



ADVANCED PRESSURE TECHNOLOGY

# SERIES AK 12PA TIED DIAPHRAGM REGULATOR PNEUMATIC ACTUATION



- ◆ Actuator 'fail safe' normally closed (NC)
- ◆ Vacuum to 1,700 psig (117 bar) inlet, 150 psig (10 bar) outlet (optional inlet 3,000 psig (207 bar))
- ◆ Flow capacity\* 1 to 1,000 slpm (HF option)
- ◆ Stainless Steel or Brass construction
- ◆ Poppet attached to diaphragm (tied diaphragm) improves positive shut off across the seat
- ◆ 100 psig outlet achieved with 80 psig control pressure or less
- ◆ Actuation control pressure isolated from process gas
- ◆ Cleaned for O2 service
- ◆ Field repairable
- ◆ Diffusion resistant Stainless Steel diaphragm
- ◆ Installation and operating instructions available at [www.aptech-online.com](http://www.aptech-online.com)

## ENGINEERING DATA

### Operating Parameters

Source pressure	vacuum to 1,700 psig (117 bar) AK 12PA HR vacuum to 3,000 psig (207 bar)**
Delivery pressure	7 to 150 psig (0.5 to 10 bar)
Proof pressure	150% of operating pressures
Burst pressure	300% of operating pressures
Control pressure	150 psig (10 bar) maximum

### Other Parameters

Inlet/outlet ports	1/4", 3/8" and 1/2" NPT and compression (optional porting available)
Control pressure port	1/8 inch NPT
Bonnet vent port	1/8 inch NPT
Flow coefficient, Cv <sup>‡</sup>	0.9 (HF option 1.1)**
Internal volume	1.32 in <sup>3</sup> (21.6 cm <sup>3</sup> )
Operating temperature	-40° to +160°F (-40° to +71°C)***
Leak rate	1 x 10 <sup>-9</sup> sccs
Supply pressure effect	3.5 psig per 100 psig source pressure change (HF 4.2 psig per 100 psig)

## MATERIALS OF CONSTRUCTION

	AK 12PAB	AK 12PAS	AK 12PASH
Body	brass	SS 316L	SS 316L
Poppet	SS 316	SS 316	Ni-Cr-Mo alloy / UNS N06022
Diaphragm	Ni-Cr-Mo alloy / UNS N06022	Ni-Cr-Mo alloy / UNS N06022	Ni-Cr-Mo alloy / UNS N06022
Seat	PCTFE (Polyimide opt.)	PCTFE (Polyimide opt.)	PCTFE

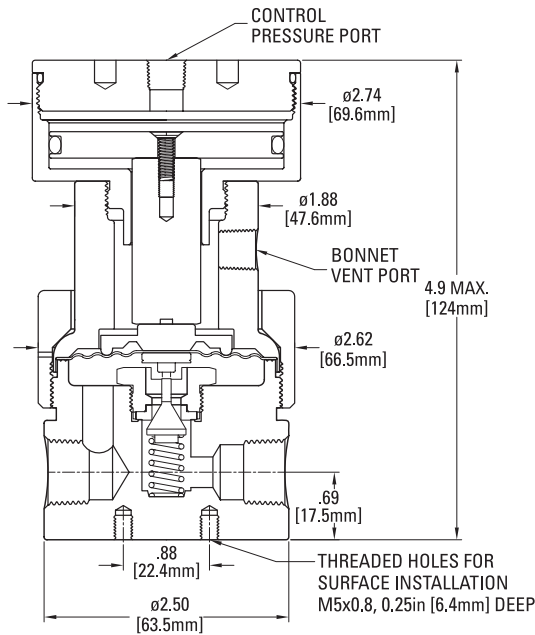
\*Flow rating based upon N2 @ 100 psig inlet, varying gas type and, or inlet/outlet pressures will effect rating.

\*\*HR and HF option may not achieve rated outlet pressure at all inlet pressures.

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

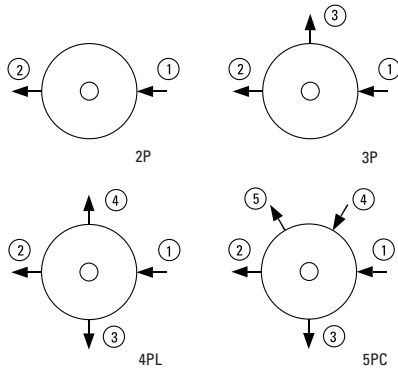
‡A pressure regulator Cv is a nominal value which indicates the point of choked flow. Please refer to a flow curve or a recommendation guide for usable flow range. All specifications subject to change without notice.

# SERIES AK 1200 — QUALITY, RELIABILITY & PERFORMANCE!



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

## Porting Configurations



**NOTE:** Brass only available with 4PC or 5PC porting.  
Ports, other than 1 & 2, are only available 1/4 inch NPT.

**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						
AK 12PA Series	S Material	4PL Ports	6 ① ② Ports	6 ③ ④ ⑤ Ports (Gauge/Accessory)	Options	
AK 12PA = 7-150 psig (.5 to 10 bar)		2P = 2 Ports 3P = 3 Ports 4PL = 4 Ports 5PC = 5 Ports	4 = 1/4 inch NPT 6 = 3/8 inch NPT 8 = 1/2 inch NPT 4T = 1/4 inch comp 6T = 3/8 inch comp 8T = 1/2 inch comp	0 = No gauge or device installed V3 = 30-0-30 psig/bar 1 = 30-0-100 psig/bar 2 = 0-200 psig/bar 10 = 0-1000 psig/bar 40 = 0-4000 psig/bar	VS = Polyimide seat *HF = High flow *HR = High inlet pressure	
S = Stainless steel (SS) SH = SS with Ni-Cr-Mo alloy internals B = Brass						

**NOTE:** Designators required for all ports, but "0" not required if there isn't a port. A 2P has designators only for ① & ② ports, as example AK 12PA S 2P 44 not AK 12PA S 2P 44 000.  
\*HF and HR options are only available separately. These options may not be combined. Full outlet pressure rating may not be achieved at all inlet pressures.

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.

