APTech

ADVANCED PRESSURE TECHNOLOGY

Series AP 1500
Positive Shut-off Pressure Regulator
Diaphragm-Linked Poppet™ Fail Safe Design

- Hastelloy® alloy C-22 or stainless steel 316L construction
- Cleaned, assembled and packaged for high purity semiconductor applications
- 15µin. surface finish (10, 7 and 5µin. optional)
- Vacuum to 3500 psig (241 bar)
- No threads in contact with fluid media

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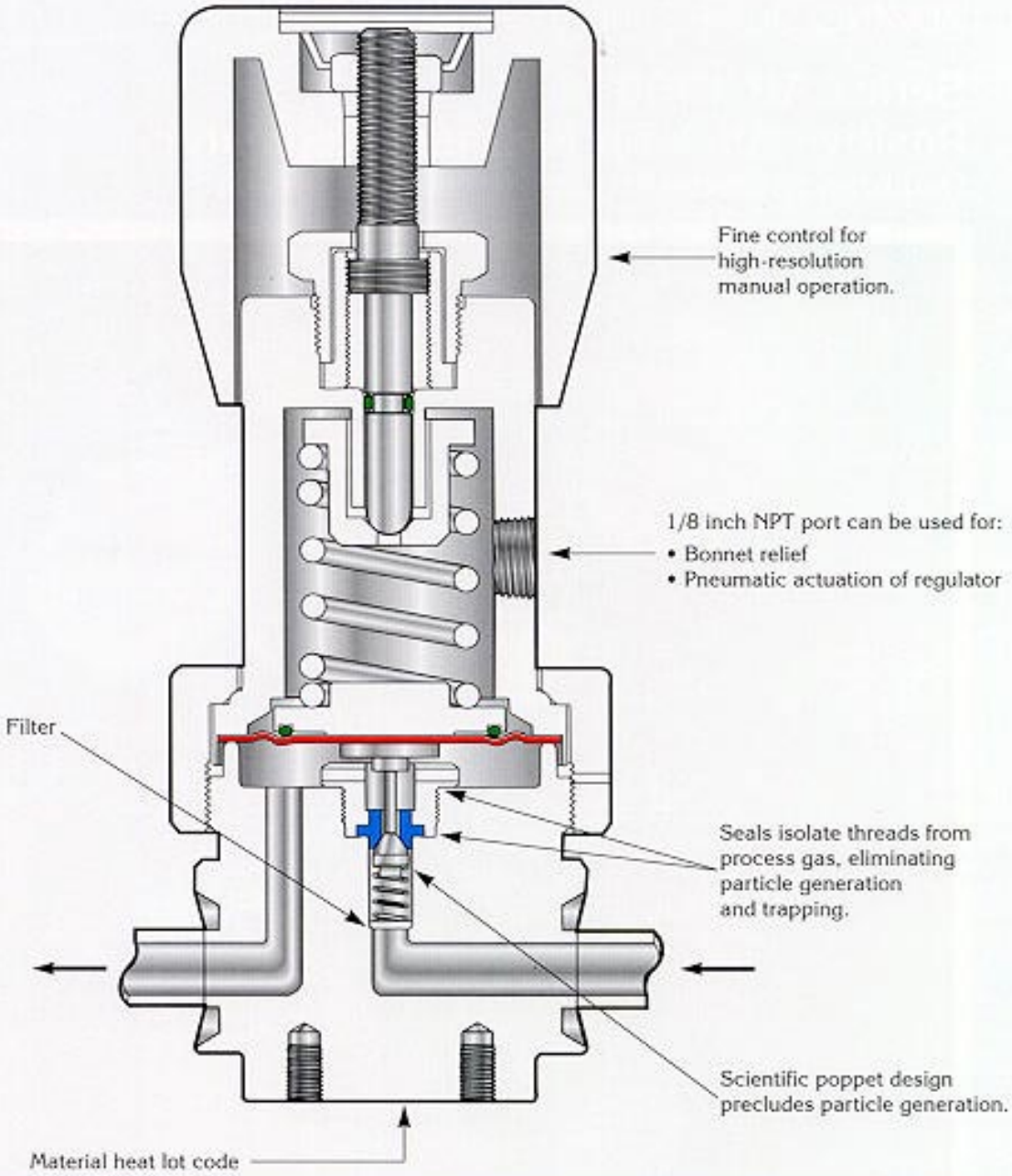
AP1500 Positive Shut-off Pressure Regulator



Ultraclean performance and design

The AP Tech Series AP 1500 Pressure Regulator is an ultra clean regulator engineered to reliably deliver unprecedented control of high purity fluids without contributing contamination to the process stream. It is manufactured, cleaned and tested to rigorous standards using the most advanced techniques available to insure both quality and performance.

The diaphragm-linked poppet is a fail safe feature which makes this a regulator of choice for cylinder applications. Though, primarily intended for high source pressure, the Series AP 1500 performs equally well with low source pressure as a line regulator for point of use requirements. It is available with either stainless steel 316L or Hastelloy C–22 constructions and a wide variety of porting styles and end connections.

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

Engineering data – Series AP 1500 Pressure Regulators

Operating parameters

Source pressure	vacuum to 3500 psig (241 bar)
Delivery pressure (AP 1502)	1 to 30 psig (0.07 to 2 bar)
Delivery pressure (AP 1506)	2 to 60 psig (0.14 to 4 bar)
Delivery pressure (AP 1510)	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 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 (.25µm); 7µin (.18µm); and 5µin (.13µm) optional
Inboard leakage	2 x 10^{-10} sccs
Outboard leakage	2 x 10^{-9} sccs He at 1500 psig inlet pressure
Leakage across seat	4 x 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 1500 S Noncorrosive	Series AP 1500 SH Corrosive	Series AP 1500 H Corrosive
Wetted Parts			
Body	stainless steel 316L secondary remelt	stainless steel 316L secondary remelt	Hastelloy® alloy C-22
Poppet, nozzle, diaphragm	stainless steel 316L secondary remelt	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

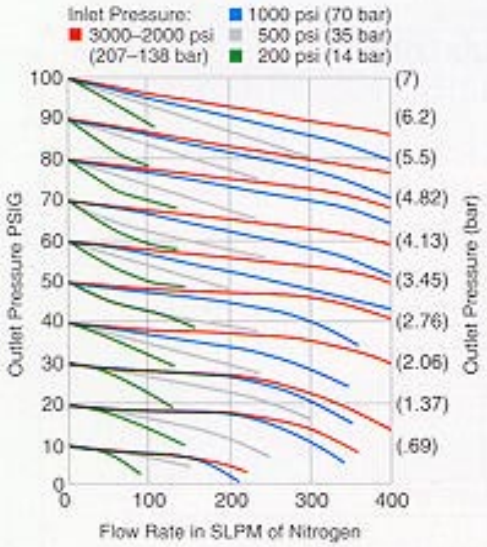
All specifications subject to change without notice

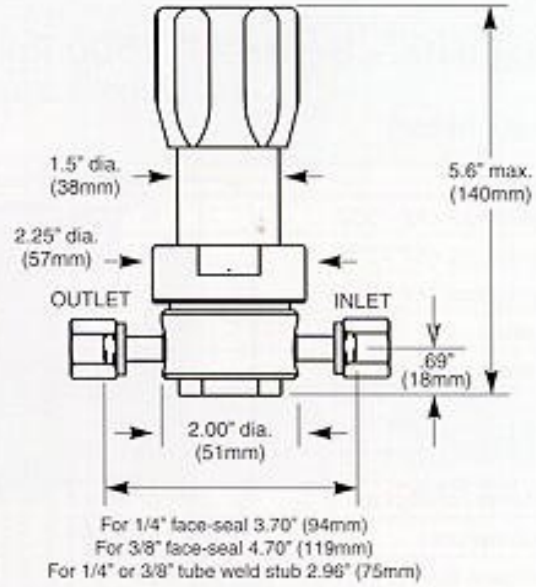
Hastelloy® Haynes Corporation
Elgiloy® Elgiloy Corporation
Vespel® DuPont
Viton® DuPont

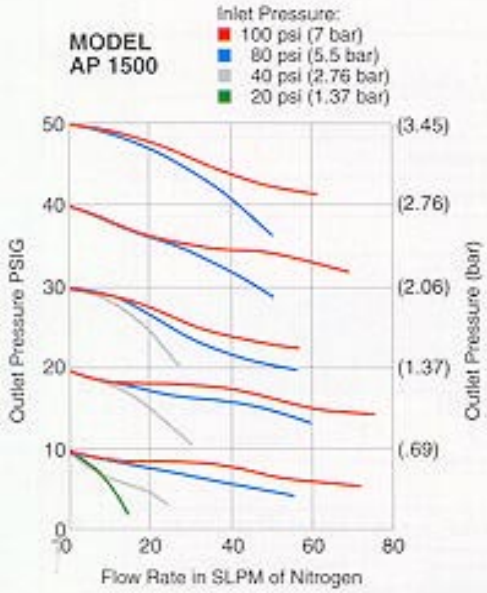
Cleaning and packaging

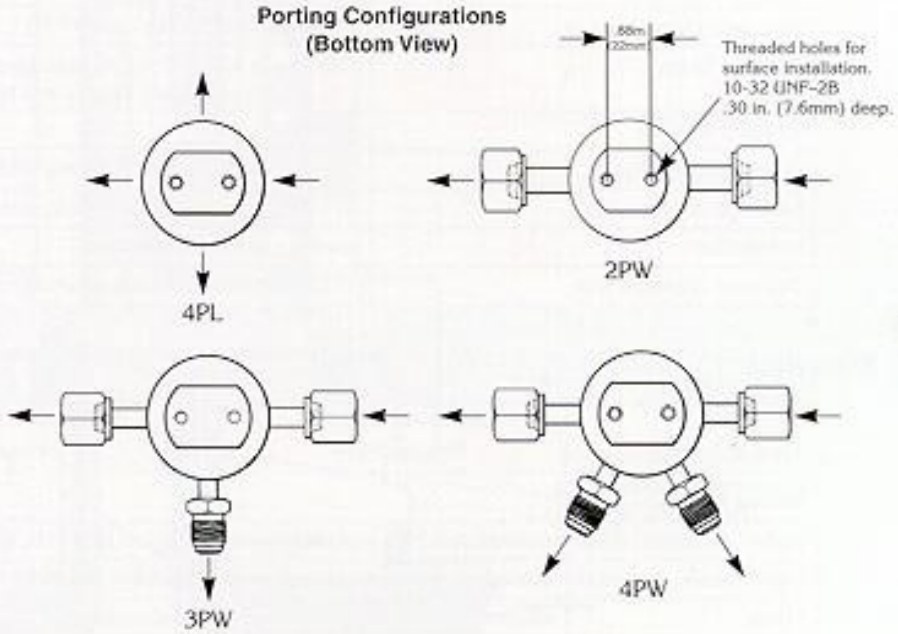
Cleaning is a multi-step process performed in a Class 100 clean room. Parts are ultrasonically cleaned with a wetting agent initially and then progressively with hot and cold DI water. Cleaned parts are then blown dry with ultra pure nitrogen prior to being baked completely dry in a nitrogen atmosphere.

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 1500	S Material	M Surface Finish Options	4PW Ports	FV4 - FV4 Connections Inlet Outlet	10 - V3 Gauges** Source Delivery	P Options
AP1502 = 1-30 psi (.07 to 2 bar) AP1506 = 2-60 psi (.14 to 4 bar) AP1510 = 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 weld stub 4 = 1/4 inch 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

* Threaded ports not recommended for ultra high purity because of possible particle generation and trapping.
** Gauge ports always 1/4 inch male face-seal for butt weld. Any combination of male or female face-seal available for inlet and outlet.
*** Panel hole 1.56" dia.