 only) SC = Short bonnet.
			Refer to operating manual for further switch information.

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.