APTech

ADVANCED PRESSURE TECHNOLOGY

Series AP 1800
Positive Shut-off Pressure Regulator
Diaphragm-Linked Poppet™

- High flow rate applications for low delivery pressure
- Contaminant free
- 15µ in. surface finish (10, 7 and 5µ in. optional)
- SS 316L construction
- Vacuum to 300 psig (21 bar)
- Flow rates to 400 slpm (14 scfm)
- Cleaned, assembled and packaged for high purity semiconductor applications

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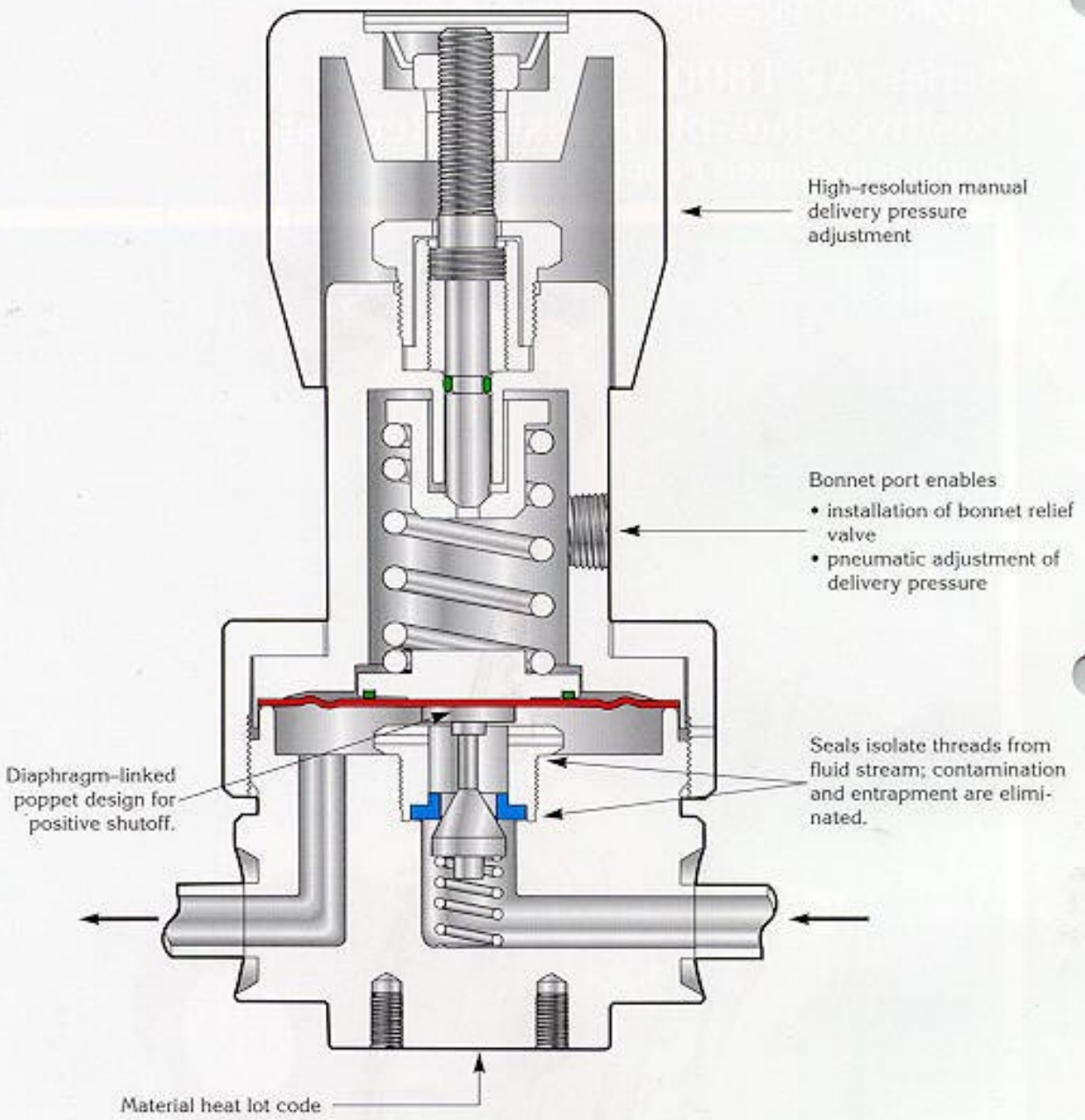
Important new features for unprecedented performance!



A modern pressure regulator for modern applications!

AP Tech Series AP 1800 Line Pressure Regulators incorporate many new features to eliminate particle shedding and chemical contamination problems which plague users of conventional line pressure regulators. Specifically engineered for use in semiconductor fab locations and other sensitive applications, they are precision manufactured from stainless steel 316 L, and are suitable for use with corrosive and noncorrosive gases.

Particle generation is a thing of the past, thanks to AP Tech's exclusive diaphragm – linked poppet and seat design. Seals isolate all threads from the gas stream. These features make Series AP 1800 positive shutoff line pressure regulators best for applications that demand the ultimate in gas stream purity and safety.

Engineering data – Series AP 1800 Pressure Regulator

Operating parameters

Source pressure	vacuum to 300 psig (21 bar)
Delivery pressure (AP 1802)	1 to 30 psig (0.07 to 2 bar)
Delivery pressure (AP 1806)	1 to 60 psig (0.07 to 4 bar)
Delivery pressure (AP 1810)	2 to 100 psig (0.14 to 7 bar)
Proof pressure	500 psig (35 bar)
Burst pressure	4000 psig (276 bar)

Other parameters

Inlet and outlet connectors	¼, ⅜ or ½ inch face seal, ⅜ or ½ inch tube weld, ¼ or ⅜ inch NPTF
Actuation/relief port	⅛ inch NPT
Flow coefficient (Cv)	0.36
Internal volume	0.65 in^3 (10.6 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); 5µin. (.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 100 psig inlet pressure
Installation	surface or panel (optional)
Delivery pressure rise	6 psi per 100 psig inlet pressure drop

Materials

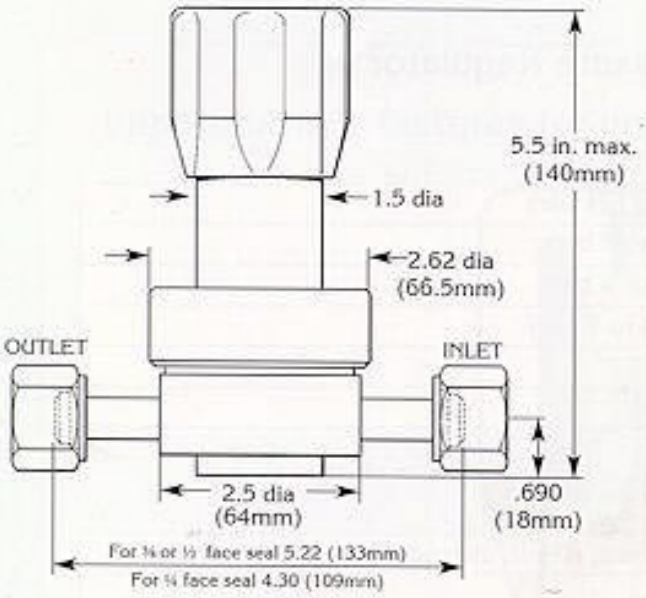
Wetted Parts	
Body and diaphragm	stainless steel 316 L VAR
Finish	electropolished and passivated
Seat	PCTFE (Vespel® optional)
Non-wetted Parts	
Bonnet, cap, plate	nickel-plated brass
O-ring	Viton®
Stem	brass

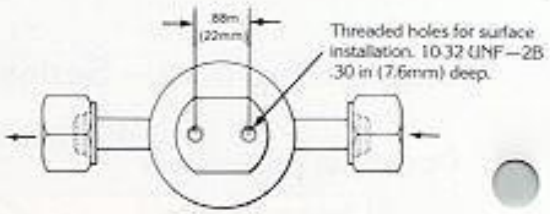
All specifications subject to change without notice Vespel® DuPont Viton® DuPont

Cleaning and packaging

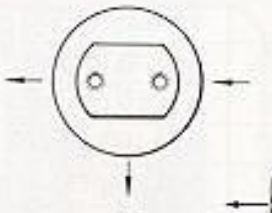
Cleaning is a multi-step process performed in a Class 100 clean room. Parts are ultrasonically cleaned with a wetting agent initially and then progressively with hot and cold DI water. Cleaned parts are then blown dry with ultra pure nitrogen prior to being baked completely dry in a nitrogen atmosphere.

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.

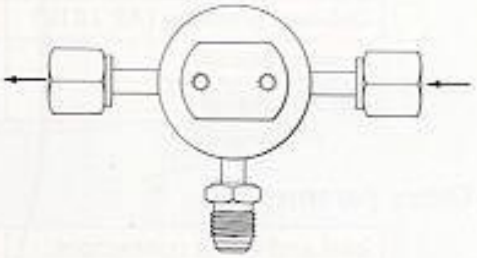




2PW



3P

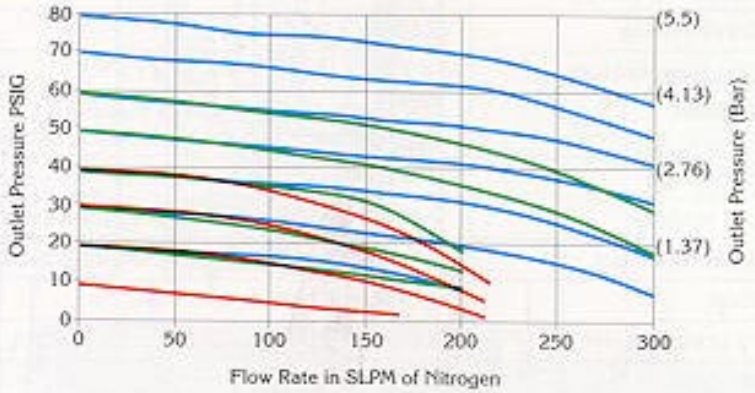


3PW

MODEL AP1800

Inlet Pressure:

- 100 psi (7 bar)
- 80 psi (5.5 bar)
- 60 psi (4.13 bar)



ORDERING INFORMATION

Series AP 1800

AP1802 = 1-30 psi (.07 to 2 bar)
AP1806 = 2-60 psi (.14 to 4 bar)
AP1810 = 2-100 psi (.14 to 7 bar)

S Material

S = Stainless steel

M Surface Finish Options

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

3PW Ports

3P = 3 ports (1/4 or 1/8 NPTF)
2PW = 2 ports butt weld
3PW = 3 ports butt weld
4PW = 4 ports butt weld

FV4 - FV4 Connections Inlet Outlet

FV4 = 1/4 inch face-seal female	FV8 = 1/2 inch face-seal female
MV4 = 1/4 inch face-seal male	MV8 = 1/2 inch face-seal male
FV6 = 3/8 inch face-seal female	TW8 = 1/2 inch tube weld stub
MV6 = 3/8 inch face-seal male	4 = 1/4 inch NPT female
TW6 = 3/8 inch tube weld stub	6 = 3/8 inch NPT female

V3 Gauges* Delivery

0 = No gauge	1 = 30-0-100 psi/bar
V3 = 30-0-30-psi/bar	2 = 0-200 psi/bar
L = 30-0-60 psi/bar	10 = 0-1,000 psi/bar

P Options

P = Panel installation ring **
VS = Vespel seat

* Gauge ports are always 1/4 inch face-seal male. ** Panel hole 1.43".

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.

CP5714 / 11-98