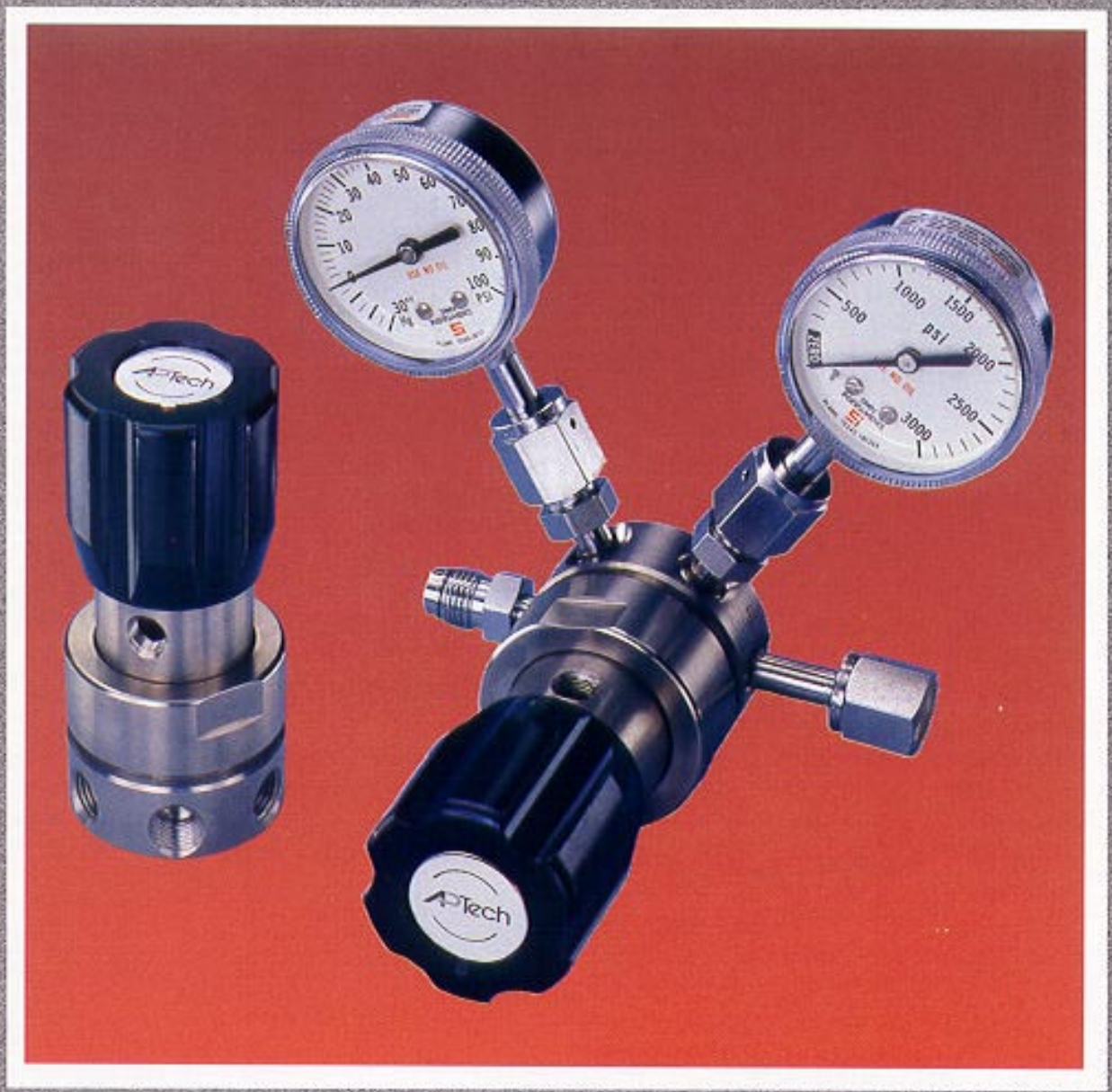
APTech

ADVANCED PRESSURE TECHNOLOGY

Series AP 1000
Single Stage Pressure Regulator

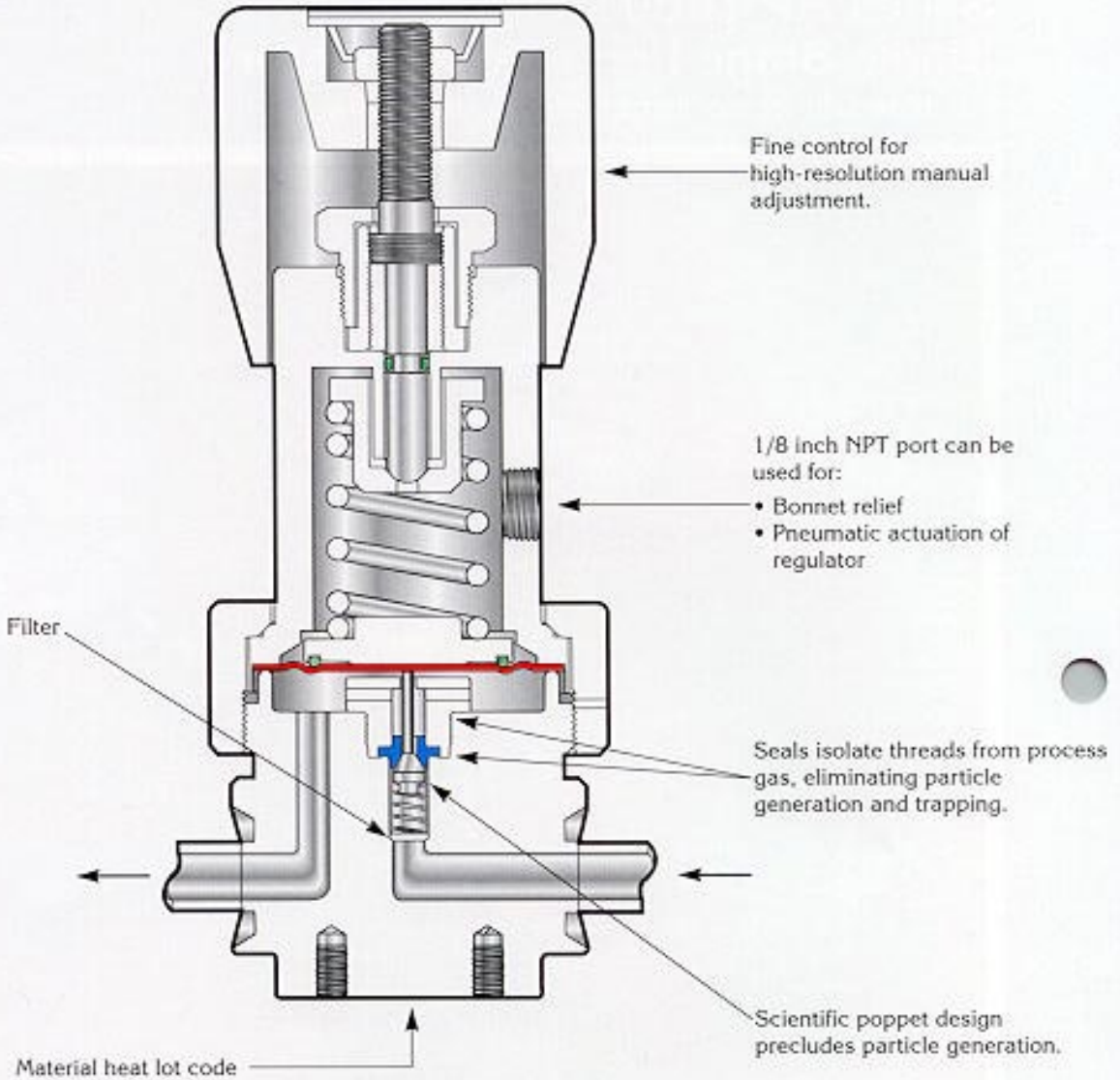
No threads in contact with fluid media



- Hastelloy® alloy C-22 or SS 316L construction
- 15µin. surface finish (10, 7 and 5µin. optional)
- Vacuum to 3500 psig (241 bar)
- Cleaned, assembled and packaged for high purity semiconductor applications

687 Technology Way / Napa, CA 94558 / Telephone (707) 259-0102 / Fax (707) 259-0117

Series AP 1000 Pressure Regulator



Ultraclean performance and design

The AP Tech Series AP 1000 Pressure Regulator is engineered to reliably deliver unprecedented control of high purity fluids without contributing contamination to the process stream. Though rated to full cylinder pressure, the Series AP 1000 is the regulator of choice as a line regulator for point of use applications.

The AP 1000 is an ultraclean component. There are no particle generating or abrading parts in the wetted area. The flow path is free of unswept zones and threads are isolated to minimize entrapment. The metal to metal seal of the diaphragm to the body is the only seal to atmosphere other than the port connections.

Please consult your local representative or the factory for further information or assistance.

Engineering data – Series AP 1000 Pressure Regulators

Operating parameters

Source pressure	vacuum to 3500 psig (241 bar) For AP 1001, 100 psig (7 bar)
Delivery pressure (AP 1001)	1 to 10 psig (0.07 to .7 bar) (Max. inlet pressure 100 psig)
Delivery pressure (AP 1002)	1 to 30 psig (0.07 to 2 bar)
Delivery pressure (AP 1006)	2 to 60 psig (0.14 to 4 bar)
Delivery pressure (AP 1010)	2 to 100 psig (0.14 to 7 bar)
Proof pressure	5,000 psig (345 bar)
Burst pressure	10,000 psig (690 bar)

Other parameters

Inlet and outlet connectors	¼ or ⅜ inch face-seal or tube weld, ¼ inch NPTF
Actuation/relief port	⅛ inch NPT
Flow coefficient (Cv)	0.09
Internal volume	0.49 in^3 (8 cm^3)
Operating temperature	-40° to +160°F (-40° to +71°C)
Surface finish	10–15µin (0.25–0.4µm) standard 10µin (0.25µm); 7µin (0.18µm); and 5µin (0.13µm) optional
Inboard leakage	2×10^{-10} sccs
Outboard leakage	2×10^{-9} sccs He at 1500 psig inlet pressure
Leakage across seat	4×10^{-8} sccs He at 1000 psig inlet pressure
Installation	surface or panel (optional)
Delivery pressure rise	0.25 psig per 100 psig source pressure drop

Materials

Type of service	Series AP 1000 S Noncorrosive	Series AP 1000 SH Corrosive	Series AP 1000H Corrosive
Wetted Parts			
Body	stainless steel 316L secondary remelt	stainless steel 316L secondary remelt	Hastelloy® alloy C-22
Poppet, nozzle, diaphragm	stainless steel 316L	Hastelloy alloy C-22	Hastelloy alloy C-22
Finish	electropolished and passivated	electropolished and passivated	electropolished
Seat	PCTFE (Vespel® optional)	PCTFE	PCTFE
Non-wetted Parts			
Bonnet, cap, plate	nickel-plated brass	nickel-plated brass	nickel-plated brass
Diaphragm spring	stainless steel 302	stainless steel 302	stainless steel 302
O-ring	Viton®	Viton	Viton
Stem	brass	brass	brass

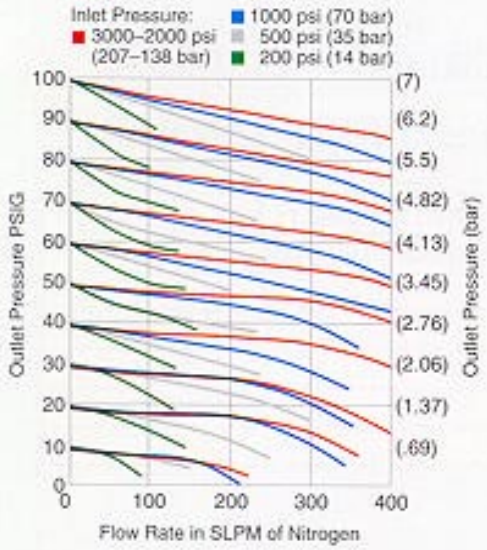
All specifications subject to change without notice

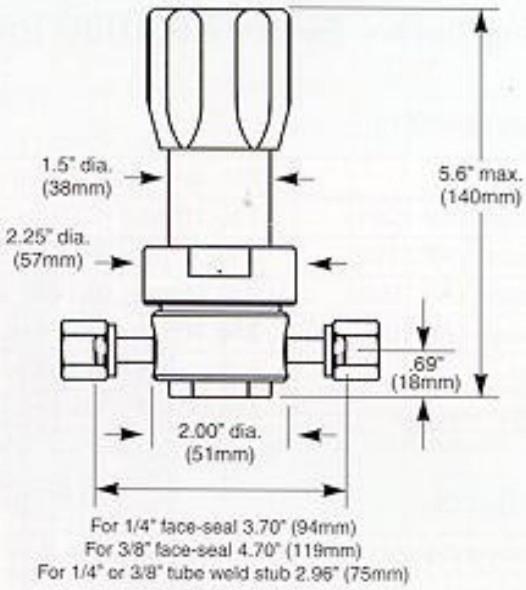
Vespel® DuPont
Hastelloy® Haynes Corporation
Viton® DuPont

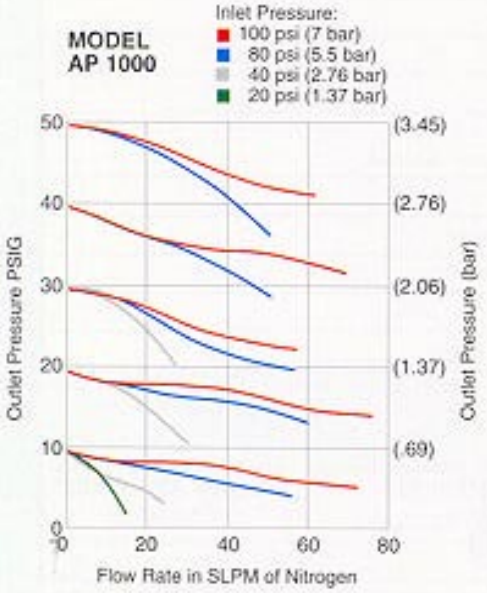
Cleaning and packaging

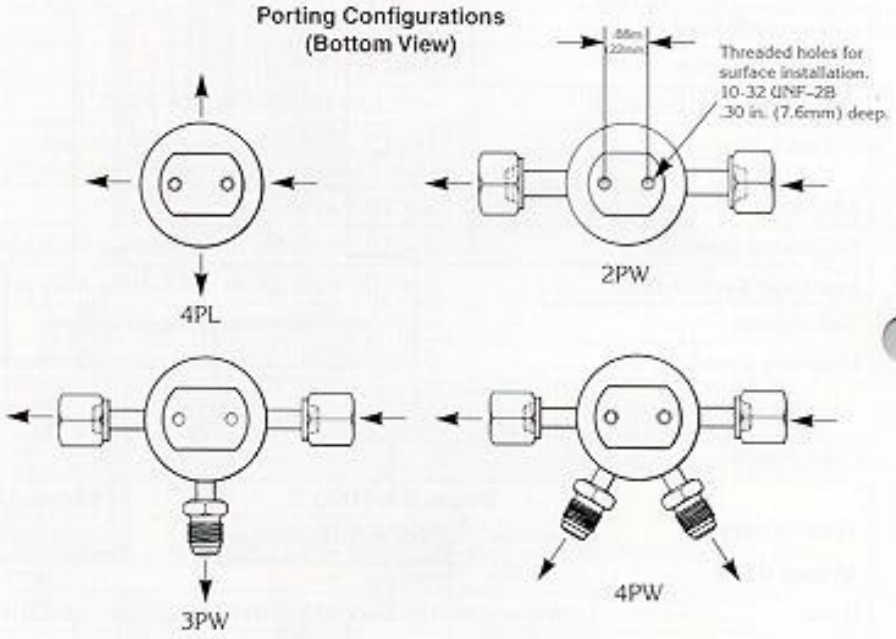
Cleaning is a multi-step process performed in a Class 100 clean room. Parts are ultrasonically cleaned with a wetting agent initially and then progressively with hot and cold DI water. Cleaned parts are then blown dry with ultra pure nitrogen prior to being baked completely dry in a nitrogen atmosphere.

Each regulator is then individually assembled, pressure tested, functionally tested and helium leak tested. Labels, including a unique serial number, are installed prior to products being double packaged under ultra pure nitrogen.









ORDERING INFORMATION

Series AP 1000	S Material	M Surface Finish Options	4PW Ports	FV4 - FV4 Connections Inlet Outlet	40 - V3 Gauges* Source Delivery	P Options

AP1001 = 1-10 psi (.07 to .7 bar)
AP1002 = 1-30 psi (.07 to 2 bar)
AP1006 = 2-60 psi (.14 to 4 bar)
AP1010 = 2-100 psi (.14 to 7 bar)

S = Stainless steel
SH = Stainless steel with Hastelloy internals
H = Hastelloy alloy C-22

M = 10µ in. Ra
V = 7µ in. Ra
X = 5µ in. Ra

3P = 3 ports (1/4 NPTF)
4P = 4 ports (1/4 NPTF)
4PL = 4 ports (1/4 NPTF; 1 in, 3 out)
2PW = 2 ports butt weld
3PW = 3 ports butt weld
4PW = 4 ports butt weld

FV4 = 1/4 inch face-seal female
MV4 = 1/4 inch face-seal male
TW4 = 1/4 inch tube weld stub
FV6 = 3/8 inch face-seal female
MV6 = 3/8 inch face-seal male
TW6 = 3/8 inch tube stub weld
4 = 1/4 NPT female

0 = No gauge
V3 = 30-0-30-psig/bar
L = 30-0-60 psig/bar
1 = 30-0-100 psig/bar
2 = 0-200 psig/bar
4 = 0-400 psig/bar
10 = 0-1000 psig/bar
40 = 0-4000 psig/bar

P = Panel installation**
CGA = Inlet fitting 320, 330, 350, 580, 660, 678
VS = Vespel seat

* Gauge ports are always 1/4 inch face-seal male.

** Panel hole 1.56" dia.