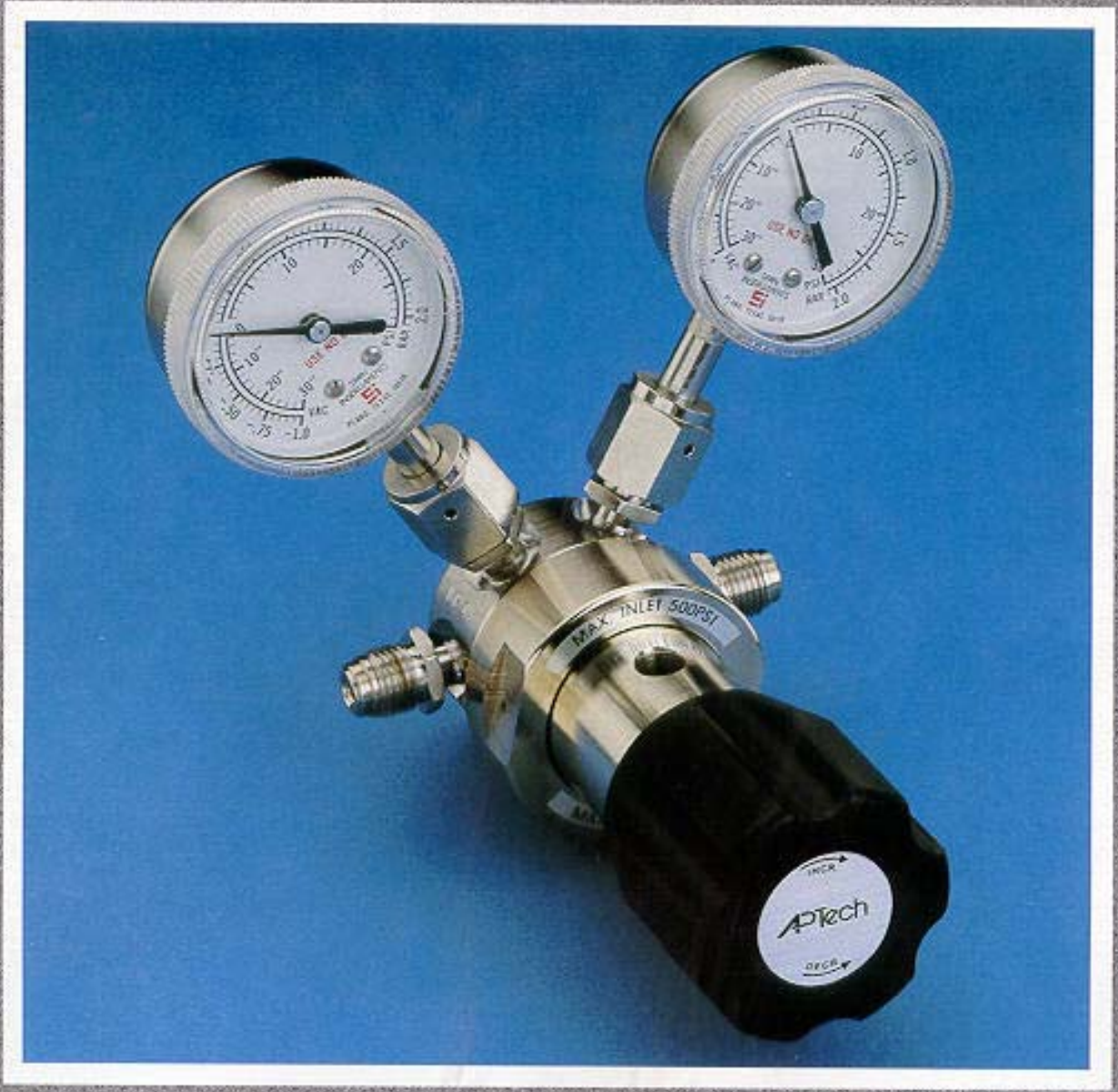
APTech

ADVANCED PRESSURE TECHNOLOGY

Series AP 1100
Absolute Pressure Regulator
No threads in contact with fluid media



- Hastelloy® alloy C–22 or SS 316L construction
- Manually or pneumatically adjustable
- 15µin. surface finish (10, 7 and 5µin. optional)
- Only one nonmetallic seal (PCTFE) in the process stream
- Cleaned, assembled and packaged for high purity semiconductor applications

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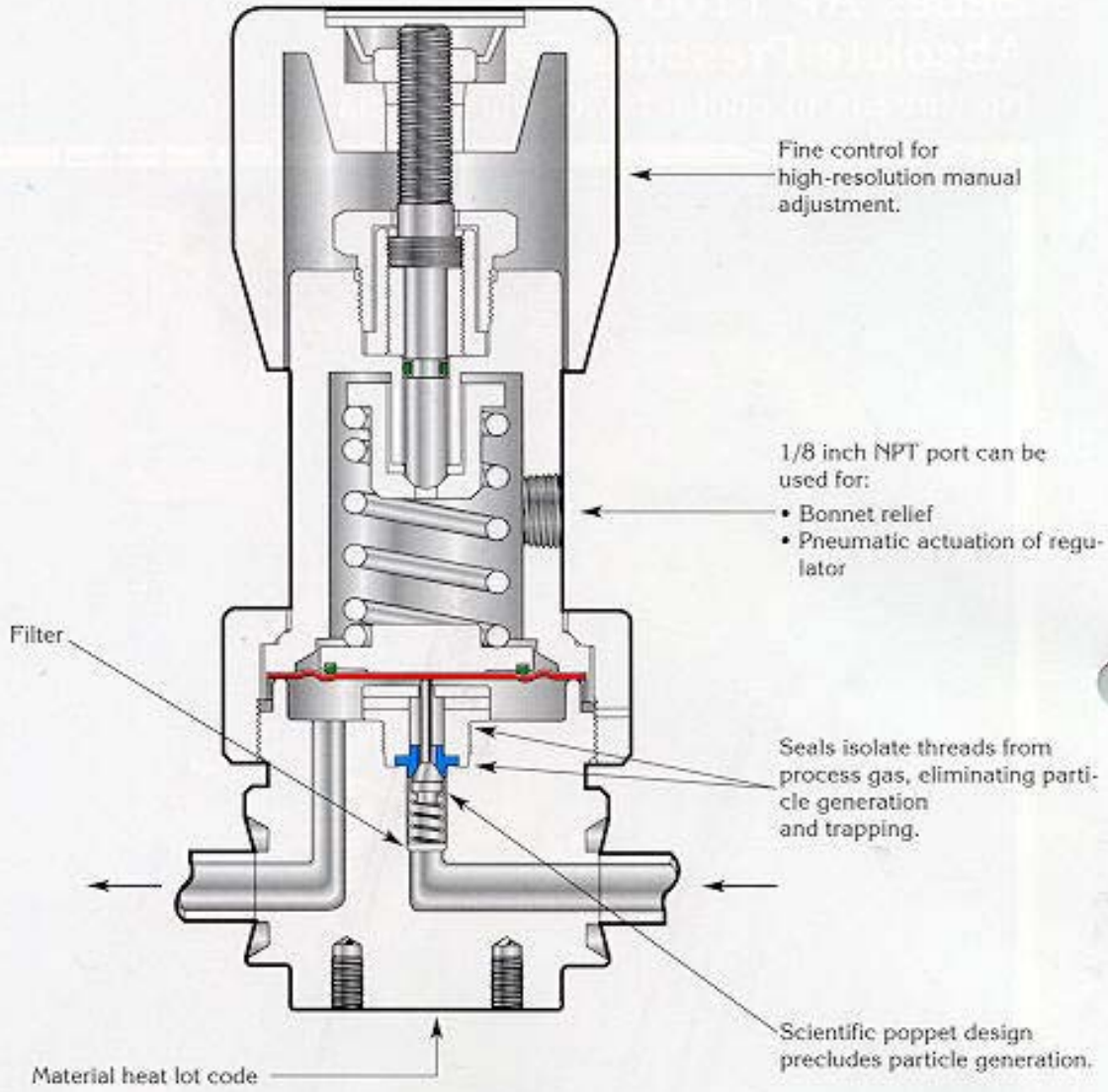
Series AP 1100 Pressure Regulator



A modern pressure regulator for modern applications

The AP Tech Series AP 1100 Absolute Pressure Regulator is designed to deliver low pressure vapor gases from liquid sources such as WF_6, BCl_3 and other gases. It is capable of controlling a pressure adjustable from 10 psig down to a vacuum equivalent 100mm Hg absolute, although it should be used for sub-atmospheric applications.

This regulator incorporates new features which eliminate fluid stream contamination problems which have plagued users of conventional high purity absolute pressure regulators.

Engineering data – Series AP 1100 Pressure Regulators

Operating parameters

Source pressure	vacuum to 300 psig (21 bar)
Delivery pressure (AP 1101)	10 psig to vacuum equivalent to 100 mmHg absolute
Proof pressure	500 psig (35 bar)
Burst pressure	8,000 psig (551 bar)

Other parameters

Inlet and outlet connnectors	¼ or ⅜ inch face-seal or tube weld, ¼ inch NPTF
Actuation/relief port	⅛ inch NPT
Flow coefficient (Cv)	0.05
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 300 psig inlet pressure
Leakage across seat	4×10^{-8} sccs He at 300 psig inlet pressure
Installation	surface or panel (optional)

Materials

Type of service	Series AP 1100 S Noncorrosive	Series AP 1100 SH Corrosive	Series AP 1100H Corrosive
Wetted Parts			
Body	stainless steel 316L VAR	stainless steel 316L VAR	Hastelloy® alloy C-22
Poppet, nozzle, diaphragm	stainless steel 316 VAR	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

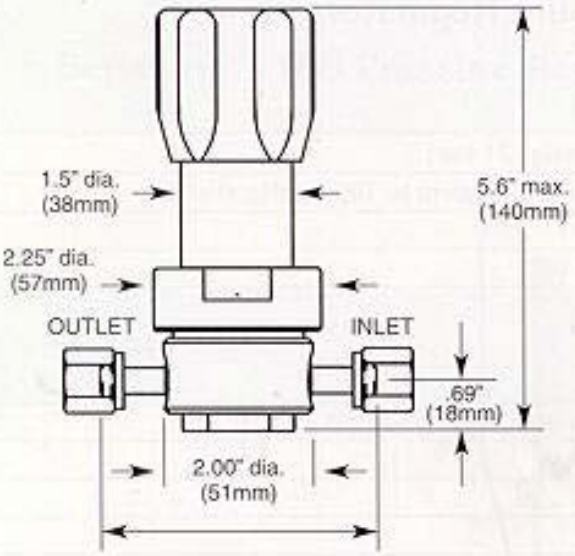
All specifications subject to change without notice

Vespel® DuPont
Hastelloy® Haynes Corporation
Viton® DuPont

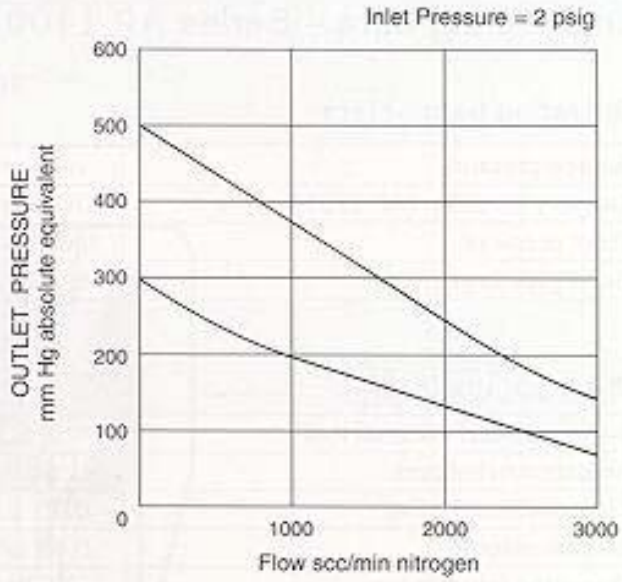
Cleaning and packaging

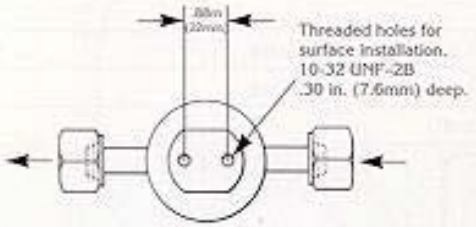
Cleaning is a multi-step process performed in a Class 100 clean room. Parts are ultrasonically cleaned with a wetting agent initially and then progressively with hot and cold DI water. Cleaned parts are then blown dry with ultra pure nitrogen prior to being baked completely dry in a nitrogen atmosphere.

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.

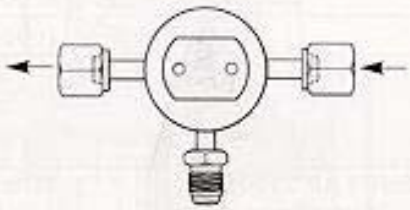


For 1/4" face-seal 3.70" (94mm)
For 3/8" face-seal 4.70" (119mm)
For 1/4" or 3/8" tube weld stub 2.96" (75mm)

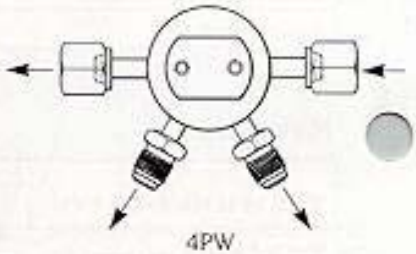




2PW



3PW



4PW

ORDERING INFORMATION

Series AP 1100	S Material	M Surface Finish Options	4PW Ports	FV4 - FV4 Connections Inlet Outlet	40 - V3 Gauges Source Delivery*	P Options
AP1101 = 100mmHg – 10 psig	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	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	0 = No gauge V3 = 30-0-30-psig/bar L = 30-0-60 psig/bar	P = Panel installation** VS = Vespel seat

* Gauge ports are always 1/4 inch face seal for butt weld. Any combination of male or female face seal available for inlet and outlet.

** On panel mount option, bonnet port is not threaded. Panel hole 1.56" dia.

Products by AP Tech

AP Tech manufactures a wide array of products exclusively for the semiconductor industry. Pressure regulators, valves, check valves and a variety of flow devices are available for applications ranging from the source cylinder cabinet, bulk delivery systems through point of use including VMB distribution boxes and process tool gas trays. Products can be tailored for specific needs with custom fittings, dimensions, porting or testing with an option of multiport, monoblock and surface mount configurations.