

# SERIES AP 90PA & AP 91PA

## PNEUMATICALLY ACTUATED BULK GAS REGULATOR

### Source and Line Application

- Actuation control pressure isolated from process gas by two seals
- Single stage
- “Tied diaphragm” design with bellows sensing element
- Metal seal to atmosphere
- Flow rates up to 5,000 slpm (175 scfm) of Nitrogen
- 100 psig outlet achieved with 80 psig control pressure or less
- Actuator ‘fail safe’ normally closed (NC)
- Installation and operating instructions available at [www.aptech-online.com](http://www.aptech-online.com) in the Tech Briefs section

### Operating Parameters

Source pressure	AP 90PA	vacuum to 1700 psig (117 bar)
	AP 91PA	vacuum to 800 psig (55 bar)
Delivery pressure	AP 90PA	10 to 100 psig (0.7 to 6.9 bar)
	AP 91PA	10 to 150 psig (0.7 to 10.3 bar)*
Proof pressure	AP 90 PA & AP 91PA	150% of operating pressures
Burst pressure	AP 90 PA & AP 91PA	300% of operating pressures
Control pressure		150 psig (10 bar) maximum

\*Source pressure 250 psig (17 bar) maximum for outlet pressure above 100 psig (7 bar)

### Other Parameters

Inlet/outlet port connectors		1/2, 3/4 or 1 inch face seal or tube weld
Control pressure port		1/8 inch NPT
Flow coefficient*** (Cv) AP 90PA	3.0	
(Cv) AP 91PA	4.0	
Internal volume		12 in <sup>3</sup> (197 cm <sup>3</sup> )
Operating temperature		-40° to +160°F (-40° to +71°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 Optional surface finishes meet or exceed 5 µin Ra average
Inboard leakage		2 x 10 <sup>-10</sup> sccs He
Outboard leakage		2 x 10 <sup>-9</sup> sccs He
Leakage across the seat		4 x 10 <sup>-8</sup> sccs He
Supply pressure effect		
	AP 90PA	3.7 psig per 100 psig source pressure change
	AP 91PA	5.4 psig per 100 psig source pressure change

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

\*\*\*A pressure regulator Cv is a nominal value which indicates the point of choked flow. Please refer to a flow curve or a recommendation guide for usable flow range.

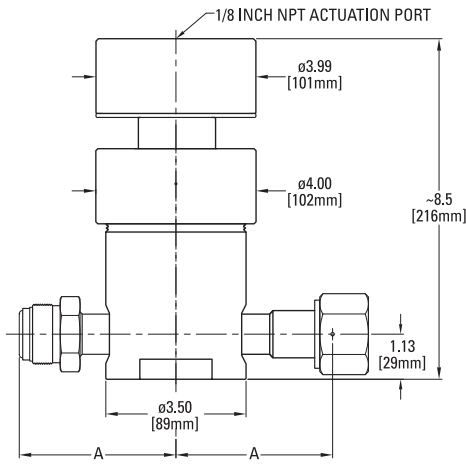
### Materials

Wetted Parts	Series AP 90PA & AP 91PA
Body, nozzle	Stainless Steel 316L
Seat	PCTFE (Polyimide optional)
Bellows, poppet	Ni-Cr-Mo alloy / UNS N06022
Bonnet seal	Stainless Steel 316
Poppet spring	Ni-Co alloy / UNS R30003
Finish	electropolished and passivated

All specifications subject to change without notice.

# SERVICE AND SUPPORT BEYOND COMPARE

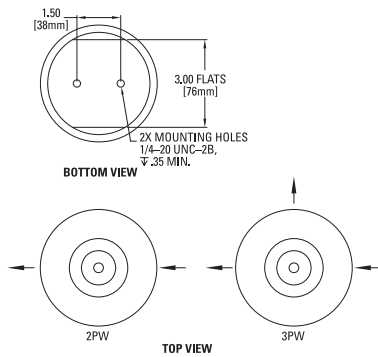
## DIMENSIONAL INFORMATION



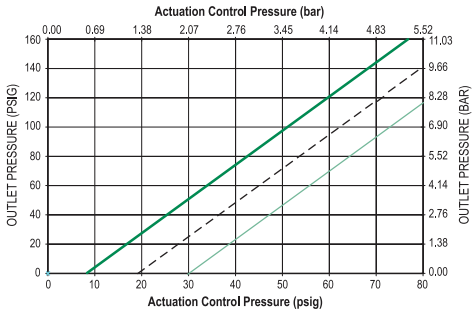
CONNECTION	A	
	in [±.02]	mm
FV8, MV8	3.11	79
FV12, MV12	3.64	92.5
FV16, MV16	3.92	99.6

All dimensions are in inches.  
Metric dimensions (mm) are for reference only.

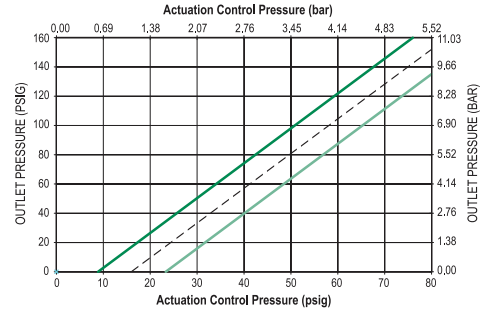
## PORTING CONFIGURATIONS



**AP90PA**  
Outlet Pressure vs. Actuation Control Pressure



**AP91PA**  
Outlet Pressure vs. Actuation Control Pressure



**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.

## ORDERING INFORMATION

Sample Order Number	<b>AP 91PASM 2PW TW16 TW16</b>	
<b>AP 91PA   Series</b>	AP 90PA = 10 – 100 psig (0.7 – 6.9 bar) AP 91PA = 10 – 150 psig (0.7 – 10.3 bar)	<b>TW16 TW16   Connections Inlet / Outlet</b>
<b>SM   Material</b>	S = Stainless steel / 15 Ra max SM = Stainless steel / 10 Ra max	FV8 = 1/2 inch face seal female MV8 = 1/2 inch face seal male TW8 = 1/2 inch tube weld FV12 = 3/4 inch face seal female MV12 = 3/4 inch face seal male TW12 = 3/4 inch tube weld FV16 = 1 inch face seal female MV16 = 1 inch face seal male TW16 = 1 inch tube weld
<b>2PW   Ports</b>	2PW = 2 ports 3PW = 3 ports	<b>Delivery Gauge*</b>
		0 = no gauge 1 = 30-0-100 psig/bar H = 30-0-160 psig/bar
		*Standard gauge port is 1/4 inch face seal male
		<b>Options</b>
		VS = Polyimide seat

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.